Global Marine Assessments

A survey of global and regional assessments and related activities of the marine environment

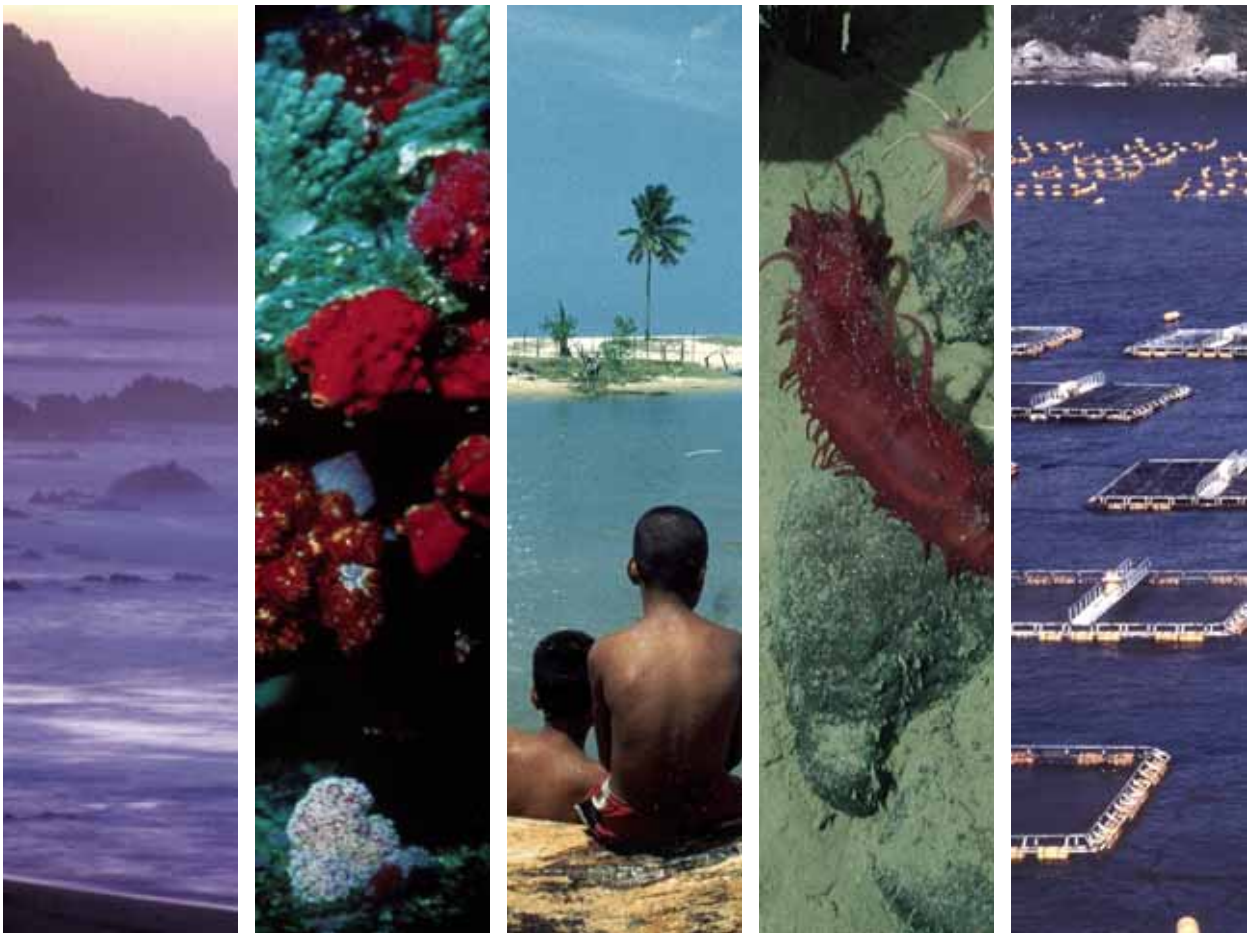
UNEP WCMC

UNESCO

Global Marine Assessments: A survey of global and regional assessments and related activities of the marine environment

A joint publication of the United Nations Environment Programme (UNEP) and the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (UNESCO-IOC) executed by UNEP-WCMC and supported by the Netherlands Ministry of Foreign Affairs, Development Cooperation.

Global Marine Assessments



A survey of global and regional assessments and related activities of the marine environment

UNEP WCMC

JE MAINTIENDRAI

UNESCO

UNEP World Conservation Monitoring Centre
219 Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Tel: +44 (0) 1223 277314
Fax: +44 (0) 1223 277136
Email: info@unep-wcmc.org
Website: www.unep-wcmc.org

ISBN: 978-92-807-2800-2

WRITING TEAM
Emily Corcoran, Mike Skuja, Christian Wild, Claire Brown and Andrew Harvey

REVIEW TEAM
Joana Akrofi, Larry Awosika, Julian Barbière, Rick Boelens, Rene Coenen, Lee Kimball and John Morrison

DATABASE DESIGN
Matt Gifford

CITATION
UNEP (2007) *Global Marine Assessments: A survey of global and regional assessments and related activities of the marine environment*. UNEP/UNESCO-IOC/UNEP-WCMC.

This publication is available online at www.unep.org/dewa/assessments/EcoSystems/water/MarineAssessment/index.asp and at UNEP-WCMC publications www.unep-wcmc.org/resources/publications/UNEP_WCMC_bio_series/27.htm.

The database is accessible online at www.unep-wcmc.org/GRAMED.

PHOTOS
Front cover and title page (left to right): UNEP/Topham; Songpanich Pairat/UNEP/Topham; Dawee Chaikere/UNEP/Topham; NOAA/MBARI; Yoshiaki Kawachi/UNEP/Topham.
Back cover: Stephen Dalla Costa/UNEP/Topham.

A **Banson** production
Printed in the UK by The Lavenham Press

DISCLAIMER
The contents of this report are the views of the authors alone. They are not an agreed statement from the wider science community, the organizations the authors belong to, or the Census of Marine Life (CoML).

The contents of this report do not necessarily reflect the views or policies of the United Nations Environment Programme, the UNEP World Conservation Monitoring Centre or the supporting organizations. The designations employed and the presentations do not imply the expressions of any opinion whatsoever on the part of these organizations concerning the legal status of any country, territory, city or area or its authority, or concerning the delimitation of its frontiers or boundaries. Moreover, the views expressed do not necessarily represent the decision or the stated policy of UNEP or contributory organizations, nor does citing of trade names or commercial processes constitute endorsement.

Foreword

In 2003, UNEP and the Intergovernmental Oceanographic Commission (IOC) of UNESCO published *A survey of global and regional marine environmental assessments and related scientific activities* in response to the call of the United Nations General Assembly (Resolution 57/141) and the Heads of States and Governments at the World Summit on Sustainable Development to establish a regular process for the global reporting and assessment of the state of the marine environment.

Today, the urgency to understand the state and functioning of our oceans is greater than ever. The fact that water covers more than two-thirds of the Earth's surface (over 335 million square kilometres) is often quoted; the big question is why is the ocean so important? Not only does the ocean provide us with transportation routes, food, livelihoods, culture and recreation, but critically, the oceans play a crucial role in regulating our atmosphere and climate. The ways in which we use and manage the oceans will be a significant test of humankind's ability to steer a sustainable course for our collective future. With growing recognition of the urgency of addressing climate change, we need to improve our understanding of changes in the oceans, how the different living and non-living components are reacting to them, and how in turn humans are being affected. In December 2006, the 61st session of the United Nations General Assembly adopted a resolution on Oceans and the Law of the Sea, by which it renewed the commitment of Member States to support the implementation of the start-up phase – that is to say, the Assessment of Assessments of the Regular Process.

Sound information is critical to making decisions, ensuring the sustainable use of the marine environment, and enabling the continuing functioning of the several marine ecosystem services on which we all depend.

With this in mind, UNEP and UNESCO-IOC, as lead agencies designated by UN General Assembly resolution 60/30, requested UNEP-WCMC to produce, in support of the implementation of the Assessment of Assessments, this second report, building on the 2003 survey. This report is another example of interagency cooperation in the area of the environment. During its preparation, this report has been reviewed by the Ad Hoc Steering Group for the Assessment of Assessments as well as by the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), in order to maximize the saliency and credibility of the information presented.

The report is supported by an interactive online database tool (available at www.unep-wcmc.org/GRAMED) which enables the user to search through the assessments and activities relating to the marine environment. The information contained in the database forms the basis of the analysis in this report. The report lays out the components of an effective assessment and summarizes the key considerations for establishing an assessment process. It also includes the findings of this survey and an analysis of gaps and emerging issues, drawing on conclusions and lessons from completed assessments. All this material, together with a set of recommendations, is intended to inform and facilitate the task of the Assessment of Assessments Group of Experts.

The report provides a very useful starting point for conducting the Assessment of Assessments. It highlights the fact that the data available to assess the different ocean processes is patchy in both time and space. It defines the huge challenge that lies ahead in terms of capacity-building and information and knowledge gaps. The report recommends that, to improve this situation, new ways to address capacity-building, particularly in developing countries, are needed. It emphasizes the fact that a systematic effort to fill the information and knowledge gaps will be necessary in the future to support an effective decision-making process. The report was produced as a tool to make easily available essential background information for the assignment of the Group of Experts of the Assessment of Assessments. Standing on their own, the report and database are also extremely valuable resources for decision makers having to deal with marine environmental issues.

Koïchiro Matsuura
Director-General, United Nations Educational, Scientific and Cultural Organization (UNESCO)

Achim Steiner
United Nations Under-Secretary General and Executive Director, United Nations Environment Programme (UNEP)

Supporting organizations

The mission of the **United Nations Environment Programme** is to provide leadership and encourage partnership in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations.

The Netherlands Ministry of Foreign Affairs, Development Cooperation, kindly provided financial support for the preparation and publication of this report.

The purpose of the **Intergovernmental Oceanographic Commission** (IOC) of UNESCO is to promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment and the decision-making processes of its Member States.

The IOC will collaborate with international organizations concerned with the work of the Commission, and especially with those organizations of the United Nations system that are willing and prepared to contribute to the purpose and functions of the Commission and/or to seek advice and cooperation in the field of ocean and coastal area scientific research, related services and capacity-building.

The UNEP World Conservation Monitoring Centre (UNEP-WCMC) is the biodiversity assessment and policy implementation arm of UNEP, the world's foremost intergovernmental environmental organization. UNEP-WCMC aims to help decision makers recognize the value of biodiversity to people everywhere, and to apply this knowledge to all that they do. The Centre's challenge is to transform complex data into policy-relevant information, to build tools and systems for analysis and integration, and to support the needs of nations and the international community as they engage in joint programmes of action. UNEP-WCMC provides objective, scientifically rigorous products and services that include ecosystem assessments, support for implementation of environmental agreements, regional and global biodiversity information, research on environmental threats and impacts, and development of future scenarios for the living world.

ACKNOWLEDGEMENTS

We gratefully acknowledge the financial support provided by the Netherlands Ministry of Foreign Affairs, Development Cooperation. The United Nations Environment Programme's Division of Early Warning and Assessment (UNEP-DEWA) and the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (UNESCO-IOC) have provided guidance and support for the preparation of the publication of this report and database, in particular Salif Diop and Umit Unluata. We would also like to acknowledge the contribution of Mike Huber, Beth Ingraham, Holly Barclay, Matt Gifford, UNEP-WCMC colleagues, the members of the Ad Hoc Steering Group for the Assessment of Assessments process, and the huge efforts of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) Review Team for their support and contributions in the development of this work: Joana Akrofi, Larry Awosika, Julian Barbière, Rick Boelens, Rene Coenen, Lee Kimball and John Morrison. Swedish International Development Agency (SIDA) through GESAMP provided funding for the review workshop, and the International Maritime Organization (IMO) hosted the meeting in London. Thanks are extended to all the organizations and partners that have provided us with information and guidance through this work.

Glossary of working definitions

Aquaculture The cultivation of the natural products of the water, such as fish, shellfish and plants, under controlled conditions.

Bathymetry The measurement of the depth of the ocean floor from the water surface.

Biological diversity/biodiversity The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.

Biosphere The part of the Earth and its atmosphere in which living organisms exist, or that is capable of supporting life.

Capacity-building Efforts aimed to develop human skills or societal infrastructures within a community or organization needed to reduce level of risk. In extended understanding, capacity-building also includes development of institutional, financial, political and other resources, such as technology at different levels and sectors of the society.

Cold-water corals In contrast to shallow warm-water coral reefs, which are structures built by hermatypic (reef-building) corals and other associated organisms containing zooxanthellae, deep/cold-water corals generally do not contain zooxanthellae and are regarded as ahermatypic.

Coral reef An erosion-resistant marine ridge or mound consisting chiefly of compacted coral together with algal material and biochemically deposited magnesium and calcium carbonates.

Ecoregions Relatively large units of land or water, containing a geographically distinct assemblage of natural communities and sharing a large majority of their species, dynamics and environmental conditions.

Ecosystem The complex of a community of organisms and its environment functioning as an ecological unit.

Ecosystem approach A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (FAO).

Groundwater Water that exists beneath the Earth's surface in underground streams and aquifers.

High seas This term, in municipal and international law, denotes all that continuous body of salt water in the world that is navigable in its character and that lies outside territorial waters and maritime belts of the various countries; also called open sea.

Mangrove forest A community of salt-tolerant trees, with associated shrubs or vines and other organisms, that grows in a zone roughly coinciding with the intertidal zone along protected tropical and subtropical coasts.

Marine Environment Assessment The collection, analysis, and interpretation of information with the purpose of assessing the quality of marine areas (GESAMP).

Pelagic Of, relating to, or living in open oceans or seas rather than waters adjacent to land or inland waters.

Policy synthesis The combining of information and arguments to form a coherent rationalization of possible courses of action for decision makers.

River A natural stream of water of substantial volume.

Seamount An underwater mountain rising from the ocean floor and having a peaked or flat-topped summit below the surface of the sea.

Socio-economic monitoring Any study that focuses on social, cultural, economic and political processes in and around the marine environment. This may include studies that address such diverse issues as food security, livelihood opportunities, monetary and non-monetary benefits of marine resources and their equitable distribution, sustainable resource use, or local cultures' perceptions and awareness of marine resources and processes.

Sustainable development Development that ensures that the use of resources and the environment today does not restrict their use by future generations. Sustainable development is a process of developing (land, cities, business, communities and so on) that 'meets the needs of the present without compromising the ability of future generations to meet their own needs', according to the Brundtland Report.

Acronyms

ACOPS	Advisory Committee on Protection of the Sea
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CeDAMar	Census of the Diversity of Abyssal Marine Life
CenSeam	Global Census of Marine Life on Seamounts
CMarZ	Census of Marine Zooplankton
CoML	Census of Marine Life
EU	European Union
EU/WFD	EU Water Framework Directive (2000/60/EC)
FAO	Food and Agriculture Organization of the United Nations
GCRMN	Global Coral Reef Monitoring Network
GEF	Global Environment Facility
GEO	Global Environment Outlook
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GIWA	Global International Waters Assessment
GloBallast	Global Ballast Water Management Programme
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities
HELCOM	Convention on the Protection of the Marine Environment of the Baltic Sea Area
IAEA	International Atomic Energy Agency
ICCAT	International Commission for the Conservation of Atlantic Tunas
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPOA Sharks	International Plan of Action for Conservation and Management of Sharks
IUCN	The World Conservation Union
IWC	International Whaling Commission
LME	Large Marine Ecosystem (strategy for the assessment and management of international coastal waters)
MA	Millennium Ecosystem Assessment Programme
MAB	Man and the Biosphere Programme
NAFO	Northwest Atlantic Fisheries Organization
NASCO	North Atlantic Salmon Conservation Organization
NEAFC	North East Atlantic Fisheries Commission
OBIS	The Ocean Biogeographic Information System
OSPAR	Commission for the Protection of the Marine Environment of the North-East Atlantic
PEARL	Prototype Environmental Assessment and Reporting Landscape
QSR	Quality Status Report
UNDOALOS	United Nations Division of Ocean Affairs and the Law of the Sea
UNEP	United Nations Environment Programme
UNEP-WCMC	UNEP World Conservation Monitoring Centre