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TECHNICAL
GUIDELINES FOR
RESPONSIBLE
FISHERIES

4

Suppl. 4

FISHERIES MANAGEMENT

4. Marine protected areas and fisheries



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PREPARATION OF THIS DOCUMENT

The Guidelines were finalized by the FAO Fisheries and Aquaculture Policy and Economics Division (FIP) and the Fisheries and Aquaculture Resources Use and Conservation Division (FIR).

The document was drafted by K. Cochrane, D. Gréboval, R. Pomeroy, J. Sanders, M. Sissenwine and L. Westlund based on information assembled in an expert workshop on *Marine Protected Areas and Fisheries Management: Review of Issues and Considerations*¹, held on 12–14 June 2006, and subsequent reviews. The experts participating in the workshop were L.W. Botsford, J.C. Castilla, A. Charles, P. Christie, M. Hatzios, A. Herrera, D. Japp, G. Kelleher, Y. Kondo, C.G. Lundin, E.J. Molenaar, M. Ngoile, A. Parma, M. Sissenwine, J.–Y. Weigel and T. Young, as well as FAO staff and consultants: K. Cochrane, C. de Young, D. Gréboval, B. Kuemlangan, J. Sanders, A. Skonhoft and H. Watanabe. Written contributions were also provided by A.K. Hurd, K. Martin, M.B. Mascia, I. Meliane, F. Micheli, R.B. Pollnac, R.S. Pomeroy, M.A. Samoily and A.T. White.

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The Guidelines on *Marine protected areas and fisheries* should be read as a supplement to the FAO Technical Guidelines on *Fisheries management* (FAO, 1997), on *The ecosystem approach to fisheries* (FAO, 2003a) and on *The human dimensions of the ecosystem approach to fisheries* (FAO, 2009a).

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ABSTRACT

This document on *Marine protected areas (MPAs) and fisheries* has been developed to provide information and guidance on the use of marine protected areas (MPAs) in the context of fisheries. As MPA implementation moves ahead in the arena of marine biodiversity conservation, many people feel that the fisheries aspects are not fully understood nor always appropriately taken into account, and that guidance specific to this sector is needed. These Guidelines look specifically at fisheries features of MPAs, but also address the interface between fisheries management and biodiversity conservation and provide support for MPAs with multiple objectives.

The Guidelines are divided into two sections: the first discusses definitions and context, and provides background information on fisheries management, the ecosystem approach to fisheries (EAF) and MPAs as a tool for fisheries management, including socio-economic and biological impacts. The second section considers the planning and implementing of MPAs including the institutional, legal and policy context, the planning process and actual implementation considerations. Conclusions and future directions are offered in the last chapter of this section, while a selection of annexes offers in-depth information on a few key issues.

The document highlights the need for increased coordination across sectors and agencies/departments. Integration of diverse interests and viewpoints is required if we are to successfully manage our oceans and their resources for future generations. As with all fisheries management, good governance – including adequate stakeholder participation – is key to successful and equitable management outcomes.

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ACRONYMS AND ABBREVIATIONS

CAR	comprehensiveness, adequacy and representativeness (MPA network principles)
CBD	Convention on Biological Diversity
CCRF	Code of Conduct for Responsible Fisheries (FAO)
COFI	Committee on Fisheries (FAO)
CORALI	Coral Reefs and Livelihoods Initiative
CPUE	catch per unit effort
EA	ecosystem approach
EAF	ecosystem approach to fisheries
EEZ	exclusive economic zone
ESD	ecologically sustainable development (Australia)
GFCM	General Fisheries Commission for the Mediterranean
GIS	geographic information system
GPS	Global Positioning System
ICM, ICZM, ICAM	integrated coastal (zone or area) management
ICRAN	International Coral Reef Action Network
IMO	International Maritime Organization
IPOA	International Plan of Action
ISA	International Seabed Authority
IUCN	International Union for Conservation of Nature
LMMA	locally managed marine area
MARPOL	International Convention for the Prevention of Pollution from Ships
MCS	monitoring, control and surveillance
MPA	marine protected area
MSY	maximum sustainable yield
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	Northeast Atlantic Fisheries Commission
NGO	non-governmental organization
NOAA	National Oceanic and Atmospheric Administration (United States)
PES	payment for environmental services
PPP	percentage population protection
PSSA	particularly sensitive sea areas
RFB	regional fishery body

RFMO/A	regional fisheries management organization/ arrangement
RRA/PRA	rapid/participatory rural appraisal
SEAFDEC	Southeast Asian Fisheries Development Centre
SEAFO	South East Atlantic Fisheries Organization
SLED	sustainable livelihoods enhancement and diversification
SPR	spawning per recruit
TAC	total allowable catch
TURFs	territorial use rights in fisheries
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFSA	Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (United Nations Fish Stocks Agreement)
VME	vulnerable marine ecosystem
VMS	vessel monitoring system
WCPA	World Commission on Protected Areas
WWF	World Wide Fund for Nature (in the United States, World Wildlife Fund)
WSSD	World Summit on Sustainable Development (Johannesburg, South Africa, 2002)
WSSD-POI	Plan of Implementation of the World Summit on Sustainable Development

PREFACE

These Guidelines have been through a long and complex preparation process. Marine protected areas (MPAs) are currently much discussed and often strongly promoted from a biodiversity conservation perspective. However, spatial-temporal closures, of which MPAs are one category, have a long history in fisheries management. Views on how and when to use MPAs and what they can achieve differ significantly among diverse political, social and professional groups, and also among individuals. In preparing these Guidelines, it was found that MPA planning and implementation can be controversial and that there is often a lack of clarity with regard to both objectives and processes. It is thus recognized that these Guidelines may not comply with everyone's perspectives, but it is hoped that they constitute a contribution to the global wisdom on MPAs and their role in achieving sustainable livelihoods, responsible fisheries and a healthy environment.

We initiated work on the Guidelines because of a need to know more about how MPAs work in the context of fisheries. We felt that as MPA implementation moves ahead in the arena of marine biodiversity conservation, the fisheries aspects are not always fully understood nor appropriately taken into account, and that guidance specific to this sector is needed. As the fisheries sector moves toward management according to EAF, which requires maintenance of biodiversity it is necessary to look at the full range of potential tools for achieving the goals of management. Accordingly, while these Guidelines look at some fisheries specific features of MPAs, their goal is to address the full range of dimensions of fisheries management, thus providing support for MPAs with multiple objectives.

Fisheries management is about achieving optimal and sustainable utilization of fishery resources for the benefit of humanity. This requires safeguarding ecosystems and conserving biodiversity. 'Conventional' fisheries management approaches, regulating fishers' behaviours and controlling fish mortality, is important in achieving this sustainability objective – if efficiently implemented. However, because of the failure of conventional measures in many cases, MPAs have increasingly been promoted. Fisheries management, at the same time, is also evolving towards more integrated approaches through EAF. As a management framework, EAF is not a new approach, but a practice in evolution, progressively making more explicit the inclusion of broader ecosystem considerations– including both environmental and human

dimensions – with a view to achieving sustainability. MPAs can be useful for achieving objectives related to fisheries management and biodiversity conservation, but to meet the majority of fisheries management goals they generally must be implemented in combination with other, more conventional management measures.

These Guidelines aspire to enhance understanding of how MPAs can be used together with other management tools within a reconciled framework (i.e. where fisheries management objectives exist in tandem with other sectoral objectives). No single recipe can be followed to guarantee success for the use of MPAs because each situation will be unique in terms of its biological, ecological, social, economic and legal characteristics. However, the wealth of experience and knowledge that is available should nevertheless enable good guidance to be provided on the design and implementation, or improvement of existing, MPAs. These Guidelines represent a common understanding of the roles of MPAs relative to fisheries at the moment they were developed, rather than a final recommendation on these roles or the relative importance of MPAs. So, as with many continually evolving topics, FAO will continue to investigate technical aspects of MPAs within a fisheries context and will be producing further guidance on specific aspects of MPAs as the information available evolves.

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BACKGROUND

1. From ancient times, fishing from oceans, lakes and rivers has been a major source of food, a provider of employment and other economic benefits for humanity. Ocean productivity seemed particularly unlimited. However, with increased knowledge and the dynamic development of fisheries and aquaculture, it was realized that living aquatic resources, although renewable, are not infinite and need to be properly managed, if their contribution to the nutritional, economic and social well-being of the growing world's population was to be sustained.
2. However, for nearly three decades, because of the dramatic increase of pollution, abusive fishing techniques worldwide, and illegal, unreported and unregulated fishing, catches and landings have been shrinking and fish stocks declining, often at alarming rates.
3. Stock depletion has negative implications for food security and economic development and reduces social welfare in countries around the world, especially those relying on fish as their main source of animal protein and income such as subsistence fishers in developing countries. Living aquatic resources need to be properly managed, if their benefits to society are to be sustainable.
4. Sustainability of societal benefits requires a recovery of depleted stocks and maintenance of the still-healthy ones, through sound management. In this regard, the adoption of the United Nations Convention on the Law of the Sea, in 1982 was instrumental. The law provides a new framework for the better management of marine resources. The new legal regime of the oceans gave coastal States rights and responsibilities for the management and use of fishery resources within the areas of their national jurisdiction, which embrace some 90 percent of the world's marine fisheries.
5. In recent years, world fisheries have become dynamically developing sectors of the food industry, and many States have striven to take advantage of their new opportunities by investing in modern fishing fleets and processing factories in response to growing international demand for fish and fishery products. It became clear, however, that many fisheries resources could not sustain an often uncontrolled increase of exploitation. Overexploitation of

important fish stocks, modifications of ecosystems, significant economic losses, and international conflicts on management and fish trade still threaten the long-term sustainability of fisheries and the contribution of fisheries to food supply.

6. In light of this situation, while recognizing that the recovery of depleted stocks is still urgent and avoiding depleting still-healthy stocks as important, FAO Member States have expressed the need to further develop aquaculture as the only immediate way to bridge the gap between the dipping capture fisheries output and the increasing world demand for seafood.

7. Indeed, in the last three decades, aquaculture has recorded a significant and most rapid growth amongst the food-producing sectors and has developed into a globally robust and vital industry. However, aquaculture also has been shown at times to carry the potential to cause significant environmentally and socially adverse impacts.

8. Thus, the Nineteenth Session of the FAO Committee on Fisheries (COFI), held in March 1991, recommended that new approaches to fisheries and aquaculture management embracing conservation and environmental, as well as social and economic, considerations were urgently needed. FAO was asked to develop the concept of responsible fisheries and elaborate a Code of Conduct to foster its application.

9. Subsequently, the Government of Mexico, in collaboration with FAO, organized an International Conference on Responsible Fishing in Cancún in May 1992. The Declaration of Cancún, endorsed at that Conference, was brought to the attention of the United Nations Conference on Environment and Development Summit in Rio de Janeiro, Brazil, in June 1992, which supported the preparation of a Code of Conduct for Responsible Fisheries. The FAO Technical Consultation on High Seas Fishing, held in September 1992, further recommended the elaboration of a code to address the issues regarding high seas fisheries.

10. The One Hundred and Second Session of the FAO Council, held in November 1992, discussed the elaboration of the Code, recommending that priority be given to high seas issues and requested that proposals for the Code be presented to the 1993 session of the Committee on Fisheries.

11. The twentieth session of COFI, held in March 1993, examined in general the proposed framework and content for such a Code, including the elaboration of guidelines, and endorsed a time frame for the further elaboration of the Code. It also requested FAO to prepare, on a “fast track” basis, as part of the Code, proposals to prevent reflagging of fishing vessels which affect conservation and management measures on the high seas. This resulted in the FAO Conference, at its Twenty-seventh Session in November 1993, adopting the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, which, according to FAO Conference Resolution 15/93, forms an integral part of the Code. It was also recognized and confirmed that issues of responsible aquaculture development and aquaculture sustainability should be addressed in the formulation process so that these be appropriately covered in the envisaged Code.

12. This implicit recognition of the importance of governance in aquaculture is underlined in Article 9.1.1 of the Code, which requires states to “establish, maintain and develop an appropriate legal and administrative framework to facilitate the development of responsible aquaculture”. In addition, at the beginning of the new millennium, there is growing recognition of the significant potential for the use of ocean and coastal waters for mariculture expansion. The outstanding issue in this area is that, unlike in capture fisheries, the existing applicable principles of public international law and treaty provisions provide little guidance on the conduct of aquaculture operations in these waters. Yet, experts agree that most of the future aquaculture expansion will occur in the seas and oceans, certainly further offshore, perhaps even as far as the high seas. The regulatory vacuum for aquaculture in the high seas would have to be addressed should aquaculture operations expand there.

13. The Code was formulated so as to be interpreted and applied in conformity with the relevant rules of international law, as reflected in the 10 December 1982 United Nations Convention on the Law of the Sea. The Code is also in line with the Agreement for the Implementation of the Provisions of this Law, namely the 1995 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. It is equally in line with, inter alia, the 1992 Declaration of Cancún and the 1992 Rio Declaration on Environment and Development, in particular Chapter 17 of Agenda 21.

14. The development of the Code was carried out by FAO in consultation and collaboration with relevant United Nations Agencies and other international organizations, including non-governmental organizations.

15. The Code of Conduct consists of five introductory articles: Nature and scope; Objectives; Relationship with other international instruments; Implementation, monitoring and updating; and Special requirements of developing countries. These introductory articles are followed by an article on General principles, which precedes the six thematic articles on Fisheries management, Fishing operations, Aquaculture development, Integration of fisheries into coastal area management, Post-harvest practices and trade, and Fisheries research. As already mentioned, the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas forms an integral part of the Code.

16. The Code is voluntary. However, certain parts of it are based on relevant rules of international law, as reflected in the United Nations Convention on the Law of the Sea of 10 December 1982. In capture fisheries, the Code also contains provisions that may be or have already been given binding effect by means of other obligatory legal instruments amongst the Parties, such as the Agreement to Promote Compliance with Conservation and Management Measures by Fishing Vessels on the High Seas, 1993. In aquaculture, the provisions of the Code implicitly encourage participatory governance of the sector, which extends from industry self-regulation, to co-management of the sector by industry representatives and government regulators and to community partnerships. Compliance is self or enforced by peer pressure, with industry organizations having the ability to exclude those who do not comply and governments only checking periodically.

17. The Twenty-eighth Session of the Conference in Resolution 4/95 adopted the Code of Conduct for Responsible Fisheries on 31 October 1995. The same Resolution requested FAO inter alia to elaborate appropriate technical guidelines in support of the implementation of the Code in collaboration with members and interested relevant organizations.

18. The expanding role and increasing contribution of aquaculture to economic growth, social welfare as well as global food security was recognized and reiterated at international levels such as the 1995 FAO/ Japan Conference on the Contribution of Fisheries and Aquaculture to Food

Security, the 1996 World Food Summit, the 1999 Ministerial Meeting on Fisheries, the 2000 FAO/NACA [Network of Aquaculture Centres in Asia and the Pacific] Conference on Aquaculture in the Third Millennium and its Bangkok Declaration and Strategy, and most recently, the 2009 World Summit on Food Security.

19. The application of the ecosystem approach to fisheries and aquaculture as strategies for the development of the sector contributes to the implementation of the provisions of the Code, thereby enforcing the technical, ecological, economic and social sustainability of the industry.

20. The concepts and principles of the ecosystem approach to fisheries (EAF) are not new. The Code itself is based on these, and their roots may be found in a number of international instruments and agreements, including the:

- 1972 Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration);
- 1982 United Nations Convention on the Law of the Sea;
- 1992 Rio Declaration and Agenda 21 adopted by UNCED;
- 1992 Convention on Biological Diversity;
- 1995 United Nations Fish Stocks Agreement.

21. Even more recently, the World Summit on Sustainable Development (Johannesburg, South Africa, 2002) adopted a political declaration and a Plan of Implementation in relation to capture fisheries, ecosystem health and the conservation of biodiversity. In the Plan of Implementation, States agreed to “Develop and facilitate the use of diverse approaches and tools, including the ecosystem approach, the elimination of destructive fishing practices, the establishment of marine protected areas consistent with international law and based on scientific information, including representative networks by 2012 and time/area closures for the protection of nursery grounds and periods, proper coastal land use and watershed planning and the integration of marine and coastal areas management into key sectors” (paragraph 32c).

22. An essential step towards defining EAF was taken in 2001 with the adoption of the FAO Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem, which, among other recommendations, requested that FAO prepare “...guidelines for best practices with regard to introducing ecosystem considerations into fisheries management”. Supplementing publication of

Fisheries management (FAO, 1997), FAO has since published several technical guidelines on EAF.

- The ecosystem approach to fisheries (FAO, 2003a)
- Best practices in ecosystem modelling for informing an ecosystem approach to fisheries (FAO, 2008a)
- The human dimensions of the ecosystem approach to fisheries (FAO, 2009a)

23. This document on *Marine protected areas and fisheries* should be considered a complement to the existing FAO Technical Guidelines on *Fisheries Management*.

INTRODUCTION

The need to safeguard our marine environment better and manage the use of existing aquatic resources for sustainability is increasingly being recognized worldwide. In fisheries management, the consideration of wider ecosystems, including the human component, is now extensively accepted, and methods such as the ecosystem approach to fisheries (EAF) are being promoted.

The use of marine protected areas (MPAs) has taken on greater importance lately in discussions of how to protect marine ecosystems and reverse the degradation of aquatic habitats. MPAs are commonly described as a tool for biodiversity conservation and as part of the ecosystem approach (EA). Spatial-temporal fishing closures are also used in fisheries management, and MPAs and fisheries are linked through this common avenue of spatial management and through EAF.

GUIDELINES ON MARINE PROTECTED AREAS IN THE CONTEXT OF FISHERIES

The Johannesburg summit of 2002² heightened attention on MPAs. Its Plan of Implementation (WSSD-POI) called on nations to promote the conservation and management of important and vulnerable marine and coastal areas, both within and beyond national jurisdiction, including developing and facilitating:

... the use of diverse approaches and tools, including the ecosystem approach, the elimination of destructive fishing practices, the establishment of marine protected areas consistent with international law and based on scientific information, including representative networks by 2012 and time/area closures for the protection of nursery grounds and periods, proper coastal land use and watershed planning and the integration of marine and coastal area management into key sectors. (United Nations, 2002).

The range of MPA objectives called for in the WSSD-POI includes fisheries objectives within the context of broader conservation objectives.

² World Summit on Sustainable Development (WSSD), Johannesburg, South Africa, September 2002.

However, although the call for MPAs and MPA networks has been reiterated in various fora – for example, in the 5th World Parks Congress, 2003, and in meetings of the Convention on Biological Diversity (CBD) and the Group of Eight (G8) – there remains a certain confusion as to what is meant by an MPA and by representative networks, and there are several definitions available. Currently, moreover, most published MPA implementation guidance has been compiled with a biodiversity focus and does not necessarily include a fisheries perspective. Thus, in 2005, the Twenty-Sixth Session of the FAO Committee on Fisheries (COFI) requested the Fisheries and Aquaculture Department to fill this gap by developing technical guidelines on the design, implementation and testing of MPAs in relation to fisheries. This request was reaffirmed by the Twenty-Seventh Session of COFI and also supported by the United Nations General Assembly. FAO has developed the present Guidelines in response.

PURPOSE AND TARGET AUDIENCE

The purpose of the Guidelines on *Marine protected areas and fisheries* is to address the interface between fisheries management and biodiversity conservation and to provide guidance in implementing MPAs with multiple objectives, when one of the primary objectives is related to fisheries management. Their focus is on those aspects of MPAs related to fisheries, and hence the Guidelines do not seek to be an exhaustive guide on MPAs. Other guidelines and documents deal with MPAs from a more direct biodiversity conservation perspective (Box 1). Within the fisheries context, the Guidelines seek to cover issues relevant to MPAs in all ocean zones, that is, from territorial waters to the high seas, and discuss concepts both with regard to MPAs as single units and MPA networks.³ All types of MPAs are included, not only ‘no-take zones’ (areas under total protection), although protected areas for cultural or archaeological purposes, energy production, etc., or areas designated for aquaculture are not explicitly dealt with. Such areas may nevertheless have spin-off effects on fisheries management and biodiversity conservation.

With the current evolution of fisheries management towards EAF, management measures combining more-specific fisheries management purposes with broader biodiversity conservation objectives are increasingly needed and are becoming more common. At the same time, many countries

³ The text tends to use the term ‘MPAs’ also in relation to MPA networks. The term ‘MPA networks’ is generally only used when referring specifically to aspects that are particular to networking.

have made commitments under international agreements to use MPAs or MPA networks to conserve biodiversity, and many of these commitments involve reaching specified targets for some proportion of waters under protected area designation. The use of MPAs is thus becoming more widespread.

However, in many places, planning and implementation have been fragmented, with at the very least a lack of coordination, and in the worst cases, conflicts between biodiversity conservation and fisheries interests. These conflicts typically arise when countries rush to designate MPAs in order to reach biodiversity conservation targets, without regard to how such designations will affect coastal communities, fishing patterns, catches or fisheries management. Similarly, conflicts can arise when fisheries managers plan fishing closures without coordination with biodiversity conservation interests. These Guidelines highlight the benefits of greater coordination and complementary approaches, and outline specific ways in which the targets of fisheries management and biodiversity conservation can be bridged, taking bioecological and human dimensions into account.

The target audience for these Guidelines includes policy- and decision-makers, managers and scientists in both fisheries and biodiversity conservation disciplines. They should be of interest to officials and staff in government agencies, non-governmental and intergovernmental organizations and other entities involved in the promotion, planning and implementation of fisheries management arrangements and of MPAs from a conservation perspective.

As with the other documents in the FAO Technical Guidelines for Responsible Fisheries series, the MPA Guidelines were developed to support implementation of the FAO Code of Conduct for Responsible Fisheries (the Code or CCRF) (FAO, 1995). Although prepared as a stand-alone document, the Guidelines should be seen as a complement to the other FAO technical guidelines on fisheries and EAF management (Box 1).

STRUCTURE OF THE GUIDELINES

Part 1 discusses definitions and provides background on fisheries management and EAF, and on MPAs as a tool for spatial management. It also describes the likely and potential effects of MPAs on fish stocks, ecosystems and people.

Part 2 considers the institutional, legal and policy context of MPAs, and offers information and guidance on the planning and implementation of MPAs and on what data are needed. Lessons learned and likely future developments are discussed in the last chapter.

The Guidelines are structured around questions and answers covering a wide range of issues within the main subject areas, and they discuss key

concepts and issues. As appropriate, examples from the MPA case studies carried out during development of the Guidelines⁴ and from other literature have been included to illustrate ideas and concepts.

⁴ FAO commissioned 16 MPA case studies in Africa, South America and the Caribbean, Asia and the Pacific, and Europe (the Mediterranean) in order to collect experiences in implementing policies and establishing MPAs. The results of the case studies will be published separately.

BOX 1

Recommended reading

The Guidelines provide information on MPAs in a fisheries context and discuss how the targets of fisheries management and biodiversity conservation can be bridged. Other guidelines and documents provide information and background on related issues, including fisheries management and MPAs for biodiversity conservation.

FAO documents

The FAO Technical Guidelines for Responsible Fisheries series, supporting implementation of the CCRF, includes the following volumes with relevance to the context of MPAs and the present Guidelines:

- Fisheries management (FAO, 1997).
- The ecosystem approach to fisheries (FAO, 2003a).
- The human dimensions of the ecosystem approach to fisheries (FAO, 2009a).

In addition, there are several supporting FAO Fisheries and Aquaculture Technical Papers:

- A fishery manager's guidebook: management measures and their application (FAO, 2002).
- A fishery manager's guidebook, 2nd ed. (Cochrane and Garcia, 2009).
- The ecosystem approach to fisheries: issues, terminology, principles, institutional foundations, implementation and outlook (FAO, 2003b).
- Human dimensions of the ecosystem approach to fisheries: an overview of context, tools and methods (FAO, 2008b).

As part of the preparation of the present Guidelines, an expert workshop was held and the proceedings published as:

- Report and documentation of the Expert Workshop on Marine Protected Areas and Fisheries Management: review of issues and considerations (FAO, 2007a).

Documents by other organizations

A number of excellent documents and guidelines on MPAs are available from international or regional organizations and non-governmental organizations (NGOs):

- Establishing resilient marine protected area networks: making it happen (IUCN-WCPA, 2008).

(Box 1 cont.)

- Creating and managing marine protected areas in the Philippines (White, Aliño and Meneses, 2006).
- Regional guidelines on the use of fisheries refugia for capture fisheries management in Southeast Asia. In SEAFDEC, 2006.
- Scaling up marine management: the role of marine protected areas (World Bank, 2006).
- How is your MPA doing? A guidebook to natural and social indicators for evaluating marine protected areas management effectiveness (Pomeroy, Parks and Watson, 2004).
- Marine reserves: a guide to science, design and use (Dahlgren and Sobel, 2004).
- Marine and coastal protected areas: a guide for planners and managers (Salm, Clark and Siirila, 2004).
- Managing marine protected areas: a toolkit for the Western Indian Ocean (IUCN, 2004).
- Guidelines for marine protected areas (Kelleher, 1999).