

Global Marine Assessments



A survey of global and regional marine
environmental assessments and related
scientific activities

A joint publication of UNEP and UNESCO-IOC executed by UNEP-WCMC and supported by the Department for Environment, Food and Rural Affairs of the United Kingdom, Ministry for the Environment of Iceland, and Federal Ministry of Education and Research of Germany

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**United Nations Environment Programme
(UNEP)**

UNEP Executive Director: Klaus Toepfer



UNEP WCMC



**UNEP World Conservation Monitoring
Centre**

Director: Mark Collins

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Foreword

by Klaus Toepfer

Executive Director

United Nations Environment Programme (UNEP)

The importance of coastal and oceanic ecosystems to the global environment cannot be overstated, nor can the environmental threats facing them. More than one-third of the world's population lives within 100 kilometres of the coast. Development in the coastal zones is destroying wetlands, estuaries, mangroves and coral reefs, which are critical to ocean productivity. Both marine and land-based sources of pollution threaten the long-term sustainability of coastal and marine resources on which many communities depend. Overfishing is also taking its toll on marine ecosystems. For these reasons there is a need to keep the state of the coastal and marine environment under review in order to ensure that emerging environmental problems are given adequate consideration by policy and decision makers.

The 21st session of the UNEP Governing Council in February 2001 adopted decision 21/13 to explore the feasibility of establishing a regular process for the assessment of the state of the marine environment. The World Summit on Sustainable Development and the United Nations General Assembly in 2002 embraced the outcome of the consultative meetings held in response to the decision in Reykjavik, September 2001, and Bremen, March 2002. This led to the adoption of resolution 57/141 by the General Assembly to establish by 2004 a regular process for the global reporting and assessment of the state of the marine environment. The need to protect the coastal and marine environment was also accorded a high degree of attention by the Heads of State and Government at the World Summit on Sustainable Development.

Initiated as part of UNEP's feasibility study, The survey of global and regional marine environmental assessments and related scientific activities developed into a combined effort between UNEP, UNEP-WCMC and IOC of UNESCO, with support from the Governments of Germany, Iceland and the United Kingdom, as a contribution to the global marine assessment process. It is my great pleasure to issue this publication jointly with Mr Koichiro Matsuura, the Director-General of UNESCO.

The publication is a good example of inter-agency cooperation and the involvement of governments, both

of which are crucial to the establishment and long-term success of such complex processes. This is clearly highlighted in the findings of the survey. The collaborative support of existing assessment programmes and frameworks is also recognized as essential for the process. Through our ongoing assessment activities and in cooperation with the Regional Seas Programmes and other regional seas agreements, UNEP is well placed to contribute and participate actively in the Global Marine Assessment process based on our competence and experience in the field of environmental assessments. As complex, multi-scaled, multi-dimensional and multi-sectoral as the process is, UNEP stands ready to work in close collaboration with other UN agencies, governments, the scientific community and relevant stakeholders as called for by resolution 57/141 and recommended during the UN Informal Consultative Process on Oceans and the Law held in New York, 2-6 June 2003.

I believe that this publication will add value to the development of the overall Global Marine Assessment process by identifying issues of primary concern as well as priorities that need attention in response to policy needs. Issues include, for example, the ecological impacts of human activities and their socio-economic implications; the participation of developing countries and small island states; and the thematic and geographical gaps in the global picture. The further development of the process will require a good design to ensure credibility, relevance, legitimacy, transparency, participation and cost effectiveness. The assessment should also be structured to mobilize the scientific community, to promote intergovernmental collaboration, and to ensure that sustainable capacity building in developing countries is established as an integral part of the assessment process. UNEP sees the Global Marine Assessment process as a tool for strengthening the link between science and policy, and identifying scenarios which could assist decision makers in addressing priority coastal and marine issues as documented by this joint publication.

Foreword

by Koïchiro Matsuura

Director-General

United Nations Educational, Scientific and Cultural Organization (UNESCO)

After the Second World War, outer space and the oceans were the first global spatial domains in which the newly formed United Nations was called to use its new standard-setting authority. The broad scope of the coordination needed in ocean activities extends across the social, economic and environmental aspects of sustainable development and responds to the principle laid down in the preamble of the United Nations Convention on the Law of the Sea (UNCLOS): 'that the problems of ocean and space are closely interrelated and need to be considered as a whole'.

Coordination of 'ocean affairs' is a matter of concern at the highest levels in the UN system. In addition to UNCLOS, there are today over 500 international agreements on different aspects of ocean protection and the use of marine resources. However, the international community faces a major ongoing challenge arising from those agreements, namely, how to secure greater compliance and more rigorous enforcement. As a result, Member States have been calling for the establishment of a more effective and transparent mechanism of international coordination.

In this regard, it is widely acknowledged that the coordination of ocean issues should best be pursued on the basis of a collegial forum in the United Nations in which all agencies and the UN Secretariat participate. In addition, there is a need to find a way to accommodate new partners from outside the UN system. Such a forum would be particularly important for establishing a regular process under the United Nations for global reporting and assessment of the state of the marine environment.

Last year's World Summit on Sustainable Development in Johannesburg, South Africa, included much discussion of ocean issues and sounded a note of alarm that, despite the UN's many efforts, the protection of the oceans is not improving. On the contrary, in many areas there are worrying signs that our collective efforts are insufficient. Consequently, para 36(b) of the WSSD Plan of Implementation called for the development of a regular Global Marine Assessment (GMA) to ascertain the status of many of the natural processes, ecosystems and special environments in the ocean. UNESCO and the Intergovernmental Oceanographic Commission (IOC) are convinced of the need to develop the GMA. We are pleased to note that, in follow-up to the Johannesburg Summit, the

Secretary-General of the UN was called, through Resolution 57/141, to report to this year's 58th session of the UN General Assembly on the modalities to undertake such a complex task.

IOC has actively participated in the preparatory work for the establishment of the GMA, taking a leading role in partnership with UNEP. Indeed, the initial decision (21/13) taken by the UNEP Governing Council in February 2001 called upon IOC to work jointly with UNEP to assess the feasibility of a GMA. UNESCO welcomed this invitation and the opportunity to work closely with a key partner. IOC has engaged actively with this preparatory process, including the Reykjavik and Bremen workshops, where we proposed a general blueprint for a salient, legitimate and credible assessment, one that combines global scope with strong regional implementation.

In preparation for the meeting of the UNEP General Council last February in Nairobi, IOC contributed to the present review of the existing ocean assessments that could be integrated into the GMA. The objective of this joint publication of UNEP and IOC of UNESCO was to provide a snapshot of the current situation and to consider the ways in which the GMA process could integrate existing and planned assessments as well as address and fill in the thematic and geographical gaps identified in the study.

The review concludes that existing assessments are not sufficiently regular or sustainable to achieve the expectations of the proposed GMA mechanism. The arguments presented support the need for a dedicated mechanism to regularly report on the state of the world's oceans, as put forward by (i) UNEP GC Decision 21/13; (ii) paragraph 36(b) of the WSSD Plan of Implementation; and (iii) the UN General Assembly at its 57th Session.

I am confident that the present review will serve as an important step towards establishing a regular process under the United Nations for global reporting and assessment of the state of the marine and coastal environment. I am also confident that the review will make all the concerned parties aware that the success of this process will strongly depend on the ability of the UN system to work together as a whole, utilizing a clear division of labour. A comprehensive approach to 'ocean affairs', to be sustained over many years, must place a premium upon effective partnership and collaboration.

Executive Summary

As part of the implementation of UNEP Governing Council Decision 21/13 on a 'Global assessment of the state of the marine environment', this study was commissioned to analyse information on marine environmental assessments carried out at the regional and global levels.

The objective of the review is to contribute to the establishment of a Global Marine Assessment (GMA), a regular report on the state of the marine environment, supported by the UN. It aims to provide a snapshot of the current situation and answer the following questions:

- ❑ In what ways could a GMA process integrate existing and planned assessments?
- ❑ How could identified thematic and geographical gaps be addressed and filled?

Data were generated through the distribution of questionnaires. Analysis of the information obtained indicated that existing assessments are not sufficiently regular or sustainable to achieve the expectations of the proposed GMA mechanism. Based on the present review, it is recommended that:

1. To be sustainable, a GMA must have the support of national stakeholders and make use, where possible, of existing regional agreements, frameworks and organizations.
2. For those marine areas or marine environmental issues which currently are not, or are insufficiently, covered by assessments, a GMA will be required to support existing capacities and develop new capacities, in particular for the assessment of:
 - i. the high seas and deep/open waters
 - ii. the marine environments of developing nations and small island developing states
 - iii. the interactions between marine and freshwater systems.
3. A GMA should endeavour to use primary data where they are available. This information should comply with internationally accepted standards and be subject to quality assurance measures to ensure credibility.
4. The planning, implementation and review of a GMA should involve representatives from existing assessments to avoid duplication and to learn from their experiences.
5. A GMA mechanism must ensure the involvement and ownership of the process by the end-user, in particular national and regional policy makers, so it will be flexible enough to meet their changing needs.
6. A GMA should involve the private sector, as well as industrial and environmental non-governmental organizations, as stakeholders in the assessment process. These partners could provide a useful source of information and also help to raise awareness and increase responsibility for the marine environment.
7. A GMA mechanism must recognize the differences in national and regional approaches, capacities, resources and constraints for collaboration and take them into account in its design.
8. A GMA mechanism should use existing regional capacity where it exists, and facilitate the transfer of skills, the development of training and the building of capacity in geographical and thematic areas where it is lacking.
9. In addition to its primary role of regularly reporting on the status of the marine environment, a GMA has the potential to:
 - i. facilitate and encourage the sharing of information and experiences, and promote collaboration between regions and disciplines, thereby improving international networks for issues relating to the assessment of the marine environment;
 - ii. act in an advisory capacity to existing assessments, spreading methods of best practice and developing standardized methods for data collection, quality assurance and assessment.
10. A GMA should aim to streamline existing international activities concerning the assessment of the state of the marine environment and contribute to increased collaboration between UN agencies.

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Note: The recommendations are based on the information received from regional and global organizations, in particular on the analysis of completed questionnaires. It was not in the scope of this study to consider further information on marine assessments and related scientific activities from the literature and the Internet. Due to the large number of assessments reviewed, it has not been possible to refer to and acknowledge individually all the excellent work that is currently being carried out at regional and global levels.

1. Introduction

1.1 Preamble¹

This study has been conducted in response to the UNEP Governing Council Decision 21/13 on a 'Global assessment of the state of the marine environment' (Annex 3), which requests the Executive Director of UNEP, 'in cooperation with UNESCO-IOC and other appropriate UN agencies, the Secretariat of the Convention on Biological Diversity, and in consultation with the regional seas programmes, to explore the feasibility of establishing a regular process for the assessment of the state of the marine environment, with active involvement by governments and regional agreements, building on ongoing assessment programmes'. Implementation of the UNEP GC Decision 21/13 has led to the concept of a Global Marine Assessment (GMA) mechanism by the international community, as demonstrated by the commitment made by governments at the World Summit on Sustainable Development, South Africa, September 2002.

This study was executed by UNEP-WCMC in collaboration with UNESCO-IOC and supported by UNEP and the national Governments of Germany, Iceland and the UK in response to the outcomes of the Bremen meeting (UNEP, 2002). The objective of this study is to contribute to the establishment of a regular process, with the support of the United Nations, for global reporting on and assessment of the state of the marine environment (Annex 1, working definitions). It is to serve as factual background to complement the recommendations of two international meetings held in Reykjavik and Bremen with respect to the feasibility, development and implementation of a GMA. It aims to provide a snapshot of current marine assessments and provide reliable answers to the following questions:

1. In what ways could a GMA process integrate existing and foreseen assessments?
2. How could identified thematic and geographical gaps be addressed and filled?

The report presents information resulting from the analysis of 82 existing and future marine environ-

mental assessments and related scientific activities carried out at regional and global levels under relevant organizations or conventions. The report considers the marine environment to include estuaries, coastal regions, continental shelves and open oceans. A more detailed background to the implementation of UNEP Governing Council Decision 21/13 is presented in Annex 4.

1.2 Methodology

In order to fulfil the requirements set out in the project document (Annex 5), a methodology was developed and implemented in four phases: I: Pre-study preparations; II: Contacting administrative and scientific bodies; III: Compilation, analysis and interpretation of information; and IV: Preparation of conclusions and recommendations. Full details of the methodology can be found in Annex 6.

To collect information for Phase II on existing and future marine environmental assessments, a questionnaire (Annex 7) was developed and sent to more than 200 assessment secretariats and administrations (Annex 8).

At the beginning of the study an advisory group was established to guide the process and its progress. This group was composed of representatives from the sponsoring and executing bodies including UNEP-DEWA, the UNEP Regional Seas Secretariat, the IOC, the Governments of Germany, Iceland and the UK, and UNEP-WCMC. The group provided technical and editorial assistance throughout the study.

1.3 Organization of the report

The report is divided into four sections. This first section introduces the scope of the survey and the background to its implementation. Section 2 presents a summary of the key findings from which the conclusions and recommendations are derived in sections 3 and 4 respectively. In order to keep these sections concise, details of the background, the methods used in the quantitative analysis of data, a glossary and table of acronyms are given in the annexes.

1. A glossary of working definitions and table of acronyms used in the report are presented in Annexes 1 and 2 respectively.



2. Summary of key findings

This section presents a summary of the key findings of the survey based on the analysis of information provided for the various assessments. It considers the scope, timing and status of the assessments; looks at ways in which the GMA could integrate existing and foreseen assessments; outlines ways in which identified thematic and geographical gaps could be filled; and comments briefly on the review process used in this study. Due to the large number of assessments, it is not possible to refer to and acknowledge individually all of the excellent work that is being carried out in the international framework. Annex 9 provides details of the analysis including tables and figures.

2.1 Scope, timing and status of reviewed assessments and related activities

2.1.1 Scope

Most of the reviewed assessments are being undertaken at a regional level and are currently ongoing. In geographical terms, the majority of provisions for

assessing the marine environment are made for areas in the Northern Hemisphere (Maps 1 and 2). There are large regional differences in the number of ongoing assessments, with the highest level of activity in the northeast Atlantic (including the North Sea), the Baltic Sea and the wider Caribbean regions. Even within regions, assessment coverage is not consistent, and in general those areas which are easy to access, such as coastal waters, are being most comprehensively assessed (Annex 9.2).

The high seas and open oceans are poorly covered (Map 1), as are many marine areas around small island states. The coastal waters of developing nations are also poorly covered, due to lack of resources and capacity, both human and institutional. Capacity issues are discussed in greater detail in section 2.2.3.

Analysis of thematic coverage (Annex 9.3) indicates that for the purposes of providing information for policy advice, the assessments of geophysical parameters (e.g. hydrography, oceanography and bathymetry) of the marine environment are producing



sufficient information at a global scale. Remote sensing is increasingly being used to measure these parameters.

Pollution, the impact of human activities and ecological issues are the themes addressed under most assessments reviewed. The assessment of fisheries and fish stocks, as well as pollution by hazardous substances and nutrients, is particularly well addressed at the regional scale. Assessment of alien species contamination has greater coverage at global rather than regional level. The principal thematic gaps in existing assessments include understanding of ecosystem functioning (particularly of the mid-ocean and open ocean/deep sea-floor environments), the socio-economic implications of the state of the marine environment, biogeochemical cycles and monitoring of marine pollution caused by atmospheric deposition. The relationships and interactions between the biological, chemical and physical characteristics of the marine environment, and how human activities affect and are affected by these interactions, are now beginning to be addressed, but need to be developed further.

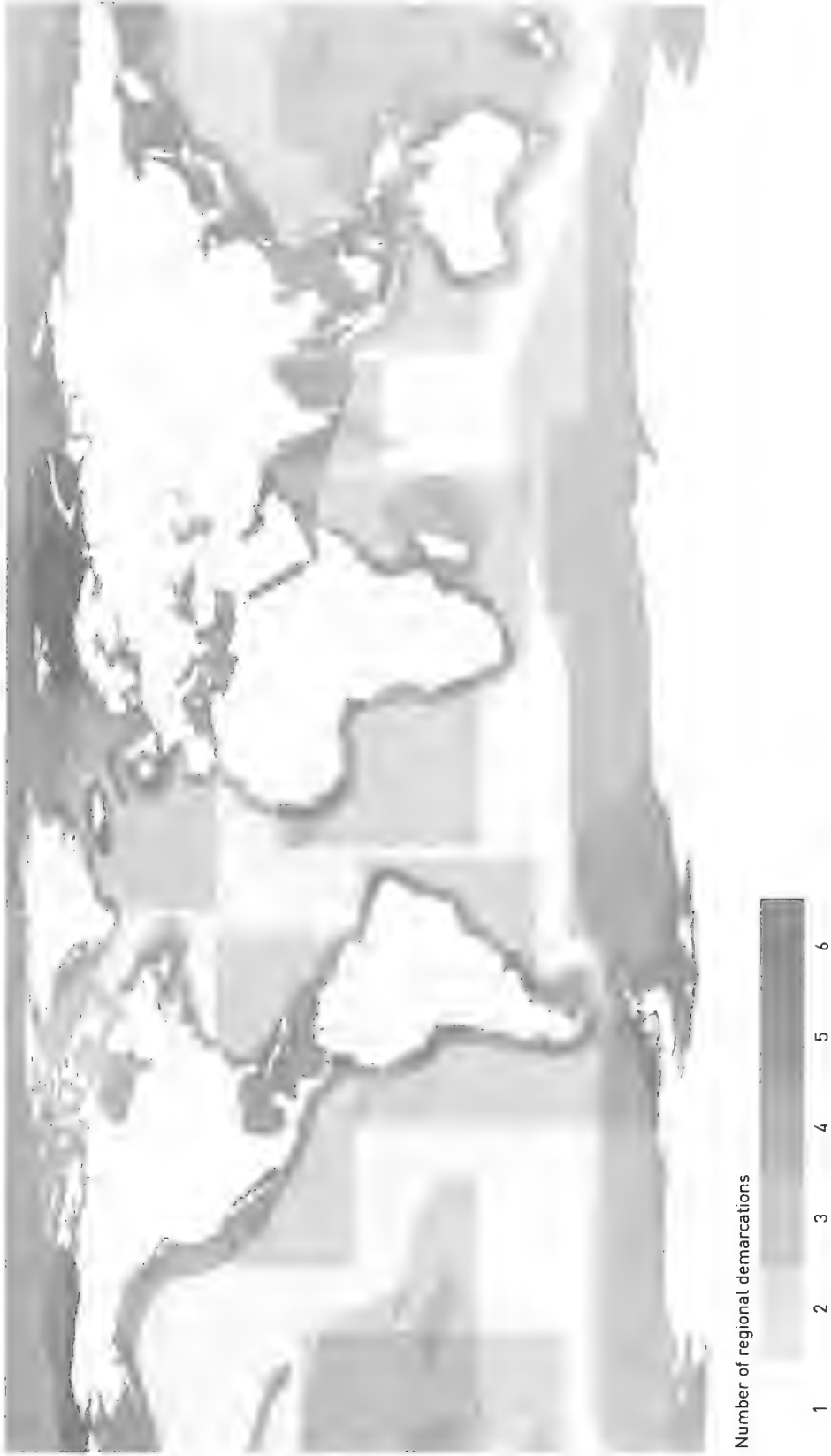
Analysis of the longer-term assessments included in the review revealed a change of thematic focus over time. Thirty years ago, fisheries-related assessments dominated, such as the 'Regular stock assessment of Atlantic tuna and tuna-like species' undertaken by the ICCAT (Annex 10, 2b). This shifted to a focus on the assessment of pollution (20 to 30 years ago) [e.g. Pollution

Load Compilation – Air (airborne load of nutrient and contaminants) by HELCOM (Annex 10, 35a)]. New assessments established in the last ten years have a broader focus and include a more encompassing monitoring of the marine environment [e.g. 'The assessment of environmental impacts of coastal aquaculture', GESAMP (Annex 10, 8c); 'Yellow Sea marine environmental monitoring', KORDI (Annex 10, 42c)]. Some of this shift in focus over time might be due to a change in environmental policies and political needs, which influence these assessments. In addition, the change could be reflecting a greater scientific understanding of the complexities of the marine environment, recognizing that it is not possible to understand a system by looking at individual elements.

2.1.2 Timing

The majority of assessments reviewed in this study are currently in progress, with less than 40 of the 188 assessments listed being planned for the future (Annex 9, Figure 9.2). No detailed responses were given for assessments that have not yet started. Of the 82 regional and global assessments for which detailed information was provided, none is planned for a period of longer than ten years. However, 39 are described as ongoing or open ended with no specific termination date identified. Of those that are ongoing, 18 have been carried out for less than ten years, eight for up to 20 years, six for up to 30 years and six for over 30 years (one is unknown) (Annex

Map 1 Overlay of the principal regional demarcations used by global and regional assessments and related scientific activities



Note: The layers shown are examples of the agreements, conventions and regional delimitations that exist to enable assessments in the marine environment. This map does not attempt to be exhaustive, and uses the most common regions indicated in questionnaire returns from this survey. Regions indicated on the returns but not included in this figure are: GEO, IUCN, CSIRO, CRIMP (Asia-Pacific Economic Cooperation zone), this is due to data availability. For the purposes of this map UNCLLOS covers all areas of the ocean and sea floors not under national jurisdiction. Source: UNEP-WCMC



9.3, Table 9.4). The longest-running assessment is that of tuna population dynamics by the IATTC, commissioned in 1950 (Annex 10, 30).

The analysis identified a disparity between funding provision and the expected duration of assessments. The majority of funding is provided for a period of two to four years, but more than 60 per cent of regional assessments and over 40 per cent of global assessments are expected to continue for five years or more (Annex 9.1, Figure 9.3). This suggests that there are inconsistencies, or periods of uncertainty, during the 'life' of an assessment, which could threaten sustainability and could explain why many of the global assessments have more than one source of funding.

One-quarter of the reviewed global assessments are non-recurrent, i.e. are undertaken as a single event (Annex 9, Figure 9.4). They provide snapshots of the status of a certain area or aspect of the marine environment at a given time, and are not able to show trends or changes over time which are essential elements of a future GMA. Assessments and activities carried out on a continuous or regular basis tend to be those assessing fishery-related aspects and physical parameters.

Few global reports are produced annually; however nearly two-thirds of all assessments produce reports at least once every two years. One-fifth of global assessments only produce single reports. Anecdotal evidence from discussions with assessment users suggests that ten years

is a reasonable period for repeating a global-scale assessment. However, it would be of use to produce more frequent interim reports for specific thematic or geographical areas that are of particular interest to policy makers at that time, or are subject to rapid change where ten years is too long a time frame.

2.1.3 Status

The basis and underlying requirements for carrying out the assessments reviewed vary between regional and global scales. In general, most assessments were established following some kind of requirement or request agreed at the international, intergovernmental level, within or external to the UN system. At the regional level, the majority of assessments are commissioned by intergovernmental agreements made under a regional convention or treaty, although some are a result of scientific cooperation/partnership or of intergovernmental requests formulated outside a convention/treaty framework. At the global level, international non-governmental organizations commissioned almost one-third of the assessments and activities, implying a different type of assessment structure and mechanism.

For both global and regional assessments, the key stakeholders and end-users are identified as national governments, intergovernmental bodies and the scientific community.

Organizational funds and external sources are the

primary means of finance for most assessments. Activity-generated income, that is monies that are raised through assessment-related activities and outputs (e.g. the sale of reports and maps), was only rarely observed in the assessments reviewed here and plays a minor role. Most assessments set up under international conventions are financed directly or indirectly by national contributions, i.e. either Contracting Parties pay themselves for the assessment activities carried out in their national waters and/or a certain amount of the CP contributions is allocated to a special budget managed by the convention for funding the assessment activities. Assessments established and financed under the framework of an international convention have the advantage that the burden of funding is spread over a number of Contracting Parties, providing a more stable and sustainable financial basis, in particular for long-term assessments. Details of the analysis for this section are to be found in Annex 9.1.

2.2 Ways in which the GMA could benefit from existing and foreseen assessments and related activities

One of the most difficult tasks in the development of a GMA mechanism will be how it can successfully build upon and integrate the large number of existing assessments in the marine environment. In this review alone, 188 assessments are listed, and 82 in detail, at

the global and regional scales from the sample of 60 contacts that responded to the questionnaire (responding organizations are listed in Annex 8, Table A; summary results Annex 9.1). The main questions are (i) what are the basic requirements that the GMA will look for in a suitable contributing assessment? (ii) how will it identify these assessments? and (iii) how will it collaborate with them?

2.2.1 Basic requirements of the GMA

Two technical consultations convened in Reykjavik (UNEP, 2001a) and Bremen (UNEP, 2002) outlined what would be expected from a GMA mechanism. The key requirements are listed below in bold and information resulting from the review was used to indicate how existing assessments are already meeting these requirements. A GMA mechanism should:


Be based on science: Over 70 per cent of the 82 assessments and activities that responded are based on primary or scientific data (Annex 9.1).


Demonstrate implications of trends and change: Thirty-nine of the assessments reviewed are set up as long-term (or ongoing) programmes with the potential to identify trends and changes in the marine environment. Given the scope of these assessments, trends in fish stock and in marine pollutant concentrations can be expected. More recently there has been an increase in the number



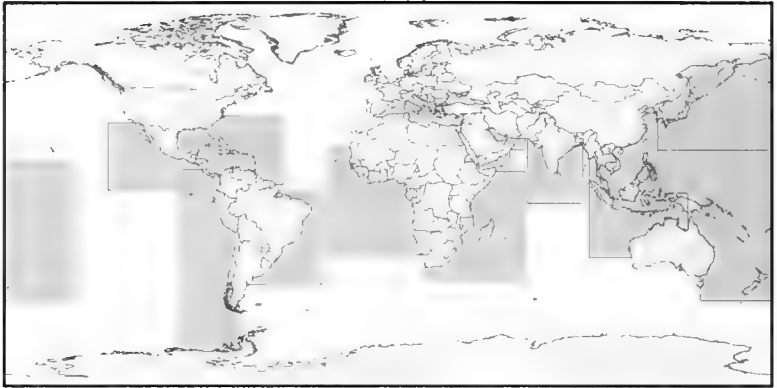
Map 2 Separated regional layers from Map 1

KEY

 FAO and non-FAO regional fishery bodies/UNEP and non-UNEP regional seas
Indicate areas where there is institutional provision for the assessment of the marine environment. States are Contracting Parties to these conventions and agreements.

 Regions described by international programmes based on scientific criteria, not decided by nation states

UNEP Regional Seas



The Regional Seas Programme was initiated in 1974 as a global programme implemented through regional components. Agenda 21, the UN General Assembly of the Governing Council of UNEP endorsed the regional approach. The Programme at present includes 13 regions involving more than 140 coastal states and territories

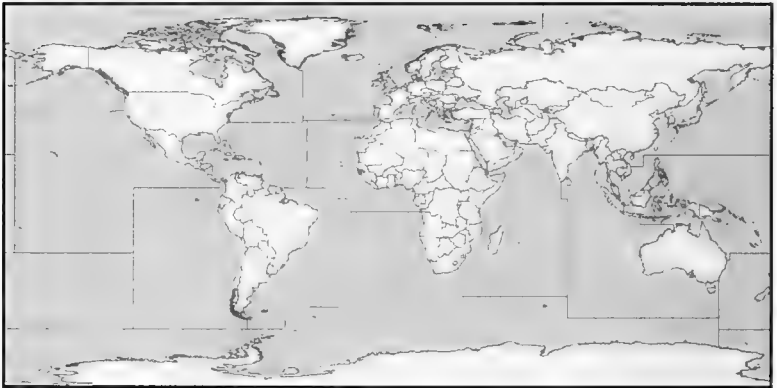
mitigation or elimination of the consequences but also on the causes of environmental degradation. It has a comprehensive, integrated, result-oriented approach to combating environmental problems through the rational management of marine and coastal areas

The Regional Seas Programme is an action-oriented programme and focuses not only on the

The Regional Seas dataset was digitized from a paper map and is therefore only for illustration. Regional Seas do not encompass the high seas.

Regional Fishery Bodies established under the auspices of the Food and Agricultural Organization (FAO) of the United Nations dealing with marine fisheries and non-FAO regional fishery bodies dealing with marine fisheries.

FAO and non-FAO fisheries regions



Marine ecoregions in the WWF Global 200 series

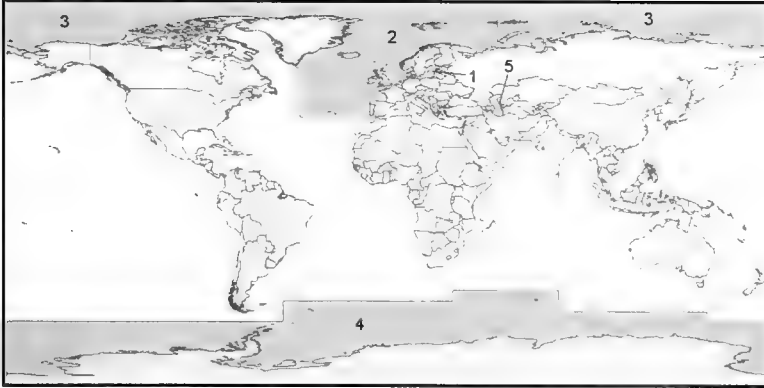


The Global 200 is a science-based global ranking of the Earth's most biologically outstanding terrestrial, freshwater and marine habitats. It provides a critical blueprint for biodiversity conservation at a global scale.

Developed by a WWF scientist in collaboration with regional experts around the world, the Global 200 is the first comparative analysis of biodiversity to cover every major habitat type, spanning five continents and all the world's oceans

The aim of the Global 200 analysis is to ensure that the full range of ecosystems is represented within regional conservation and development strategies, so that conservation efforts around the world contribute to a global biodiversity strategy. 43 marine ecoregions are highlighted in the Global 200

Non-UNEP regional seas



1. The Convention on the Protection of the Marine Environment of the Baltic Sea Area (1974 Helsinki Convention). This is the first international agreement to cover pollution (land, sea and air) It regulates cooperation to combat marine pollution by oil and other hazardous substances

2. OSPAR – adopted in 1992 and entered into force in 1998. Merges and modernizes the Oslo and Paris Conventions to include new principles of conservation

3 Protection of the Arctic Marine Environment (PAME) cooperates with the Arctic Council on pollution prevention and control, habitat protection and biodiversity, identification and assessment of environmental problems, sustainable development and environmental protection

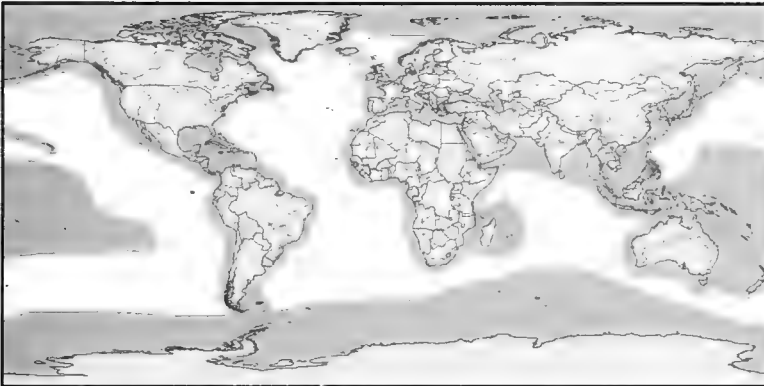
4. The Antarctic Treaty is an international agreement governing Antarctica and was adopted in 1959 by the 12 nations present in Antarctica at that time. The Convention on the Conservation of

Antarctic Marine Living Resources (CCAMLR) was adopted and came into force in 1982 pioneering the development of the 'ecosystem approach' to the regulation of fisheries.

5 The Caspian Environment Programme (CEP) was developed for and by the five Caspian Littoral States, Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan, in response to environmental problems and to promote sustainable development in the region.

Source: UNEP-WCMC

GIWA regions



The Global International Waters Assessment is based on assessments of 66 international waters, these comprising marine, coastal and freshwater areas, and surface waters as well as groundwaters in nine major regions.

Large Marine Ecosystems



Large Marine Ecosystems are regions of the ocean space encompassing coastal areas from river basins and estuaries to the seaward boundary of continental shelves and the seaward margins of coastal current systems. They are relatively large regions characterized by distinct bathymetry, hydrography, productivity and trophically dependent populations.

Data from the Large Marine Ecosystem Program, NOAA-Fisheries, Narragansett Laboratory, Narragansett, RI 02882, Email: Kenneth.Sherman@NOAA.gov www.edc.uri.edu/lme

of assessments considering trends of the marine environment in its broader sense (Annex 9, Table 9.4). These will require sustainability over time. There are a high number of reviewed assessments that meet the criteria for sustainability and so potentially could contribute to the GMA (Annex 9.6).

Look at the socio-economic aspects being influenced by changes: Socio-economic aspects are at present not sufficiently covered by existing marine assessments and will need to be addressed by the future GMA.

Look at impacts of changes in the marine environment on ecosystem goods and services (impact of land-based activities on uses of the marine environment)/ adopt an ecosystem approach: This has been difficult to analyse because, although the 'ecosystem approach' has been adopted over the last decade by an increasing number of marine environmental assessments, there is a lack of consensus as to what an ecosystem approach entails. There are also variations in how different assessments are attempting the practical implementation of the approach. The GMA could benefit from the experiences gained under those assessments which consider ecosystems as a whole (e.g. the ecosystem status assessment carried out by CCAMLR in the Southern Ocean and, in return, could provide overarching guidance in the further discussion and implementation of this approach.

Be based on regional/sub-regional ecosystem assessments at the global level: Although many of the assessments reviewed are carried out at the regional level, there were no definite examples where the results of regional ecosystem assessments were feeding into a truly global assessment. This is one aspect where a future GMA would have to establish new ways, networks and partnerships to ensure that regional and sub-regional assessment results were being collated to provide a bigger, global picture.

Target policy makers and indicate policy implications: National stakeholders (including policy makers), international bodies and the scientific community are the most common target and stakeholder groups of the reviewed assessments (Annex 9.1, Figures 9.6 and 9.7). The majority of assessment outcomes have either a direct or an indirect link to national (76 per cent of assessments reviewed) and international (86 per cent of assessments reviewed) policy review and development (Annex 9.1, Figure 9.10). This provides a good basis to be utilized and supported by a GMA.

Be progressive and not static (allow for feedback and review): Methods and protocol guidelines are adopted for almost 80 per cent of assessments, nearly all of which are subject to some kind of review mechanism.

Approximately 60 per cent of assessments allow for feedback from users on the continued relevance of products. Existing review and feedback mechanisms will have to be analysed in greater detail to determine the most effective way for a GMA to interact with these assessments (Annex 9.1).

Consider the issues of data quality and periodicity: Data quality and comparability are bottlenecks in the assessment process at present. Even in well-established assessments, such as those carried out under the OSPAR Commission in the northeast Atlantic, continuous efforts are made to improve data quality and comparability (over time and space) to ensure that the assessment, interpretation, and any consequent advice to policy makers, is reliable. To assure data quality, most assessments have adopted some international methodological standards and procedures for their particular purposes. A potential role of the GMA would be to investigate to what extent these standards deliver comparable data and information, which could be compiled and assessed at the global level. As regards periodicity (Annex 9, Figure 9.4), regional assessments tend to be undertaken more regularly than global assessments, one-quarter of which are implemented as a one-off single assessment. A potential role of the GMA would be to work closely together with the governing bodies of existing assessments to ensure that their results are being made available in time to answer emerging information needs.

2.2.2 Identification of suitable assessments

There are several ways of identifying the most appropriate assessments and mechanisms. This review has been able to prepare an overview of existing assessments and to analyse them showing how reviewed assessments measure up to the requirements of a GMA (as indicated at the Reykjavik consultation). There is no existing assessment that meets all of the criteria for integration into a GMA mechanism without an impediment or partial impediment (Annex 9.6, Table 9.9). Many of the assessments without significant impediments to their integration into a GMA are responding to regional seas agreements (UNEP and non-UNEP) and are based on (or involve) some form of governmental agreement or regional convention. The definitions of the criteria used for this analysis are presented in Annex 12 and a summary of the results in Annex 13.

The results documented in the present review, as well as the discussions held and documentation prepared over the last two years in the context of implementing UNEP GC Decision 21/13, are a good basis for a future GMA to identify suitable assessments.



2.2.3 How a GMA could collaborate with these assessments or activities

The written and narrative responses received and analysed in the context of this study show that there will be number of issues to be addressed, and steps required, to establish an effective and mutually supportive collaboration between the existing assessments and a GMA process (Annex 9.4; Annex 11: summary of narrative responses; Annex 10: complete list of assessments for which section A of questionnaires have been returned).

Involving the right stakeholders

Representatives of organizations and secretariats responsible for global and regional assessments should be involved in the planning of a GMA to enable the best use of their expertise and experience at the earliest stage. The intended end-users, in this case national and regional policy makers, must take responsibility and ownership of the process from the beginning. The assessment set up must be guided by identifying the type of information that is required and the most appropriate way of presenting this information, and supporting the exchange of views and lessons learned under existing assessments (Annex 9.5 for lessons learned). National experts and policy makers have a crucial role to play in the governing bodies of regional and global assessments contributing to the GMA to ensure that these

assessments are appropriately supported and positioned to be able to feed into the global framework.

Collaborating with existing assessments

To take all relevant regional and global assessments into account in a GMA process will involve a great deal of collaboration. The GMA should act as a coordinator/facilitator in creating bi- and multilateral partnerships and frameworks not only for monitoring, reporting and assessing marine environmental data and information but also for networking experts and organizations that need to collaborate.

Collaborations will be required to enable existing regional assessments to provide input to the GMA. There are many organizations that have long-standing experience of reporting on the state of the marine environment at a regional level. Within the framework of the OSPAR Convention, for example, Contracting Parties produce in a joint and cooperative effort a detailed quality status report of the northeast Atlantic every ten years. Current work being undertaken by the EC in its development of a marine strategy to improve the reporting and assessment of the status of European marine waters is expected to provide useful lessons to be taken into account in the establishment of a GMA.

At a global level, GESAMP has been producing ten-yearly reports on the status of the marine environment.



The mandate of GESAMP has been undergoing a review, broadening the focus from pollution to a more holistic assessment approach. GESAMP has highly credible and very useful experience in gathering regional information, and in compiling such reports, which would be of great value to the GMA.

The GOOS family of activities, currently in the pilot phase and due to be implemented by 2010, is establishing a very interesting structure. GOOS is a global framework, in which regional bodies are forming and adopting parallel frameworks to feed in a wide range of data and information related to the seas and the marine environment. Efforts are being made to increase collaboration between the GOOS regional bodies and other existing regional bodies (e.g. regional seas conventions and programmes). In particular the collaboration in areas of higher assessment activity, such as in the Baltic (between BOOS and HELCOM), and in other European marine waters (e.g. between Euro GOOS and ICES/OSPAR) would provide the GMA with a potential entry point for cooperation.

GIWA is a worldwide assessment working for a period of four years in 66 sub-regions (Map 2). It aims to provide sound scientific advice to decision makers and managers concerned with water resources and dealing with environmental problems and threats to trans-boundary water bodies. It is to be a systematic assessment of the environmental conditions and

problems in international waters, comprising marine, coastal and freshwater areas, and surface waters as well as ground waters. Of particular interest to a GMA is the dynamic approach GIWA is taking to assess existing situations and to develop scenarios of the future condition of the world's water resources and analyse policy options.

As well as identifying collaborations with broad-scale assessments and monitoring programmes, the GMA may benefit from partnerships with a number of specialist organizations. These could provide GMA stakeholders and end-users with access to specific types of data and information from a particular area and/or for a defined theme, such as fisheries, coral reefs, seagrasses or mangroves. The availability of such specific data and information within an existing regional or international framework will have to be assessed by the GMA on a case-by-case basis. Such an evaluation will enable the GMA to highlight gaps and insufficient resources/capacities, and to provide support for the work and the assessments carried out in these frameworks where necessary.

Coping with data comparability

As explained in section 2.2.1 above, data comparability and quality is a major bottleneck of existing assessments (Annex 9.1). It will be an important function of a GMA to encourage and support the development of a standardized approach to data collection, storage and comparability within the various regional and global assessment frameworks. This would make international data more useful to a wider audience and might prevent national authorities being required to provide the same (or very similar) data set(s) to more than one convention, as is currently the case.

Overcoming issues of capacity

Concerns regarding the great disparities in inter- and intra-regional capacities for undertaking assessments of the marine environment have been raised at many stages in this review (Annexes 9.1, 9.2 and 9.5). Capacities of assessments vary considerably in terms of human and financial resources, technical infrastructure, appropriate legislation, and in the ability of countries (individually or jointly) to prioritize these issues. The UNEP Regional Seas framework is an example that demonstrates the varying capacity between regions. Some of the regional sea conventions and programmes (e.g. those established for the wider Caribbean and the Mediterranean) have very effective action plans in operation and carry out regular assessments of the marine environment, thereby providing essential contributions and advice for policy makers. Other regional sea frameworks (e.g. the northeast Pacific) have very few activities, or are not yet fully established. It will be

important for a GMA mechanism to recognize this variation in resources and capacity and to account for it in the GMA design. The experiences of other bodies such as GESAMP which work at a global level, but depend on regional activities for information, indicate a very wide variation in the availability, quality and reliability of regional reports. There may also be different historical experiences of regional collaboration.

Capacity building has been identified as a common need in many responses analysed in this study (Lesson 2, Annex 9.5) and addressing this need will be pivotal for the success of the GMA. Possible ways in which this can be done are through the use of inter-regional partnerships, cross-regional meetings and workshops to share experiences and techniques; and the exchange of people and the use of inter-regional consultants to train counterparts in countries.

A minimum level of information could be gathered at a global scale, complemented by information with a greater level of detail from regional areas on specific subjects, in particular where capacities are higher and regional bodies more active.

History of regional collaborations

The history and different success of collaboration between countries in a certain region will have to be taken into account by a GMA. This will be of particular importance when determining the best way to provide

support to initiate new, or further develop existing, collaborative arrangements and agreements between partner states with respect to the assessment and sustainable use of the marine environment and the marine resources that they share.

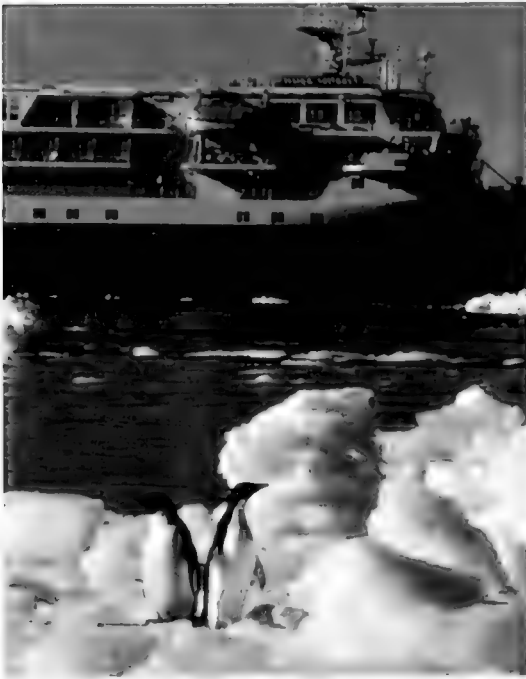
2.3 Ways in which thematic and geographical gaps can be filled

The major geographical gaps identified (Annex 9.2) are coverage of the high seas and open/deep oceans, and the marine waters of developing countries and small island states, where there is a need to increase involvement and capacity to improve awareness and the level of marine environmental information available.

Principal thematic gaps identified in the analysis (Annex 9.3) include understanding of how ecosystems function (particularly those that are difficult to access such as the mid-oceans and open ocean/deep sea-floor communities); socio-economic implications relating to the state of the marine environment; and biogeochemical associations and interactions.

Fitting all the thematic gaps that have been identified into existing assessments or a GMA might not be possible or desirable; however, to ensure inclusion of the most pertinent themes in any assessment requires regular communication and full involvement of all stakeholders. If the key players and end-users were involved in the assessment process, then feedback on the





uptake and use of the information provided would feed into the establishment of objectives and foci for the next phase of the assessment. Given that the proposed GMA process allows for such feedback, it should be able to respond to changing needs for information over time.

These thematic and geographical gaps are increasingly recognized by both the political and public sectors as important to the international community. Recent international efforts, in particular at WSSD and the UN General Assembly, have provided opportunities and orientation for countries and regional/global organizations alike to address issues concerned with the monitoring and sustainable management of the marine environment. The establishment of links with resource sustainability and poverty reduction have also opened new doors to financial support and partnerships which promote activities that will improve the information available to policy makers.

High seas and open/deep oceans: The remoteness and inaccessibility of the high seas and open/deep oceans severely restrict our knowledge about these vast marine areas. Thematically, gaps in understanding can be attributed to the difficulty in overcoming these challenges to look at ecosystem interactions. Increasingly, advanced remote-sensing technologies are being applied, which allow more frequent and detailed coverage of these parts of the oceans. In addition to the collection of surface data from

satellites and other airborne means, there has also been an increasing use of remotely operated vehicles (ROVs) and other devices (such as free-drifting, data-collecting floats). Such devices help to reveal the physical three-dimensional nature of this environment, although still focusing on surface processes. The establishment of frameworks to underpin assessments such as the GOOS component for the open oceans, and an increasing interest from the scientific community, has led to a rise in activities in this region. The open oceans and deep waters also require improved provision. At present, the main international organizations covering these areas are UNCLOS and the FAO fisheries bodies. UNCLOS delegates the responsibility for monitoring to regional bodies and is regarded as too general a framework for the purposes of a regular assessment. The FAO fisheries bodies are highly focused on the assessment of fish stocks, in particular those of commercial interest. Increased information on the state of open-ocean and deep-water marine environments could support the necessary political pressure needed to increase international cooperation and responsibility for the high seas, and encourage implementation of the Law of the Sea.

Increased participation of developing countries and small island states: There are a number of ways in which support can be given to enable small and developing nations to participate more fully in regional and consequently global marine assessments. A GMA mechanism could support

emerging partnerships between two or more regional bodies, as for example that between the OSPAR Commission and the West and Central African Regional Seas Programme under the Abidjan Convention; these two bodies share a mutual border in the eastern Atlantic Ocean. This kind of partnership would enable the sharing of expertise and experience, *inter alia* in developing and implementing marine assessments and policies. The OSPAR Commission has established a number of marine environmental assessment programmes and activities, which are being carried out by 15 European countries jointly or individually, and which have contributed to the comprehensive knowledge of the state of the northeast Atlantic. On the same lines, a GMA would be able to support collaboration between regional organizations to encourage development of assessment capacities in areas currently insufficiently covered. An example of support for small island states resulting from the WSSD is the proposed US/UK partnership to promote the integrated marine management of the Caribbean.

There are also other types of collaboration that could be used to strengthen capacity over time in a sustainable way. Some international programmes, such as the FAO/DFID (UK Department for International Development) Sustainable Livelihoods Fisheries Programme in West Africa, have been employing consultants from other countries in the same region to work along with their counterparts. This aims to increase skills-sharing and expertise within the region, as well as increasing national capacity on the job. Where there are industry or private-sector interests in the marine environment in an area where the capacity to contribute reliable data or personnel is low, partnerships should be sought. Most industrial activities to develop, explore and extract natural resources from the marine environment require some form of environmental impact assessment (EIA) to be undertaken. These assessments are often required to be made publicly available and tend to compile detailed local information about the potential and the actual physical, chemical and biological impacts (and in some cases socio-economic concerns) of the proposed activities. The development of initiatives such as ECOiSHARE, a partnership between UNEP-WCMC, Shell, BP and Rio Tinto, make EIA information available on the Internet, thereby giving stakeholders, policy makers and the general public quick and easy access to up-to-date, detailed information at a local level.

2.4 Comments on the review

2.4.1 Notes on the effectiveness of data collection

- The structured questionnaire developed in the context of this study (Annex 7) provided the most suitable tool

for collecting information for the general review of regional and global assessments. It enabled the collation of a broad range of data on ongoing or foreseen assessments from a large number of geographically disparate individuals, organizations and secretariats in a short time.

- The structure of the questionnaire was designed to minimize the opportunities for interpretation and free response, and thereby increase comparability of responses.
- The questionnaire was successful in bringing together key lessons that have been learned from the assessments reviewed (Annex 9.5).
- The return rate was satisfactory with 30 per cent returned from 56 organizations providing summary details for 188 assessments. Fifty organizations provided in-depth responses for 88 assessments carried out at national (7 per cent of returns), regional (61 per cent of returns) and global (32 per cent of returns) levels (Annex 9.1).
- Notwithstanding the above, there are limitations in trying to approach a broad range of individuals and institutions with a single, uniform format for collecting information. The use of a separate questionnaire specifically designed for the users of assessments would have been interesting and more appropriate for several respondents, such as national policy makers and regional policy makers (e.g. the European Commission), which did not feel that this particular questionnaire was appropriate for them.
- Unfortunately, questionnaires were not returned from a number of assessments which were indicated as being of potential importance to a GMA mechanism in UNEP consultation meetings (Annex 8, Table D).

2.4.2 Notes on data analysis

- The results are based on responses given in the returned questionnaires, which in most cases rely on the interpretation and perception of the individual respondent. The analysis strives to present an analysis of this collated information in an objective manner.
- GIS (geographic information systems) would be a useful tool to further analyse and present the geographical gaps in coverage.
- Regional assessments are considered those with a regional remit/mandate.
- Global assessments are considered those with a global or a non-region-specific mandate, even though they might not have actual global coverage (i.e. those not restricted to a specific region and which could theoretically, if not actually, be global).



3. Conclusions

Sustainable management of the world's oceans is of major concern to the international community to ensure the livelihood of millions of people. In the Plan of Implementation adopted at WSSD, world leaders agreed on a number of activities and actions with focus on the oceans and their resources.

The successful management of the marine environment poses very different challenges from those posed by the terrestrial environment. The oceans are physically contiguous, without clearly identified political boundaries, and are without evident visual surface indicators which reflect their environmental state and which could be used to aid policy makers in their national and international efforts to conserve, protect and use marine resources in a sustainable manner.

Regional assessments are necessary to manage a coordinated data collection and assessment in defined areas of the world's oceans. This report highlights the fact

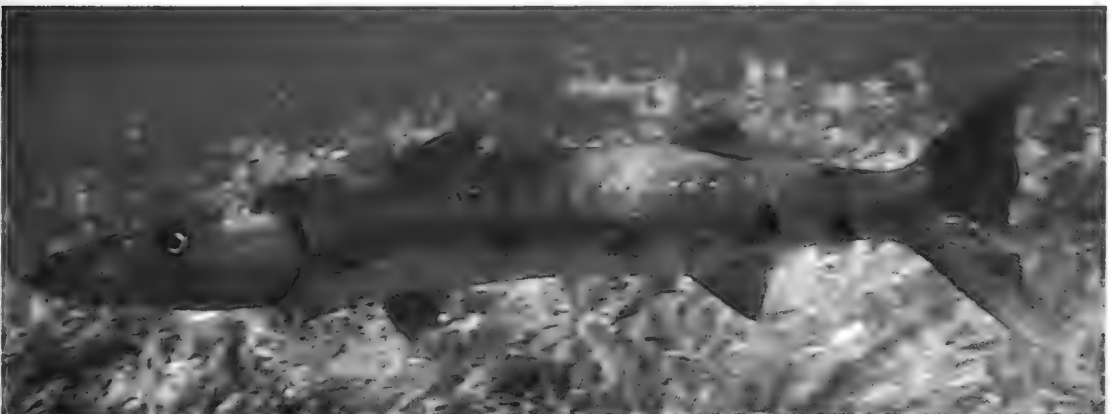
that, with sufficient support for the countries and organizations involved, regional assessments are working well to provide some of the required information. What is lacking at the moment is a global overview bringing the various regional assessments together, based on science and responding to the needs of policy makers for reliable information about the state of the global marine environment that would allow them to take necessary and timely action.

The arguments presented support the need for a dedicated mechanism to report regularly on the state of the world's oceans, as put forward by UNEP GC Decision 21/13, paragraph 36(b) of the Plan of Implementation agreed at WSSD, and as decided by the UN General Assembly at its 57th Session (Res. A/57/L.48/Rev.1, paragraph 45). The outcome of this study supports this need and shows that existing assessments and related activities, in their present form, are not able to achieve the expectations of the proposed GMA mechanism.

4. Recommendations

The review and analysis of the types of assessments of the marine environment that are currently under way and planned have allowed the following recommendations to be made in the light of a proposed Global Marine Assessment mechanism.

1. To be sustainable, a GMA must have the support of national stakeholders and use, where possible, the support of existing regional agreements, frameworks and organizations.
2. For those marine areas or marine environmental issues that currently are not, or are insufficiently, covered by assessments, a GMA will be required to support existing capacities and develop new capacities, in particular for the assessment of:
 - i. the high seas and deep/open waters;
 - ii. the marine environments of developing nations and small island states (including small island developing states);
 - iii. the interactions between marine and freshwater systems.
3. A GMA should endeavour to use primary data where they are available. This information should be subject to internationally accepted standards and quality assurance measures to ensure credibility.
4. The planning, implementation and review of a GMA should involve representatives from existing assessments to avoid duplication and to learn from their experiences.
5. A GMA mechanism must ensure the involvement and ownership of the process by the end-users, in particular national and regional policy makers, so that it will be flexible enough to meet their changing needs.
6. A GMA should involve the private sector, as well as industrial and environmental NGOs, as stakeholders in the assessment process. These sectors could provide a useful source of information and also help to raise awareness and increase responsibility for the marine environment.
7. A GMA mechanism must recognize the differences in national and regional approaches, capacities, resources and constraints for collaboration, and incorporate these into its design.
8. A GMA mechanism should use existing regional capacity where it exists, and facilitate the transfer of skills, the development of training and the building of capacity in geographical and thematic areas where it is lacking.
9. In addition to its primary role of regularly reporting on the status of the marine environment, a GMA has the potential to:
 - i. facilitate and encourage the sharing of information and experiences, and promote collaboration and partnerships between regions and disciplines, thereby improving international networks for issues relating to the assessment of the marine environment;
 - ii. act in an advisory capacity to existing assessments, spreading methods of best practice and developing standardized methods for data collection and quality assurance.
10. A GMA should aim to streamline existing international activities concerning the assessment of the state of the marine environment and contribute to increased collaboration between UN agencies.



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6. Annexes

ANNEX 1. GLOSSARY OF WORKING DEFINITIONS

[Where no source is identified, the definition has been developed for the purpose of this report.]

Term	Definition	Source
Assessment	All assessments or appraisals of the marine environment and all related scientific activities which are directly or indirectly linked to an assessment (e.g. marine environmental science programmes, monitoring programmes, data collection activities)	
Biodiversity	'Is the variability among living organisms from all sources including, <i>inter alia</i> , terrestrial, marine and other aquatic organisms and the ecological complexes of which they are a part: this includes diversity within species, between species and of ecosystems'	UN Convention on Biodiversity, Article 2
Credibility	Intended to reflect the scientific and technical believability of the assessment to a defined user	EEA definition (Eckley, 2001)
Ecosystem	Means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit	UN Convention on Biodiversity, Article 2
Ecosystem approach	Is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems	UN Convention on Biodiversity, Decision V/6
End-user	End-user of the GMA is taken to be national policy makers	UNEP Bremen workshop, 2002
Global assessments	Those with a global or a non-region-specific mandate, even though they might not have an actual global coverage (i.e. those not restricted to a specific region and which could theoretically, if not actually, be global)	
Legitimacy	Measure of political acceptability; fairness of an assessment to the user and allows user interests to be taken into account	EEA definition (Eckley, 2001)
Marine environment	To include estuaries, coastal regions, continental shelves and open oceans	

Term	Definition	Source
n/a	Not available/no response given	
Primary data	Information and data collected from source	
Regional assessments	Those with a regional remit/mandate	
Saliency	Relevance; intended to reflect the ability of assessment to reflect concerns of the user	EEA definition (Eckley, 2001)
Secondary data	Information and data collected from reports and documents	
Sustainability	Sustainable developments are those which fulfil present and future needs while [only] using and not harming renewable resources and unique human-environmental systems of a site: [air], water, land, energy, and human ecology and/or those of other [off-site] sustainable systems	Defining Sustainability [Brundtland, 1987]/ [Rosenbaum, 1993 and Viera, 1993]

ANNEX 2. TABLE OF ACRONYMS

ACOPS	Advisory Committee on Protection of the Sea
AMAP	Arctic Monitoring and Assessment Programme
BOOS	Baltic Operational Oceanographic System
BP	British Petroleum
CARICOM	Caribbean Community
CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CLIVAR	Climate Variability and Predictability (international research programme)
COOP	Coastal Oceans Observing Panel
CP	Contracting Parties
CSIRO-CRIMP	Commonwealth Scientific and Industrial Research Organization – Centre for Research on Introduced Marine Pests
CWSS	Common Wadden Sea Secretariat
DFID	Department for International Development (UK)
EC	Commission of the European Communities
EDIOS	European Directory of the Initial Ocean-observing System
EEA	European Environment Agency
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization of the United Nations
FIGIS	Fisheries Global Information System
GCOS	Global Climate Observing System
GEF	Global Environment Facility
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GIS	Geographical Information System
GISP	Global Invasive Species Programme
GIWA	Global International Waters Assessment (under UNEP)
GloBallast	Global Ballast Water Management Programme
GMA	Global Marine Assessment
GOOS	Global Ocean Observing System

GPA/LBA	Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities
GTOS	Global Terrestrial Observing System
HELCOM	Baltic Marine Environment Protection (Helsinki) Commission
HOTO	Health of the Oceans
IAEA	International Atomic Energy Agency
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
ICRAN	International Coral Reef Action Network
ICRI	International Coral Reef Initiative Forum
ICSU	International Council of Scientific Unions
IGBP	International Geosphere-Biosphere Programme
IGO	Intergovernmental organization
IHDP	International Human Dimensions Programme on Global Environmental Change
IMO	International Maritime Organization
INFOFISH	Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asia and Pacific region
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for the Conservation of Nature
JAMP	Joint Assessment and Monitoring Programme
KORDI	Korea Ocean Research and Development Institute
LME	Large Marine Ecosystems
MED POL	Mediterranean Marine Pollution Assessment and Control Programme
NASCO	North Atlantic Salmon Conservation Organization
NEAR-GOOS	North-East Asian Regional GOOS
NGO	Non-governmental organization
NIWA	National Institute of Water and Atmospheric Research
NOAA	National Oceanic and Atmospheric Administration (USA)
NOAA-NGDC	NOAA-National Geophysical Data Center
OBIS	Ocean Biogeographic Information System
OCIMF	Oil Companies International Marine Forum

OECD	Organisation for Economic Co-operation and Development
OIM	Offshore Installation Manager
OOPC	Ocean Observations Panel for Climate
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PERGSA	Regional Organisation for the Conservation of the Environment of the Red Sea and the Gulf of Aden
QA	Quality Assurance
ROPME	Regional Organisation for the Protection of the Marine Environment (Arabian Gulf)
SCOPE	Scientific Committee on Problems of the Environment
SCOR	Scientific Committee on Oceanic Research
SIDS	Small Island Developing States
SRL	Sustainable Rural Livelihoods
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UN-DESA	United Nations Department for Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP-DEWA	UNEP-Division of Early Warning and Assessment
UNEP-DTIE	UNEP-Division of Technology, Industry and Economics
UNEP-GLOSS	UNEP-Global Sea-level Observing System
UNEP-WCMC	UNEP-World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
WCED	World Commission for Environment and Development
WCRP	World Climate Research Programme
WOCE	World Oceans Circulation Experiment
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WWF	World Wide Fund for Nature

ANNEX 3. UNEP GOVERNING COUNCIL DECISION 21/13

10th meeting, 9 February 2001

Global assessment of the state of the marine environment

The Governing Council,

Noting Commission on Sustainable Development decision 7/1,

Also noting paragraph 5 of the Malmö Ministerial Declaration, as well as the United Nations Convention on the Law of the Sea, in particular Part XII, and the work programme of marine and coastal biodiversity under the Jakarta Mandate on Marine and Coastal Biological Diversity of the Convention on Biological Diversity,

Noting further the ongoing work aimed at improving the knowledge base on the state of the marine environment, including activities being carried out within the framework of the Global International Waters Assessment, the Global Ocean Observing System and the United Nations Atlas of the Oceans,

1. **Notes** the reports published by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection entitled 'A sea of troubles' and 'Protecting the oceans from land-based activities – Land-based sources and activities affecting the quality and uses of the marine, coastal and associated freshwater environment';
2. **Recognizes** that the report 'A sea of troubles' identifies 'ineffective communication between scientists and government policy makers and the public alike' as one of the reasons for the lack of

commitment and the inability of the international community to address and solve the environmental problems of the seas in a comprehensive way;

3. **Requests** the Executive Director to take an active part in implementing General Assembly resolution 54/33 of 24 November 1999 and General Assembly resolution 55/7 of 30 October 2000 by participating in the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, an annual review and evaluation of developments relating to ocean affairs and the Law of the Sea;
4. **Requests** the Executive Director, in cooperation with the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization and other appropriate United Nations agencies, the Secretariat of the Convention on Biological Diversity and in consultation with the Regional Seas Programmes to explore the feasibility of establishing a regular process for the assessment of the state of the marine environment, with active involvement by governments and regional agreements, building on ongoing assessment programmes;
5. **Requests** the Executive Director to present the matter to the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its next session in May 2001;
6. **Also requests** the Executive Director to submit a progress report on this issue to it at its 22nd session.

ANNEX 4. BACKGROUND TO THE REVIEW OF MARINE ASSESSMENTS

4.1 SCOPE

This study compiles analyses and presents information on existing and future marine environmental assessments and related scientific activities carried out at the regional and global levels under relevant organizations or conventions. National-level activities do not form a part of this analysis. The report considers the marine environment to include estuaries, coastal regions, continental shelves and open oceans.

4.2 BACKGROUND

In February 2001, the Government of Iceland initiated a process to look at the feasibility of establishing a mechanism for regular reporting on the state of the marine environment through the submission of a proposal to the 21st Session of the UNEP Governing Council.

Following discussion, the UNEP Governing Council adopted Decision 21/13 on a 'Global assessment of the state of the marine environment' (Annex 3). This decision requests the Executive Director of UNEP in cooperation with UNESCO-IOC and other UN agencies, the CBD Secretariat, and the Regional Seas Programmes 'to explore the feasibility of establishing a regular process for the assessment of the state of the marine environment, with active involvement by governments and regional agreements, building on ongoing assessment programmes'.

In the light of this requirement, two meetings were called. The first consultation in Reykjavik agreed on the need for a global process for regular reporting on the state of the global marine environment, the goals of such a process and the importance of identifying a mechanism by which to undertake such a task. A second technical meeting in Bremen considered possible models for establishing the process and recommended the dissemination of UNEP GC Decision 21/13 amongst UN agencies and other relevant bodies. The meeting agreed that: 'An important first, or pre-requisite, step in the GMA process is to evaluate existing major assessments of the state of the marine environment and to identify the scope, status and timing

of forthcoming assessment activities carried out under relevant national regional and global organizations' (Paragraph 62, Bremen, 2002). It went on to propose 'that such a review be undertaken during 2002 so that a report and its conclusions are available ahead of the UNEP Governing Council meeting in 2003' (Paragraph 64, Bremen, 2002).

The overall support by the international community for the concept of a GMA mechanism was demonstrated by the commitment made by governments at the World Summit on Sustainable Development, South Africa, September 2002, which called for:

'the establishment by 2004 of a regular process under the United Nations for global reporting and assessment of the state of the marine environment, including socio-economic aspects, both current and foreseeable, building on existing regional assessments' (Paragraph 36(b), WSSD Plan of Implementation). The key events and their major outcomes following the adoption of UNEP GC Decision 21/13 are presented in Table 4.1.

4.3 OBJECTIVES

This report presents the results of a joint study by UNEP and UNESCO-IOC executed by UNEP-WCMC and supported by the national Governments of Iceland, Germany and the UK in response to the outcomes of the Bremen Meeting (UNEP, 2002). The objective of this study is to contribute to the establishment of a regular process, with the support of the United Nations, for global reporting and assessment of the state of the marine environment (see working definition, Annex 1). It is to serve as a factual basis to complement the recommendations of two international meetings held in Reykjavik and Bremen with respect to the feasibility, development and implementation of a GMA. It aims to provide a snapshot of the current situation and provide reliable answers to the following questions:

1. In which ways could a GMA process integrate existing and future assessments?
2. How could identified thematic and geographical gaps be addressed and filled?

Table 4.1 Key events in the adoption and implementation of UNEP GC Decision 21/13

Adapted from UNEP-WCMC, 2002

Date	Meeting	Major outcome
February 2001	21st session of the UNEP Governing Council and second Global Ministerial Environment Forum, Nairobi, Kenya, 5–9 February 2001	<ul style="list-style-type: none"> ● Iceland proposed the need for a global marine assessment ● UNEP GC Decision 21/13 adopted
September 2001	First meeting for a feasibility study on establishing a regular process for the assessment of the state of the marine environment, convened by UNEP, hosted by the Government of Iceland, in Reykjavik 12–14 September 2001	<ul style="list-style-type: none"> ● Agreed that developing a GMA process was both desirable and urgently needed ● Recommended that the process should be aimed at policy makers providing advice and guidance to mitigate environmental impacts and changes based on science ● Recommended the organization of a technical workshop to establish a blueprint for the process
March 2002	Technical workshop for establishing a regular process for the global assessment of the marine environment, convened by UNEP, supported by the German and Swedish Governments, at Bremen 18–20 March 2002	<ul style="list-style-type: none"> ● Achieved a consensus about a regular process and how it might be set up ● Endorsed a general outline of the assessment process and its components ● Recommended a survey of current and future marine environmental assessments and related scientific activities
April 2002	United Nations Open-ended Informal Consultative Process established by the General Assembly in its resolution 54/33 in order to facilitate the annual review by the Assembly of developments in ocean affairs. Third meeting: 8–15 April 2002 New York	<ul style="list-style-type: none"> ● Supported Decision 21/13 ● Stressed importance of inter-regional cooperation and the use of existing mechanisms
August 2002	The World Summit on Sustainable Development, Johannesburg, South Africa, 28 August–4 September 2002	<ul style="list-style-type: none"> ● Stated a commitment to establish, under the United Nations, a regular process for a global assessment of the state of the marine environment [Paragraph 36(b)]
September-December 2002	A Survey of Global and Regional Marine Environmental Assessments and Related Scientific Activities	<ul style="list-style-type: none"> ● This report: Implemented by UNEP-WCMC, commissioned by UNEP in collaboration with IOC, and the Governments of Germany, Iceland and the UK

ANNEX 5. PROJECT DOCUMENT

August 2002

A survey of global and regional marine environmental assessments and related scientific activities

OBJECTIVES

To contribute to the establishment of a regular process under the United Nations for global reporting and assessment of the state of the marine environment by reviewing and evaluating existing and future global and regional marine environmental assessments and related scientific activities.

BACKGROUND

The UNEP Governing Council (GC) adopted at its 21st session in February 2001 a decision concerning a 'Global Assessment of the State of the Marine Environment' (UNEP GC Decision 21/13). Article 4 of this Decision requests the Executive Director, in co-operation with UNESCO-IOC and other UN agencies, the CBD Secretariat, and the Regional Seas Programmes 'to explore the feasibility of establishing a regular process for the assessment of the state of the marine environment, with active involvement by governments and regional agreements, building on ongoing assessment programmes'.

To implement UNEP GC Decision 21/13, a first informal consultative meeting was held in Reykjavik, 12-14 September 2001. This meeting strongly agreed that a global assessment of the marine environment (GMA) was both desirable and urgently needed and welcomed the opportunity to examine the feasibility of developing this process with all relevant stakeholders. Furthermore, this meeting recommended, *inter alia*, that the GMA process should be aimed at policy makers. Based on a scientific assessment of the global marine environment, the GMA should provide this target audience with advice, guidance and assistance on actions required to mitigate environmental impacts and changes.

In the light of the outcome of the Reykjavik meeting, UNEP decided to convene a second meeting in the form of a technical workshop to further elaborate the key objectives and define the practical framework for developing a GMA process. This workshop was kindly hosted by the German government in Bremen, 18-20 March 2002. Funds from the German and Swedish Governments enabled a large number of interested developing countries and international organizations to

be represented at the workshop, thereby expanding the audience involved in the consultations to implement UNEP GC Decision 21/13 at both meetings to 16 countries and 10 regional and 14 global conventions, agreements and organizations.

The Global Marine Assessment workshop held in Bremen agreed on the following next steps to be taken in the implementation of UNEP GC Decision 21/13:

'Identification and integration of assessments and assessment-related activities into the GMA process

62. An important first, or pre-requisite, step in the GMA process is to evaluate existing major assessments of the state of the marine environment and to identify the scope, status and timing of forthcoming assessment activities carried out under relevant national, regional and global organizations.
63. This review should recommend:
 - a. ways in which the GMA process could integrate existing and foreseen assessments and related activities;
 - b. how any identified gaps in their geographic and/or thematic coverage could be addressed and filled.
64. It is proposed that such a review be undertaken during 2002 so that a report and its conclusions are available ahead of the UNEP Governing Council meeting in 2003.' (UNEP, 2002, pp.18-19)

ACTIVITIES

The project will compile and present information about existing and future marine environmental assessments and related scientific activities carried out on the global and regional levels under UNEP and other relevant international organizations or conventions. The time frame will not allow a national-level evaluation to be carried out. The project will take into account the relevant documentation presented at the UNEP meetings convened in Reykjavik and Bremen as well as the information gathered in the context of these meetings.

A focal point in UNEP will be established to ensure that each phase of the study is conducted in a manner

that will lead to the delivery of a product suited to the GC needs.

The project will be implemented in four phases:

Phase I: Pre-study preparations

1. A draft list of relevant assessments and related scientific activities, including the contact details of the relevant administrative and scientific bodies, will be prepared. This draft list will take into account, *inter alia*:
 - the documentation presented and information gathered in the context of the UNEP meetings held in Reykjavik and Bremen;

- information from surveys of a similar nature and other relevant sources.

2. Preparation of a draft questionnaire for circulation to the relevant administrative (e.g. convention secretariats) and scientific bodies of the organizations identified in 1. This questionnaire should ask in simple terms for concise and comprehensive information on existing and future marine environmental assessments and related scientific activities along the following lines¹:
3. Establishment of criteria to describe and present the existing and future marine environmental

Existing assessments and related scientific activities	Additional information for planned future assessments and related scientific activities
<ul style="list-style-type: none"> ● What assessments are available and when were they published? ● Please specify what aspects and/or parts of the marine environment were assessed (e.g. specific ecosystems, processes, anthropogenic and/or natural impacts, species or groups of species, etc.?) ● Are there any geographical, temporal and/or thematic gaps in these assessments? ● What problems were experienced in the assessment process, e.g. in terms of (i) data availability, comparability, spatial and temporal coverage and/or (ii) locating and incorporating local expertise and collaborators? ● What lessons can be learned from the existing assessments? ● Has the assessment identified the need for national and local capacity building in marine science and sustainable management of oceans and their resources? ● Is your organization able to build such capacity, and if not, what strengthening and/or additional resources would your organization require to carry out this capacity-building function? ● What was the basis/reason for the assessment? (e.g. convention obligations, COP agreement, etc.) ● What was the purpose of the assessment? ● What was the target group of the assessment, i.e. who will primarily use the results (e.g. policy makers, scientific community, etc.)? ● Has the outcome of the assessment influenced the policy-making process on the national, regional and/or global level? ● Were the assessments carried out (i) as part of a continuing process, (ii) in the form of a one-off exercise? ● How were they prepared (e.g. by a small or large group of experts, with or without involvement of the national governments of Contracting Parties)? ● Was there stakeholder participation/ consultation in the assessment process? If so, is there a need to improve stakeholder involvement and on what aspects? ● Were they peer reviewed? ● Are they publicly available in hard copy and/or in digital format (e.g. from the internet)? 	<ul style="list-style-type: none"> ● Foreseen timing of future assessments? ● What will be the scope and the objectives of these future assessments? ● What environmental parameters, human activities, impacts, changes, etc., will be assessed? ● How and to which audiences will the assessments be disseminated?

1. Please note that each of the questions in the table will be further elaborated and defined in the final questionnaire

assessments identified in 2. A draft list of criteria will be developed in consultation with the UNEP focal point and representatives of sponsors of the study.

Phase II: Contact and correspondence with administrative and scientific bodies of global and regional assessment organizations

The draft list of contact addresses prepared in Phase I will be circulated to relevant bodies including IOC and GESAMP as well as to the delegates of the Reykjavik and Bremen meetings with a view to producing a complete list of global and regional marine environmental assessments and related scientific activities. Once complete, all the relevant administrative and scientific bodies will be contacted via the questionnaire, prepared in Phase I and designed to obtain information about their actual and proposed assessment activities. It is difficult to predict how much time and effort will have to be spent in obtaining this information, but a response period of 4–6 weeks is assumed and built into the project schedule. During this period constant communication will be maintained with the secretariats and organizations, and in the event that a completed questionnaire is not returned the survey could be completed using telephone interviews.

Phase III: Compilation, analysis and interpretation of information on existing and future marine assessments and related scientific activities

The information gathered in Phase II will be compiled in the form of an overview matrix or database, as appropriate, displaying the details of the various assessments in terms of WHEN, WHERE, HOW and WHAT has been assessed.

The criteria developed in the pre-study phase will be applied to analyse and interpret this information, with special consideration of the potential role of the GMA process, *inter alia*, in terms of:

- the ways and degree in which existing and foreseen assessments and related scientific activities could be integrated;
- how any identified gaps in their geographic and/or thematic coverage could be addressed and filled.

Some of the outputs from this phase will be annexed to the project report, e.g. in the form of a table and a global map to illustrate the thematic and geographical coverage (and any gaps) in the existing and future marine environmental assessments.

Phase IV: Preparation of conclusions and recommendations

The conclusions and recommendations from the review carried out in Phase III will be prepared carefully so that they can be used (i) to provide justification for the Global Marine Assessment process discussed in Reykjavik and Bremen, and (ii) to outline and emphasize important issues and lessons to be considered when establishing and developing the Global Marine Assessment process.

The conclusions and recommendations will be formulated in a way suitable to provide input to the report to be prepared for the UNEP Governing Council meeting in February 2003.

The final report from this survey will be published separately with the support and in the name of UNEP in cooperation with IOC and the sponsoring governments and agencies.

ANNEX 6. REVIEW METHODOLOGY

In order to fulfil the requirements set out in the project document (Annex 5), the methods were developed and implemented in the four phases outlined.

At the beginning of the study an advisory group was established to guide the process and its progress. This group was composed of representatives from the sponsoring and executing bodies including UNEP-DEWA, the UNEP Regional Seas Secretariat, the IOC, the Governments of Germany, Iceland and the UK, and UNEP-WCMC. The group provided technical and editorial assistance throughout the following four phases.

6.1 PHASE I: PRE-STUDY PREPARATIONS

6.1.1 Contacts list

A draft list comprising 206 contacts of relevant assessments was created (Annex 8), including the secretariats of current global and regional assessments and activities, Regional Seas Programme Coordinators, international policy makers and national policy makers and other relevant organizations. Contact names and details were compiled using participant lists from the UNEP meetings held in Reykjavik and Bremen. In addition contacts provided by the advisory group and other marine experts, as well as Internet searches, were used to try to identify NGOs, IGOs, private interests and university consortia that may be working at this level and therefore would be relevant to this study.

6.1.2 Preparation of the questionnaire

A questionnaire (Annex 7) was designed to gather information on the types of assessments that exist and are planned in the marine environment, their aims and the mechanisms for their implementation. The questions were developed using:

- ❑ the obligations set out in the project document;
- ❑ questions raised by discussions at the Bremen and Reykjavik meetings, including those referred to in the supporting documents of these meetings;
- ❑ issues raised in the GESAMP report 'A sea of troubles' (GESAMP Report No. 70, 2002); and
- ❑ the 2000 Quality Status Report of the marine environment of the northeast Atlantic (OSPAR, 2000a).

The questionnaire was divided into two sections. Section A asked for a summary of current and planned assessments. For each assessment or activity mentioned by the responding organization, section B asked for details of implementation and mechanisms.

Section B used as many tick boxes and yes/no answers as possible to reduce the time required for completing the questionnaire and to reduce ambiguity in the interpretation of returns.

6.2 PHASE II: CONTACTING ADMINISTRATIVE AND SCIENTIFIC BODIES

After consultation with the advisory group, an introductory email was sent out on 10 October 2002 to the 206 persons and organizations on the contact list to verify the information and their contact details. The questionnaires were distributed on 16 October 2002 to 206 persons and organizations with the request to complete and return the forms within one calendar month. During this time constant communication was maintained by telephone and email to answer questions and follow up contacts. Where possible, telephone interviews and face-to-face interviews were conducted to facilitate completion of responses.

Responses received after 2 December 2002 were noted as background information, but were not included in the analysis.

6.3 PHASE III: COMPILATION, ANALYSIS AND INTERPRETATION OF INFORMATION

The identification of methodology and criteria to be used in the analysis was carried out in collaboration with UNESCO-IOC during a visit to their headquarters in Paris from 18 to 22 November 2002. Seven criteria (geography, regularity, cost effectiveness, legitimacy, credibility, sustainability and saliency) were extracted from the conclusions and recommendations of the consultative meetings held in Reykjavik and Bremen and are defined for the purpose of the current study in Table 6.1.

For the analysis of the questionnaire returns, a matrix was designed to compile the raw data collected in phase II. This allowed the input of data from all 60 questions, with a dedicated section for each scientific assessment or activity. Each scientific assessment or activity was given a unique identification code to facilitate reference in the analysis. Where information on a scientific assessment or activity was received from multiple sources, only the response from the lead agency was taken into account in the analysis.

The initial matrix consisted of two sheets, containing (i) the summary details of all scientific assessments carried out, or planned, at the global and regional levels and (ii) the full details provided by section B of the questionnaire. All analysis was carried out

separately for the global and regional scales, and also for the two combined (total). Information on national programmes was not included in the analysis.

Questionnaire returns form the basis of the main part of the analysis. However, it should be noted that 23 (11%) of the contacts provided narrative comments and relevant information in the form of reports and written or oral correspondence which did not fit the structure of the questionnaire. Therefore, the analysis was structured as follows:

1. Summary of questionnaire returns

This responds to the when, where, how and what has been assessed. The responses were tallied and expressed as percentages to enable comparison between regional assessments, global assessments and total combined assessments, including the analysis of their geographical and thematic coverage. Results of this analysis led to questions for more complex data queries.

2. An overview of key narrative responses

A brief review of relevant information is presented in Annex 9.4. This contributes to the overall conclusions and recommendations, and focuses on the assessments that have been referred to in discussions to date. A considerable amount of literature was provided in support of individual comments; however the time frame of this study did not allow an in-depth review of all this information.

3. Application of criteria to assessments

The information compiled for the various assessments was considered against the seven defined criteria (Table 6.1) to determine their potential for integration into a future GMA mechanism. For this purpose the criteria are defined in terms of corresponding questionnaire questions. By looking at the responses given for the assessments, it was possible to appraise how closely each of the assessments fitted the criteria. A matrix was constructed to collate this information and allow the analysis.

To evaluate the fit of each assessment to the criteria it was necessary to develop a method for a comparative analysis and enable the identification of how closely each of the assessments corresponded to each of the criteria. With the exception of regularity, criteria definitions are described by more than one question to provide boundaries, characteristics and conditions. An arbitrary scoring system was developed to enable the comparison of criteria fit between assessments. A score was attributed for each question within each criterion as defined in Annex 12 Tables B-H. The highest scores corresponded to the best fit. As the numbers are arbitrary, they were used as a guide to indicate fit. Annex 12 Table A was then used to convert these numerical scores into the degree of impediment that may or not be posed for a given criterion to the integration of an assessment into a GMA mechanism. This integration potential was expressed as:

An impediment for integration: The assessment/activity does not correspond to any of the defining conditions of the particular criterion: e.g. if the assessment was only a 'one off', it could not be considered regular.

Partial impediment for integration: The assessment/activity corresponds to some of the conditions of the criteria, but not others.

Minimal impediment for integration: The assessment corresponds to all or almost all the defining conditions of the criteria, and few or no impediments exist in terms of appropriateness for inclusion or integration into a GMA process (i.e. to achieve this criteria few adjustments would have to be made).

6.4 PHASE IV: PREPARATION OF CONCLUSIONS AND RECOMMENDATIONS

The analysis of the questionnaire returns and other information was used to (i) provide justification for the GMA process and (ii) outline and emphasize important issues and lessons to be considered when establishing and developing the GMA mechanism.

Table 6.1 Criteria definitions to determine suitability of assessments to be integrated into a GMA mechanism

Geography	<ul style="list-style-type: none"> ● Mandate covers waters from estuaries to international waters ● Assessments use existing definitions of regions
Regularity	<ul style="list-style-type: none"> ● Assessments are either ongoing or undertaken on a regular basis (1-5 years)
Cost effectiveness	<ul style="list-style-type: none"> ● Comparatively low budget ● Low person-hours ● The resource provision may be considered satisfactory
Legitimacy	<ul style="list-style-type: none"> ● Undertaken at country request or in response to international/regional convention ● National stakeholders involved in all phases
Credibility	<ul style="list-style-type: none"> ● QA mechanisms in place ● External peer review ● Method guidelines adopted with regular review ● Assessment is based on empirical data ● Assessment involves partners ● Assessment uses an indicator framework
Sustainability	<ul style="list-style-type: none"> ● The process is above single-country politics ● It is not dependent exclusively on external and variable funds ● It is associated with a regional or international agreement
Saliency	<ul style="list-style-type: none"> ● Assessment responds to a convention or a national request ● Is regular ● Provides policy advice ● Has provision for review ● Identifies policy makers as end-users ● Has stakeholder involvement ● Outputs are orientated to user ● Information freely available

ANNEX 7. QUESTIONNAIRE

Questionnaire to survey global and regional marine environmental assessments and related scientific assessments

BACKGROUND

In February 2001, the UNEP Governing Council adopted Decision 21/13. This Decision requests in Article 4:

'...the Executive Director, in cooperation with UNESCO-IOC, other appropriate United Nations agencies, the Secretariat of the Convention on Biological Diversity and in consultation with the Regional Seas Programmes to explore the feasibility of establishing a regular process for the assessment of the State of the Marine Environment....'

A meeting to explore the feasibility of establishing a Global Marine Assessment (GMA) process was held 12–14 September 2001 in Reykjavik. This was followed by a technical workshop in Bremen, 18–20 March 2002, to elaborate the objectives and a framework for developing a GMA process.

The Bremen workshop agreed in Paragraph 62, in order to implement the UNEP GC Decision 21/13:

'62. An important first, or pre-requisite, step in the

GMA process is to evaluate existing major assessments of the state of the marine environment and to identify the scope, status and timing of forthcoming assessment activities carried out under relevant national, regional and global organizations.'

On 4 September 2002, the Johannesburg Summit adopted Paragraph 36(b) of the WSSD Plan of Implementation, which supports GC Decision 21/13 and expresses a commitment to:

'36(b) Establish by 2004 a regular process under the United Nations for global reporting and assessment of the state of the marine environment, including socio-economic aspects, both current and foreseeable, building on existing regional assessments.'

The outcomes of the questionnaire will support, in the wider sense, the Global Marine Assessment process that was initiated by the Reykjavik and Bremen meetings. The results will be made publicly available through the GMA process and will be taken forward in due course through intergovernmental processes.

Guidelines for completing the questionnaire

The completion of this questionnaire should take approximately **10** minutes for section A and **20** minutes for each copy of section B. It has been designed to take the minimum time whilst ensuring that all the necessary information is collected to enable analysis.

The following guidelines are to assist you in completing the questionnaire and to allow correct interpretation of the responses.

1. Please complete by **Typing** or using **Blue** or **Black** ink
2. Where there are tick boxes () either tick or, if completing the questionnaire electronically, click on the box. In some cases it may be appropriate to tick more than one box per question.
3. If you tick the option '**other**', please provide additional information to specify your views in the adjoining box or at the end of the questionnaire. Please remember to state which question your comment or information refers to.
4. Where you feel additional comments are necessary, please add these accordingly. Additional space is provided at the end of the questionnaire.
5. **Section A:** this is a general sheet, which **all** institutions should complete.
6. **Section B** should be completed **only** if your organization is undertaking assessments or other scientific activities at a regional or global level.
7. Please complete **one** copy of section B **per** assessment or scientific activity undertaken by your organization. If necessary please forward the questionnaire to the relevant person(s).

Definitions of terms

For the purpose of this questionnaire, the following definitions apply:

Assessment All assessments of the marine environment.

Activity All scientific activities which are directly or indirectly linked to an assessment, i.e. marine environmental science programmes, monitoring programmes, data collection activities, etc., carried out in the marine environment.

Return of questionnaires

Please return completed questionnaires to me **as soon as possible and by Friday 15 November 2002 at the latest**. Where necessary, I will be making telephone appointments to assist in the completion (please feel free to respond in English or French).

If you have any queries, please do not hesitate to contact me by email, fax or telephone.

- Email: emily.corcoran@unep-wcmc.org
- Fax: +44 (0)1223 277136 (marked for the attention of Emily Corcoran)
- Telephone: +44 (0)1223 277314

SECTION A

Part 1: Summary of all Assessments and Related Activities

Name of organization
 Contact name
 Position
 Postal address

Fax
 Email

Telephone

1. Does your organization have any ongoing marine environmental assessments? Regional
Global
2. Does your organization have any ongoing international scientific activities concerning the state of the marine environment? Regional
Global
3. Please list the titles of ongoing assessments and scientific activities.

1	Title	Dates	Regional	Global	Countries involved
1					
2					
3					
4					
5					

4. Does your organization have any planned future assessments? Regional
Global
5. Does your organization have any planned future international, long-term scientific activities? Regional
Global
6. Please list the titles of future assessments and scientific activities.

1	Title	Dates	Regional	Global	Countries involved
1					
2					
3					
4					
5					

THANK YOU FOR COMPLETING SECTION A.

PLEASE CONTINUE TO SECTION B TO GIVE DETAILS OF REGIONAL/GLOBAL ASSESSMENTS AND ACTIVITIES

IMPORTANT

PLEASE COMPLETE ONE QUESTIONNAIRE PER ASSESSMENT/ACTIVITY.

SECTION B

ONE COPY TO BE COMPLETED FOR EACH ASSESSMENT/ACTIVITY

Part 2: Background Information

7. Title of the assessment/activity
8. What are the objectives and goals of the assessment/activity?
 To monitor known threats to the marine environment
 To identify new threats with the aim of taking proactive measures to protect the marine environment
 Other
9. Does the assessment/activity consist of:
 Monitoring (collection of primary data)
 Assessment (analysis of primary data)
 Assessment/advisory (review of secondary data)
 Other
10. What is the role of your organization in the assessment/activity?
 Lead/coordinator
 Partner
 Contributor
11. Start date (due)
12. End date (expected)

Part 3: Set-up and Administration

13. When was the assessment/activity first commissioned? Year
14. Who commissioned the assessment/activity?
15. How often is the assessment/activity carried out?
 Once every (in years)
16. What is the underlying requirement for the assessment/activity?
 International legislation
 Regional convention
 Intergovernmental request
 Scientific cooperation
 Other
17. What is the duration of funding?
 No. of years
18. How is the assessment/activity funded?
 Organization budget
 Special CP contributions
 External sources
 Activity-generated income
 Other
19. What is the budget for the assessment (in US\$ 000)?
 <10
 10-50
 50-100
 100-500
 >500
20. Please name any partners and collaborating institutions.

	Lead	Partner	Contributor
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. What is the main body for steering or coordinating the assessment/activity?
 Secretariat
 Expert working group(s)
 Steering committee

- Regional centre(s)
National centre(s)
22. Does your assessment/activity use existing regional assessment set-ups? No
Yes, administrative and procedural set-ups
Yes, geographical boundaries and coverage
23. If yes, which of the following? UNEP Regional Seas Non-UNEP Regional Seas
 FAO Fisheries Regions Non-FAO Fisheries Regions
 IUCN Regions ICES Regions
 LME UNCLOS
 GIWA Regions Other

Part 4: Assessment/Activity Methods

24. Are different stakeholder groups involved in the assessment/activity? No stakeholder involvement National government
 Intergovernmental organizations Local government
 Scientific community Community organizations
 Industry NGOs Environment NGOs
 Other
25. If yes, in which phase(s) were the stakeholders involved? Planning
 Implementation
 Evaluation of results
26. Are there mechanisms in place to allow feedback from the assessment/activity to the stakeholders? Yes
No
27. Has your organization adopted guidelines for the assessment/activity? Yes
No
28. If so, are these guidelines reviewed in the light of the results and experiences gained from the assessment/activity? Yes, regularly
Yes, ad hoc
No
29. How many persons and man-hours are allocated to the assessment/activity within your organization? **People allocated** **Man-hours/year**
≤1 ≤10
1-2 10-50
2-5 50-100
5-10 100-500
>10 >500
30. Are the currently allocated resources sufficient? Yes
No
31. What are the main constraints experienced by your organization in the undertaking of the assessment/activity? Lack of or incomplete reporting of data/information by stakeholders
 Incomparability of data/information reported by stakeholders
 Data are not quality assured
 Data are not assessed
 Identification of local expertise
 Other

Part 5: Support and Capacity-building

32. Does the assessment/activity include an evaluation of existing national/regional capacities in the context of its operations? Yes
No

33. Has the assessment/activity led to the identification of needs for capacity-building at a national or local level in the context of marine science and sustainable management of the oceans and their resources? Yes
No
34. If yes, can your organization provide the required capacity-building/training? Yes
No
35. On what level and in which areas could the assessment/activity carried out by your organization benefit most from international support and/or cooperation? Administrative and organizational set-up
Data and information management facilities (including IT)
International level capacity-building (e.g. in the Secretariat)
National-level capacity-building
Other

Part 6: Thematic and Geographical Coverage

36. What are the main themes addressed in the assessment/activity?
- | Geophysical | Ecological | Human health and safety | Impact of human activities | Pollution by: |
|---|--|--|---|---|
| Climate change and ocean systems <input type="checkbox"/> | Habitats <input type="checkbox"/> | Water quality <input type="checkbox"/> | Fisheries <input type="checkbox"/> | Hazardous substances <input type="checkbox"/> |
| Geosystems (incl. geomorphology) <input type="checkbox"/> | Biodiversity <input type="checkbox"/> | Food safety <input type="checkbox"/> | Coastal development and management <input type="checkbox"/> | Litter <input type="checkbox"/> |
| Biogeochemical cycles <input type="checkbox"/> | Marine ecosystems <input type="checkbox"/> | Other <input type="checkbox"/> | Oil and gas exploration <input type="checkbox"/> | Alien species <input type="checkbox"/> |
| Other <input type="checkbox"/> | Food webs <input type="checkbox"/> | | Aquaculture <input type="checkbox"/> | Nutrients <input type="checkbox"/> |
| | Other <input type="checkbox"/> | | Shipping <input type="checkbox"/> | Sewage <input type="checkbox"/> |
| | | | Sand/gravel/mineral extraction <input type="checkbox"/> | Radioactive substances <input type="checkbox"/> |
| | | | Maintenance dredging <input type="checkbox"/> | Other <input type="checkbox"/> |
| | | | Other <input type="checkbox"/> | |
37. For the relevant themes, what aspects does the assessment/activity address? Dumping
Land-based inputs (direct or indirect)
Discharges (operational/illegal)
Other
38. Has an indicator framework been established for the monitoring? Yes
No
39. If so, which indicators are used in the assessment/activity? Economic indicators
Social indicators
Ecological indicators
Governance indicators
Other
40. Is the assessment/activity carried out in: Estuaries
Coastal areas of Contracting Parties
EEZ of Contracting Parties
International waters (High Seas)
Other

Part 7: Assessment/Activity Outputs and their Uses

41. What are the key outputs of the assessment/activity? Data
Data analysis
Advisory reports
Policies
Other
42. What tools are used to present the information? Written reports
Spatial analysis
Scenarios
Graphics
Maps/GIS
Other

43. Are the data/information collected stored at:

Secretariat
 An international data store
 A national data store
 An Internet site
 Other

44. To whom are the data/information accessible?

	Free access (general public)	Restricted access (stakeholders only)
Raw data	<input type="checkbox"/>	<input type="checkbox"/>
Aggregated data	<input type="checkbox"/>	<input type="checkbox"/>
Final reports only	<input type="checkbox"/>	<input type="checkbox"/>
All data	<input type="checkbox"/>	<input type="checkbox"/>

45. Is the outcome of the assessment/activity adopted by all stakeholders?

Yes
No

46. Is the assessment/activity used to assess the effectiveness of actions and measures taken by:

Your organization
 Other international organizations
 National stakeholders
 Other stakeholders

47. Is the outcome of the assessment/activity linked to the review of existing/development of new policies?

		International policies	National policies
Direct link		<input type="checkbox"/>	<input type="checkbox"/>
Indirect link		<input type="checkbox"/>	<input type="checkbox"/>
No link		<input type="checkbox"/>	<input type="checkbox"/>

48. Has your organization adopted international measures (e.g. at Conference of Parties meetings) on the basis of the assessment?

Yes
No

49. If your organization has adopted such measures, what status do they hold?

		Legally binding	Moral obligation	Voluntary
Decisions		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recommendations		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agreements		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 8: Information Dissemination

50. Who are the intended end-users of the assessment/activity outputs?

Internal	<input type="checkbox"/>	National policy makers	<input type="checkbox"/>
Scientific community	<input type="checkbox"/>	General public	<input type="checkbox"/>
International bodies	<input type="checkbox"/>	Educators	<input type="checkbox"/>
Industry	<input type="checkbox"/>	Other	<input type="checkbox"/>

51. How often are reports produced?

>2/yr
 Biannually
 Annually
 Biennially (every 2 yrs)
 Other

52. Are outputs of the assessment/activity published (i.e. made publicly available); if so in which format?

Paper based
 Electronic — CD ROM
 Electronic — Web based
 No

53. Is there a purchase price for documents?

Yes
No

54. Where more than one user is intended are there different formats/outputs for

Yes

different end-users? No

55. Is there a mechanism for user groups to give feedback on the continued relevance of products? Yes
No

Part 9: Quality Assurance (QA)

56. What quality assurance methods are being applied in the assessment/activity (e.g. procedures, standards, guidelines, etc.)?
 Checks for information accuracy and completeness
 QA in accordance with methods agreed within your organization
 QA in accordance with internationally agreed methods
 None
 Other
57. Are reports subject to peer review? Yes, internal
Yes, external
No
58. What are the key lessons that have been learned from carrying out the assessment/activity?
59. Have you been able to identify any geographical gaps in the assessment/activity?
60. Have you been able to identify any thematic gaps in the assessment/activity?

Part 10: Additional Comments

If you have any other comments (e.g. on this questionnaire) that you feel are appropriate, please note them here. Please use this space for additional information relating to the questions for which you ticked 'other'. Please state the question number to which the information refers.

Part 11: Other Assessments/Activities

If you are aware of other regional or global assessments that are ongoing/planned for your region or in your field, please indicate the title and organization responsible, with a contact name if available.

THANK YOU

ANNEX 8. CONTACTS LIST

The four tables correspond to [A] questionnaires respondents; [B] those who responded not using the questionnaire format but by sending reports/ other documentation; [C] respondents who felt it was not appropriate to complete the questionnaire (this included some policy makers); [D] those who did not respond at all

Table A Questionnaire respondents

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
GLOBAL				
Convention on Biodiversity (CBD) Secretariat		Marjo VIERROS Programme Officer	393 rue Saint-Jacques Suite 300, Montréal Québec, H2Y 1N9 Canada	marjo.vierros@biodiv.org http://www.biodiv.org Tel: 1 514 287 7036 Fax: 1 514 288 6588
Food and Agriculture Organization of the United Nations		Uwe BARG Senior Fishery Resources Officer	Viale delle Terme di Caracalla 00100 Rome Italy	uwe.barg@fao.org Tel: 39 65 7056442 Fax: 39 65 7053020
	GCOS	Alan THOMAS Director, GCOS Secretariat	WMO, 7bis Avenue de la Paix Geneva 1211 Switzerland	Thomas_A@gateway.wmo.ch Tel: 41 22 730 8275 Fax: 41 22 730 8052
GESAMP	Global Coastal Strategies	Mike HUBER Vice-Chairperson, GESAMP	32 Beneteau Place Lota, QLD 4179 Australia	mhuber@bigpond.net.au Tel: 61 7 3893 4511 Fax: 61 7 3893 4522
	GloBallast (Global Ballast Water Management Programme)	Steve RAAYMAKERS Technical Advisor	IMO, 4 Albert Embankment London SE1 75R UK	sraaymak@imo.org http://globallast.imo.org/ Tel: 44 20 7587 3251 Fax: 44 20 7587 3261
IGBP/SCOR	Global Ocean Ecosystem Dynamics (GLOBEC) Project	Manuel BARANGE Director, GLOBEC	Plymouth Marine Laboratory Prospect Place Plymouth PL1 3DH UK	m.barange@pml.ac.uk http://www.pml.ac.uk/ globec/main.htm Tel: 44 1752 633160 Fax: 44 1752 633101
IGBP/SCOR	Joint Global Ocean Flux Study	Roger HANSON IPO Executive Director/JGOFs Science Officer	SMR University of Bergen 5020 Bergen Norway	roger.hanson@jgofs.uib.no http://www.uib.no/jgofs/ Home_Frame.html Tel: 47 555 84244 Fax: 47 555 89687

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
International Commission for the Conservation of Atlantic Tuna (ICCAT)		Adolfo R. LIMA Executive Secretary	Calle Corazón de María, 8 Sixth Floor 28002 Madrid Spain	adolfo.lima@iccat.es http://www.iccat.es/ Tel: 34 91 416 5600 Fax: 34 91 415 2612
International Coral Reef Action Network (ICRAN)		Kristian TELEKI Acting Director	c/o UNEP-WCMC 219 Huntingdon Road Cambridge CB3 0DL UK	icran@icran.org http://www.icran.org/ Tel: 44 1223 277314 Fax: 44 1223 277136
International Ocean Institute		Iouri OLIOUNINE Executive Director	P.O. Box 3-Gzira GZR Malta	ioihq@ioihq.org.mt Tel: 356 21346528 Fax: 356 21346502
International Tanker Owners Pollution Federation (ITOPF)		Camille LECAT Technical Advisor	Staple Hall Stonehouse Court 87-90 Houndsditch London EC3A 7AX UK	camillelecat@itopf.com Tel: 44 20 7621 1255 Fax: 44 20 7621 1783
Island Resources Foundation/GIN		Bruce POTTER President	1718 P St. NW Dvite FA Washington, DC 20036 USA	bpotter@irf.org http://www.irf.org/ Tel: 1 202 265 9712 Fax: 1 202 252 0748
IUCN	Marine Programme	Torben BERNER Head, Regional Marine Programme	53 Horton Place Colombo 7 Sri Lanka	torben.berner@iucn.org http://www.iucn.org/themes/marine/ Tel: 941 682 458 Fax: 941 682 470
Marine Environment Laboratory-International Atomic Energy Agency (IAEA)		Scott FOWLER Head, Marine Environmental Studies Laboratory	4 Quai Antoine 1er BP 800 MC98012 Monaco	s.fowler@iaea.org http://www.iaea.or.at/ Tel: 377 97 97 72 51 Fax: 377 97 97 72 73
Millennium Assessment Secretariat	Millennium Ecosystem Assessment	Neville ASH MA Coordinator	219 Huntingdon Road Cambridge CB3 0DL UK	ash@millenniumassessment.org http://www.millenniumassessment.org Tel: 44 1223 277314 Fax: 44 1223 277136
Scientific Committee on Problems of the Environment (SCOPE)		Veronique PLOCQ-FICHELET Executive Director	51 Bd de Montmorency 75016 Paris France	secretariat@icsu-scope.org http://www.icsu-scope.org Tel: 33 1 45 25 04 98 Fax: 33 1 42 88 14 66

Global Marine Assessments

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
SCOPE/ICSU	Working group 3: Nitrogen fixation in the world's oceans	Chair of Working Group	University of Hawaii at Manoa Hawaii	dkarl@soest.hawaii.edu http://www.nceas.ucsb.edu/ public/scope-n/wg3.html
UN	UN Atlas of Oceans	John EVERETT Project Manager	FAO, Viale delle Terme di Caracalla Rome 00100 Italy	john.everett@fao.org http://www.oceansatlas.com/ index.html Tel: 39 06 5705 3020 Fax: 39 06 5705 6467
UNEP	GIWA	Juan-Carlos BELAUSTEGUIGOITIA Coordinator Southern Hemisphere	University of Kalamar SE-391 82 Kalamar Sweden	jc.belaustr@giwa.net http://www.giwa.net Tel: 46 480 447354 Fax: 46 480 447355
UNEP	Global Environment Outlook (GEO Project)	Munyaradzi CHENJE Programme Officer, GEO	P.O. Box 30552 Nairobi Kenya	munyaradzi.chenje@unep.org http://www.grid.unep.ch/geo Tel: 254 2 624546 Fax: 254 2 623943
UNEP Chemicals	Global Mercury Assessment	Jim WILLIS Director	11-13 chemin des Anémones CH-1219 Châtelaine Geneva Switzerland	jwillis@unep.ch http://www.chem.unep.ch/ mercury Tel: 41 22 917 8183 Fax: 41 22 797 3460
UNEP Chemicals	Global Monitoring Network	Bo WAHLSTROM Senior Scientific Advisor	11-13 chemin des Anémones CH-1219 Châtelaine Geneva, Switzerland	bwahlstrom@unep.ch Tel: 41 22 917 8195 Fax: 41 22 797 3461
UNEP Chemicals	Regionally Based Assessments of Persistent Toxic Substances	Paul WHYLIE Project Manager	11-13 chemin des Anémones CH-1219 Châtelaine Geneva, Switzerland	pwhylied@unep.ch Tel: 41 22 917 8305 Fax: 41 22 797 3460
UNEP, Division of Early Warning and Assessment (DEWA)		Salif DIOP Senior Environmental Affairs Officer	P.O. Box 30552 Nairobi Kenya	salif.diop@unep.org http://www.unep.org Tel: 254 2 622015 Fax: 254 2 622798
UNEP-WCMC/ IPEACA (International Petroleum Industry Environmental Conservation Association)	IMAPS (Interactive Map Service)	Phil FOX UNEP-WCMC contact	219 Huntingdon Road Cambridge CB3 0DL UK	phillip.fox@unep-wcmc.org http://www.beakey.unep- wcmc.org/index.htm Tel: 44 1223 277314 Fax: 44 1223 277136

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
UN Industrial Development Organization (UNIDO)		Pablo HUIDOBRO Industrial Development Officer	Vienna International Centre P.O. Box 300 A-1400 Vienna Austria	p.huidobro@unido.org http://www.unido.org Tel: 43 1 26026 6819 Fax: 43 1 26026 3068
World Seagrass Association (hosted at University of New Hampshire)		Frederick T. SHORT Research Professor	Jackson Estuarine Laboratory 85 Adams Point Road Durham, NH 03824 USA	fred.short@unh.edu Tel: 1 603 862 2175 Fax: 1 603 862 1101
<u>GLOBAL/REGIONAL</u>				
UNESCO-IOC	Ocean Mapping (global and regional)	Dmitri TRAVIN Senior Assistant Secretary Ocean Mapping	1 Rue Miollis 75015 Paris France	d.travin@unesco.org http://ioc.unesco.org/iocweb/activities/ocean_sciences/ocemap.htm#Contacts Tel: 33 1 45 68 40 44 Fax: 33 1 45 68 58 12
<u>REGIONAL</u>				
Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)		Denzil MILLER Executive Secretary	P.O. Box 213 North Hobart Tasmania 7002 Australia	denzil@ccamlr.org http://www.ccamlr.org Tel: 61 3 6231 0366 Fax: 61 3 6234 9965
Commission for the Conservation of Southern Bluefin Tuna (CCSBT)		Brian MACDONALD Executive Secretary	P.O. Box 37 Deakin West ACT 2600 Australia	bmacdonald@ccsbt.org http://www.ccsbt.org/ Tel: 61 2 6282 8396 Fax: 61 2 6282 8407
Convention on the Protection of the Black Sea Against Pollution (Bucharest Convention) Black Sea RCU		Oksana Grygorivna TARASOVA Pollution Monitoring and Assessment Officer	Dolmabahce Sarayi 11 Hareket Kosku 80680 Besiktas Istanbul Turkey	otarasova@blacksea-environment.org Tel: 90 212 2279927 9 Fax: 90 212 2279933
EMECS	Environmental Management of Enclosed and Coastal Seas	Eiji ISHIHARA Director International EMECS Centre	IHD Building 5-1 Wakinohama-kaigandori 1-chome, Chuo-ku, Kobi 651-0073, Japan	secret@emecs.or.jp Tel: 81 78 252 0234 Fax: 81 78 252 0404

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
Food and Agriculture Organization of the UN (FAO)	Coordinating Working Party on Fishery Statistics	Richard GRAINGER	FAO, Viale delle Terme di Caracalla Rome 00100 Italy	richard.grainger@fao.org Tel: 39 06 5705 4828 Fax: 39 06 5705 2476
General Fisheries Commission for the Mediterranean (GFCM)		Alain BONZON	FAO, Viale delle Terme di Caracalla Rome 00100 Italy	alain.bonzon@fao.org Tel: 39 06 5705 6435 Fax: 39 06 5705 6500
GRID-Arendal	ENRIN – Environment and Natural Resource Information Network in Central/Eastern Europe – NIS	Nicolai DENISOV Senior Associate	GRID-Arendal Longum Park Service Box 706 N-4808 Arendal Norway	denisov@grida.no http://www.grida.no/inf Tel: 47 37 03 57 07 Fax: 47 37 03 50 50
HELCOM – Baltic Marine Environment Protection Commission		Juha-Markku LEPPANEN Professional Secretary	Katajanokanlaituri 6 B FIN-00160 Helsinki Finland	juha-markku.leppanen@helcom.fi http://www.helcom.fi Tel: 358 9 6220 2227 Fax: 358 9 6220 2239
Indian Ocean Commission/West Indian Ocean Islands		Raj PRAYAG Regional Coordinator	Q4 Sir Guy Forget Avenue Quatre Bornes Mauritius	prayag@col.intnet.mu Tel: 230 4259564 ext 215 Fax: 230 4252709
Indian Ocean Tuna Commission (IOTC)		David ARDILL Executive Secretary	IOTC Secretariat P.O. Box 1011 Victoria Seychelles	iotcsecr@iotc.org http://www.seychelles.net/iotc Tel: 248 225494 Fax: 248 224364
Inter-American Tropical Tuna Commission (IATTC)		Robin ALLEN Director	8604 La Jolla Shores Drive La Jolla, CA 92037-1508 USA	rallen@iattc.org http://www.iattc.org/ Tel: 1 858 546 7100 Fax: 1 858 546 7133
International Council for the Exploration of the Sea (ICES)		Janet PAWLAK Environment Advisor	Palaegade 2 DK 1261 Copenhagen K Denmark	janet@ices.dk Tel: 45 3315 4225 Fax: 45 3393 4215
International Pacific Halibut Commission (IPHC)		Bruce LEAMAN Executive Director	P.O. Box 95009 Seattle, WA 98145-2009 USA	bruce@iphc.washington.edu http://www.iphc.washington.edu/halcom/default.htm Tel: 1 206 634 1838 203 Fax: 1 206 632 2983

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
IOC-UNESCO	African Process	Julian BARBIERE Programme Coordinator – Integrated Coastal Area Management	1 Rue Miollis 75732 Paris Cedex 15 France	j.barbiere@unesco.org Tel: 33 1 45 68 40 45 Fax: 33 1 45 68 58 12
Mediterranean Action Plan	MED POL	Francesco Saverio CIVILI Senior Environmental Affairs Officer	MED POL Coordinator 48 Vassileos Konstantinou Avenue P. O. Box 18019 116 35 Athens, Greece	fscivili@unepmap.gr Tel: 30 10 7273106 Fax: 30 10 7253197
National Institute of Water and Atmospheric Research Ltd (NIWA)		Don ROBERTSON General Manager Biodiversity, Biosecurity and Information Systems	Private Bag 14901 Wellington New Zealand	d.robertson@niwa.co.nz Tel: 64 43860519 Fax: 64 3860572
North Pacific Anadromous Fish Commission (NPAFC)		Vladimir FEDORENKO Executive Director	Suite 502 889 West Pender Street Vancouver, BC, V6C 3B2 Canada	vladf@npafc.org http://www.npafc.org/ Tel: 1 604 775 5550 Fax: 1 604 775 5577
Secretariat for the Pacific Community (SPC)		Tim ADAMS Director, Marine Resources Division	BP D5 98848 Noumea Cedex New Caledonia	tima@spc.int http://www.spc.org.nc/ Tel: 687 26 20 00 Fax: 687 26 38 18
Trilateral Cooperation on the Protection of the Wadden Sea	The Trilateral Monitoring and Assessment Program (TMAP)	Harald MARENCIC Contact, Common Wadden Sea Secretariat	Virchowstr. 1 D 26382 Wilhelmshaven Germany	marencic@waddensea- secretariat.org http://cwss.www.de/TMAP/ Monitoring.html Tel: 49 4421 9108 15 Fax: 49 4421 9108 30
UN Antarctic Treaty Committee on Environmental Protection	Advisory – incl. on the state of the environment and need for research incl. monitoring	Cecilie H. VON QUILLFELDT Chairperson	Norwegian Polar Institute Polar Environmental Centre N-9296 Tromsø Norway	cecilie.quillfeldt@npolar.no http://www.cep.npolar.no/ce phone.htm Tel: 47 77 75 06 32 Fax: 47 77 75 05 01

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
UNEP Regional Seas	East Asian Seas Regional Coordinating Unit	Hugh KIRKMAN Director	United Nations Building, 10th floor, Rajdamnern Avenue Bangkok 10200 Thailand	kirkman.unescap@un.org http://www.unep.org/unep/ regoffs/roap/easrcu/index.htm Tel: 66 2 288 1860 Fax: 66 2 281 2428
UNEP Regional Seas	Regional Organization for the Protection of Marine Environment (ROPME) Sea Area	Hassan MOHAMMADI Acting Coordinator	P.O. Box 26388 Safat 13124 State of Kuwait	ropme@quality.net Tel: 965 531 2140/3 Fax: 965 533 5243
UNEP Regional Seas, North-West Pacific	NOWPAP-MERRAC	Kang CHANG-GU Director	P.O. Box 23 Yuseong Daejeon 305-600 Korea	cgkang@kriso.re.kr Tel: 82 42 868 7260 Fax: 82 42 868 7738
UNEP Regional Seas, Wider Caribbean	Regional Coordinating Unit for the Caribbean Environment Programme (CAR/RCU)	Luc ST PIERRE Information Officer	14-20 Port Royal Street Kingston Jamaica	lsp.uneprcuja@cwjamaica.com http://www.cep.unep.org Tel: 1 876 922 9267 Fax: 1 876 922 9292
Western Central Atlantic Fishery Commission (WECAFC)		Bissessar CHAKALALL Senior Fisheries Officer	P.O. Box 631C Bridgetown Barbados	bissessar.chakalall@fao.org Tel: 246 4267110 Fax: 246 4276075
WWF Japan		Sadayosi TOBAI Yellow Sea Ecoregion Coordinator	Nihonseimei Akabanebashi Bldg 6F Hiba3-1-14 Minato-ko Tokyo 105-0014 Japan	tobai@wwf.or.jp Tel: 81 3 3769 1713 Fax: 81 3 3769 1717

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
<u>NATIONAL</u>				
Centre de Recherches Océanographiques de Dakar Thiaroye		Birane SAMB Chercheur Biologiste des Pêches	Km 10 Route de Rufisque BP 2241 Dakar Senegal	bsambe@yahoo.fr Tel: 221 834 80 41 Fax: 221 834 27 92
Federal Maritime and Hydrographic Agency (BSH), Marine Monitoring Planning and Coordination (M51)		Hartmut HEINRICH	Bernhard-Nocht-Strasse 78 D-20359 Hamburg Germany	Hartmut.Heinrich@bsh.de Tel: 49 40 3190 3510 Fax: 49 40 3190 5000/5035
Kenya Marine and Fisheries Research Institute (KEMFRI)		Johnson KAZUNGU Director	P.O. Box 81651 Mombasa Kenya	jkazungu@recoscix.org http://www.kenyafish.org Tel: 254 11 47 25 27 Fax: 254 11 47 51 57
Ministry of Environment, Department for Environment (DEFRA), UK		R. EMMERSON Marine Science Coordinator	3/B8 Ashdown House 123 Victoria Street London SW1 6ED UK	richard.emmerson@defra. gsi.gov.uk Tel: 44 207 9445309 Fax: 44 207 9445305
Norwegian Pollution Control Authority		Per Erik IVERSEN Adviser, Section for Marine Environment	P.O. Box 8100 DEP. N-0032 Oslo Norway	per-erik.iversen@sft.no Tel: 47 226 7670 Fax: 47 225 33484
State Key Laboratory of Estuarine and Coastal Research, China		Jing ZHANG Professor	East China Normal University 3663 Zhongshan Road North, 2 Shanghai 20006 PR China	jzhang@sklec.ecnu.edu.cn Tel: 86 21 62233009 Fax: 86 21 62546441

Table B Other respondents not using the questionnaire format

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
GLOBAL				
Food and Agriculture Organization of the UN (FAO)	Fisheries Global Information System	Marc TACONET Project Manager	FAO-FIDI Viale delle Terme di Caracalla 00100 Rome, Italy	marc.taconet@fao.org http://www.fao.org/fi/figis/
Intergovernmental Oceanographic Commission (UNESCO-IOC)		Patricio A. BERNAL Executive Secretary/ Assistant Director-General	1 Rue Miollis 75732 Paris Cedex 15 France	p.bernal@unesco.org Tel: 33 1 45 68 39 83 Fax: 33 1 45 68 58 10
International Council of Scientific Unions (ICSU)	DIVERSITAS	Anne LARIGAUDERIE Executive Director, Secretariat	51 Boulevard de Montmorency 75016 Paris France	anne@icsu.org http://www.icsu.org/ DIVERSITAS/ Tel: 33 1 45 25 95 24 Fax: 33 1 42 88 94 31
International Council of Scientific Unions	Global Invasive Species Programme	H. MOONEY focal point	Department of Biological Sciences Stanford University Stanford, CA 94305 USA	lneville@leland.stanford.edu http://jasper.stanford.edu/ GISP/ Tel: 1 650 7231530 Fax: 1 650 7239253
International Council of Scientific Unions Secretariat		Leah GOLDFARB Science Officer for the Environment and Sustainable Development	51 Boulevard de Montmorency 75016 Paris France	leah@icsu.org http://www.icsu.org Tel: 33 1 45 25 03 29 Fax: 33 1 42 88 94 31
International Petroleum Industry Environmental Conservation Association (IPIECA)	Global Initiative	Rob SELF Consultant	2nd Floor Monmouth House 87-93 Westbourne Grove London W2 4UL UK	rself@osrl.co.uk Tel: 44 2380 724309 Fax: 44 2380 331972
International Whaling Commission	IWC	Nicola GRANDY Secretary	The Red House 135 Station Road Impington Cambridge CB4 9NP UK	iwc@iwcoffice.org http://www.iwcoffice.org/ iwc.htm Tel: 44 1223 233971 Fax: 44 1223 232876

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
UNDOALOS (Division of Ocean Affairs and the Law of the Sea)	Commission on the Limits of the Continental Shelf (CLCS)	Valentina GERMANI Associate Officer	Office of Legal Affairs, Room DC20450, UN New York 10017 USA	germani@un.org http://www.un.org/depts/los/index.htm Tel: 1 212 963 6140
UNEP	GPA for the Protection of the Marine Environment from Land-based Activities, Coordination Office	Martin ADRIAANSE GPA Coordination Office	UNEP, P.O. Box 16227 2500 BE The Hague Netherlands	m.adriaanse@unep.nl http://www.gpa.unep.org Tel: 31 70 311 4466 Fax: 31 70 345 6648
UNEP-DTIE	Tour Operators Initiative for Sustainable Tourism	Giulia CARBONE APO	Tourism Programme 39-43, Quai André Citroën 75739 Paris Cedex 15 France	giulia.carbone@unep.fr http://www.uneptie.org/tourism Tel: 33 1 44 37 14 41 Fax: 33 1 44 37 14 74
UNEP/IPCC		Renate CHRIST Deputy Secretary of the IPCC	Ave. de la Paix 7 bi CH-1211 Geneva Switzerland	christ_r@gateway.wmo.ch Tel: 41 22 7308574 Fax: 41 22 7308025
WMO/IOC/ICSU WCRP	World Ocean Circulation Experiment (WOCE)	W. John GOULD Director WOCE International Project Office	Southampton Oceanography Centre University of Southampton European Way Southampton, SO14 3ZH UK	john.gould@soc.soton.ac.uk http://www.soc.soton.ac.uk/OTHERS/woceipo/ Tel: 44 2380 596789 Fax: 44 2380 596204
World Heritage Convention	World Heritage Centre	Marjaana KOKKONEN Associate Expert	UNESCO 7, place de Fontenoy 75352 Paris 07 SP France	m.kokkonen@unesco.org http://www.unesco.org/whc/ Tel: 33 1 45 68 11 87 Fax: 33 1 45 68 55 70
<u>REGIONAL</u>				
EURO GOOS	EDIOS (European Directory of the Initial Ocean- observing System)	Joanne FISCHER Coordinator	Universität Hamburg, Zentrum für Meeres- und Klimakunde, Institut für Hydrobiologie und Fischer- eiwissenschaft, Germany	fischer.ish@bfa-fisch.de

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
European Bank for Reconstruction and Development		Jeff JETER Senior Environmental Advisor	Environment Department 1 Exchange Square London EC2A 2JN UK	jeterj@ebrd.com Tel: 44 207 3386504 Fax: 44 207 3386848
European Commission/DG Environment		Ben van de WETERING	Office: BU9 3-174 B-1049 Brussels Belgium	ben.van-de-wetering@cec.eu.int http://europa.eu.int/comm/environment/ Tel: 32 2 295 0214 Fax: 32 2 296 8825
INFOFISH		S. SUBASINGHE Director	1st Floor, Wisma PKNS Jalan Raka Laut P.O. Box 10899, 50728 Kuala Lumpur, Malaysia	infish@po.jaring.my Tel: 603 26914466 Fax: 603 26916804
North Atlantic Salmon Conservation Organization (NASCO)		Peter HUTCHINSON Assistant Secretary	11 Rutland Square Edinburgh EH1 2AS UK	hq@nasco.int http://www.nasco.int/ Tel: 44 131 228 2551 Fax: 44 131 228 4384
OSPAR (Commission of the Convention for the Protection of the Marine Environment of the North-East Atlantic)		Alan SIMCOCK Executive Secretary	New Court 48 Carey Street London WC2A 2JQ UK	alan@ospar.org http://www.ospar.org Tel: 44 20 7430 5200 Fax: 44 20 7430 5225
Sub-regional Commission on Fisheries (SRCF)		Bangoura S. NABI Secrétaire Exécutif	B.P. 20505 Dakar Senegal	sp_csrf@metissacana.sn csrf@sentoo.sn Tel: 221 345 580
<u>NATIONAL</u>				
NOAA		Thomas L. LAUGHLIN Acting Deputy Assistant Secretary	Rm 5220 DOC 14th Constitution NW Washington, DC 20230 USA	Tom.Laughlin@noaa.gov Tel: 1 202 4825118 Fax: 1 202 4824307
WWF-UK		Louise HEAPS Marine Policy Officer	Panda House Weyside Park, Galdaming Surrey GU7 1XR UK	lheaps@wwf.org.uk Tel: 44 1483 426444 Fax: 44 1483 426409

Table C Inappropriate contacts

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
GLOBAL				
Consultative Group on International Agricultural Research		Mahfuzuddin AHMED Secretariat	The World Bank, MSN G6-601, 1818 H Street NW Washington, DC 20433 USA	m.ahmed@cgjar.org http://www.cgjar.org Tel: 1 202 473 8951 Fax: 1 202 473 8110
GESAMP, Texas A&M University, Department of Oceanography		Robert Arthur DUCE Chairman, GESAMP	Room 906, O&M Building College Station Texas 77843-3146 USA	rduce@ocean.tamu.edu Tel: 1 979 8455756 Fax: 1 979 8628978
GRID-Geneva (UNEP)	Includes Earth Watch	Ron WITT	International Environment House, Ch. des Anémones 11, 1219 Châtelaîne Switzerland	ron.witt@unep.org http://earthwatch.unep.net/
ICLARM	Coastal and Marine Resources Research Program	Paul TENG Program Leader	P.O. Box 500 GPO 10670 Penang Malaysia	p.teng@cgjar.org http://www.iclarm.org/ Tel: 604 626 1606 Fax: 604 626 5530
International Human Dimensions Programme on Global Environmental Change (IHDP)	Effect of EEZs on Fisheries	Sylvia KARLSSON Programme Officer	Walter-Flex-Str. 3 D-53113 Bonn Germany	karlsson.ihdp@uni-bonn.de http://www.ihdp.uni- bonn.de/ Tel: 49 228 73 90 50 Fax: 49 228 73 90 54
International Hydrographic Organization	Bathymetry and Ocean Mapping	David COLE IHO Data Center for Digital Bathymetry	NOAA/NGDC Mail Code E/GC325 Broadway Boulder CO, 80305 USA	David.A.Cole@noaa.gov http://www.ngdc.noaa.gov/ mng/bathymetry/iho.htm Tel: 1 303 497 6429 Fax: 1 303 497 6513
International Monetary Fund (IMF)			700 19th Street, NW Washington, D. 20431 USA	publicaffairs@imf.org http://www.imf.org Tel: 1 202 623 7300 Fax: 1 202 623 6278

Global Marine Assessments

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
UNEP	GPA for Protection of the Marine Environment from Land-based Activities, Coordination Office	Kenneth KORPORAL GPA Clearing-House Manager	UNEP P.O. Box 16227 The Hague Netherlands	k.korporal@unep.nl http://www.gpa.unep.org/ Tel: 31 70 311 4467 Fax: 31 70 345 6648
UNESCO-IOC		Ole VESTERGAARD	1 Rue Miollis, 75732 Paris Cedex 15, France	Tel: 33 1 45 68 40 68 Fax: 33 1 45 68 58 12
UNESCO-IOC	Health of the Oceans Pilot Project, NE Asia (GOOS)	Neil ANDERSEN	Horn Point Environmental Laboratory, 2020 Horn Point Road, P.O. Box 775, Cambridge, MD 21613 USA	andersen@hpl.umces.edu Tel: 1 41 221 8479 Fax: 1 41 221 8490
WMO/IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM)	Advisory body (regulatory and guidance)	Johannes GUDDAL Co-President	Norwegian Meteorological Institute Region West, Allegt. 70 5007 Bergen Norway	joguddal@online.no http://www.wmo.ch/indexflash.html Tel: 47 55 23 66 31 Fax: 47 55 23 67 03
REGIONAL				
Asia Pacific Fisheries Commission			FAO Regional Office for Asia and the Pacific 39 Phra Atit Road Bangkok 10200, Thailand	veravat.hongskul@fao.org Tel: 66 2 281 7844 Fax: 66 2 280 0445
British Antarctic Survey		Jon WATKINS Biological Sciences Division	High Cross Madingley Road Cambridge CB3 0BT UK	jlwa@bas.ac.uk http://www.antarctica.ac.uk Tel: 44 1223 221 605
Common Wadden Sea Secretariat		Jens A. ENEMARK Secretary	Virchowstrasse 1 D-26382 Wilhelmshaven Germany	info@waddensea-secretariat.org http://cwss.www.de/ Tel: 49 4421 91080 Fax: 49 4421 910830
North-East Pacific UNEP-Interim Secretariat RECOFI		Jorge ILLUECA	No secretariat has been established	http://www.fao.org/fi/body/rfb/RECOFI/recofi_home.htm
Regional Commission for Fisheries (not yet in force)				FAO-RNE@field.fao.org

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
Regional Fisheries Advisory Committee for the Southwest Atlantic (CARPAS)			No address available. Abolished by FAO Conference Resolution 13/97. Body has not met since 1974.	
South West Indian Ocean Fishery Commission (not yet finalised) (SWIOFC)		Aubrey HARRIS Secretary	Subregional Office for Southern and East Africa (SAFR), 6th Floor Old Mutual Centre, Cnr. J. Moyo/Third Avenue P.O. Box 3730, Harare Zimbabwe	aubrey.harris@fao.org FAO-SAFR.Registry @field.fao.org Tel: 263 4 791407 Fax: 263 4 703497
<u>NATIONAL</u>				
Environment and Food Agency, Iceland		David EGILSON Director	Armúlila P.O. Box 8080 15-128 Reykjavik Iceland	davide@hollver.is Tel: 354 5851000 Fax: 354 585101
Environment Public Authority, Kuwait – EPA		Hamza Abbas KARAM Head of Marine Pollution Section	P.O. Box 24395 Safat – 13104 Kuwait	Hakaram@epa.org.kw Tel: 965 5611741 Fax: 965 5653328
International Bureau of the Federal Ministry of Education and Research, Germany		Jan-Stefan FRITZ	DLR-PT Königswinterer Strasse 522-524 D-53227 Bonn Germany	jan-stefan.fritz@dlr.de Tel: 49 228 44 92 362 Fax: 49 228 44 92 490
Marine Fisheries Research Division, Ghana		Kwame KORANTENG	P.O. Box BGT-62 Tema Ghana	kwamek@afrikaonline.com.gh Tel: 223 22 20 80 48
Ministry for the Environment, Iceland		Siv FRIDLEIFSDOTTIR Minister	Vonarstraeti 4 150 Reykjavik Iceland	siv.fridleifsdottir@umh.stjr.is Tel: 354 5609600 Fax: 354 5624566
Ministry of Fisheries, Iceland		Stefan ASMUNDSSON Legal Adviser in International Affairs	Skulagata 4 150 Reykjavik Iceland	stefan.asmundsson@sjr.stjr.is Tel: 354 5609670 Fax: 354 5621853
Ministry of Fisheries, Iceland		Dorothea JOHANNESDOTTIR Economist	Skulagata 4 150 Reykjavik Iceland	dora@hafro.is http://government.is/interpro/sjavarutv/sjavarutv.nsf/pages/ensk_forsida Tel: 354 5609670 Fax: 354 5621853

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
Ministry of Marine Affairs and Fisheries, Agency for Marine Research and Fisheries, Indonesia		Hartanta TARIGAN Director, Marine Technology Research Centre	J1 Letjen M. T. Haryono Kav. 52-53 Jakarta 12770 Indonesia	tariganh@cbn.net.id Tel: 62 21 384 6146 Fax: 62 21 798 0458
Ministry of the Environment, Iceland		Magnus JOHANNESON Secretary-General	Vonarstraeti 4 150 Reykjavik Iceland	Magnus.johannesson@umh.stjr.is Tel: 354 5609600 Fax: 354 5624566
Ministry of the Environment, Sweden		Anders BERNTELL	S-10333 Stockholm Sweden	anders.berntell@environment.ministry.se Tel: 46 8 4052058 Fax: 46 8 219170
Ministry of Transport, Public Works and Water Management, the Netherlands		Els de WIT Senior Policy Advisor	P.O. Box 20906 2500 Ex The Hague Netherlands	e.m.dwit@hkw.rws.minvenw.nl Tel: 31 70 3510505 Fax: 31 70 3519078
Nigerian Institute for Oceanography and Marine Research		Thomas Olatunde AJAYI Director	Wilmot Point Road Bar-Beach PMB 12729 Lagos Nigeria	niomr@linkserve.com.ng/ niomr@hyperia.com Tel/Fax: 234 01 26 1 7530/ 61 95 17/61 38 27
Office of Sustainable Development and International Affairs, Ministry for the Environment, Iceland		Halldor THORGEIRSSON Director	Vonarstraeti 4 150 Reykjavik Iceland	halldor.thorgeirsson@umh.stjr.is Tel: 354 5609600/9622 Fax: 354 5624566
Projektraeger Juelich - MGS		Ulrich WOLF	Seestraße 16 18120 Rostock Germany	u.wolf@fz-juelich.de Tel: 49 381 5197 295 Fax: 49 381 51509

Table D No response

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
<u>GLOBAL</u>				
Census of Marine Life	Global Ocean Biogeographic Information System (OBIS) for the Census of Marine Life	Frederick GRASSLE Director, Institute of Marine and Coastal Sciences	Rutgers The State University of New Jersey 71 Dudley Road, New Brunswick, NJ 08901 USA	grassle@imcs.rutgers.edu Tel: 1 732 932 6555 Fax: 1 732 932 8578
Climate Variability and Predictability Study of the World Climate Research Programme (CLIVAR)		Howard CATTLE Director, International CLIVAR Project Office	Southampton Oceanography Centre Empress Dock Southampton SO14 3ZH UK	hyc@soc.soton.ac.uk Tel: 44 23 80596208/44 23 80596789 (Sec.) Fax: 44 23 80596204
Consortium for Oceanographic Research and Education	Census of Marine Life Secretariat	Cynthia J. DECKER Director	1755 Massachusetts Ave. NW, Suite 800 Washington, DC 20036 USA	checker@COREocean.org Tel: 1 202 3320063 Fax: 1 202 3329751
Convention on Migratory Species (CMS)	UNEP/CMS Secretariat	Arnulf MÜLLER-HELMBRECHT Executive Secretary	Martin-Luther-King-Str. 8 D-53175 Bonn Germany	cms@unep.de http://www.wcmc.org.uk/cms/ Tel: 49 228 815 2401/02 Fax: 49 228 815 2449
Economic and Social Council (Division for ECOSOC Support and Coordination)		Sarbuland KHAN Director	Department of Economic and Social Affairs 1 UN Plaza Room DC1-1428 NY 10017, USA	http://www.un.org/esa
GCOS/OOPC (Global Climate Observing System)	Global Ocean Data Assimilation Experiment (GODAE)			GODAE@BoM.gov.au http://www.usgodae.fnmoc.navy.mil/
GEF (Global Environmental Facility) Scientific and Technical Advisory Panel	Non-operational advisory group for GEF	Anne Marie VERBEKEN STAP Programme Officer	UNEP/GEF Coordination Unit P.O. Box 30552 Nairobi Kenya	Anne-Marie.Verbeken@unep.org http://stapgef.unep.org/ Tel: 254 2 62 34 24/32 50/41 64/41 59 Fax: 254 2 62 31 40

Global Marine Assessments

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
GOOS	Ocean Observations Panel for Climate of GCOS	Neville R. SMITH Chairman OOPC	BMRC, 50 Lonsdale Street, Box 1289 K, Melbourne, Vic. 3001, Australia	N.Smith@bom.gov.au http://www.wmo.ch/web/gcos/gcoshome.html
ICLARM/EC/FAO	Fishbase	Rainer FROESE Coordinator	20, Düsternbrooker Weg Kiel 24105 Germany	rfoese@ifm.uni-kiel.de http://www.fishbase.org Fax: 49 431 600 1699
ICRAN/ICRI		Agneta NILSSON	417 Montgomery Street Suite 205 San Francisco, CA 94105 USA	info@coral.org http://www.coral.org/ Tel: 1 415 834 0900 Fax: 1 415 834 0999
IGBP (International Global Biosphere Programme)	IGBP Secretariat	Will STEFFAN Executive Director	Royal Swedish Academy of Sciences, Box 50005 S-104 05 Stockholm Sweden	will@igbp.kva.se http://www.igbp.kva.se Tel: 46 8 16 64 48 Fax: 46 8 16 64 05
IGBP	Land-Ocean Interactions in the Coastal Zone (LOICZ)	Chris CROSSLAND Deputy Executive Officer	PO Box 59 NL-1790 AB Den Burg - Texel Netherlands	ccross@nioz.nl http://www.nioz.nl/loicz Tel: 31 222 369404 Fax: 31 427 369621
IGBP/SCOR	SOLAS (Surface Ocean – Lower Atmosphere Study)	Peter S. LISS Chair, SOLAS	School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, UK	solas@uea.ac.uk Fax: 44 1603 507714
International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM)		Frederic BRIAND CIESM Director General	CIESM Headquarters Villa Girasole 16 bd de Suisse Monaco	fbriand@ciesm.org http://www.ciesm.org Fax: 377 92 16 11 95
International Seabed Authority (ISA)	Publishes marine environmental information		14-20 Port Royal Street Kingston Jamaica	webmaster@isa.org.jm http://www.isa.org.jm Tel: 1 876 922 9105 Fax: 1 876 922 0195
International Society for Mangrove Ecosystems		Shigeyuki BABA Executive Secretary	c/o Faculty of Agriculture University of the Ryukyus Okinawa 903-0129 Japan	mangrove@ii-okinawa.ne.jp http://www.mangrove.or.jp/ Tel: 81 98 895 6601 Fax: 81 98 895 6602
IOC/SCOR	IOC Harmful Algal Bloom Programme	Patrick GENTIEN Chair	CREMA B.P. 5 17137 L'Houmeau France	pgentien@ifremer.fr http://ioc.unesco.org/hab/GEOHAB4.htm Tel: 33 5 46 50 06 30 Fax: 33 5 46 50 06 60

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
IODP	Integrated Ocean Drilling Programme (2003-)	Ted MOORE IODP Planning Sub-Committee Chair	Department of Geosciences University of Michigan Ann Arbor, MI 48109-1063 USA	tedmoore@umich.edu http://www.iodp.org Tel: 1 734 615 3055 Fax: 1 734 763 4690
MARPOL (International Convention for the Prevention of Pollution from Ships) Secretariat		Secretariat	c/o IMO 4 Albert Embankment London SE1 75R UK	Tel: 44 20 77357611 Fax: 44 20 75873210
MARUM Centre for Marine Environmental Sciences	World Data Centre for Environmental Sciences/ International Drill core library for marine sediments	Gerold WEFER Director	Klagenfurter Str D - 28359 Bremen Germany	gwefer@marum.de http://www.marum.de/ impressum/impressum_ e.html Tel: 49 421 218 3389 Fax: 49 421 218 3116
ODP	Ocean Drilling Programme (1985-2003)	Kate ROYSE ODP UK Programme Manager	British Geological Survey, Kingsley Dunham Centre Keyworth Nottingham NG12 5GG, UK	ukodp@bgs.ac.uk http://www.oceandrilling.org/ ODP Tel: 44 115 936 3456 Fax: 44 115 936 3549
Partnership for Observation of the Global Oceans	Network of experts/ institutions	Shubha SATHYENDRANATH Executive Director	Bedford Institute of Oceanography 1 Challenger Drive, Dartmouth, Nova Scotia B2Y 4A2, Canada	shubha@is.dal.ca http://www.oceanpartners.org/ Tel: 902 426 8044 Fax: 902 426 9388
Pew Centre for Global Climate Change		Eileen CLAUSSEN President	2101 Wilson Blvd, Suite 550, Arlington, VA 22201 USA	PierceJ@pewclimate.org Tel: 1 703 516 4146 Fax: 1 703 841 1422
RAMSAR		Correspondance to Jean PIERCE (Executive Assistant)	Rue Mauverney 28 CH-1196 Switzerland	blasco@ramsar.org http://www.ramsar.org/ Tel: 41 22 999 0170 Fax: 41 22 999 0169
Reef Check Foundation		Delmar BLASCO Secretary General	Wachmannstr. 23 28209 Bremen Germany	georg.heiss@reefcheck.de Tel: 49 421 3467032 Mob: 49 175 208634 Fax: 49 421 3467033

Global Marine Assessments

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
SCOR and partners	Ocean Biogeochemistry and Ecosystems (under development)	Georg HEISS Coordinator		j.hall@niwa.cri.nz http://www.jhu.edu/~scor/obe.htm
UCSD – University of California, San Diego	Array for Real-time Geostrophic Oceanography Project (ARGO) (GOOS/GCOS)	Brian KING UK Representative	Southampton Oceanography Centre UK	b.king@soc.soton.ac.uk http://www.argo.ucsd.edu
UNESCO		Antonio Mubango HOGUANE Director, UNESCO Chair in Marine Sciences and Oceanography	Universidade Eduardo Mondlane/University Eduardo Mondlane Faculty of Sciences Dept. of Physics P.O. Box 257 Maputo Mozambique	hoguane@hotmail.com Tel: 258 1 47 53 25 Fax: 258 1 47 53 33
UNESCO	Man and the Biosphere Programme	Miguel CLÜSENER-GODT Integrated Biodiversity Strategies for Islands and Coastal Areas	1 Rue Miollis 75732 Paris Cedex 15 France	m.clusener-godt@unesco.org http://www.unesco.org/mab/ibsica/index.htm Tel: 33 1 45 68 41 46 Fax: 33 1 45 68 58 04
UNESCO-IOC	International Oceanographic Data & Information Exchange	Peter PISSIERSSENS Head, Ocean Services		p.pissierssens@unesco.org Tel: 33 1 45 68 58 12
UNESCO platform for environment and development in coastal regions and in small islands	Some ongoing monitoring activities	webmaster	UNESCO-IOC 1 rue Miollis 75732 Paris Cedex 15 France	csi.webmaster@unesco.org http://www.unesco.org/csi/index.htm Tel: 33 1 45 68 40 46
US Global Change Research Program Secretariat		Brad ARTHUR International Programs	400 Virginia Ave, SW Suite 750 Washington, DC 20024 USA	information@usgcrp.gov www.usgcrp.gov Tel: 1 202 488 8630 Fax: 1 202 488 8681

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
Veridian Systems	Marine and coastal GIS information		Veridian Information Solutions Division 10560 Arrowhead Drive Fairfax, VA 22030, USA	services.info@veridian.com http://www.veridian.com/ Tel: 1 703 385 0700
WCRP/IGBP/IHDP	Global Carbon Project	Mike RAUPACH	University of New Hampshire, Morse Hall Durham, NH 03824 USA	kathyh@eos.sr.unh.edu http://gaim.sr.unh.edu/cjp Tel: 1 603 862 42551 Fax: 1 603 862 2124
WCRP/IGBP/IHDP	Global Environmental Change and Food Systems (GECAFS)	Dagoberto ARCOS GECAFS Executive Committee	Fishery Research Institute of Chile Chile	okean@entelchile.net http://gecafs.org/
WMO/Global Runoff Data Centre	Global Composite Runoff Data Set	Thomas MAURER	c/o Federal Institute of Hydrology Kaiserin-Augusta-Anlagen 15-17 56068 Koblenz, Germany	thomas.maurer@bafg.de
World Fisheries Trust	Blue Millennium Project	Brian HARVEY President	204-1208 Wharf St Victoria, BC V8W 3B9 Canada	bharvey@worldfish.org http://www.worldfish.org/ Tel: 1 250 380 7585 Fax: 1 250 380 2621
World Resources Institute, Marine and coastal ecosystems	See web for details of projects	Anne Marie DE ROSE Research Analyst	10 G Street, NE (Suite 800) Washington, DC 20002 USA	aderose@wri.org http://wri.igc.org/wri/marine/ Tel: 1 202 729 7600 Fax: 1 202 729 7610
WWF International	Endangered Seas Programme	Simon CRIPPS Director	Avenue du Mont-Blanc 1196 Gland Switzerland	scripps@wwfint.org http://www.panda.org Tel: 41 22 364 91 11
<u>GLOBAL/REGIONAL</u>				
Advisory Committee on Protection of the Sea (ACOPS)	Global and Regional Programmes (implementation of GPA)	Viktor SEBEK Executive Director	11 Dartmouth Street London SW1H 9BN UK	info@acops.org http://www.acops.org Tel: 44 207 799 3033 Fax: 44 207 799 2933
<u>REGIONAL</u>				
AMAP		Lars-Otto REIERSEN Executive Secretary	P.B. 8100 Dep. 0032 Oslo Norway	lars-otto.reiersen@amap.no Tel: 47 2 3241632 Fax: 47 2 3241631

Global Marine Assessments

Organization	Assessment/ Programme	Contact	Address	Email, www, tel and fax
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Asia Pacific Fisheries Commission			FAO Regional Office for Asia and the Pacific 39 Phra Atit Road Bangkok 10200, Thailand	veravat.hongskul@fao.org Tel: 66 2 281 7844 Fax: 66 2 280 0445
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Caspian	Caspian Environment Programme	Timothy TURNER Programme Coordinator	Programme Coordination Unit, Room 108 Government Building 40 Uzeir Hadjibeyov St Baku 370016 Azerbaijan	caspian@caspien.in-baku.com http://www.caspian-environment.org Tel: 994 12 938003/971785 Fax: 994 12 971786
Coastal Research and Planning Institute, Klaipeda University	Baltic Sea Alien Species Database	Sergej OLENIN Project Coordinator	H Manto 84 LT 5808 Klaipeda Lithuania	s.olenin@corpi.ku.lt www.ku.lt/nemo/mainnemo.htm Tel: 370 6 398847 Fax: 370 6 398845
Comisión Permanente del Pacifico Sur (CPPS) (UNEP)		Fabian Valdivieso EGUIGUREN Secretary General	Coruna 2061 y Whimper Quito Ecuador	cpps@decuanex.net.ec Tel: 593 2 234 331/5/6 Fax: 593 2 234 374
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European Space Agency	ENVISAT ocean monitoring applications	Luc TYTGAT Head of Unit, Space Research	FAO Regional Office for Africa (RAF) P.O. Box 1628, Accra Ghana	luc.tytgat@cec.eu.int http://www.esa.int/export/esaSA/ ESAIHTVYWC_earth_0.html Tel: 32 2 296 8430
Fishery Committee for the Eastern Central Atlantic (CECAF)				FAO-RAF@field.fao.org Tel: 233 21 675 000 Fax: 233 21 668 427
International Baltic Sea Fishery Commission (IBSFC)		W. RANKE Secretary	20, Hozastr. 00-528 Warsaw Poland	ibsfc@polbox.pl http://www.ibsfc.org/ Tel: 48 22 628 86 47 Fax: 48 22 625 33 72
Joint Technical Commission for the Argentina/Uruguay Maritime Front (CTMFM)		Julio D. CHALULEU Technical Secretary	Juncal 1355 oficina 604 Montevideo República Oriental del Uruguay	http://www.cofremar.org/ Tel: 598 2 916 1973-2047 Fax: 598 2 916 15 78
Latin American Organization for the Development of Fisheries	OLDEPESCA	Secretariat	Las Palomas 422, URB, Limatambo, Lima 34, Apartado 10168, Lima Peru	oldepesc@bellnet.com.pe http://fis.com/oldepesca/ Tel: 51 14 427655-429868 Fax: 51 14 429925
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North Pacific Marine Science Organization (PICES)		Alexander S. BYCHKOV Executive Secretary	PICES Secretariat c/o Institute of Ocean Sciences, P.O. Box 6000 Sidney, BC, V8L 4B2 Canada	bchckov@pices.int http://www.pices.int Tel: 1 250 363 6364 Fax: 1 250 363 6827
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ANNEX 9. DATA ANALYSIS (INCLUDING TABLES AND FIGURES)

9.1 SUMMARY AND ANALYSIS OF QUESTIONNAIRE RETURNS

9.1.1 Return rates

In total, 206 questionnaires were sent out. Table 9.1 and Figure 9.1 summarize the success of this activity in terms of completed questionnaires returned. In all 60 questionnaires (29%) were returned completed and an additional 22 contacts (11%) responded with narrative information in written (reports, documents, articles) or oral form. Thirty-two contacts (15%) replied that they felt it was inappropriate to respond to the questionnaire. A number of these are national bodies, assessment users, rather than producers, or had been involved in discontinued assessments. Ninety-two of those contacted (45%) did not reply. Returns appeared to be greatest where there had been a previous awareness of the GMA process, or where direct communication was possible.

The list of questionnaire recipients is given in Annex 8 (Tables A–D). The four tables in this Annex correspond to A: questionnaire respondents (late responses could not be incorporated into the analysis); (b) those who responded not using the questionnaire format (sending reports/other documentation), (c) respondents who felt it was not appropriate to complete the questionnaire (this included some policy makers), (d) those who did not respond at all.

The 63 completed questionnaires were from 56 organizations and provided summary details for 188 activities (Annex 10). The majority of these assessments are undertaken at a regional level and are currently ongoing (Figure 9.2). Fifty organizations provided in-depth responses for 88 assessments with six at national (7% of returns), 54 at regional (61% of returns) and 28 at global (32% of returns) scales (Table 9.2). In many cases one organization provided information on more than one activity. For the 82 global and regional activities provided in detail, 53 (65%) were commissioned since 1996 and 20 since 2001 (24%).

9.1.2 Background information on reviewed assessments

The project document (Annex 5) set out that the study should consider what is being done where and how in terms of ongoing assessments of the marine environment. This section concentrates on how assessments are undertaken, what mechanisms are in place and how they are implemented. Sections 9.2 and 9.3 of this document address the 'where' and 'what' questions, and provide detail on the geographical and thematic coverage of ongoing assessments.

Use of scientific information (primary data): Over 70% of the 82 global and regional assessments that responded are based on primary or scientific data. Of these, 69% of regional and 54% of global activities or assessments are involved in the collection of primary data. Eighteen assessments (22%) were reported to be based on secondary data.

Duration and funding: The greatest sources of funding of regional and global assessments are organizational budgets and external sources (mostly donor funds). Forty-one per cent of regional and 64% of global assessments have more than one funding source. The data show a disparity between funding duration and the expected duration of assessments. The majority of funding for the reviewed assessments is provided for two to four years. However, more than 60% of regional assessments and more than 40% of global assessments reviewed are expected to continue for five years or more (Figure 9.3), i.e. there is no long-term funding in place.

Forty-five per cent of the organizations and individuals returning questionnaires described assessments as ongoing or continuous, without an identified end date. Table 9.4 shows that the most established (i.e. more than 20 years) assessments are concerned with fisheries and pollution. Long-term environmental assessments have been commissioned in the last ten years.

Periodicity of assessments: Regional assessments tend to be more regular and frequent, with more than 40% being undertaken at least annually (Figure 9.4). A quarter of current global assessments are set up as 'one-off events'. The continual assessments tend to be those that are collecting remotely sensed geophysical data.

Use of resources: Global assessments tend to have larger budgets than the regional assessments, but have a relatively smaller number of staff allocated to the assessment (Figure 9.5). This could be accounted for by a greater use of collaborating institutions and partnerships in the framework of global processes (Table 9.3). Sixty-three per cent of all assessments indicate that currently allocated resources are deemed insufficient (61% for regional and 68% for global assessments). As a crude estimate, between US\$10 million and US\$20 million are presently being spent on marine assessments, involving approximately 300 to 500 people.

Involvement of stakeholder groups: The involvement of stakeholder groups was found to be the norm for the assessments reviewed. Only two did not involve other groups in the process at all (Figure 9.6). National governments, intergovernmental organizations and the scientific community represent the most common stakeholders of global and regional assessments. Environmental NGOs are more commonly involved in assessments at the global level than at the regional level (Figure 9.6). The involvement of community organizations and local government is low at all levels. This pattern is consistent with that observed below for the identified end-users.

There was variation between the regional and global assessments. Involvement was greater in regional activities, with 68% of assessments involving stakeholders in the planning, implementation and evaluation phases. This compares with 54% of global assessments involving stakeholders in all three phases (Figure 9.8).

End-users: National policy makers, international bodies and the scientific community are the main end-users. Communities and local-level bodies are not a main focus. Industry is identified as an end-user of the assessments by over 40% of returns, and yet less than 40% include industry or industrial NGOs as stakeholders (Figure 9.7).

Appropriateness of outputs to the end-user: The majority of returns indicate multiple end-users; however only 39% of regional assessments and 29% of global assessments provide differentiated outputs which take into account the needs of various end-users. Approximately 60% of assessments reviewed have some kind of feedback mechanism in place, which allows users to comment and ensures the continued relevance of products.

Variation in national and regional capacities: A distinct variation in the capacity of national and regional bodies to contribute to global assessment processes can be observed from the questionnaire returns. Most respondents acknowledged the importance of involving national or regional centres in regional and global assessments, but at present only 14% of responding assessments and activities use national or regional centres in their coordination. To increase the involvement of national and regional bodies in assessments, the issue of variation in capacity has to be addressed.

Capacity building: Eighty per cent of the assessments mentioned in the questionnaire returns are in need of capacity building to support the work being undertaken. However, only just over half of the assessments include an evaluation of existing national and regional capacities in their programme of

activities. In cases where capacity building needs were identified, most commonly for national capacity (56% of all assessments/activities), approximately 60% of the regional and global assessments felt that they were in a position to provide the required capacity building.

Monitoring and review mechanisms: Guidelines setting out methods and protocols for the implementation of assessments are in place for almost 80% of those reviewed. Nearly all are subject to review at least on an *ad hoc* basis. Although indicator frameworks are increasingly being established to standardize the types of indicators used to measure environmental change, only 54% of regional assessments and 46% of global assessments have established/use indicator frameworks. Figure 9.9 illustrates the main indicator groups that are employed for the assessments that have established such frameworks. Of course one assessment might use several indicator types.

Quality assurance (QA) and peer review: Respondents were asked to describe the type of QA methods that were applied to their assessment or activity, ranging from checking of information for accuracy and completeness, application of internal QA methods, to the application of internationally agreed methods. The majority of assessments (54% of regional and 64% of global) use more than one quality assurance system, with approximately one-quarter of all assessments being controlled by data checks and internally or externally agreed QA methods. Eight per cent of assessments stated that either they had no quality assurance in place, or did not respond to this question. Sixteen per cent of assessments are not subjected to peer review, and some 46% are subjected to some form of external review. Others identified an internal peer review process.

Policy relevance: Approximately 70% of assessments produce advisory reports as their key outputs. Twenty-five per cent of global and 28% of regional assessments identify policy/policy briefs as a key output.

The majority of assessment outcomes have either a direct or indirect link to the review and development of national (76% of assessments reviewed) and/or international (86% of assessments reviewed) policies (Figure 9.10). Global assessments tend to have a strong direct link to the review and development of international policies and are only occasionally linked to national policy review. In comparison, fewer outcomes of regional assessments are seen to have a direct link to international or national policy review and development.

9.1.3 Key findings from section 9.1 (summary and analysis of questionnaire returns)

- 50 organizations provided fully completed questionnaires for 54 regional and 28 global assessments.
- 70% of reviewed assessments use primary data.
- Long-term funding is not in place for most open-ended regional or global assessments.
- There are a number of well-established (>20 years) fisheries and pollution assessments; longer term environmental assessments have been established in the last ten years.
- 25% of the global assessments reviewed are 'one-off' events.
- As a crude estimate, between US\$10 million and US\$20 million are presently being spent by the reviewed assessments, involving approximately 300 to 500 people.
- National policy makers, international policy makers and the scientific community are the main end-users identified by regional and global assessments.
- 80% of assessments identified capacity-building needs to support ongoing work.
- Global assessments have more direct links to, and influence on, international policy review and development than regional assessments.
- Only half of the regional and global assessments use indicator frameworks to structure how change in the marine environment can be measured and assessed.
- 92% of assessments have some form of quality assurance mechanism.

9.1.4 Tables and figures for section 9.1 (summary and analysis of questionnaire returns)

Table 9.1 Summary of contacts and responses

	No.	%
Total number of contacts	206	100
Number of questionnaire respondents	60	29
Narrative responses	22	11
Inappropriate contacts/contacts not able to respond	32	15
No response	92	45

Table 9.2 Breakdown of responses on the basis of completed questionnaires returned

In many cases respondents completed section B of the questionnaire for only some of the ongoing assessments

	No. of organizations responding	No. of activities identified
Summary details of assessments	56	188
Detailed activity information (total)	50	88
Global activities		28
Regional activities		54
National activities		6

Table 9.3 Assessments involving partnerships and contributing institutions at regional and global scales

	Regional	Global
Partnerships	36 (67%)	21 (75%)
Other contributing institutions	14 (26%)	17 (61%)

Table 9.4 Duration and types of open-ended regional and global assessments (n=82)

Duration of ongoing assessment	No.	% of open-ended assessments (n=39)	% of all reviewed assessments (n=82)	Types of assessment
10 yrs or less	18	46	22	Dominated by environmental monitoring (some fisheries assessments; information provision and training)
10-20 yrs	8	21	10	Fisheries stock assessments; pollution monitoring; ecosystem dynamics
20-30 yrs	6	15	7	Pollution monitoring
>30 yrs	6	15	7	Dominated by fisheries stock assessments (1 mapping)
Unknown	1	3	1	Fisheries stock assessments

Figure 9.1 Summary of contacts and responses

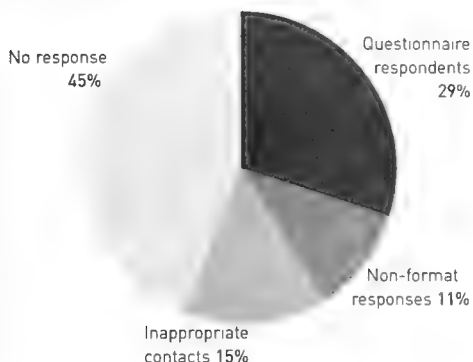
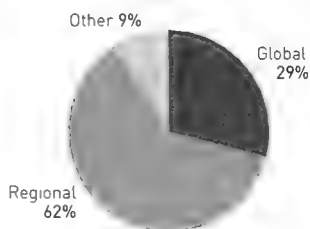


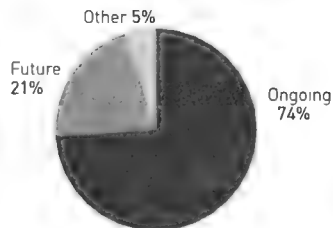
Figure 9.2 Responses on the basis of completed questionnaires returned

(a) Percentage of regional and global assessments



n = 188, other represents national-scale or scientific working groups were employed

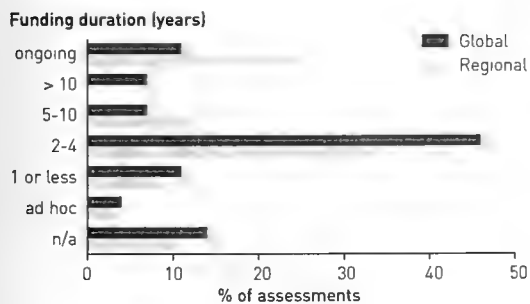
(b) Number of ongoing and future assessments



n = 188, other indicates no specification

Figure 9.3 Duration of funding compared to the expected duration of regional and global assessments

n[regional] = 54; n[global] = 28



Assessment/activity duration (years)

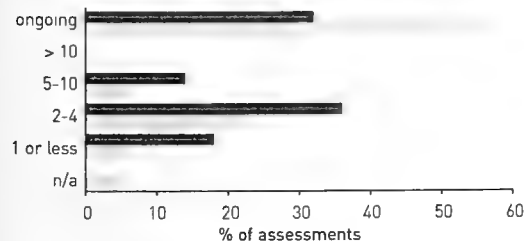


Figure 9.4 Periodicity of regional and global assessments

n[regional] = 54; n[global] = 28

Frequency of assessment

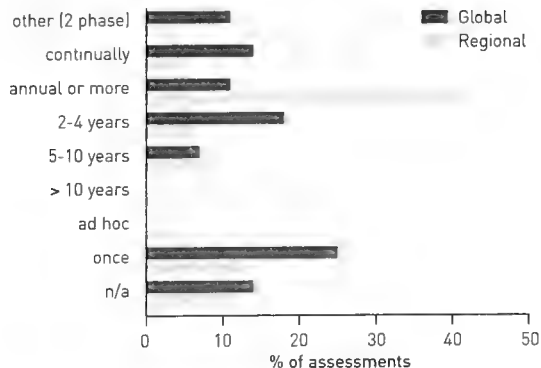


Figure 9.5 Financial and personnel resources allocated to regional and global assessments

n[regional] = 54; n[global] = 28

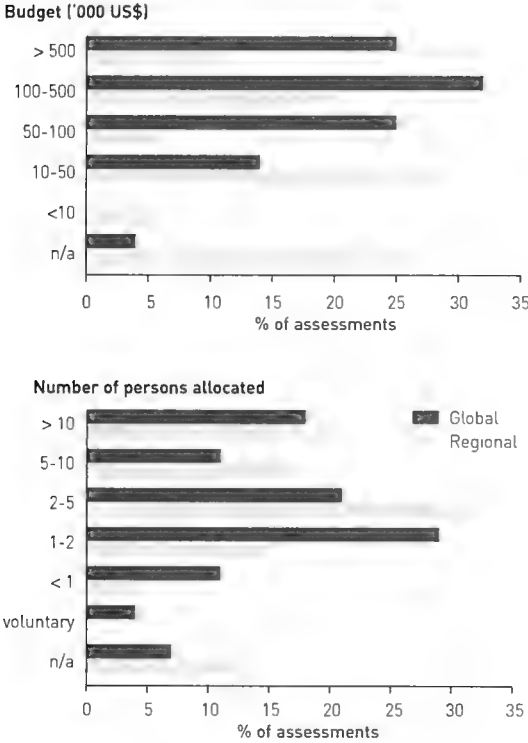


Figure 9.7 End-users of regional and global assessments

n[regional] = 54; n[global] = 28

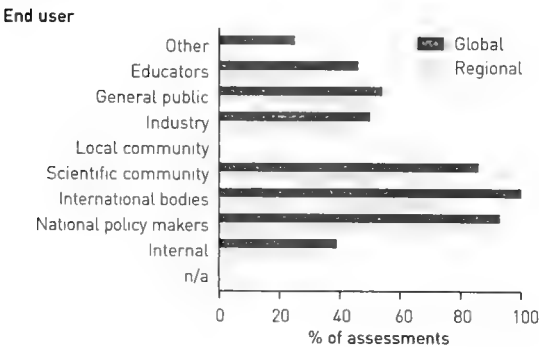


Figure 9.6 Stakeholder involvement in regional and global assessments

n[regional] = 54; n[global] = 28

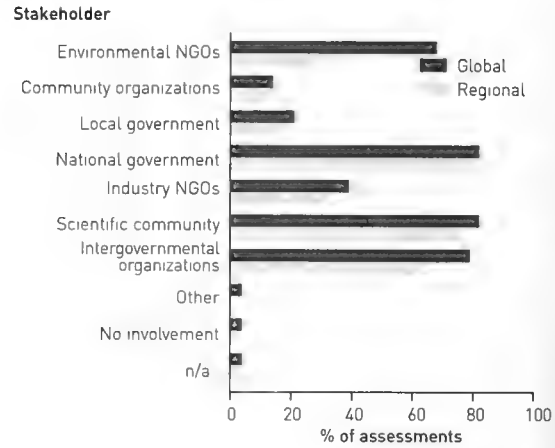


Figure 9.8 Stakeholder involvement in the different phases of regional and global assessments

In many cases stakeholders are involved in two or all of the phases

n[regional] = 53; n[global] = 27

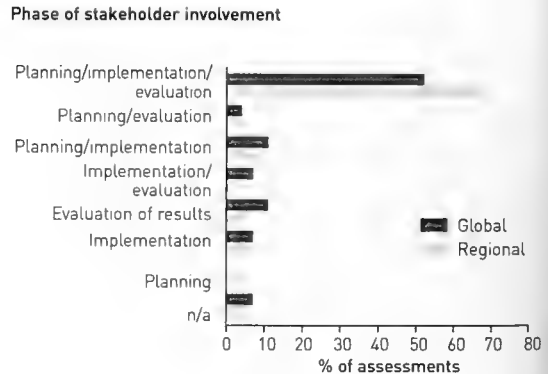


Figure 9.9 Indicator types employed in monitoring regional and global assessments

n_(regional) = 29; n_(global) = 13

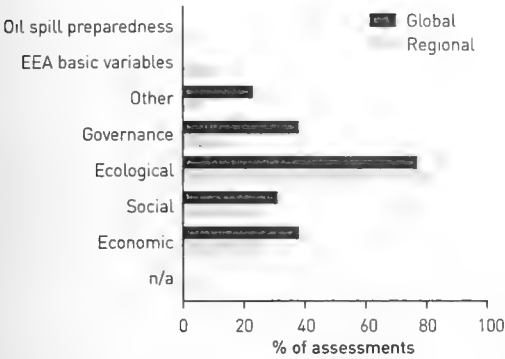
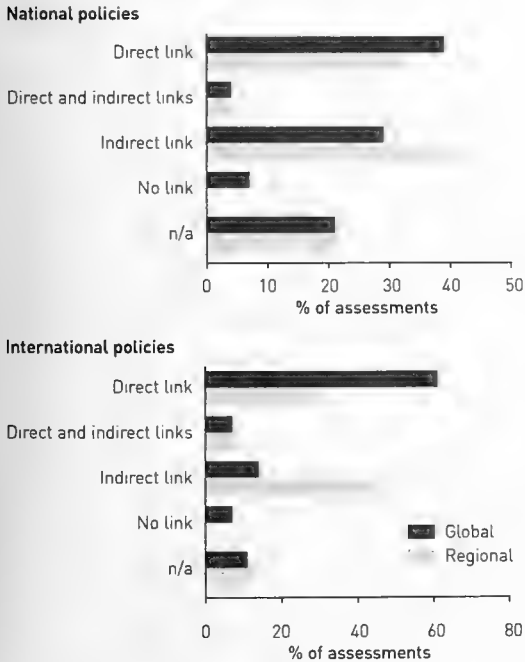


Figure 9.10 Linkages between regional and global assessment outcomes and the review and development of new national and international policies

n_(regional) = 54; n_(global) = 28



9.2 GEOGRAPHICAL COVERAGE

It is the aim of this section to consider how and where the world's oceans are being assessed at present and to identify gaps in geographical coverage. A distinction is made between where there are provisions for assessment and where assessments are actually being carried out.

9.2.1 Provision for assessments

In many cases, assessments are carried out in defined geographical regions. Respondents were asked to indicate if they used existing regional definitions for the purpose of their assessment or activity.

Seventy per cent of regional assessments and 54% of global assessments use defined regions (Figure 9.11). Nine regional definitions/frameworks were most commonly used, i.e. UNEP Regional Seas (including the Caspian Sea Programme as of January 2003), non-UNEP regional seas (CCAMLR, OSPAR, HELCOM), FAO Fisheries Regions, non-FAO fisheries regions, Large Marine Ecosystems and the WWF Global 200 series – Marine Ecosystems, IUCN regions, CSIRO-CRIMP and UNCLOS (Figure 9.12). Data were available for seven of these international assessments and regional frameworks (UNEP Regional Seas, non-UNEP regional seas, as well as for the areas covered by global assessments, FAO Fisheries Regions, non-FAO fisheries regions, Large Marine Ecosystems and the WWF Global 200 Series – Marine Ecosystems). The geographical areas covered by these regional and global assessments are illustrated in Map 1. The individual layers used to prepare this overlay map are presented separately as Map 2 a-f. No data layers were available for IUCN regions, CSIRO-CRIMP and UNCLOS. UNCLOS defines its coverage as for all areas of the ocean and sea floors that are not under national jurisdiction.

Maps 1 and 2 illustrate very clearly the density of provisions that exist for assessments of various geographical parts of the global oceans and demonstrate the evident lack of provisions for the undertaking of marine assessments in the international waters of the high seas, or open oceans. Only fisheries zones (FAO and non-FAO) cover the open sea, as do the mandates of some of the non-UNEP regional sea conventions, e.g. OSPAR and CCAMLR. UNCLOS, in theory, makes provisions for open oceans and the seabeds; however in most cases UNCLOS delegates authority for these areas to regional bodies, which have highly variable capacities for working and implementing these provisions in these areas.

The maps do not provide information on the intensity of ongoing assessments in the geographical areas covered. To visualise this kind of information in the form of overlays was beyond the time frame and the scope of this project. However, the questionnaire returns, as well as the narrative information, provided some indications of the amount of assessments carried out in the various geographical areas. As an example, the west coast of Africa is covered by the global LME framework and the regional Abidjan convention, both concerned with the marine environment, as well as by an FAO fishery zone. Nevertheless, the information

analysed in this study shows a relatively low number of ongoing and planned assessments in the marine waters off the coast of West Africa, so this area represents a current geographical gap.

9.2.2 Location of activities

This review tried to identify all regional and global assessments. However, there are a very large number of ongoing and planned assessments, and this survey is not exhaustive.

In an attempt to analyse and visualize where these assessments are being undertaken the regional and country levels covered by the 188 activities identified in returns were compiled using sea areas defined under UNEP and non-UNEP regional sea conventions and programmes. Each assessment was assigned either to the closest region covered by (or incorporating all of the countries involved under) a regional convention or programme. Those assessments carried out on a global scale were separated (Table 9.5). When illustrating the number of activities per location or region in the form of a pie chart (Figures 9.13 and 9.14) the areas of higher intensity activity are clearly seen. There is a bias towards the number of assessments in the North-East Atlantic, due to the number of those contacted, and those responding. It was also noted that 68% of secretariats and administrative offices are located in Europe and North America (Figure 9.15). Beyond the global assessments, the areas of most intense assessment activity are the North-East Atlantic (including activities of ICES and OSPAR), the Baltic Sea (HELCOM) and the wider Caribbean.

Furthermore, the questionnaire asked for an indication of those regional and global marine areas that were deemed insufficiently covered by assessments. The results in Table 9.6 show that the Asia Pacific and South Asian seas are insufficiently covered by regional assessments. The polar oceans, as well as marine areas belonging to developing countries and small island states (including small island developing states) are still somewhat under-represented in global assessments.

The majority of regional assessments include coastal areas and EEZs. For global assessments, coastal waters are the main focus of attention, with estuaries, EEZs and international waters being included in approximately 40% of the assessments (Figure 9.16).

Some programmes (e.g. GOOS or IOC surveys) cover international waters or have open-ocean elements, but in most cases these are limited to geophysical (including bathymetry), hydrographical and chemical parameters. The vast areas of open ocean and deep sea floor are some of the least known environments on earth, harbouring many ecosystems that are poorly understood. In addition

to the open ocean and regions identified in Table 9.6, respondents identified nearly all marine environments in one context or another as insufficiently covered and in need of further activities, including sublittoral or offshore habitats and habitats adjacent to coasts and estuaries.

9.2.3 Key findings from section 9.2 (geographical coverage)

- There are large differences in the number of ongoing assessments between and within the various regions of the global oceans.
- The assessment of the marine environment, both in terms of provisions made and actual activities carried out, is most developed for the coastal areas of regions in the Northern Hemisphere.
- Over two-thirds of the secretariats and administrative offices reviewed are located in Europe and North America.
- The international waters of high seas and open oceans represent a geographical gap in current assessments.
- Marine areas governed by small island states are not well covered by current assessments.
- Developing nations are poorly covered to date, due to lack of capacity (human, financial, institutional and legal).
- Despite being covered by one or more international conventions or agreements, actual assessment activity is low in certain marine areas/regions.
- The Asia Pacific, South Asian and polar seas were identified as geographical gaps.

9.2.4 Tables and figures for section 9.2 (geographical coverage)

Table 9.5 Geographical gaps in the coverage of regional and global assessments

Regional assessments	Global assessments
Asia Pacific	Parts of the South Pacific (French Polynesia)
Parts of the Mediterranean coast	Indian Ocean
EU island territories	Arctic Ocean
Arabian seas	Africa
South Asian seas	Southern Ocean
	Developing countries*

* In particular those with insufficient local capacity and/or legal and institutional frameworks

Table 9.6 Geographical distribution of assessments (n = 188*) by regions/countries covered

Region	Countries covered	No. of assessments
GLOBAL		54
Mediterranean	Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey and the European Union	2
Red Sea & Gulf of Aden	Djibouti, Egypt, Jordan, Palestine, Saudi Arabia, Somalia, Sudan and Yemen	0
ROPME Sea Area	Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates	2
Wider Caribbean	Antigua and Barbuda, Bahamas, Barbados, Belize, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St. Christopher and Nevis, St. Lucia, St. Vincent and Grenadines, Suriname, Trinidad and Tobago, United States of America, Venezuela, and the Caribbean Territories of France, Netherlands and the United Kingdom	16
East Asian Seas	Australia, Cambodia, China, Indonesia, Malaysia, Philippines, Republic of Korea, Singapore, Thailand and Viet Nam	7
Southeast Pacific	Chile, Colombia, Ecuador, Panama and Peru	1
West & Central Africa	Angola, Benin, Cameroon, Cape Verde, Congo, Côte d'Ivoire, DR Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mauritania, Namibia, Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone and Togo	6
South Pacific	Australia, Cook Islands, Federated States of Micronesia, Fiji, France, Kiribati, Republic of the Marshall Islands, Nauru, New Zealand, Niue, Palua, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, United Kingdom, United States of America, Vanuatu and Western Samoa	6
Eastern Africa	Comoros, France (Réunion), Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania	5
Black Sea	Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine	3
Northwest Pacific	China, Japan, Democratic People's Republic of Korea, Republic of Korea and Russian Federation	12
South Asian Seas	Bangladesh, India, Maldives, Pakistan and Sri Lanka	12
Northeast Pacific	Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama	2
Upper SW Atlantic	Argentina, Brazil and Uruguay	0
Baltic	Denmark, Estonia, the European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden	20
Northeast Atlantic	Belgium, Denmark, the Commission of the European Communities, Finland, France, Germany, Iceland, Ireland, the Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom, Luxembourg and Switzerland (incl. North Sea and Wadden Sea)	32
Arctic	Canada, Denmark, Finland, Iceland, Norway, Russian Federation, Sweden and United States	3
Antarctic	Argentina, Namibia, Australia, New Zealand, Belgium, Norway, Brazil, Poland, Chile, Russia, European Community, South Africa, France, Spain, Germany, Sweden, India, Ukraine, Italy, United Kingdom, Japan, United States of America, Republic of Korea, Uruguay	6
Caspian	Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan	1
Others	South America	2
	Africa	5
	Aral Sea	1
	Central Pacific	2
	Other	5

* There is some overlap where countries appear in more than one area.

Figure 9.11 Usage of existing regional frameworks in regional and global assessments

n[regional] = 54; n[global] = 28

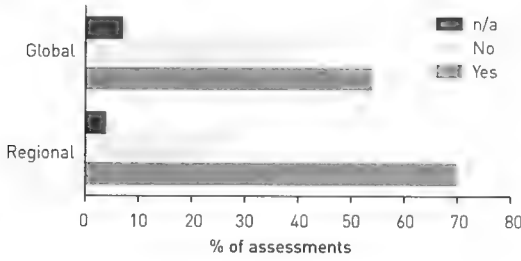
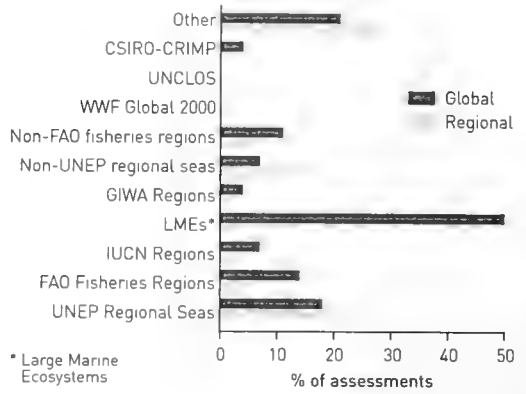


Figure 9.12 Main frameworks used in regional and global assessments

n[regional] = 39; n[global] = 14

Some assessments use more than one



* Large Marine Ecosystems

Figure 9.13 Regional distribution of the assessments contacted for this survey

n = 206

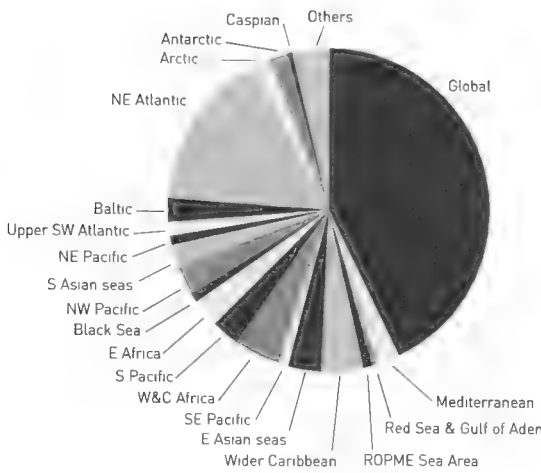


Figure 9.14 Number of existing assessments globally and in different regions

n = 188

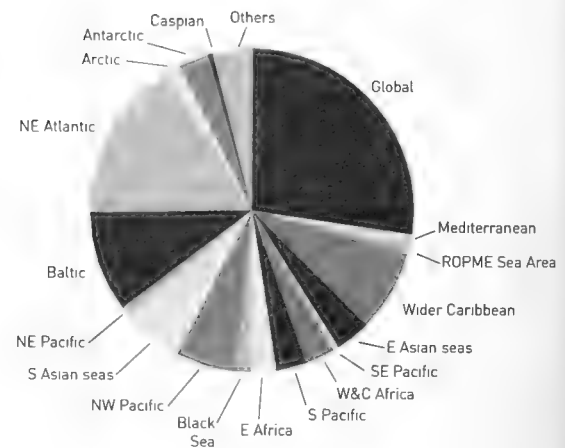


Figure 9.15 Location of the secretariats and administrative offices of the organizations and assessments contacted

n = 206

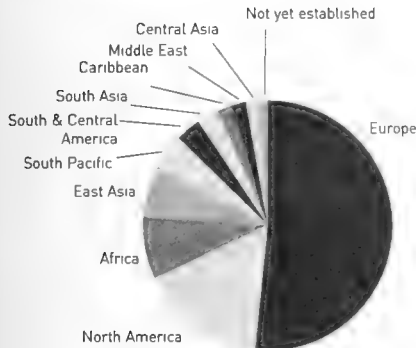
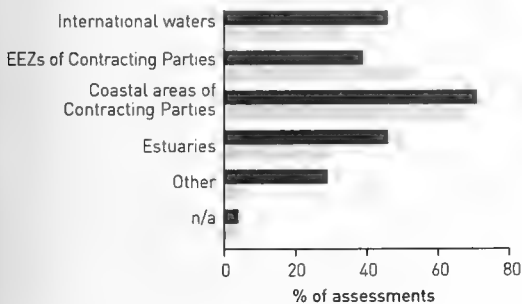


Figure 9.16 Assessment coverage of different marine areas

n_[regional] = 54; n_[global] = 28

Some assessments are being carried out in more than one area
International waters include high seas and open oceans



9.3 THEMATIC COVERAGE

Anthropogenic activities impact the marine environment in several ways, most prominently via inputs of contaminants and pollutants (e.g. through direct or riverine inputs from land and atmospheric deposition) and through the extraction of living and mineral resources (e.g. fishing, oil and gas, minerals and aggregates). In the questionnaire, five thematic areas (geophysical, ecological, human health and safety, impacts of human activities and pollution) were put forward to examine whether and how existing assessments addressed these two processes. Each theme was broken down into a number of issues, and the questionnaire asked respondents to identify those covered by the mandate of the relevant assessment.

9.3.1 Coverage of thematic areas

Twenty per cent of assessments covered the breadth of all five thematic areas presented in the questionnaire (Figure 9.17).

Pollution, impact of human activities and ecological issues account for the majority of thematic areas which are being addressed by the assessments reviewed. The number of assessments dealing with geophysical information (e.g. bathymetry, oceanography, hydrography) appears to be low. However, due to the stability of geological and physical parameters, they can be sufficiently covered by fewer programmes, and with a longer periodicity/time interval. The IOC's ocean mapping programme, for example, is a long-running initiative that has been providing for the last 30 years a constant output of 1:1 million scale geophysical, geological and bathymetric charts of the ocean floor.

Within the five thematic areas mentioned above, there are particular issues that are covered more than others by existing assessments (Figure 9.19). Assessment of climate change, marine ecosystems, biodiversity and habitats are better covered than other thematic areas, as are regional assessments of fisheries, monitoring of pollution by hazardous substances and nutrients. Alien species have greater coverage at the global than at the regional level.

The majority of pollution assessments address land-based inputs and riverine discharges (Figure 9.19). Only one of the returns referred to the assessment of pollution by atmospheric deposition, although this is being monitored and assessed in the framework of several international conventions (e.g. OSPAR).

9.3.2 Thematic gaps

The main thematic gaps identified by respondents are presented in Table 9.7. The issue of tourism was not raised, although this is one of the most rapidly developing economic sectors with great potential for impact upon the marine environment. The tourism industry undertakes local and irregular impact assessments of target sites. There are global organizations (e.g. the World Tourism Organization) for regulating tourism operations and for raising the growing awareness of the actual and potential impacts this industry could cause in terms of pollution and disturbance of ecologically sensitive areas, habitats and species. In this context, the tourism industry should be considered stakeholders in a regular GMA mechanism.

UNEP-DTIE works with regional sea conventions, for example in undertaking a blue flag accreditation scheme for beach quality and bathing water quality in the Caribbean. The results of such work are customer orientated, focusing more on supporting the management of operations than on the status of the marine environment. Environmental impact assessments, when undertaken, are usually local and carried out as a single exercise.

Another thematic area that seems to be insufficiently covered by existing assessments are the socio-economic factors. Although the questionnaire did not explicitly ask for information on the extent to which poverty and socio-economic issues are currently addressed (which might explain in part their very low coverage shown in the breakdown of issues in Figure 9.19), socio-economic issues were raised by several respondents as an area that would need more attention both in regional and global assessments. This suggests that the data illustrated in Figure 9.19 are not an artefact.

9.3.3 Changes over time

The analysis of the thematic areas addressed by assessments in relation to their duration revealed an interesting shift of thematic focus of long-term assessments over time. Assessments commissioned over 30 years ago are mostly dealing with fisheries and fish stock assessments, whereas those initiated between 20 and 30 years ago are focussing on monitoring and assessments of marine pollution. Only more recent assessments (starting in the last ten years) are concerned with broader environmental issues. Although some assessments still focus on their original priority areas, there is a trend towards a gradual uptake of new themes and issues (e.g. ecosystem assessment approach) in the review and revision of long-standing assessments.

9.3.4 Key findings from section 9.3 (thematic coverage)

- In general, there are good data available as regards the geophysical parameters of the marine environment (bathymetry, hydrography and oceanography) to provide information for policy advice, at least for most issues to be addressed at the global level. New methodology such as remote and satellite sensing will further increase our knowledge.
- The assessments of fisheries and fish stocks as well as that of pollution by hazardous substances and nutrients are particularly well addressed at the regional scale. Alien species have greater coverage at a global level.
- Very little information was received on marine pollution caused by atmospheric deposition. Further study is needed.
- The interactions between marine and freshwater systems, as well as the resulting environmental effects, are poorly covered by existing assessments.
- The principal thematic gaps in current assessments include (i) the understanding of how ecosystems function, particularly those that are difficult to access, e.g. mid oceanic and open ocean/deep sea floor communities, (ii) socio-economic implications relating to the state of the marine environment and (iii) biogeochemical associations and interactions.
- There is a need to address the relationships and interactions between the biological, chemical and physical characteristics of the marine environment, and how these relationships and interactions affect, and are affected by, human activities.
- The thematic focus of assessments changes with time and political need.

9.3.5 Tables and figures for section 9.3 (thematic coverage)

Table 9.7 Thematic gaps in regional and global assessments

Regional assessments	Global assessments
<p>Ecosystem function:</p> <ul style="list-style-type: none"> • Data are currently only available for parts of the ecosystem; more information is required on the broader marine ecosystems • Coast-offshore relationships with respect to nutrient and organic matter cycling • With respect to fisheries, need more understanding of by-catch data and assessment of associated species • Effects of coastal erosion, loss of ecosystems 	<ul style="list-style-type: none"> • Ecosystem-wide assessments and risk assessment • Integration of global change and climate change into assessments
<p>Socio-economic implications:</p> <ul style="list-style-type: none"> • Of poverty, community needs and development imperatives • Of climate change 	<p>International responsibility for:</p> <ul style="list-style-type: none"> • Economic assessment • Ocean-based energy • Public health
<p>Nutrient pollution/fisheries stock/biogeochemical cycles</p>	<p>Mid ocean and ocean floor biogeochemistry</p>
<p>Ecology of benthic communities</p>	<p>Socio-economic status of reef resources</p> <p>Recognition and protection of seagrass habitats</p>

Figure 9.17 Main thematic areas addressed by assessments

n_[regional] = 54; n_[global] = 28

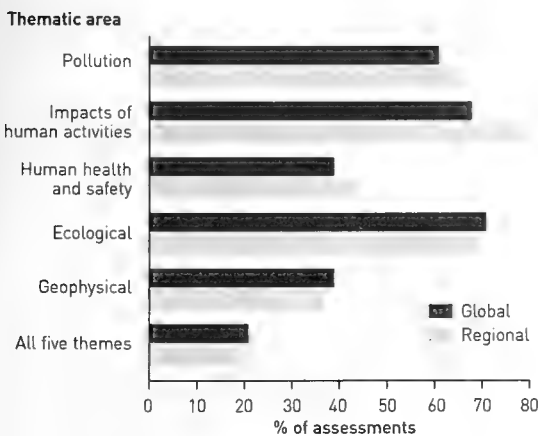


Figure 9.18 Main issues within themes addressed by assessments

n_[regional] = 54; n_[global] = 28

Many of the issues not addressing pollution are covered by 'other' 'Dumping' as defined by UNCLOS Article 1(5)

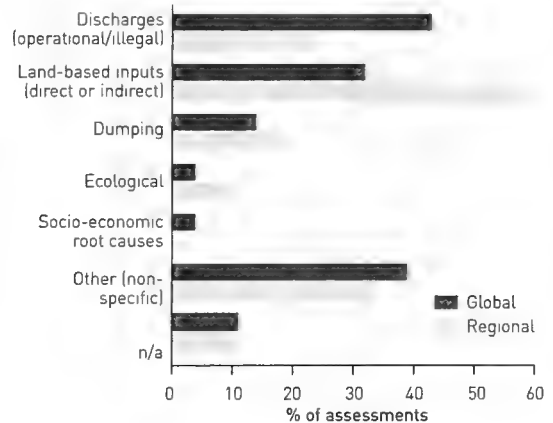
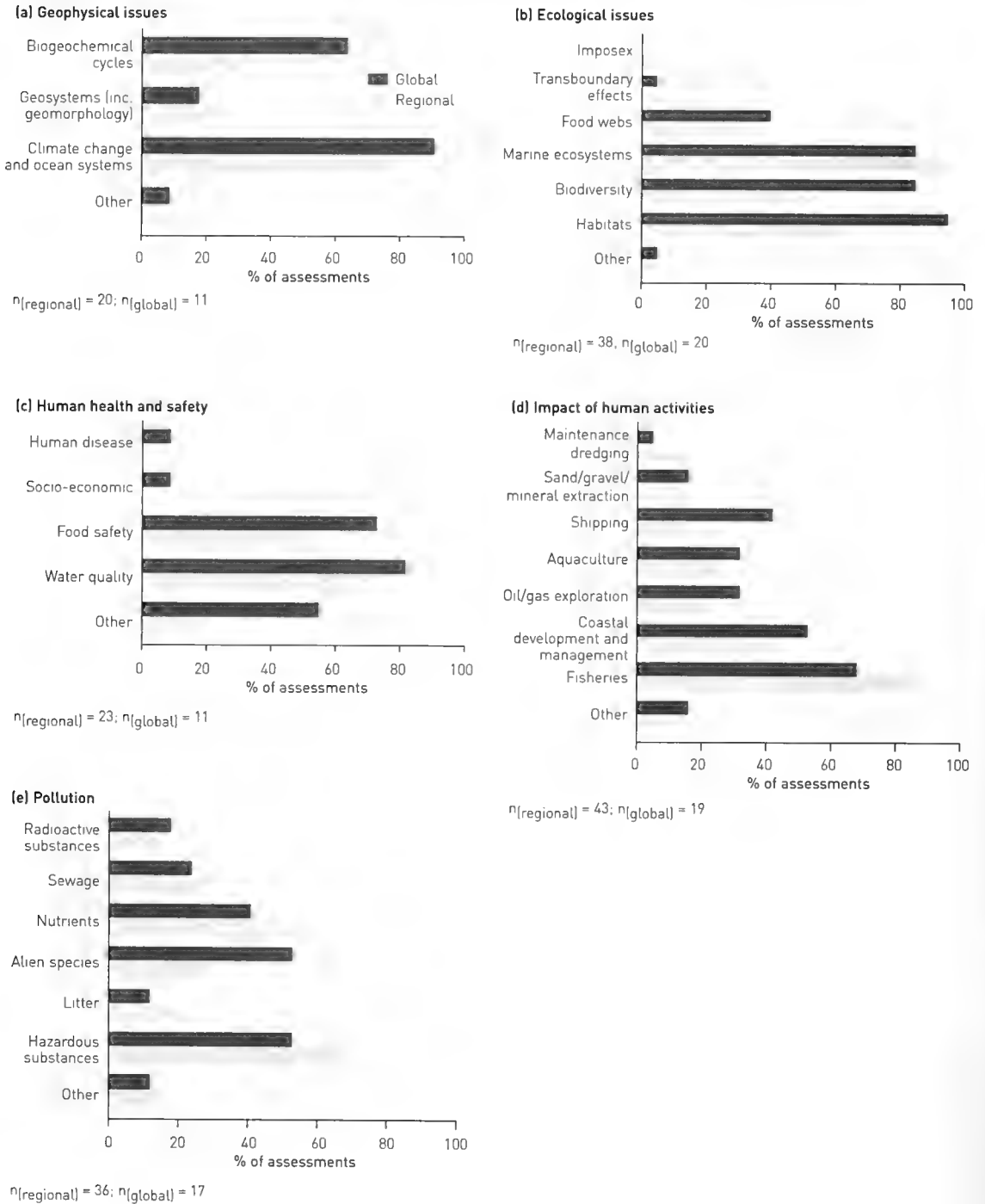


Figure 9.19 Breakdown of the five thematic groups showing the main subjects of the responding assessments



9.4 OVERVIEW AND INTERPRETATION OF KEY NARRATIVE RESPONSES

In addition to the return of completed questionnaires, large quantities of information were received during the study in the form of narrative responses from a number of individuals and organization representatives, who felt that:

- ❑ Although their mandate or activities were of interest for the study and could be of use to the GMA mechanism, they were unable to fit them into the format of the questionnaire.
- ❑ They would be users of, rather than contributors to, a GMA.
- ❑ They could not provide information.

Where possible, such responses were followed up in further discussions and/or correspondence. It was impossible to incorporate all information received in narrative form in this report. However, some key facts in terms of organization, contact and theme of response are given in Annex 11.

The narrative responses demonstrate that the status of the marine environment is a much broader concept than physical, chemical and biological parameters and a GMA mechanism will need to encompass management practices and uses. A number of organizations do not themselves undertake assessments or scientific activities, but do hold or collect information that is pertinent to understanding the marine environment. Some of the key elements that should be considered in the GMA context are outlined in the sections 9.4.1-9.4.3 below.

9.4.1 Information sources

There are a number of databases that could provide sources of primary data at global and regional levels:

- ❑ OBIS (<http://www.iobis.org/>) – Aims to create an inventory of fish and non-fish nekton on a global basis that would greatly improve the understanding of biological diversity and interactions beyond the coastal zone.
- ❑ EDIOS (<http://www.edios-project.de/>) – An information database for Euro GOOS.
- ❑ ECOiSHARE (still under development) – To provide open access to biodiversity and environmental data collected by industry.

9.4.2 Organizations with specialist knowledge/skills

Several organizations with specialist knowledge and skills could contribute to a GMA process by:

- ❑ Linking public and private sectors: UNEP-WCMC (<http://www.unep-wcmc.org/>) e.g. the ECOiSHARE project).

- ❑ Specialist networking and facilitation to bring natural and social scientists together, and to bring science closer to policy: ICSU (<http://www.icsu.org/>), DIVERSITAS (<http://www.diversitas-international.org/>), SCOPE (<http://www.icsu-scope.org/>).
- ❑ Database development: Census of Marine Life (http://www.coreocean.org/Dev2Go.web?anchor=coml_home_page), UNEP-WCMC, WorldFish Center (<http://www.worldfishcenter.org/>).
- ❑ Special information about fisheries: FAO (<http://www.fao.org/fi/body/rfb/index.htm>) and non-FAO fishery bodies.
- ❑ Information on sites of special interest and/or on protected areas: UNEP-WCMC, World Heritage Centre (<http://whc.unesco.org/>).

9.4.3 Other existing mechanisms

In addition to those mechanisms included in the analysis of the questionnaire returns, the narrative responses drew attention to the following assessment-related activities. GOOS and LME frameworks have been mentioned already in this report. However additional relevant information was provided by their secretariats and is included here.

- ❑ GOOS, GCOS and GTOS (<http://ioc.unesco.org/goos/>) are permanent mechanisms which can provide information needed for the assessment of change in the global marine environment. These programmes will cover the coastal zone from the marine and terrestrial sides, and the open oceans. It should be noted that the mandates of each of these programmes are different, and that those carried out in the open oceans are heavily biased towards physical-chemical parameters. Currently in the pilot project stage, it is expected that these programmes will be operational by 2010. They are supported by regional bodies (currently in formation) which feed information to a global level. Some regional operations such as Euro GOOS and BOOS are beginning to approach coordination with UNEP and non-UNEP regional seas organizations. Such collaborations are essential to maximize the support of national stakeholders, given the already high demand on governments to provide data to a number of assessments.
- ❑ LME (<http://www.edc.uri.edu/lme/default.htm>) – A strategy for the assessment and management of international coastal waters, involving a number of national and international bodies. The areas are, unlike others, described in terms of ecosystem similarity and number 64 in total. The assessments are diverse

covering productivity, fisheries and pollution, although given the different delimitation of regions integration of this information may be quite difficult.

- GPA/LBA (<http://www.gpa.unep.org/>) – Little information was provided, although as a user of assessments the GPA expressed keen interest in the progress of the GMA. The process currently relies on national and regional assessments.
- European Commission (http://europa.eu.int/comm/index_en.htm) – Has put forward a proposal for a marine strategy in an attempt to better understand the European marine environment and the extent of its influence on marine waters beyond Europe. The European marine strategy is in the early stages of development, but will face parallel issues to a global reporting system. The strategy plans to increase the coordination of assessments in Europe, and could provide useful lessons for a global assessment.
- ICSU Global Change Programmes (IGBP, WCRP, IDHP and DIVERSITAS) – These have oceanic elements, and have been providing scientific information to make policy decisions (e.g. the IPCC). There may be lessons to learn from the way in which science and policy interact and how this affects the credibility, saliency and legitimacy of assessments.
- GIWA (http://www.giwa.net/giwafact/giwa_in_brief.phtml) – A worldwide assessment which aims to provide sound scientific advice to decision makers and managers concerned with water resources and dealing with environmental problems and threats to transboundary water bodies. The objective is to produce a comprehensive and integrated global assessment of international waters. It is to be a systematic assessment of the environmental conditions and problems in international waters, comprising marine, coastal and freshwater areas, and surface waters as well as ground waters. The GIWA programme is planned for a period of four years (starting in 1999) working with 66 sub-regions (see Map 2). Of particular interest is the dynamic approach GIWA is taking not only to assess the existing situation but to develop scenarios of the future condition of the world's water resources and analyse policy options.

9.4.4 Key findings from section 9.4 (narrative responses)

- A number of specialist organizations do not carry out assessments but nevertheless could provide a GMA with useful information.

- There are many sources of primary information, databases and existing mechanisms which a GMA mechanism could learn from and build upon.

9.5 LESSONS LEARNED FROM REVIEWED ASSESSMENTS

The questionnaire asked respondents to share the lessons that had been learned during the planning and implementation of their assessments and activities. Some of these responses are collated below as a useful prelude to the further discussion of the results of the study. Please note that, where possible, the original wording of the response is given to avoid misinterpretation.

Lesson 1: The involvement of stakeholders

Assessments need the involvement of member states and all other relevant stakeholders. Regional conventions can facilitate support to and participation in activities. To achieve such a high level of participation is very expensive and time consuming. Involvement of stakeholders is also dependent on capacity.

Lesson 2: Capacity building

Experience sharing is essential for developing regional capacity and can be achieved through the development of regional networks. It also permits improved communication and coordination and feedback interactions, which in turn aids the development of comprehensive regional policy.

Lesson 3: Monitoring indicators

Monitoring indicators should be selected according to the situation and goals. The selection of appropriate indicators could be a means for coping with ecosystem complexities, such as in reef systems (especially exploited systems, such as multi-species fisheries).

Lesson 4: The implementation

It is important to evaluate environmental issues in a socio-economic framework. To achieve this, the use of multidisciplinary groups is essential in any assessment of the marine environment, but rather difficult. Where possible groups should be kept small; the use of consultants can reduce time and costs, but also decreases the involvement of stakeholders and the associated capacity building. Greater support should be provided to developing countries to be able to accomplish this.

Lesson 5: Data quality

Data availability and comparability is a bottleneck in assessments. There are insufficient data collection

centres and shortages of people to input and process the data that do exist. Improved systems for country-level and global data collection are required, with automation of tasks for recurrent assessments where possible. Improved data quality requires standardized procedures and assessment methods to ensure accuracy, reliability, comparability and quality.

Lesson 6: Assessment outputs

Effective dissemination of information is as important as production of results. If results are not orientated to the end-user, and presented in a user-friendly and accessible manner, they will not be taken up. The requirement for data provision is only sustainable if it leads to a decision-making process or the product is of direct use. It has been found that publication of documents is needed in both paper and electronic formats to reach the widest audience possible.

Lesson 7: Uptake by end-users

Even where issues may be similar across regions, policy response priorities may not be, thus creating intra-regional variability in user needs. It is suggested that the saliency of the outcomes of an assessment to the end-user or target groups can be increased by the use of both qualitative and quantitative data.

In most cases there is already sufficient information available to warrant action to be taken. It is not always necessary to wait for the full evidence.

9.6 APPLICATION OF CRITERIA TO ASSESSMENTS¹

The information received on 82 assessments and activities (54 regional assessments, 28 global assessments) was analysed using the seven criteria as defined in Annex 6, Table 6.1 and bearing in mind the wording of UNEP GC Decision 21/13 which calls in Article 4 for ‘...a regular process for the assessment of the state of the marine environment, with active involvement by governments and regional agreements, building on ongoing assessment programmes’.

This section outlines how well existing assessments could fit into a future GMA process and identifies any actual or potential impediments and barriers to this integration. An overview of how each of the 82

assessments meets the seven criteria is presented in Annex 12, and summaries of the results are given in Tables 9.8 – 9.10 below.

Not a single assessment fully met all seven criteria and could be incorporated into a GMA without overcoming one or more impediment(s) or partial impediment(s). Tables 9.8 and 9.9 illustrate that there is a need for considerable changes being made before even one assessment would meet all criteria. It is quite apparent that there is some way to go before a body of assessments is established capable of regularly contributing to all aspects of a future GMA. However, the 13 global and 24 regional assessments that are listed in Table 9.10 meet the criteria only with some partial impediments and therefore could be considered as some of the key partners and contributors for a further GMA. To illustrate this integration and cooperation, one regional and one global assessment are further elaborated as examples.

GLOBAL: GloBallast, Ballast water risk assessment (led by IMO/ UNDP/GEF)

This assessment (Annex 12, ID Code 44b) meets the geographical, saliency and credibility criteria, but there are partial impediments to it meeting the criteria for legitimacy, regularity, cost effectiveness and sustainability. The partial impediment to legitimacy is related to the fact that GloBallast is undertaken in form of a scientific cooperation, which is not based on a (legal) requirement set out under an international agreement or convention. This means that there is some uncertainty as to whether and how GloBallast would be able to respond to the needs of GMA end-users. This, in addition to the funding duration and mechanism of GloBallast, creates a partial impediment to meeting the sustainability criteria. With respect to the regularity criteria, the assessments under are undertaken in the first instance with the direct support of GloBallast after which the assessments continue at the discretion of national bodies, which may, or may not, carry them out on a regular basis. GloBallast has a high budget in comparison to other assessments reviewed, with a relatively low labour requirement. This is not considered sufficient for the task in hand, so that GloBallast does not completely meet the cost effectiveness criteria.

1. The following analysis and interpretation of the results in applying the criteria to the 82 regional and global assessments takes into account that each of these assessments has a specific, internationally agreed mandate and objective(s). For those assessments based on, or carried out under, independent regional/global conventions and multilateral agreements, these mandates and objectives are set out either in the text of the convention or in decisions adopted by the Conference of Parties. The use of the term ‘integration’ into the GMA process in this report does not imply that these mandates or objectives have to be changed or indeed that a certain assessment would become superfluous with the establishment of a GMA. On the contrary, ‘integration’ in this context means to what extent a certain existing assessment would be able to contribute, facilitate and support the GMA process.

REGIONAL: State of the Environment of the Black Sea (Commission on the Protection of the Black Sea against Pollution)

This assessment (Annex 12, ID code 18) meets the criteria for saliency, sustainability and legitimacy. The criteria for credibility, cost effectiveness, regularity and geography are met with partial impediments. The partial impediment concerning geography is due to the assessment not covering all regions of the Black Sea. The regularity criterion is almost met, as the assessment is repeated every 2-5 years but is not run continuously. The assessment is based on primary data, but the response received indicated that issues related to data quality still have to be solved (as yet there are no quality assurance mechanisms in place). Outputs are subjected to an internal (but not external) peer review, creating a partial impediment to meeting the credibility criteria. The cost-effectiveness criteria are partially met by the low budget and high personnel resources of the assessment; however these are currently considered insufficient.

Inclusion of the 13 global and 24 regional assessments into a GMA would lead to adequate coverage of the following thematic areas: coral reefs, fisheries and aquaculture, pollution (including nutrients, radioactivity and alien species), coastal management, ocean floor mapping, and global sea-level change. Geographically, in addition to the global scale of some assessments, the Atlantic, European seas (North Sea and Baltic), the Southern Ocean and parts of the African coast would be covered.

This coverage leaves noticeable gaps in a number of thematic areas such as socio-economic aspects, ecosystem monitoring and monitoring of sensitive and highly productive areas (such as algal beds, seagrasses and mangroves), and control and regulation of industry operations relevant for the marine environment. Geographically, many of the Southern Hemisphere oceans (with the exception of the Southern Ocean) would not be covered.

9.6.1 Key findings from section 9.6 (criteria analysis)

- There is no existing assessment or related activity that meets all of the criteria for integration into a GMA mechanism without an impediment or partial impediment.
- All assessments that were found not to have significant impediments to integration into the GMA at a global level are sponsored by UN agencies.
- Many of the regional assessments without significant impediments to their integration into the GMA are regional sea agreements (UNEP and non-UNEP) and all are based on or involve some form of governmental agreement or regional convention.

9.6.2 Tables for section 9.6 (criteria analysis)

Table 9.8 Impediments to the potential integration of global and regional assessments into a GMA mechanism

The most common impediments are shown in **bold**

Criteria	Global assessments	Regional assessments
Saliency	2	3
Sustainability	5	5
Credibility	5	12
Legitimacy	3	5
Cost effectiveness	3	4
Regularity	7	13
Geography	2	5

Table 9.9 The number of criteria met by global and regional assessments

An assessment that meets all seven criteria listed in Table 9.8 could, theoretically, be incorporated into a GMA without any impediment

Number of criteria met by the assessment	Global assessments n = 28	Regional assessments n = 54
7- No significant impediments	0	0
6	0	0
5	0	2
4	0	5
3	3	11
2	7	9
1	13	16
0	5	11

Table 9.10 Global and regional assessments that at least partially meet the assessment criteria

The ID Code corresponds to the code assigned to each of the assessments in the final column of Annex 13

Organization	Assessment/activity	ID code
GLOBAL		
FAO	Recurrent review of the State of the World Fisheries Resources: Marine Fisheries	41a
	Recurrent review of the State of World Aquaculture: Issues of environmental interactions and use of resources ¹	41b
	The State of World Fisheries and Aquaculture (SOFIA)	41c
	UN Atlas of the Oceans	41f
GEF/UNDP/IMO -GloBallast	Ballast water risk assessments	44a
	Port biological baseline surveys	44b
	Invasive aquatic species case studies (desk top)	44c
IAEA	Worldwide marine radioactivity studies in oceans and seas	43a
ICRAN (GCRMN)	Coral reef economic valuation	28f
	Coral reef fisheries analysis	28g
IOC	Ocean mapping programme	37b
UNEP-GSLOS	Global Sea Level Observing System	47a
UNIDO	Assessments of UNIDO	48
REGIONAL		
Black Sea Commission	State of the Environment of the Black Sea	18
CCAMLR	Ecosystem status	32b
	Fisheries assessments	32a
	Krill survey	33d
	Predator monitoring	33c
CWSS	Quality Status Report on the Wadden Sea (pollution, eutrophication, habitats and species)	27e
HELCOM	COMBINE monitoring programme (environmental effect of inputs)	35c
	Monitoring of illegal oil discharges at sea	35e
	Monitoring programme for radioactive substances	35d
	Pollution Load Compilation – Air (airborne load of nutrient and contaminants)	35a
	Pollution Load Compilation – Water (waterborne load of nutrient and contaminants)	35b
IATTC	Biology and population dynamics of tunas and related species and the effects of natural factors and human activities on the ecosystem	30
ICCAT	Annual compilation of catch statistics for all Atlantic tuna and tuna-like species	2a
	Regular stock assessment of Atlantic tuna and tuna-like species	2b
	2004 workshop on tunas and their environment	2c
IUCN	Coastal and Marine Resources Management and Poverty Reduction in South Asia – ICZM in High Priority Areas	10a
Kenya Marine Fisheries Research Institute	Coastal impacts of water abstraction and impoundment in Africa	47c
MED POL	Monitoring Programme of MED POL	20a
NIWA	Marine fisheries and environmental assessments	40
Norwegian Polar Institute	Environmental Management Plan for the Barents Sea	7a
	Environmental monitoring of Svalbard and Jan Mayen (MOSJ)	7b
OSPAR	Joint assessment and monitoring programme (JAMP). Monitoring of contaminants in Norwegian fjords and coastal waters	51b
ROPME	Open Sea Cruise	3
	Assistance to ROPME Region	43b

ANNEX 10. SUMMARY LIST OF ALL REPORTED ASSESSMENTS AND SCIENTIFIC ACTIVITIES DETAILED IN SECTION A OF QUESTIONNAIRE RETURNS

KEY: Text in *italics* represents assessments and activities for which Section B of the Questionnaire was not completed

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
GLOBAL					
<i>Food and Agriculture Organization of the United Nations (FAO)</i>	<i>Inventories: FAO develops and maintains global/regional inventories of species, stocks, production systems, introduced species, etc., that it uses for its assessments</i>				41e
FAO	<i>Recurrent assessments of fisheries resources in the framework of the FAO Regional Fishery Bodies</i>				41d
FAO	Recurrent review of the State of the World Fisheries Resources: Marine Fisheries				41a
FAO	Recurrent review of the State of World Aquaculture				41b
FAO	The State of World Fisheries and Aquaculture (SOFIA)	Every 2 years			41c
FAO	UN Atlas of the Oceans	Indefinite	1999–	UN agencies with ocean and coast mandates, Russia, USA	41f
<i>GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast)</i>	<i>Assessment of the Global Economic Impacts of Invasive Aquatic Species (desk top)</i>	<i>Future</i>	<i>2003</i>	<i>All</i>	<i>44e</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection)	Assessments of environmental impacts of coastal aquaculture	Indefinite	1999–		8c
GESAMP	Development of environmental exposure models for application in seafood risk analysis	Indefinite	2002–2003		8d
GESAMP	Estimates of oil input into the marine environment from ships	Indefinite	2002–2003		8a
GESAMP	Evaluation of hazards of harmful substances carried by ships	Indefinite	Indefinite		8b
GESAMP	<i>Global marine environmental assessments (to be determined)</i>	<i>Future</i>	<i>?</i>		<i>8e</i>
Global Climate Observing System (GCOS)	<i>Coordination activities with GOOS, GTOS, WCRP</i>	<i>Indefinite</i>		<i>WMO, IOC, UNEP, ICSU member countries</i>	<i>12c</i>
GloBallast	<i>Ballast Water Treatment R&D Directory</i>	<i>Indefinite</i>	<i>2001</i>	<i>All countries involved in ballast water treatment R&D</i>	<i>44d</i>
GCOS	<i>Science panels for atmospheric, oceanic and terrestrial climate observing systems</i>	<i>Future</i>	<i>2003</i>	<i>WMO, IOC, UNEP, ICSU member countries</i>	<i>12b</i>
GCOS	Second report on the adequacy of GCOS report to UNFCCC Subsidiary Body for Scientific and Technological Advice	Indefinite	2002–2003	UNFCCC Parties	12a
Global Ocean Ecosystem Dynamics (GLOBEC)	<i>National/multinational GLOBEC activities</i>	<i>Indefinite</i>	<i>1990–2009</i>	<i>Angola, Brazil, Canada, Chile, China, France, Germany, Italy, Japan, Namibia, Netherlands, New Caledonia, Mexico, Norway, Portugal, South Africa, Spain, Turkey, Ukraine, UK, USA</i>	<i>9e</i>

Reporting organization	Title	Scope/duration	Dates	Geographical range	ID code
GLOBEC	<i>Small Pelagic and Global Change Programme</i>	<i>Indefinite</i>	1997–2009		9a
IAEA Marine Environment Laboratory	Worldwide marine radioactivity studies in oceans and seas	Indefinite	1995–	Coastal states	43a
Intergovernmental Oceanographic Commission (IOC)	<i>General Bathymetric Chart of the Oceans (GEBCO)</i>	<i>Indefinite</i>	1903–	<i>Australia, Brazil, Canada, Chile, Denmark, France, Germany, Israel, Italy, Japan, Monaco, New Zealand, Norway, Russia, Spain, Turkey, UK, USA</i>	37a
International Tanker Owners Pollution Federation (ITOPF)	Tanker spill assessment in regional seas	Indefinite	2002–2003		1
Island Resources Foundation	<i>GIWA</i>	<i>Indefinite</i>	2002	<i>Three sub-regions within the wider Caribbean</i>	56c
Kenya Marine and Fisheries Research Institute	Global Sea Level Observing System	Indefinite		Coastal and island states	47a
Millennium Ecosystem Assessment	MA global assessment	Indefinite	2001–2005		24a
Scientific Committee on Problems of the Environment (SCOPE)	<i>Environmental consequences of fisheries (working title)</i>	<i>Future</i>	2004–		39b
SCOPE	Transport of nutrients from land to sea: the silica cycle	Indefinite	1998–2004		39a
Secretariat of the Convention on Biological Diversity	Ad hoc technical expert group on mariculture	Indefinite	2002	Experts from 16 countries	26c
Secretariat of the Convention on Biological Diversity	Ad hoc technical expert group on marine and coastal protected areas	Indefinite	2001–2002	Experts from 15 countries	26b
Secretariat of the Convention on Biological Diversity	Development of rapid assessment methods for marine and coastal biodiversity	Indefinite	2001–2003	Looks at existing methods and suitability to cover biodiversity	26a

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
<i>UNEP Chemicals</i>	<i>Effectiveness evaluation of the Stockholm Convention on POPs</i>	<i>4 years after entry into force</i>			<i>22b</i>
UNEP Chemicals	Global Mercury Assessment	Indefinite	2001–2003		21
UNEP Chemicals	Global Monitoring Network	Indefinite	Continuous		22a
<i>UNEP Chemicals</i>	<i>Global monitoring of POPs</i>	<i>Future</i>	<i>Under development</i>		<i>23b</i>
<u>GLOBAL/REGIONAL</u>					
Global International Waters Assessment	GIWA Global Assessment			66 sub-regions grouped into mega regions = Global	25
International Coral Reef Action Network (ICRAN)	Global Coral Reef Monitoring Network (GCRMN)	Indefinite	Repeating	17 regions/80+ countries	28a
SeagrassNet	SeagrassNet – a global seagrass monitoring programme	Indefinite	2000–2003	Australia, Brazil, Fiji, Indonesia, Malaysia, Micronesia, Palau, Papua New Guinea, Philippines, Tanzania, USA	11a
<i>SeagrassNet</i>	<i>SeagrassNet – a global seagrass monitoring programme</i>	<i>Future</i>	<i>2003–</i>	<i>USA, National Estuarine Research Reserves, National Parks, Vietnam, Belize, Mexico and others</i>	<i>11b</i>
UNEP/DEWA	<i>Global Environment Outlook</i>	<i>Indefinite</i>	<i>2003–2007</i>	<i>International</i>	<i>54</i>
<u>REGIONAL/GLOBAL</u>					
GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast)	Ballast water risk assessments	Indefinite/ future	2002–	Brazil, China, India, Iran, South Africa and Ukraine initially, replicated through regions 2003 on until global cover	44a

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
GloBallast	Invasive aquatic species case studies (desk top)	Indefinite/ future	2002-	Brazil, China, India, Iran, South Africa and Ukraine initially, replicated through regions 2003 on until global cover	44c
GloBallast	Port biological baseline surveys	Indefinite/ future	2001-	Brazil, China, India, Iran, South Africa and Ukraine initially, replicated through regions 2003 on until global cover	44b
International Coral Reef Action Network (ICRAN)	Coral Reef Economic Valuation	Indefinite	2001-2005		28f
ICRAN	Coral Reef Fisheries Analysis	Indefinite	2001-2005		28g
Island Resources Foundation	<i>Millennium Environmental Assessment</i>	<i>Indefinite</i>	<i>2002</i>	<i>Wider Caribbean</i>	<i>56b</i>
Joint Global Ocean Flux Study (JGOFS)	JGOFS	Indefinite	1988-2003	Pacific, Atlantic, Equatorial Pacific, Indian and southern oceans/Global – All major oceans and 25+ countries (Australia, Belgium, Canada, Chile, China-Beijing, China-Taipei, France, Germany, India, Italy, Japan, Kenya, Netherlands, New Zealand, Norway, Oman, Pakistan, Russia, South Africa, Spain, Sweden, Switzerland, Turkey, UK, USA)	16
UNEP Chemicals	Regionally based assessment of persistent toxic substances	Indefinite	2002-2003	12 regions, 160 countries	23a

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
UNEP East Asian Seas Regional Coordinating Unit	GIWA	<i>Indefinite</i>		<i>East Asian seas (Australia, Cambodia, China, Indonesia, Republic of Korea, Malaysia, Philippines, Singapore, Thailand, Viet Nam)</i>	50a
UNEP East Asian Seas Regional Coordinating Unit	<i>Global marine assessment</i>	<i>Indefinite</i>		<i>East Asian seas</i>	50b
UNEP/DEWA water unit	<i>Global Environment Outlook Marine and coastal</i>	<i>Indefinite</i>	1995-	<i>Regional, sub-regional, national</i>	55d
UNEP/DEWA water unit	GIWA	<i>Indefinite</i>	Until 2004	<i>All countries, 66 sub-regions, mega regions and global</i>	55a
UNEP/DEWA water unit	GPA	<i>Indefinite</i>	1998-	<i>All countries</i>	55e
UNEP/DEWA water unit	ICRAN	<i>Indefinite</i>	1999-		55c
UNEP/DEWA water unit	<i>UN Atlas of the World</i>	<i>Indefinite</i>	1999-	<i>UN agencies and associated organizations</i>	55b
UNEP-WCMC	IMAPS	<i>Indefinite</i>	1998-	<i>Mediterranean/Black Sea/Caribbean/Caspian/Scotland/Tunisia, etc., to global coverage</i>	49
REGIONAL					
Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)	Ecosystem status	<i>Indefinite</i>	1991-	24 member states	32b
CCAMLR	Fisheries assessments	<i>Indefinite</i>	1983-	24 member states	32a
CCAMLR	Krill 2000 survey	<i>Indefinite</i>	1999-2001/ 2002+	24 member states	33d
CCAMLR	Predator monitoring	<i>Indefinite</i>	1985-	24 member states	33c

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
Commission for the Conservation of Southern Bluefin Tuna	CCSBT stock assessments	Current/ future	Indefinite	Australia and fishing entity of Taiwan, Japan, Korea, New Zealand	6
Common Wadden Sea Secretariat (CWSS)	<i>Annual harbour seal assessment</i>	<i>Indefinite</i>		<i>Denmark, Germany, Netherlands</i>	<i>27a</i>
CWSS	<i>Blue mussel beds</i>	<i>Indefinite</i>	<i>2002</i>	<i>Denmark, Germany, Netherlands</i>	<i>27c</i>
CWSS	<i>Breeding bird developments in the Wadden Sea</i>	<i>Future</i>	<i>2004</i>	<i>Denmark, Germany, Netherlands</i>	<i>27f</i>
CWSS	<i>Migratory bird developments in the Wadden Sea</i>	<i>Indefinite</i>	<i>2002–2003</i>	<i>Denmark, Germany, Netherlands</i>	<i>27b</i>
CWSS	Quality Status Report on the Wadden Sea (pollution, eutrophication, habitats and species)	Future	2003–2004	Denmark, Germany, Netherlands	27e
CWSS	<i>Salt marshes</i>	<i>Indefinite</i>	<i>2002</i>	<i>Denmark, Germany, Netherlands</i>	<i>27d</i>
Department for Environment, Food and Rural Affairs (DEFRA), UK	<i>EEA assessments/GOOS</i>	<i>Indefinite</i>			<i>52f</i>
Global Climate Observing System (GCOS)	<i>GCOS Regional Workshop Programme</i>	<i>Indefinite</i>	<i>2002</i>	<i>Central America & Caribbean, East & SE Asia</i>	<i>12d</i>
GCOS	<i>GCOS Regional Workshop Programme</i>	<i>Future</i>	<i>2003</i>	<i>West & Central Africa, South America</i>	<i>12e</i>
Global Ocean Ecosystem Dynamics (GLOBEC)	<i>ICES-GLOBEC Cod and Climate Change Programme</i>	<i>Indefinite</i>	<i>1995–2009</i>	<i>Canada, European Union Member States, USA</i>	<i>9b</i>
GLOBEC	<i>PICES-GLOBEC Climate Change and Carrying Capacity</i>	<i>Indefinite</i>	<i>1990–2009</i>	<i>Canada, China, Japan, Korea, Russia, USA</i>	<i>9c</i>
GLOBEC	<i>Southern Ocean GLOBEC</i>	<i>Indefinite</i>	<i>2000–2009</i>	<i>Australia, Germany, Korea, UK, USA</i>	<i>9d</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
Helsinki Commission (HELCOM)	<i>Ad hoc working group on sediment monitoring</i>	<i>Future</i>	2003	<i>All HELCOM Parties except Russia</i>	35n
HELCOM	<i>Airborne Pollution Load Compilation 1996-2000</i>	<i>Publication</i>	2003	<i>EMEP Centres and Baltic Sea (HELCOM Contracting Parties – Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden and EU)</i>	35f
HELCOM	COMBINE monitoring programme (environmental effect of inputs)	Indefinite	1978–	Baltic Sea (HELCOM Contracting Parties as above)	35c
HELCOM	<i>Fourth Baltic Sea Pollution Load Compilation (PLC-4, 2000)</i>	<i>Publication</i>	2003	<i>Baltic Sea (HELCOM Contracting Parties as above)</i>	35i
HELCOM	<i>Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea 1994–1998</i>	<i>Publication</i>	2002	<i>Baltic Sea (HELCOM Contracting Parties as above)</i>	35g
HELCOM	Monitoring of illegal oil discharges at sea	Indefinite	1988–	Baltic Sea (HELCOM Contracting Parties as above)	35e
HELCOM	Monitoring programme for radioactive substances	Indefinite	1981–	Baltic Sea (HELCOM Contracting Parties as above)	35d
HELCOM	Pollution Load Compilation – Air (airborne load of nutrient and contaminants)	Indefinite	1983–	Baltic Sea (HELCOM Contracting Parties as above)	35a
HELCOM	Pollution Load Compilation – Water (waterborne load of nutrient and contaminants)	Indefinite	1980–	Baltic Sea (HELCOM Contracting Parties as above)	35b
HELCOM	<i>Integrated dioxin and PCB monitoring pilot project in the Baltic Region</i>	<i>Future</i>		<i>Baltic Sea</i>	35s

Global Marine Assessments

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
HELCOM	<i>Project – Harmonised international early warning reporting system on abnormal events in the Baltic Sea and its drainage area</i>	<i>Future</i>	<i>2002</i>	<i>All HELCOM Parties except Russia</i>	<i>35l</i>
HELCOM	<i>Project – Monitoring of radioactive substances in the Baltic Sea (MORS-PRO)</i>	<i>Future</i>	<i>2004</i>	<i>All HELCOM Parties</i>	<i>35m</i>
HELCOM	<i>Project – QA of Phytoplankton monitoring in the Baltic Sea</i>	<i>Future</i>	<i>2004</i>	<i>All HELCOM Parties except Russia</i>	<i>35k</i>
HELCOM	<i>Project on the development of a Baltic water bird monitoring strategy – Pilot phase: evaluation of available data and conclusions on necessary follow-up activities</i>	<i>Future</i>	<i>2003–</i>	<i>Baltic Sea</i>	<i>35p</i>
HELCOM	<i>Project on the development of spatial eutrophication indices for the Baltic Sea</i>	<i>Future</i>	<i>2004–</i>	<i>Baltic Sea</i>	<i>35q</i>
HELCOM	<i>Project on validation of algorithms of chlorophyll retrieval from satellite data for Baltic Sea area</i>	<i>Future</i>	<i>2003</i>	<i>Baltic Sea (HELCOM Contracting Parties as above)</i>	<i>35j</i>
HELCOM	<i>Proposal for an environmental geochemical sediment monitoring programme (EMG) of the Baltic and the Kattegat Seas</i>	<i>Future</i>	<i>2003–</i>	<i>Baltic Sea</i>	<i>35o</i>
HELCOM	<i>Report on radioactivity in the Baltic Sea 1992–1998</i>	<i>Publication</i>	<i>2003</i>	<i>Baltic Sea (HELCOM Contracting Parties as above)</i>	<i>35h</i>
HELCOM	<i>Zooplanktologist Expert Network</i>	<i>Future</i>		<i>Baltic Sea</i>	<i>35r</i>
IAEA Marine Environment Laboratory	<i>Assistance to Caspian Sea Region</i>	<i>Indefinite</i>	<i>2000–</i>	<i>Caspian Sea Riparian States</i>	<i>43c</i>
IAEA Marine Environment Laboratory	<i>Assistance to ROPME Region</i>	<i>Indefinite</i>	<i>1985–</i>	<i>Gulf States and Iran</i>	<i>43b</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
Indian Ocean Commission	<i>Planning project</i>	<i>Indefinite</i>	<i>2003</i>	<i>France (Réunion), Seychelles</i>	<i>45b</i>
Indian Ocean Commission	<i>Western Indian Ocean Electronic Maritime Highway</i>	<i>Indefinite</i>	<i>2003</i>	<i>Comoros, France (Réunion), Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Tanzania</i>	<i>45c</i>
Indian Ocean Commission	<i>Western Indian Ocean Regional Oil Spill Contingency</i>	<i>Indefinite</i>	<i>1999–</i>	<i>Comoros, Madagascar, Mauritius</i>	<i>45a</i>
Indian Ocean Tuna Commission	Predation of longline caught tunas and billfish by sharks and cetaceans	Indefinite	2001–	Indian Ocean (France, Japan, Seychelles)	34d
Indian Ocean Tuna Commission	Stock assessment of tropical, neritic and temperate tunas and billfish under the commission mandate	Indefinite		21 Contracting Parties – Indian Ocean	34a
Indian Ocean Tuna Commission	Tagging of tropical tunas	Indefinite	2002–	Indian Ocean	34b
Indian Ocean Tuna Commission	Tuna/environment relationships (hydrography/ feeds)	Indefinite	1998–	France, Japan, Russia, Spain (Indian Ocean)	34c
Inter-American Tropical Tuna Commission (IATTC)	Biology and population dynamics of tunas and related species and the effects of natural factors and human activities on the ecosystem	Indefinite	1950–2002+	Member countries	30
Intergovernmental Oceanographic Commission (IOC)	Ocean Mapping Programme	Indefinite	1972–	> 40 countries	37b
IOC	African Process	Indefinite	2000–	11 African countries	37c
International Commission for the Conservation of Atlantic Tunas (ICCAT)	Annual compilation of catch statistics for all Atlantic tuna and tuna-like species	Indefinite	1970–	Atlantic Ocean	2a

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
ICCAT	Regular stock assessment of Atlantic tuna and tuna-like species	Indefinite	1970-	Atlantic Ocean	2b
ICCAT	2004 workshop on tunas and their environment	Future	2004	Atlantic Ocean	2c
International Coral Reef Action Network (ICRAN)	Coral reef monitoring and assessment in Eastern Africa, Caribbean, East Asia, South Pacific regional sea areas	Indefinite	2001–2005	Eastern Africa, Caribbean, East Asia, South Pacific	28b
ICRAN	Reefs at Risk Caribbean	Indefinite	2001–2003	Caribbean	28c
ICRAN	<i>Reefs at Risk Indian Ocean</i>	<i>Future</i>	<i>2003–2004</i>	<i>Countries bordering the Indian Ocean that have coral reefs in their waters</i>	<i>28d</i>
ICRAN	<i>Reefs at Risk Pacific</i>	<i>Future</i>	<i>2004–2005</i>	<i>Countries bordering the Pacific Ocean (except countries of SE Asia) that have coral reefs in their waters</i>	<i>28e</i>
International Council for the Exploration of the Sea (ICES)	<i>Baltic Sea Regional Project (GEF)</i>	<i>Future</i>	<i>2003–2008</i>	<i>Baltic Sea countries</i>	<i>29c</i>
ICES	<i>Data centre for HELCOM, OSPAR and AMAP marine data</i>	<i>Indefinite</i>			<i>29f</i>
ICES	<i>ICES Environmental Status Report</i>	<i>Indefinite</i>	<i>Annual</i>	<i>ICES member countries</i>	<i>29b</i>
ICES	<i>ICES fish stock assessment – moving to relate environmental and oceanographic conditions to fish stock developments – early work in the Barents Sea</i>	<i>Indefinite</i>			<i>29e</i>
ICES	<i>North Sea Ecosystem Assessment</i>	<i>Future</i>	<i>2003–</i>	<i>North Sea countries</i>	<i>29d</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
ICES	The environmental status of the European Seas – An ICES review on behalf of the German Federal Ministry for the Environment	Indefinite	2002–2003	ICES member countries	29a
International EMECS Centre	Design workshop for the purpose of achieving a comprehensive evaluation of coastal zones in Asia: Follow-up activities for Asian Forum at 5th International Conference on Environmental Management of Enclosed Coastal Seas (EMECS 2001)	Indefinite	2002–2005	Japan and Asian countries	19
International Ocean Institute (IOI)	<i>Coastal community studies and assessments, natural and social sciences</i>	Indefinite		<i>Costa Rica, India, Pacific SIDS, Southern Africa</i>	17c
IOI	<i>Community-based coastal resource management in the Caribbean</i>	Indefinite	2001–	<i>10 Caribbean countries</i>	17b
IOI	<i>GIWA Central Pacific Region</i>	Indefinite		<i>Central Pacific</i>	17e
IOI	<i>GIWA Sub-Saharan Mega Region</i>	Indefinite		<i>Sub-Saharan Africa</i>	17d
IOI	<i>Regional study of vulnerability of South American coasts</i>	Indefinite	2000–2003		17a
International Pacific Halibut Commission	CTD monitoring	Indefinite	1997–	NE Pacific (Canada, USA)	14
Island Resources Foundation	<i>IOCARIBE (IOC Sub-Commission for the Caribbean), based in Cartagena</i>	Indefinite	1995–	<i>Wider Caribbean</i>	56e
Island Resources Foundation	<i>Reefs at Risk for the Caribbean</i>	Indefinite	2002–2003	<i>Upgrade of 1998 global study</i>	56d
Island Resources Foundation	<i>UNEP Global Environment Outlook Sub-regional</i>	Indefinite	2000–	<i>28 islands/island groups in the Caribbean</i>	56a

Global Marine Assessments

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
IUCN, The World Conservation Union	Coastal and Marine Resources Management and Poverty Reduction in South Asia – ICZM in High Priority Areas	Indefinite	2001–2003	India, Maldives, Pakistan, Sri Lanka	10a
IUCN, The World Conservation Union	<i>CORDIO-IUCN collaboration</i>	<i>Future</i>	<i>2003</i>	<i>East Africa, Indian Ocean States, South Asia</i>	<i>10f</i>
Kenya Marine and Fisheries Research Institute	Coastal impacts of water abstraction and impoundment in Africa	Indefinite		Kenya, Mozambique, Tanzania	47c
Kenya Marine and Fisheries Research Institute	<i>Ecological economics of mangrove-associated fisheries – food security and sustainability</i>	<i>Future</i>	<i>2003</i>	<i>Kenya, Mozambique, Tanzania</i>	<i>47f</i>
Kenya Marine and Fisheries Research Institute	<i>GEF Sub-Saharan Initiative</i>	<i>Future</i>		<i>Coastal states of Africa</i>	<i>47g</i>
Kenya Marine and Fisheries Research Institute	<i>GOOS – Africa</i>	<i>Future</i>		<i>Coastal and island states</i>	<i>47d</i>
Kenya Marine and Fisheries Research Institute	<i>Mapping Holocene Terraces in Eastern Africa</i>	<i>Future</i>	<i>2003–2005</i>	<i>Kenya, Mozambique, Tanzania</i>	<i>47e</i>
Kenya Marine and Fisheries Research Institute	Seaweed Africa	Indefinite		Brazil, Ireland, Kenya, Mozambique, Namibia, Portugal, South Africa, Sweden	47b
Korea Ocean Research and Development Institute (KORDI)	APEC Marine Environmental Training and Education Programme	Indefinite	1999–2004	APEC member countries	42b
KORDI	Yellow Sea Large Marine Ecosystem Studies	Indefinite	2002–2006	China, Korea	42a
KORDI	Yellow Sea Marine Environmental Monitoring	Indefinite	1999–	China, Korea	42c
KORDI/NOWPAP MERRAC	<i>AMETEC training programme</i>	<i>Future</i>	<i>2003–</i>	<i>APEC member countries</i>	<i>42f</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
KORDI/NOWPAP MERRAC	NOWPAP MERRAC	Indefinite	2000–	China, Japan, Korea, Russia	42e
KORDI/NOWPAP MERRAC	<i>The use of biological effects monitoring studies of marine pollution</i>	<i>Future</i>	<i>2003–2005</i>	<i>IOC/WESTPAC member countries</i>	<i>42g</i>
MED POL – Programme of the Mediterranean Action Plan of UNEP	<i>Ad hoc research programmes</i>			<i>Mediterranean (Albania, Algeria, Bosnia Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Spain, Slovenia, Syria, Tunisia, Turkey)</i>	<i>20b</i>
MED POL	Monitoring programme of MED POL	Indefinite		Mediterranean (as above)	20a
National Institute of Water and Atmospheric Research (NIWA)	Various marine fisheries and environmental assessments	Indefinite	2–4 years in length	New Zealand, Antarctica, others	40
North Pacific Anadromous Fish Commission	Bering-Aleutian Salmon International Survey (BASIS)	Indefinite	2002–2006	North Pacific (Canada, Japan, Russia, USA)	15
Norwegian Polar Institute (NPI), Polar Environmental Centre	<i>Arctic Climate Impact Assessment (ACIA)</i>	<i>Indefinite</i>	<i>1998–</i>	<i>Circumpolar</i>	<i>7d</i>
NPI, Polar Environmental Centre	<i>Arctic Monitoring and Assessment Programme (AMAP)</i>	<i>Indefinite</i>	<i>1991–</i>	<i>Circumpolar</i>	<i>7c</i>
NPI, Polar Environmental Centre	Environmental management plan for the Barents Sea	Future	2002–2004	Norway	7a
NPI, Polar Environmental Centre	Environmental monitoring of Svalbard and Jan Mayen (MOSJ)	Indefinite	2000–	Norway	7b
NPI, Polar Environmental Centre	<i>Other smaller projects in Arctic and Antarctic</i>	<i>Indefinite</i>	<i>Indefinite</i>		<i>7e</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
Permanent Secretariat of the Commission on the Protection of the Black Sea Against Pollution	State of the Environment of the Black Sea	Indefinite	2002–2007+	Bulgaria, Georgia, Romania, Russia, Turkey, Ukraine	18
Regional Organization for the Protection of the Marine Environment (ROPME)	Open Sea Cruise	Current/ future	2001–2004	Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, UAE	3
Secretariat of the Pacific Community	SPC Oceanic Fisheries Programme (western and central Pacific tuna stock assessments)	Indefinite	1978–	Pacific Community members (American Samoa – US, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia – Fr, Guam – US, Kiribati, Marshall Islands, Nauru, New Caledonia – Fr, Niue, Northern Marianas – US, Palau, Papua New Guinea, Pitcairn – UK, Samoa, Solomon Islands, Tokelau – NZ, Tonga, Tuvalu, Vanuatu, Wallis and Futuna – Fr), and adjacent international waters	46a
Secretariat of the Pacific Community	Pacific Community Reef Fisheries Observatory	Indefinite	2002–	Pacific Community members excl. US territories (Cook Islands, Federated States of Micronesia, Fiji, French Polynesia – Fr, Kiribati, Marshall Islands, Nauru, New Caledonia – Fr, Niue, Palau, Papua New Guinea, Pitcairn – UK, Samoa, Solomon Islands, Tokelau – NZ, Tonga, Tuvalu, Vanuatu, Wallis and Futuna – Fr)	46b

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
State Key Laboratory of Estuarine and Coastal Research	GLOBEC China	Indefinite	1999–2004	China	9f
UNEP Caribbean Regional Coordinating Unit (CAR/RCU)	<i>Highly contaminated bays of La Havana (Cuba) and Kingston (Jamaica)</i>			Caribbean	13b
CAR/RCU	Regional overview of land-based activities			Caribbean	13a
UNEP East Asian Seas Regional Coordinating Unit	ESCAP State of the Marine Environment	Indefinite		Asia and the Pacific	50d
UNEP East Asian Seas Regional Coordinating Unit	UNEP-GEF South China Sea Project	Indefinite	2002–2006	Cambodia, China, Indonesia, Malaysia, Philippines, Thailand, Viet Nam	50c
UNEP-GRID-Arendal	State of the Environment of the Aral Sea Basin Countries	Completed	1997–2000		38
UNEP/DEWA water unit	<i>Regional Seas</i>	<i>Indefinite</i>	<i>1990–</i>	<i>All countries</i>	<i>55f</i>
United Nations Industrial Development Organization (UNIDO)	Assessment of Hotspots in the Dnieper River Basin	Indefinite	2000–2002	Belarus, Russian Federation, Ukraine	48a
UNIDO	<i>Assessment of Nutrient Loading in the Guinea Current Large Marine Ecosystem</i>	<i>Future</i>	<i>2004</i>	<i>Angola, Benin, Cameroon, Congo, Côte d'Ivoire, Dem. Rep. Congo, Gabon, Ghana, Equatorial Guinea, Guinea, Guinea Bissau, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone, Togo</i>	<i>48f</i>
UNIDO	<i>Assessment of the State of the Mangrove Ecosystem in the Guinea Current Large Marine Ecosystem</i>	<i>Future</i>	<i>2003</i>	<i>Benin, Cameroon, Côte d'Ivoire, Ghana, Nigeria, Togo</i>	<i>48e</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
UNIDO	<i>Fish stock assessment and pollution survey in Western Africa covering the Canary, Benguela and Guinea Current LME regions</i>	<i>Future</i>	<i>2004</i>	<i>Angola, Benin, Cameroon, Congo, Côte d'Ivoire, Dem. Rep. Congo, Gabon, Gambia, Ghana, Equatorial Guinea, Guinea, Guinea Bissau, Liberia, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Togo</i>	<i>48g</i>
UNIDO	<i>Fisheries stock assessment and pollution survey in the Guinea Current Large Marine Ecosystem</i>	<i>Future</i>	<i>2004</i>	<i>Angola, Benin, Cameroon, Congo, Côte d'Ivoire, Dem. Rep. Congo, Gabon, Ghana, Equatorial Guinea, Guinea, Guinea Bissau, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone, Togo</i>	<i>48d</i>
UNIDO	<i>Integrated Assessment and Management of the Gulf of Mexico Large Marine Ecosystem</i>	<i>Future</i>	<i>2004–2006</i>	<i>Cuba, Mexico, USA</i>	<i>48h</i>
UNIDO	<i>Integrated Management of the Humboldt Current Large Marine Ecosystem</i>	<i>Indefinite</i>	<i>2002–2003</i>	<i>Chile, Peru</i>	<i>48b</i>
UNIDO	<i>Transfer of Environmentally Sound Technologies to Reduce Transboundary Pollution in the Danube River Basin</i>	<i>Indefinite</i>	<i>2001–2003</i>	<i>Bulgaria, Croatia, Hungary, Romania, Slovakia</i>	<i>48c</i>
Western Central Atlantic Fisheries Commission (WECAFC)	<i>WECAFC Ad Hoc Flyingfish Working Group of the Eastern Caribbean</i>	<i>Indefinite</i>		<i>Barbados, Dominica, Grenada, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago</i>	<i>31c</i>
WECAFC	<i>WECAFC Ad Hoc Working Group on (status of) Shrimp and Groundfish Resources in the Brazil-Guianas Shelf</i>	<i>Indefinite</i>		<i>Brazil, French Guiana, Guyana, Suriname, Trinidad and Tobago, Venezuela</i>	<i>31a</i>

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
WECAFC	<i>WECAFC Ad Hoc Working Group on Caribbean Spiny Lobster</i>	<i>Indefinite</i>		<i>Bahamas, Belize, Bermuda, Brazil, Colombia, Cuba, Dominican Republic, Honduras, Jamaica, Mexico, Nicaragua, St. Lucia, USA, Venezuela</i>	<i>31b</i>
WWF Japan	Yellow Sea Ecoregion Biological Assessment and Biodiversity Vision Project	Current	2002–2005	China, Korea	5
<u>NATIONAL/REGIONAL</u>					
Department for Environment, Food and Rural Affairs (DEFRA), UK	<i>ICES fish stock assessments</i>	<i>Indefinite</i>		<i>Contributes to ICES</i>	<i>52e</i>
DEFRA	<i>OSPAR Joint assessment and monitoring programme</i>	<i>Indefinite</i>	<i>Annual</i>	<i>Contributes to OSPAR</i>	<i>52d</i>
Norwegian Pollution Control Authority	Joint assessment and monitoring programme [JAMP]. Monitoring of contaminants in Norwegian fjords and coastal waters	Indefinite	Annual	Contributions to OSPAR	51b
<u>NATIONAL</u>					
Dakar Thiaroye Oceanographic Research Centre (CRODT)	Study of the circulation of coastal waters in the near shore of Senegal	Indefinite	2002	EEZ Senegal	36
Department for Environment, Food and Rural Affairs (DEFRA), UK	UK National Marine Monitoring Programme	Indefinite	2003	UK	52b
DEFRA	UK Ocean Climate Status Report	Indefinite	2002	UK	52c
DEFRA	UK State of the Seas Report	Future		UK	52a
German Marine Monitoring Programme	<i>Assessments in the frames of the OSPAR and HELCOM Conventions</i>	<i>Indefinite</i>			<i>53</i>

Global Marine Assessments

Reporting organization	Title	Scope/ duration	Dates	Geographical range	ID code
IUCN, The World Conservation Union	<i>Cambodia Marine and Coastal Technical Scoping</i>	<i>Indefinite</i>	<i>2002</i>	<i>Cambodia</i>	<i>10c</i>
IUCN, The World Conservation Union	<i>GEF-RUK Integrated Collaborative Management Project</i>	<i>Indefinite</i>		<i>Sri Lanka</i>	<i>10d</i>
IUCN, The World Conservation Union	<i>Hon Nun Marine Protected Area</i>	<i>Indefinite</i>	<i>2001–2005</i>	<i>Viet Nam</i>	<i>10b</i>
IUCN, The World Conservation Union	<i>North-east assessments of coastal and marine habitats</i>	<i>Future</i>	<i>2003/4</i>	<i>Sri Lanka</i>	<i>10g</i>
IUCN, The World Conservation Union	Rapid Ecological Assessment in Guangxi Province	Future	2003	China	10e
Millennium Ecosystem Assessment	Small Islands in Peril, Milne Bay Province, Papua New Guinea, and MA Sub-Global Assessment	Indefinite	2002–	Papua New Guinea and 15–20 others during 2002	24b
Norwegian Pollution Control Authority	Long-term monitoring of environmental quality of the coastal waters of Norway	Indefinite	Annual	Contributes to OSPAR	51a
Norwegian Pollution Control Authority	Riverine inputs and direct discharges to Norwegian waters			Contributes to OSPAR	51c
<u>NOT CATEGORIZED</u>					
Marine Fisheries Research Division		None			4

ANNEX 11. SUMMARY OF ALL ADDITIONAL RESPONSES (EXCLUDING QUESTIONNAIRE RETURNS)

Table A Organizations and assessments that responded without completing a questionnaire and provided information which could be of use to a GMA mechanism

Organization/Contact	Notes
Census of Marine Life/ OBIS Fredrick Grassele	<p>The Census aims to create an inventory of fish and non-fish nekton on a global basis. OBIS is a proposed database that would enable researchers and resource managers to query all organisms that have been observed in a given area. Such information would allow the production of biogeographic maps, GIS layers, including surface productivity, physical and chemical oceanic parameters.</p> <ul style="list-style-type: none"> ● Could provide the framework to understand biological parameters and distribution characteristics. ● Remote-sensing technologies and <i>in situ</i> observation have allowed a detailed understanding of many of the oceans' biogeochemical and physical processes (Grassele and Stocks, 1999). Understanding the biological interactions, let alone how the ecosystem works, is still very limited, particularly beyond the narrow coastal zone.
DIVERSITAS Anne Larigauderie	<p>(http://www.icsu.org/DIVERSITAS) aims to promote biodiversity science linking social, ecological and biological sciences to produce socially relevant knowledge and to provide the scientific bases of conservation and sustainable use of biodiversity.</p> <p>To achieve this DIVERSITAS will synthesize existing knowledge, identify gaps and issues of global importance, and promote networks and communication across countries and disciplines, communicating findings to policy makers.</p> <p>There are three core projects and the development of cross-cutting scientific networks (e.g. the Global Invasive Species Programme (GISP).</p> <p>The initiative is coordinated by a small secretariat, which facilitates the activities (virtual networks, think-tanks and meetings of the networks) in the international community in thematic areas. DIVERSITAS is involved in developing new science, for example at the moment bridging the ecological and social sciences – people are a part of the environment and must therefore be at the centre of environmental science. DIVERSITAS has links with the Census of Marine Life.</p>
ECOISHARE Phil Fox (UNEP-WCMC)	<p>Background information has been given describing an activity to provide open access to biodiversity and environmental data from the private sector on a web-based interface. ECOISHARE is sponsored by BP, Shell and Rio Tinto.</p> <p>It will provide an environmental reporting process and make available results of studies required of exploration, extraction and installation companies. It is expected that this information will be integrated with other databases held by UNEP to provide map-based interfaces. It is expected that companies will continue to realize the benefits of increased transparency of environmental policy, and UNEP-WCMC plans to include sectors such as petrochemical, mining, cable laying, utilities and environmental consultancies.</p>

Organization/Contact

Notes

GOOS/OOPC/COOP
Thorkild Aarup (IOC)

GOOS came about as a result of an intergovernmental request at the end of the 1980s and is sponsored by a number of UN agencies, led by the IOC (Summerhayes, 2002). It is one of a family of three global systems for detecting and assessing global change (GCOS, GTOS and GOOS) and is an instrument to underpin conventions (Christian, 2002).

GOOS aims to determine users' needs and the data that are required to meet these needs. It provides the mechanisms required to get the data and promote best practice. Activities tend to be carried out by national authorities. It has five phases, and aims to be operational by 2010.

Pilot projects are in implementation (e.g. GODAE (Global Ocean Data Assimilation Experiment, due to begin 2003 onwards), as is the regional implementation. Capacity building is seen as an important component of the mechanism. At the end of 2000, the GOOS design panels were simplified and merged into two components: (i) open ocean (OOPC) and (ii) coastal (COOP), the terms of reference for which are rather different in focus. The OOPC focuses on physical, chemical and biogeochemical cycles, in the open ocean and high seas. This includes the use of a large number of globally distributed ARGO floats to take measurements. COOP has a broader remit, which encompasses physical, biological and socio-economic factors, fisheries, etc. The design plans were detailed at COOP 4 and had a heavy reliance on remote sensing and the use of models. The three global components of data collection, building networks and modelling are supported by GOOS regions, which aim to build on existing monitoring frameworks. This is beginning to happen in areas of high activity such as the North Sea and the Baltic; however coordination is weak (e.g. Euro GOOS with ICES and OSPAR; BOOS with HELCOM). Also regional GOOS in NEA GOOS, GOOS Africa, are hoping to develop regional mechanisms for the Indian Ocean and the Black Sea. The members consist of governments, universities and researchers. In addition to Coastal GOOS, there is a new initiative, which is the coastal module of GTOS (Global Terrestrial Observing System) which is reported to be in parallel and somewhat convergent with the former. The idea is that the terrestrial coastal observations will lead towards an integration of the marine-based and the terrestrial-based observations and improve understanding of dynamics in the land/ water interface. Several fundamental issues remain to be harmonized before this interaction can be of value, such as scale of observation (different coastal issues have differing scales of effects) (Christian, 2002). To assist this, GCOS will be involved in the preparatory working groups.

As with other aspects of the global observation systems, GTOS initiatives will build on existing infrastructure and provide a support service to other assessment programmes. In the context of a GMA mechanism, there is potential for GOOS to act in a streamlining capacity.

ICSU
Leah Goldfarb

ICSU, consisting of 98 national academy members and 27 international scientific unions, provides policy guidance and advice as to how to improve linkages between science and sustainable development.

Orchestrating science at a global level, ICSU co-sponsors four major global change programmes: the International Global Biosphere Programme, WCRP, IHDP (International Human Dimensions Programme on Global Environmental Change) and DIVERSITAS. These global change programmes feed into the IPCC process and demonstrate how science can feed into policy.

ICSU is a partner and sponsoring agency for SCOR – Scientific Committee on Oceanic Research – and GOOS.

Organization/Contact	Notes
International Whaling Commission (IWC) Nicky Grandy	<p>Most work is collaborative with partners, where costs and time are difficult to define, or provides seed funding for larger projects.</p> <p>Work is largely related to the conservation and status assessment of cetaceans to enable management decisions to be made; environmental factors are included in this framework (Donovan, 2002). Much of the work that has been identified could provide relevant input into a Global Marine Assessment.</p>
Large Marine Ecosystem Strategy	<p>The LME is a strategy for the assessment and management of international coastal waters.</p> <p>It is a global effort of the IUCN, IOC, other UN agencies and NOAA.</p> <p>LMEs are regions of ocean space encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves and the outer margins of major current systems characterized by bathymetry, productivity, hydrography and trophically dependent populations (64 in total).</p> <p>To obtain information to support improved management practices, a five-module strategy has been developed for assessing and analysing ecosystem-wide changes in productivity, fish and fisheries, pollution and ecosystem health, socio-economics and governance. LMEs are alluded to in reviewed assessments.</p>
Millennium Assessment Neville Ash	<p>Further information was provided indicating that sub-global efforts are to be developed in the Caribbean, as well as Arafura and Timor Seas.</p>
Nigerian Institute for Oceanography and Marine Research T. O. Ajayi	<p>This organization returned a late questionnaire providing details of involvement in two regional processes: the African Process Integrated Coastal Analysis and the GPA/LBA National Plan of Action.</p>
OSPAR Alan Simcock	<p>It was felt that the assessments undertaken by OSPAR for the Quality Status Reports could not be reflected in the questionnaire. The status of activities for the next ten-year report was provided (Joint Assessment and Monitoring Programme [JAMP]).</p> <p>Contributing to the JAMP is a requirement of OSPAR Contracting Parties. The programme sets out the basis on which the Contracting Parties work together to produce the decade assessments. These guidelines are prepared in considerable detail.</p>
PERSGA Mohamed Fawzi	<p>A late questionnaire was returned giving details of a number of regional assessments and activities focused around stock assessments and resource surveys. The Gulf of Aden, Eritrea is identified as a geographical gap.</p>
SCOPE	<p>SCOPE aims to bring together social and natural scientists to identify emerging or potential environmental issues and address the nature and solution of environmental problems from a global viewpoint. It promotes and facilitates the exchange of information and communication of policy-relevant information. It engages in joint projects for major global change programmes. Also programmes for:</p> <ul style="list-style-type: none"> ● alien species (GISP) ● nitrogen cycles (land ocean nutrient flux cycles) (Boyer and Howarth, 2002). <p>Note that Africa is under-represented in current processes, partly due to accessibility and capacity.</p>

Organization/Contact	Notes
The African Process Julian Barbière (IOC)	<p>The African Process began as a political framework for 11 sub-Saharan African countries. The process uses GIWA methodology to assess the level of degradation in the coastal and marine environments and produced national reports and recommendations to put forward to phase 2. Project development is in five priority themes: pollution, tourism, coastal erosion, sustainable use of living resources, marine key habitats.</p> <p>Five working groups consisting of regional and national experts were convened to develop project proposals. Twenty proposals were prepared, with the endorsement of the relevant ministries. Partnership discussions took place during WSSD where seven of the 11 of the Heads of State reaffirmed their ministries' endorsements. The African Process includes the New Partnership for African Development. UNEP's involvement in the African Process concerns the aim to strengthen the Nairobi and Abidjan Conventions.</p>
UNCLOS Oceans Division Valentina Germani	<p>The functions of the Division of Ocean Affairs are to provide research, support and advice on the implementation of UNCLOS, monitoring activities, training. UNCLOS is a sponsoring agency of GESAMP.</p> <p>Omnibus Resolution, which was to be adopted on 10 December 2002, contains two paragraphs relating to the issue of global reporting and assessment of the state of the marine environment. Specifically it: (i) welcomes the recommendation of WSSD to establish by 2004 under the UN a global reporting and assessment of the state of the marine environment; and (ii) calls for proposals for a modality for such a process to be submitted to the 58th session of the General Assembly for consideration and decision.</p> <p>Once the resolution is adopted then UNCLOS will consider how to implement the mandate.</p>
UNEP-DTIE Guilia Carbone	<p>It was agreed that whilst tourism has a very strong dependence on and influence over the state of the marine environment, there has been very little effort put into assessments of these relationships. Much of the work that has been done is localized and client/market orientated rather than aimed at the policy maker. Trade organizations such as the World Trade Organization have networks with local authority contacts. This is potentially a thematic gap in current activities.</p>
WOCE John Gould	<p>WOCE is to be superseded by CLIVAR (contact Howard Cattle).</p>
World Heritage Centre Marjaana Kokkonen	<p>At present the World Heritage Centre does not stipulate methods or standardized guidelines for the monitoring of World Heritage Sites/proposed sites. Any monitoring is at the discretion of the national body responsible for the site. There are currently ten marine World Heritage Sites, although designations are being encouraged. It could provide essential information to a GMA process as to the functioning of particular and/or critical habitats. It is a valuable mechanism for conservation of marine ecosystems which has not yet been exploited (Hillary <i>et al.</i>, 2002).</p>

Table B Assessment users

Organization/Contact	Notes
EDIOS Johanne Fischer	EDIOS is an information collection system for EURO GOOS.
European Commission Ben van der Vettering	<p>Responded as an assessment user, as opposed to a producer.</p> <p>At present there is a lack of sufficient coordination in the assessment of the marine environment across Europe.</p> <p>There are several parallels that can be drawn between experiences to date of the EC strategy and GMA processes.</p> <p>Within Europe there is great intra-regional disparity in capacity; therefore at a global scale it would be expected that this would be magnified.</p>
GPA-LBA Martin Adiaanse	<p>No questionnaire return was felt appropriate. However a keen interest was expressed in a GMA mechanism as the GPA is a user of assessments rather than undertaking its own assessments. It relies on national and regional assessments, providing advice, and critically uses global assessments such as GIWA and the proposed GMA.</p>
NOAA-NGDC David Cole	<p>NGDC is not involved in environmental assessment, relation or monitoring activities. It acts as a data repository for global and regional marine databases, producing products that may be of use for future environmental assessment activities.</p>
UN Department of Social and Economic Affairs (DESA) Anne Rogers	<p>Only section A of the questionnaire was completed as DESA is a user not producer of marine assessments.</p> <p>The assessments are used in the context of monitoring and reporting on the implementation of chapter 17 of Agenda 21; past Commission on Sustainable Development decisions, the Barbados Plan of Action on SIDS.</p> <p>Anne Rogers suggested that a survey of assessment users to discuss the advantages and disadvantages of existing assessment activities would be of use.</p>

Table C Other responses received

Organization/Contact	Notes
Commission Sous Regionale des Pêches Nabi Souleymane Bangoura	Due to technical problems with the local server, the questionnaire did not arrive until after the return deadline. At present there is no assessment programme set up by the CSRP, although a symposium to discuss the marine environment is planned for 2003.
FIGIS Marc Taconet	Input is incorporated in other FAO responses. FIGIS is an information system that streamlines the QA information and dissemination needs of the programmes described in the FAO responses.
Health of the Oceans (GOOS) Neil Anderson	Neil Anderson has retired. The HOTO work has been incorporated into the coastal element of GOOS. The HOTO programme is no longer active.
INFOFISH S. Subasinghe	INFOFISH is an IGO providing technical/marketing advice to the fishing industry of the Asia Pacific region.
IPCC Renate Christ	The IPCC felt unable to provide adequate information on its programme of activities in this format.
NASCO Peter Hutchinson	NASCO receives advice from ICES in the form of the Report of the Advisory Committee on Fishery Management. It was felt however that the questionnaire is not particularly relevant to NASCO's activities. The report of the International Cooperative Salmon Research Board includes an inventory of salmon-related research undertaken by NASCO CPs.
Protection of the Arctic Marine Environment Soffia Gudmundsdottir	PAME is a working group of the Arctic Council that addresses policy and non-emergency pollution and control measures, to protect the Arctic marine environment from land- and sea-based activities. Marine scientific assessments are carried out by AMAP.
Projekttraeger Juelich - MGS Ulrich Wolf	PTJ is a funding body and therefore does not undertake assessment activities.

ANNEX 12 CRITERIA DEFINITIONS AND SCORING SYSTEM

Table A Criteria definitions used to establish whether or not the mechanism of the assessment or activity should be considered as an impediment, a partial impediment or a minimal impediment to the inclusion/integration of that assessment or activity in a GMA mechanism

The score limits define the upper and lower boundaries of levels of impediment based on the analysis of criteria and scoring described by Tables B–H

Criteria	Definition	Rank	Score limits
Geography	● Mandate covers no more than 1 of the defined zones (estuaries, coasts, EEZ or international waters) and does not use existing regional mechanisms	Impediment	0
	● Mandate covers up to 3 zones and may not use existing regional mechanisms	Partial imp.	1 to 3
	● Mandate covers waters from estuaries to international waters, and uses existing definitions of regions	Minimal imp.	4
Regularity	● All one-off assessments/activities	Impediment	0
	● Assessments/activities repeated on a 6 year+ basis or ad hoc	Partial imp.	1 to 2
	● Either ongoing or undertaken on a regular basis (1-5 years)	Minimal imp.	3 to 5
Cost effectiveness	● Comparatively high budget, and person-hours/resource provision is considered insufficient	Impediment	0
		Partial imp.	1 to 5
	● Comparatively low budget, low person-hours/where the resource provision may be considered satisfactory	Minimal imp.	6 to 7
Legitimacy	● National stakeholders not involved in request; no convention to support activity	Impediment	0
		Partial imp.	1 to 5
	● Undertaken at country request or in response to international /regional convention with national stakeholders involved in all phases	Minimal imp.	6
Credibility	● No indicators/assessment based on secondary data only; no partners; no methodological guidelines or system for review or feedback; no peer review or QA	Impediment	<7
		Partial imp.	7 to 9
	● QA and external peer review; method guidelines adopted with regular review and based on empirical data; involves partners; use of indicator framework	Minimal imp.	10 to 14
Sustainability	● The process is under the influence of the policy of a single government, is dependent on non-fixed, external funds and is not associated with a regional or international agreement	Impediment	<4
		Partial imp.	5 to 9
	● The process is above single-country politics; it is not dependent exclusively on external and variable funds; it is associated with a regional or international agreement	Minimal imp.	10 to 12
Saliency	● Not in response to a convention, or national request; does not direct outputs to policy advice; not regular; no provision for review; no stakeholder involvement	Impediment	<9
		Partial imp.	10 to 20
	● Responds to a national concern (i.e. a convention); provides policy advice; is regular; provision for review; stakeholder involvement; outputs orientated to user	Minimal imp.	21 to 29

Table B Questions providing information for analysis of geographical criteria

N, R and G are abbreviations for National, Regional and Global, respectively

Q no.	Q	Option	Score
1/2/4/5	Scope of study	National Regional Global	N R G
22	Does the assessment use defined regions?	Yes No	1 0
40	Area of activity	Estuaries to international waters 3 zones 2 zones Mandate covers 1 zone	3 2 1 0

Table C Questions providing information for analysis of regularity criteria

Q no.	Q	Option	Score
15	What is the periodicity of activity?	Continuous Annual or more Every 2-5 years Every 6-10 years Ad hoc One-off	5 4 3 2 1 0

Table D Questions providing information for analysis of cost-effectiveness criteria

Q no.	Q	Option	Score
19	Budget scale	<10K 10-50K 50-100K 100-500K >500K	4 3 2 1 0
29	Persons	<1-2 2-10 >10	2 1 0
29	Person-hours	<10-100 100-500 >500	2 1 0
30	Are the resources sufficient?	Yes No	1 0

Table E Questions providing information for analysis of legitimacy criteria

Q no.	Q	Option	Score
16	Basic requirement for assessment	Regional convention/international legislation	3
		Intergovernmental request	2
		Scientific cooperation	1
		Other/national request	0
25	Are stakeholders involved in all 3 levels?	Yes	1
		No	0
47	Is there a link between outcomes and review of international policy?	Yes	1
		No	0
	Is there a link between outcomes and review of national policy?	Yes	1
		No	0
48	Are international measures adopted as a result of the assessment?	Yes	1
		No	0

Table F Questions providing information for analysis of sustainability criteria

Q no.	Q	Option	Score
16	Basic requirement for assessment	Regional convention/international legislation	3
		Intergovernmental request	2
		Scientific cooperation	1
		Other/national request	0
17	Duration of funding	Continuous	4
		5-10 years	3
		3-4 years	2
		1-2 years	1
		One-off/n/a	0
18	Type of funding	Organization budget	3
		Special CP contributions	2
		Activity-generated income	1
		External/other	0
32	Does the assessment evaluate capacity?	Yes	1
		No	0
33	Does the assessment lead to the identification of capacity-building needs?	Yes	1
		No	0
34	Can the organization provide the training and support to develop capacity?	Yes	1
		No	0

Table G Questions providing information for analysis of credibility criteria

Q no.	Q	Option	Score
9	Does the assessment collect primary data/ assess secondary data?	Collects and uses primary data	2
		Uses primary data	1
		Uses secondary data	0
20	Are there partners and collaborators?	Yes	1
		No	0
27	Have guidelines for assessment method been adopted?	No	0
		Yes	1
28	Is there a review/feedback process?	Regular	2
		Ad hoc	1
		No	0
31	Are data quality issues identified as a constraint?	Yes	0
		No	1
38	Is an indicator framework used?	Yes	1
		No	0
56	Quality assurance methods	International QA standards	3
		Internal QA standards	2
		Checks on information	1
		None	0
57	Are the assessments peer reviewed?	Internal and external review	3
		External	2
		Internal	1
		None	0

Table H Questions providing information for analysis of saliency criteria

Q no.	Q	Option	Score
14	Commissioned by (including)	National government/member states	3
		Convention/intergovernmental request	2
		UN	1
		Other institution/organization	0
21	How is the assessment driven?	National/regional centres	2
		Steering committee	1
		Secretariat/working groups	0
24	Are stakeholders consulted?	Yes	1
		No	0
25	Are stakeholders involved in all phases (plans to evaluation)?	Yes	1
		No	0
26	Is feedback given to stakeholders?	Yes	1
		No	0
41	Do the key outputs include	Policies	3
		Advisory reports	2
		Data analysis	1
		Data	0
42	What are the tools used to present this?	Reports and other visual tools	1
		Reports only	0
43	Where are the data located?	Internet site	2
		National/international data stores	1
		Secretariat/other	0
44	Accessibility of data	Free access to all data and reports	2
		Limited access to data and/or reports	1
		No access/restricted access	0
45	Is the outcome adopted by the stakeholders?	Yes	1
		No	0
47	Outcomes linked to review of new/existing international policies?	Yes – direct	2
		Yes – indirect	1
		No	0
	Outcomes linked to review of new/existing national policies?	Yes – direct	2
		Yes – indirect	1
		No	0
50	Do the intended end-users include national policy makers?	Yes	1
		No	0
51	How often are reports produced?	Annually or more	2
		Every 2 years	1
		Less than every 2 years/other	0
52	What is the publishing format?	Paper and electronic (web/CD ROM)	2
		Paper only/electronic only	1
		None/n/a	0
53	Is there a purchase price?	No	1
		Yes	0
54	Are differential products produced?	Yes	1
		No	0
55	Is there a mechanism to allow feedback on product relevance?	Yes	1
		No	0

ANNEX 13 INTEGRATION OF EXISTING ASSESSMENTS INTO A GMA – OVERVIEW OF ACTUAL (OR POTENTIAL) IMPEDIMENTS

No impediment Partial impediment Impediment – No data
 Criteria definitions: Sa – saliency; Su – sustainability; Cr – credibility; Le – legitimacy; CE – cost effectiveness; Re – regularity; Ge – geography

GLOBAL ASSESSMENTS

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Sa	Su	Cr	Le	CE	Re	Ge	ID
Food and Agriculture Organization of the UN (FAO)	<input type="checkbox"/> Recurrent review of the State of the World Fisheries Resources: Marine Fisheries	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1971	Indefinite	▲	▲	▲	▲	▲	▲	▲	41a
	<input type="checkbox"/> Recurrent review of the State of World Aquaculture: issues of environmental interactions and use of resources	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1994/95	Indefinite	▲	▲	▲	▲	▲	▲	▲	41b
	<input type="checkbox"/> The State of World Fisheries and Aquaculture (SOFIA) every 2 yrs	<input type="checkbox"/> Other – not specified	No	2002	2	▲	▲	▲	▲	▲	▲	▲	41c
	<input type="checkbox"/> UN Atlas of the Oceans	<input type="checkbox"/> Information provision on ocean status	No	1999	Indefinite	▲	▲	▲	▲	▲	▲	▲	41f
GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast)	<input type="checkbox"/> Ballast water risk assessments	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2002	1	✓	▲	✓	▲	▲	▲	▲	44a
	<input type="checkbox"/> Invasive aquatic species case studies (desk top)	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2000	4	✓	▲	✓	▲	▲	▲	▲	44c
	<input type="checkbox"/> Port biological baseline surveys	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2001	2	✓	▲	✓	▲	▲	▲	▲	44b

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Sa	Su	Cr	Le	CE	Re	Ge	ID
Global Climate Observing System (GCOS)	<input type="checkbox"/> Second report on the adequacy of GCOS report to UNFCCC/SBSTA	<input type="checkbox"/> Other – not specified	Yes	2002	1	▲	▲	✓	▲	▲	▲	×	12a
Global International Waters Assessment	<input type="checkbox"/> GIWA Global Assessment	<input type="checkbox"/> Monitor known threats to the marine environment and other aquatic environments (identify actions that lead to environmental benefits)	Yes	1999	5	✓	▲	✓	▲	×	×	✓	25
IAEA Marine Environment Laboratory	<input type="checkbox"/> Worldwide marine radioactivity studies in oceans and seas	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	1995	10	▲	▲	▲	▲	▲	▲	▲	43a
Intergovernmental Oceanographic Commission (IOC)	<input type="checkbox"/> Ocean mapping	<input type="checkbox"/> Other – not specified	Yes	1972	Indefinite	▲	▲	✓	▲	▲	-	▲	37b
International Coral Reef Action Network (ICRAN)/GCRMN	<input type="checkbox"/> Coral Reef Economic Valuation <input type="checkbox"/> Coral Reef Fisheries Analysis	<input type="checkbox"/> Other – not specified <input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	2001	4	▲	▲	▲	▲	▲	✓	▲	28f
	<input type="checkbox"/> Global Coral Reef Monitoring Network (GCRMN)	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2000	2	✓	×	▲	▲	▲	▲	▲	28a
International Tanker Owners Pollution Federation (ITOPF)	<input type="checkbox"/> Tanker spill assessment in Regional seas	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2002	1	▲	▲	✓	×	✓	▲	▲	1

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Sa	Su	Cr	Le	CE	Re	Ge	ID
Joint Global Ocean Flux Study (JGOFS)	<input type="checkbox"/> GOFs	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	1998	5	✓	▲	✓	▲	×	✓	▲	16
Millennium Ecosystem Assessment	<input type="checkbox"/> MA Global Assessment	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	2001	4	▲	▲	✓	▲	×	-	▲	24a
Scientific Committee on Problems of the Environment (SCOPE)	<input type="checkbox"/> Transport of nutrients from land to sea: the silica cycle	<input type="checkbox"/> Other – not specified	Yes	1998	6	×	×	▲	▲	▲	×	▲	39a
SeagrassNet	<input type="checkbox"/> SeagrassNet – a global seagrass monitoring programme	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2000	Indefinite	▲	×	▲	×	▲	✓	▲	11a
Secretariat of the Convention on Biological Diversity	<input type="checkbox"/> Ad hoc technical expert group on mariculture <input type="checkbox"/> Ad hoc technical expert group on marine and coastal protected areas <input type="checkbox"/> Development of rapid assessment methods for marine and coastal biodiversity	<input type="checkbox"/> Evaluation of current status/guidance to improve performance <input type="checkbox"/> Value of MPAs/links with biodiversity and recommendations for future research <input type="checkbox"/> Method adaptation	No	2002	1	▲	▲	▲	▲	✓	×	▲	26c
			No	2001	1	✓	▲	▲	▲	✓	×	▲	26b
			Yes	2001	2	▲	▲	-	▲	▲	-	-	26a
UNEP	<input type="checkbox"/> Global Sea Level Observing System	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	1986	Indefinite	✓	▲	✓	▲	▲	-	▲	47a

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Criteria definitions					ID	
						Sa	Su	Cr	Le	CE		Re
UNEP/DEWA	<input type="checkbox"/> Global Environment Outlook					X	-	X	-	-	-	54
UNEP Chemicals	<input type="checkbox"/> Global Mercury Assessment	<input type="checkbox"/> Monitor known threats to the marine environment/Identify new threats to take proactive measures	No	2001	2	▲	▲	X	▲	X	X	21
	<input type="checkbox"/> Global Monitoring Network	<input type="checkbox"/> Other - not specified	Yes	2001	Indefinite	▲	▲	X	▲	▲	✓	22a
	<input type="checkbox"/> Regionally Based Assessment of Persistent Toxic Substances	<input type="checkbox"/> Identify new threats to take proactive measures/other - prioritise threats and damages	Yes	2000	3	▲	X	▲	▲	▲	X	23a
	<input type="checkbox"/> IMAPS	<input type="checkbox"/> Identify new threats to take proactive measures	No	1998	Indefinite	▲	X	X	X	▲	✓	49

REGIONAL ASSESSMENTS

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Criteria definitions						ID	
						Sa	Su	Cr	Le	CE	Re		Ge
Advisory Committee on Protection of the Sea (ACOPS)	<input type="checkbox"/> African Process	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2000	In phases	▲	▲	×	▲	▲	▲	▲	37c
Commission for the Conservation of Antarctic Marine Living Resources	<input type="checkbox"/> Ecosystem status	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	1991	Indefinite	▲	✓	✓	▲	✓	✓	▲	32b
	<input type="checkbox"/> Fisheries assessments	<input type="checkbox"/> Other – not specified	Yes	1984	Indefinite	▲	✓	✓	▲	✓	✓	▲	32a
	<input type="checkbox"/> Krill 2000 survey	<input type="checkbox"/> Other – not specified	Yes	1999	Not stipulated	▲	✓	✓	▲	✓	✓	▲	33d
	<input type="checkbox"/> Predator monitoring	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	1985	Indefinite	▲	✓	✓	▲	✓	✓	▲	33c
Commission for the Conservation of Southern Bluefin Tuna	<input type="checkbox"/> CCSBT stock assessments	<input type="checkbox"/> Other – not specified	Yes	1998	Indefinite	▲	▲	×	▲	▲	▲	▲	6
Common Wadden Sea Secretariat (CWSS)	<input type="checkbox"/> Quality Status Report on the Wadden Sea (pollution, eutrophication, habitats and species)	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified (targets Wadden Sea management plan)	Yes	2003	1	✓	▲	✓	▲	▲	▲	▲	27e
Food and Agriculture Organization of the UN (FAO)	<input type="checkbox"/> The Yellow Sea Large Marine Ecosystem studies	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2002	4	×	▲	▲	▲	▲	▲	×	42a

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Criteria definitions						ID	
						Sa	Su	Cr	Le	CE	Re		Ge
GEF Caspian Sea Programme	<input type="checkbox"/> Assistance to Caspian Sea Region	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2000	Indefinite	▲	▲	▲	▲	▲	▲	43c	
	GESAMP – Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection	<input type="checkbox"/> Assessments of environmental impacts of coastal aquaculture	No	1999	Not stipulated	▲	▲	×	▲	▲	▲	8c	
		<input type="checkbox"/> Development of environmental exposure models for application in seafood risk analysis	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	2001	Indefinite	▲	▲	×	-	▲	▲	8d
		<input type="checkbox"/> Estimates of oil input into the marine environment from ships	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	No	1997	5	▲	▲	×	▲	▲	×	▲
Global Ocean Ecosystem Dynamics (GLOBEC)	<input type="checkbox"/> Evaluation of hazards of harmful substances carried by ships	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	1973	Indefinite	▲	▲	▲	▲	▲	▲	8b	
	<input type="checkbox"/> Conductivity, Temperature and Depth (CTD) monitoring	<input type="checkbox"/> Other – not specified	Yes	1997	Indefinite	▲	×	▲	▲	▲	▲	14	
		<input type="checkbox"/> GLOBEC-China	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1999	5	▲	▲	▲	×	▲	▲	9f
Helsinki Commission (HELCOM)	<input type="checkbox"/> COMBINE monitoring programme (environmental effect of inputs)	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1978	Indefinite	▲	▲	▲	▲	▲	▲	35c	

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Criteria definitions						ID	
						Sa	Su	Cr	Le	CE	Re		Ge
Helsinki Commission (HELCOM) (continued)	<input type="checkbox"/> Monitoring of illegal oil discharges at sea	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	1988	Indefinite	▲	▲	✓	▲	▲	▲	35e	
	<input type="checkbox"/> Monitoring programme for radioactive substances	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	1981	Indefinite	✓	✓	▲	▲	▲	▲	35d	
	<input type="checkbox"/> Pollution Load Compilation – Air (airborne load of nutrient and contaminants)	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	1983	Indefinite	✓	▲	✓	▲	✓	▲	35a	
	<input type="checkbox"/> Pollution Load Compilation – Water (waterborne load of nutrient and contaminants)	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	1980	Indefinite	✓	✓	▲	▲	▲	▲	35b	
Indian Ocean Tuna Commission	<input type="checkbox"/> Stock assessment of tropical, neritic and temperate tunas and billfish under the Commission mandate	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	Not stipulated	Indefinite	✓	▲	▲	▲	×	▲	34a	
Inter-American Tropical Tuna Commission (IATTC)	<input type="checkbox"/> Biology and population dynamics of tunas and related species and the effects of natural factors and human activities on the ecosystem	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	1950	Indefinite	▲	▲	✓	▲	▲	✓	▲	30
International Commission for the Conservation of Atlantic Tunas (ICCAT)	<input type="checkbox"/> 2004 workshop on tunas and their environment	<input type="checkbox"/> Effect of environment on fishery	Yes	1991	Indefinite	✓	▲	✓	▲	▲	▲	2c	
	<input type="checkbox"/> Annual compilation of catch statistics for all Atlantic tuna and tuna-like species	<input type="checkbox"/> Other (compile info and provide a mechanism for science-based advice)	Yes	1970	Indefinite	✓	✓	✓	▲	▲	✓	2a	
	<input type="checkbox"/> Regular stock assessment of Atlantic tuna and tuna-like species	<input type="checkbox"/> Quantitative assessments	Yes	1970	Indefinite	✓	✓	✓	▲	▲	✓	2b	
International Coral Reef Action Network (ICRAN)	<input type="checkbox"/> Coral reef monitoring and assessment in Eastern Africa, Caribbean, East Asia, South Pacific regional sea areas	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2001	3	✓	▲	▲	▲	×	▲	28b	

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Criteria definitions	ID
						Sa Su Cr Le CE Re Ge	
International Coral Reef Action Network (ICRAN) (continued)	<input type="checkbox"/> Reefs at Risk Caribbean	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2001	2	▲ ▲ ▲ ▲ ▲ ▲	28c
	<input type="checkbox"/> The environmental status of the European Seas – An ICES review on behalf of the German Federal Ministry for the Environment	<input type="checkbox"/> Monitor known threats to the marine environment	No	2002	1	▲ ▲ ▲ X ▲ ▲ ✓	29a
International EMECS Centre	<input type="checkbox"/> Design workshop for the purpose of achieving a comprehensive evaluation of coastal zones in Asia; follow-up activities for Asian Forum at 5th International Conference on Environmental Management of Enclosed Coastal Seas (EMECS 2001)	<input type="checkbox"/> Identify new threats to take proactive measures	No	2002	3	▲ ▲ ▲ X X ▲ X X	19
	<input type="checkbox"/> Coastal and Marine Resources Management and Poverty Reduction in South Asia – ICZM in High Priority Areas	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2001	2	▲ ▲ ▲ ▲ ▲ ▲ ✓	10a
Kenya Marine and Fisheries Research Institute	<input type="checkbox"/> Coastal impacts of water abstraction and impoundment in Africa	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2002	1	▲ ▲ ▲ ✓ ▲ ▲ ✓	47c
	<input type="checkbox"/> Seaweed Africa	<input type="checkbox"/> Other – not specified	No	2001	3	✓ ▲ ▲ ▲ ▲ ▲ X X	47b
KORDI/NOWPAP MERRAC	<input type="checkbox"/> NOWPAP MERRAC	<input type="checkbox"/> Other – regional cooperation in marine pollution response	No	2000	Indefinite	✓ ▲ X ▲ ▲ ✓	42e

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Criteria definitions						ID	
						Sa	Su	Cr	Le	CE	Re		Ge
Korea Ocean Research and Development Institute (KORDI)	<input type="checkbox"/> APEC Marine Environmental Training and Education Programme	<input type="checkbox"/> Other - to support capacity building	No	1999	Indefinite	X	X	X	-	-	✓	X	42b
	<input type="checkbox"/> The Yellow Sea Marine Environmental Monitoring	<input type="checkbox"/> Monitor known threats to the marine environment	Yes	1999	Indefinite	▲	▲	X	▲	▲	✓	▲	42c
MED POL – Programme of the Mediterranean Action Plan of UNEP	<input type="checkbox"/> Monitoring programme of MED POL	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1975	Indefinite	▲	▲	▲	▲	▲	✓	▲	20a
Millennium Ecosystem Assessment	<input type="checkbox"/> Small Islands in Peril, Milne Bay Province, Papua New Guinea; MA Sub-Global Assessment	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	2002	3	▲	X	✓	▲	▲	X	X	24b
National Institute of Water and Atmospheric Research (NIWA)	<input type="checkbox"/> Various marine fisheries and environmental assessments	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – not specified	Yes	1992	Not stipulated	▲	▲	✓	▲	▲	▲	▲	40
North Pacific Anadromous Fish Commission	<input type="checkbox"/> Bering-Aleutian Salmon International Survey (BASIS)	<input type="checkbox"/> Other – understand the mechanisms underlying environmental variation and carrying capacity	No	2002	4	X	X	X	▲	-	✓	▲	15
Norwegian Polar Institute, Polar Environmental Centre	<input type="checkbox"/> Environmental management plan for the Barents Sea <input type="checkbox"/> Environmental monitoring of Svalbard and Jan Mayen (MOSJ)	<input type="checkbox"/> Other – management plan <input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	No Yes	2002 1999	2 Indefinite	✓ ✓	▲ ✓	✓ ✓	▲ ▲	▲ ▲	▲ ✓	▲ ▲	7a 7b

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Criteria definitions						ID
						Sa	Su	Cr	Le	CE	Re	
OSPAR – Convention for the Protection of the Marine Environment of the North-East Atlantic	<input type="checkbox"/> Joint assessment and monitoring programme (JAMP). Monitoring of contaminants in Norwegian fjords and coastal waters	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1981	Indefinite	▲	▲	▲	▲	▲	▲	51b
Permanent Secretariat of the Commission on the Protection of the Black Sea Against Pollution	<input type="checkbox"/> State of the Environment of the Black Sea	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	2002	5	✓	✓	▲	▲	▲	▲	18
Regional Organization for the Protection of the Marine Environment (ROPME)	<input type="checkbox"/> Assistance to ROPME Region <input type="checkbox"/> Open Sea Cruise	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures <input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1985	Indefinite	▲	▲	▲	▲	▲	✓	43b
			Yes	July 2001	<1	▲	▲	✓	▲	▲	▲	▲
Secretariat of the Pacific Community	<input type="checkbox"/> Pacific Community Reef Fisheries Observatory <input type="checkbox"/> SPC Oceanic Fisheries Programme (western and central Pacific tuna stock assessments)	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – to provide information to enable action that prevents fishing becoming a threat <input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other – assess status and prospects of oceanic highly migratory stocks, fisheries and ecosystems – national and regional management	Yes	2002	4	✓	▲	✓	▲	×	▲	46b
			Yes	1970	Indefinite	✓	▲	✓	✓	×	✓	▲

Lead organization	Title	Objective	Primary data used?	Start date	Expected duration (yrs)	Sa	Su	Cr	Le	CE	Re	Ge	ID
UNEP Caribbean Action Plan	<input type="checkbox"/> Regional overview of land-based activities	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	Planned not budgeted		▲	▲	×	▲	▲	▲	▲	13a
UNEP East Asian Seas Regional Coordinating Unit	<input type="checkbox"/> ESCAP State of the Environment Report <input type="checkbox"/> UNEP/GEF Project Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand	<input type="checkbox"/> Identify new threats to take proactive measures <input type="checkbox"/> Identify new threats to take proactive measures	No	2000	5	-	-	-	×	-	▲	×	50d
UNEP-GRID-Arendal	<input type="checkbox"/> State of the Environment of the Aral Sea Basin Countries	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures/other - not specified	Yes	1997	3	▲	×	▲	▲	▲	×	▲	38
United Nations Industrial Development Organization (UNIDO)	<input type="checkbox"/> Assessments of UNIDO - generic response	<input type="checkbox"/> Monitor known threats to the marine environment/identify new threats to take proactive measures	Yes	1998	Not stipulated	✓	✓	✓	▲	▲	▲	▲	48
Western Central Atlantic Fisheries Commission (WECAFC)	<input type="checkbox"/> WECAFC Ad Hoc Working Group on (status of) Shrimp and Groundfish Resources in the Brazil-Guiana Shelf	<input type="checkbox"/> Other - not specified	Yes	1996	Not stipulated	▲	▲	▲	▲	▲	×	▲	31a
WWF Japan	<input type="checkbox"/> Yellow Sea Ecoregion Biological Assessment and Biodiversity Vision Project	<input type="checkbox"/> Other - not specified	Yes	2002	3	▲	▲	×	▲	▲	×	▲	5



Front cover/title page/above.
Demi Ivo/UNEP/Topham

Global Marine Assessments

A survey of global and regional marine environmental assessments and related scientific activities

The world's oceans provide goods, services and functions fundamental to the livelihoods of hundreds of millions of people worldwide. Planning for their sustainable use requires a more detailed understanding of the marine environment than is available at present: an understanding that will only become possible through improved levels of monitoring and assessment.

This publication is the result of inter-agency and national government collaboration. It represents part of UNEP's contribution to evaluating the feasibility of establishing a Global Marine Assessment, a process that would regularly report on the state of the marine environment.

The report presents a snapshot of assessments and related scientific activities that were in progress at the end of 2002. It considers and recommends various ways in which a future Global Marine Assessment process could integrate these activities, and identifies the thematic and geographical gaps that need to be addressed.