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WESTERN CENTRAL ATLANTIC FISHERY COMMISSION

Report of the

REGIONAL WORKSHOP ON MARINE PROTECTED AREAS AS A TOOL FOR RESPONSIBLE FISHERIES AND SUSTAINABLE LIVELIHOODS IN THE CARIBBEAN

Barbados, 6–8 November 2014

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PREPARATION OF DOCUMENT

This is the report of the Regional Workshop on Marine Protected Areas as a Tool for Responsible Fisheries and Sustainable Livelihoods in the Caribbean, which was held in Barbados during the period, 6–8 November 2014. The workshop was jointly organized by FAO, the Western Central Atlantic Fishery Commission (WECAFC), the Gulf and Caribbean Fisheries Institute (GCFI), and the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI/CERMES) and in collaboration with other organizations and projects involved in supporting fisheries management and conservation and marine protected area (MPA) management in the Caribbean region.

The meeting was made possible through generous financial assistance received from the Government of Japan under FAO Trust Fund project (GCP/INT/253/JPN "Fisheries Management and Marine Conservation within a Changing Ecosystem Context").

FAO technical assistance to the meeting was provided by Mr Raymon van Anrooy, Ms Jessica Sanders, Ms Lena Westlund, Ms Susana Siar and Ms Daniela Kalikoski. Logistical assistance was provided by Ms Bertha Simmons, Ms Sonya Thompson and Ms Holly Trew from the FAO Subregional Office for the Caribbean.

The participants provided presentations on success, failures and lessons learned from MPA experiences in the Caribbean region. The FAO Technical Guidelines for Responsible Fisheries on MPAs and Fisheries were promoted, and fisheries stakeholders and MPA management engaged in constructive discussions on how to improve the effective use of MPAs as a tool in fisheries management. The report and its conclusions and recommendations will be presented to the sixteenth session of WECAFC in 2016.

The report contains a record of the workshop, including summaries of presentations and outcomes of the working group sessions, as well as some conclusions and recommendations. The welcome statement (Appendix 2) is reproduced as submitted.

FAO/Western Central Atlantic Fishery Commission. 2015. *Report of the Regional Workshop on Marine Protected Areas as a Tool for Responsible Fisheries and Sustainable Livelihoods in the Caribbean, Barbados, 6–8 November 2014.* FAO Fisheries and Aquaculture Report No. 1096. Rome, FAO. 35 pp.

ABSTRACT

The Regional Workshop on Marine Protected Areas (MPAs) as a Tool for Responsible Fisheries and Sustainable Livelihoods in the Caribbean was held in Christ Church, Barbados, on 6–8 November 2014, in conjunction with the Gulf and Caribbean Fisheries Institute (GCFI) 67th Annual Conference. The workshop was organized as part of a series of regional workshops on the FAO Technical Guidelines for Responsible Fisheries on MPAs and Fisheries. In the Caribbean, MPAs are widely used as a tool for biodiversity conservation and also for fisheries management purposes. The workshop focused on discussing the role of MPAs in the context of fisheries management. It concluded with a number or recommendations on how to make MPA planning and management more effective. The workshop was jointly organized by FAO, the Western Central Atlantic Fishery Commission (WECAFC), the GCFI and the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI/CERMES) and in collaboration with other organizations and projects involved in supporting fisheries management and conservation and MPA management in the Caribbean region.

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ABBREVIATIONS AND ACRONYMS

ACP	African, Caribbean and Pacific Group of States
BFS	Boscobel Fish Sanctuary
BIOPAMA	Biodiversity and Protected Areas Management Programme
CaMPAM	Caribbean Marine Protected Area Management Network and Forum
CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community and Common Market
CCI	Caribbean Challenge Initiative
CCCFP	Caribbean Community Common Fisheries Policy
CEP	Caribbean Environment Programme
CERMES	Centre for Resource Management and Environmental Studies
CNFO	Caribbean Network of Fisherfolk Organisations
COFI	Committee on Fisheries (FAO)
CORECOMP	Coastal Resources Co-Management Project
CPUE	catch per unit of effort
CRCP	NOAA Coral Reef Conservation Program
CRFM	Caribbean Regional Fisheries Mechanism
CSO	civil society organization
EAF	ecosystem approach to fisheries
ECDSS	Eastern Caribbean Decision Support System
ECMMAN	Eastern Caribbean Marine Managed Areas Network
EEZ	exclusive economic zone
FORCE	Future of Reefs in a Changing Climate
GCFI	Gulf and Caribbean Fisheries Institute
ICCAs	indigenous peoples' and community conserved territories and areas
IUCN	International Union for Conservation of Nature
LMMA	locally managed marine area
MAR Fund	Mesoamerican Reef Fund
MEA	multilateral environmental agreement
MMA	marine managed area
MPA	marine protected area
NGO	non-governmental organization
NOAA	United States National Oceanic and Atmospheric Administration
OAS	Organization of American States
OBFS	Oracabessa Bay Fish Sanctuary
RFB	regional fishery body
SPAW	Specially Protected Areas and Wildlife
SPFCA	Special Protected Fishery Conservation Area
SWEFFA	South West Jamaica Friends of Fisheries Alliance
TIDE	Toledo Institute for Development and Environment
TNC	The Nature Conservancy
ToT	training of trainers
TURFs	territorial user rights in fisheries
UNEP	United Nations Environment Programme
UWI	University of the West Indies
WECAFC	Western Central Atlantic Fishery Commission

EXECUTIVE SUMMARY

The Regional Workshop on Marine Protected Areas (MPAs) as a Tool for Responsible Fisheries and Sustainable Livelihoods in the Caribbean took place in Christ Church, Barbados, during the period, 6–8 November 2014, in conjunction with the Gulf and Caribbean Fisheries Institute (GCFI) 67th Annual Conference. It was jointly organized by FAO, the Western Central Atlantic Fishery Commission (WECAFC), the GCFI and the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI/CERMES) and in collaboration with other organizations and projects involved in supporting fisheries management and conservation and MPA management in the Caribbean region, including the National Oceanic and Atmospheric Administration of the United States of America (NOAA), Coral Reef Conservation Program, CARIBSAVE and The Nature Conservancy (TNC). The workshop was attended by 55 participants (in addition to FAO staff), including representatives from government fisheries departments, environmental agencies and park authorities, fisherfolk civil society organizations (CSOs), research institutes, non-governmental organizations (NGOs), regional organizations and projects.

The workshop was organized as part of a series of regional workshops on the FAO Technical Guidelines for Responsible Fisheries on MPAs and Fisheries. The purpose of the workshop was to disseminate these Guidelines and contribute to successful fisheries-oriented MPA management in the countries of the Caribbean region by facilitating an exchange of experiences and views among MPA stakeholders. Accordingly, the workshop attempted to identify issues, best practices and critical processes for planning and implementing MPAs in the context of fisheries, in particular with regard to small-scale fisheries. The workshop was organized around plenary presentations and discussions in smaller working groups.

In the Caribbean, MPAs are widely used as a tool for biodiversity conservation and fisheries management. They have proved to be effective in terms of contributing to coral reef rehabilitation, protecting seagrass habitats, and increasing biodiversity and aquatic animal biomass inside their boundaries in numerous locations in the region. For this reason, and in response to international commitments, the number of MPAs has increased rapidly in recent years and is estimated to be about 385 in the Caribbean islands. While most MPAs appear to address certain ecological objectives well, their performance in terms of meeting social and economic objectives requires strengthening. Their impact on fisheries is in many cases not known, in particular with regard to effects outside the MPA boundaries.

Whatever the objectives, only well-managed MPAs can be successful. For successful management, engagement by coastal communities and key stakeholders is essential. Participation by fishers and coastal communities from the very beginning of an MPA planning process is crucial, and the process itself is critical for successful outcomes. There is generally a need to involve more people that depend on the area resources, recognizing that access to fishery resources is still open in most protected areas, which does not contribute to the recovery of depleted resources so necessary for the livelihoods of fishing communities. It is important that MPA planning and management recognize the three pillars of sustainability: environmental, social and economic.

The workshop generated a number of conclusions and recommendations for future MPA planning and management in the region focusing on, among other things:

- the need to ensure that the well-being of people is the focus of fisheries management and biodiversity conservation efforts;
- the importance of respecting existing tenure rights in accordance with existing international instruments;
- the usefulness of multiple-use areas such as marine managed areas (MMAs) that include resource stewardship by coastal communities;
- the significance of community buy-in and adequate enforcement mechanisms to ensure compliance with MPA regulations;
- the need to embed MPAs in broader management frameworks applying ecosystem-based approaches in order for them to have the desired fisheries management effects;
- the importance of addressing sustainable livelihoods in a holistic manner rather than solely focusing on finding "alternative livelihoods";
- the need to ensure that adequate information underpins MPA planning and management, including social, economic and biological data and using traditional and local knowledge;
- the value of increased regional collaboration;
- the need to ensure longer-term sustainable funding of MPAs and fisheries management in the region.

The workshop concluded that consideration needs to be given to how to implement the recommendations generated by the workshop. It was appreciated that the GCFI conferences provide excellent opportunities to promote regional discussions, and it was desired that sessions on MPAs and fisheries also be included in future conferences.

INTRODUCTION

Background

1. The use of marine protected areas (MPAs) as a tool to protect marine ecosystems and reverse the degradation of aquatic habitats is increasingly receiving attention. Good fisheries management requires a holistic approach, including aquatic biodiversity conservation and protection of habitats – in addition to more direct target stock management – to ensure the long-term productivity of fishery resources. Although MPAs are now also being promoted as a measure for addressing overfishing and unsustainable resource utilization, there is a lack of understanding about the potential benefits and costs of use of MPAs in fisheries management. While having been an implicit consideration in conventional fisheries management, this perspective has become more explicit through the promotion of the ecosystem approach to fisheries (EAF). The EAF encompasses both bioecological considerations and the human dimensions of fisheries management. Small-scale fishers and others who are directly dependent on the aquatic environment and its resources for their livelihoods are most affected by declining fishery resources and habitat degradation. They are also those who are the most affected by MPAs and other management measures implemented in the coastal area.

2. The FAO Technical Guidelines for Responsible Fisheries on MPAs and Fisheries aspire to enhance the understanding of how fisheries management and biodiversity conservation are linked and what the opportunities and challenges are of implementing MPAs within broader management frameworks, taking both bioecological and human aspects into consideration. FAO, in close collaboration with its partners, is conducting a series of regional workshops to discuss the technical guidelines and support existing initiatives promoting effective MPA management. These workshops also aim to identify best practices on MPAs in the context of fisheries management, further the knowledge of MPAs with multiple objectives and promote participation and cross-sectoral collaboration.

3. Three such workshops had already taken place – in Thailand (January 2012), Mauritius (June 2012) and Senegal (November 2012) – before the workshop for the Caribbean region on 6–8 November 2014, which was organized in conjunction with the Gulf and Caribbean Fisheries Institute (GCFI) 67th Annual Conference. This workshop was organized in partnership with the Western Central Atlantic Fishery Commission (WECAFC), the GCFI and the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI/CERMES) and in collaboration with other organizations and projects involved in supporting fisheries management and conservation and MPA management in the Caribbean region. These included the United Nations Environment Programme – Caribbean Environment Programme/Specially Protected Areas and Wildlife (UNEP-CEP/SPAW) programme through the Caribbean Marine Protected Areas Management Network and Forum (CaMPAM), the Coral Reef Conservation Program of the United Stated National Oceanic and Atmospheric Administration (NOAA), CARIBSAVE and The Nature Conservancy (TNC). The Fisheries Division of the Ministry of Agriculture, Food, Fisheries and Water Resource Management of Barbados also assisted the workshop.

4. The financial support by the Government of Japan to the development of the guidelines as well as to the workshop is gratefully acknowledged (GCP/INT/253/JPN “Fisheries Management and Marine Conservation within a Changing Ecosystem Context”).

WORKSHOP ARRANGEMENTS AND OPENING SESSION

Venue and participation

5. The workshop took place at the Accra Hotel Pearl Beach Hotel in Rockley, Christ Church, Barbados, on 6–8 November, in conjunction with the GCFI 67th Annual Conference. It was attended by 55 participants (excluding FAO staff) including representatives from government fisheries departments, environmental agencies, park authorities, research institutes, NGOs, regional organizations and projects, and FAO. The list of participants can be found in Appendix 1.

6. The different days of the workshop were chaired by Mr Raymon van Anrooy (Fishery and Aquaculture Officer, FAO Subregional Office for the Caribbean, and Secretary of WECAFC), Sherry Constantine (Eastern Caribbean Marine Managed Areas Network [ECMMAN] project coordinator from TNC), Owen Day (Coordinator of CARIBSAVE) and Hazel Oxenford (Professor at UWI), respectively.

Opening session and workshop objectives and structure

7. Mr Raymon van Anrooy (FAO/WECAFC) welcomed the participants to the workshop on behalf of the organizers and noted its relevance to the region. The welcome speech, made on behalf of the FAO Subregional Coordinator for the Caribbean, Mr Deep Ford, is included in Appendix 2.

8. Mr van Anrooy also outlined the structure of the workshop, which consisted of plenary presentations and discussions as well as a working group session. The plenary presentations included an introduction to the contents of the FAO MPA and fisheries guidelines as well as overviews of work and initiatives in the Caribbean region. Mr van Anrooy explained that the workshop was organized as part of a series of regional workshops following the FAO Technical Guidelines for Responsible Fisheries on MPAs and Fisheries with the purpose of disseminating these Guidelines and contributing to successful fisheries-oriented MPA management in the countries of the Caribbean region by facilitating an exchange of experiences and views among MPA managers and practitioners, fishers and fishing communities, governments representatives – including fisheries, parks and environment departments and agencies – academia and NGOs. He explained that the workshop would attempt to identify issues, best practices and critical processes for planning and implementing MPAs in the context of fisheries, in particular with regard to small-scale fisheries.

9. Accordingly, the expected outputs of the workshop included:

- Identified best practices and key elements for successful MPA designation and management for fisheries and sustainable livelihoods of small-scale fishing communities.
- Increased awareness about the FAO Technical Guidelines for Responsible Fisheries on MPAs and Fisheries, and capacity built for implementation of these Guidelines in the Caribbean region.
- Recommendations on actions that could be taken by governments, regional fisheries and environment bodies, fisherfolk organizations, research organizations, NGOs and other projects/programmes with regard to further increasing the awareness on MPAs and fisheries, and promoting cross-sectoral collaboration, stakeholder participation and sustainable livelihoods.

10. The workshop agenda is included in Appendix 3.

INTRODUCTORY PLENARY PRESENTATIONS

Setting the scene

FAO MPA and fisheries guidelines

11. Ms Jessica Sanders (Fishery Officer, FAO) introduced the FAO MPA and Fisheries Guidelines.[1] She explained that it had been a long preparation process to finalize the document. The need for this type of guidance, i.e. focusing on the fisheries aspects of MPAs, had been recognized by the FAO Committee on Fisheries (COFI), which had recommended the development of the technical guidelines at its Twenty-sixth Session in 2005. In 2006, an FAO Expert Workshop was held, after which work on the guidelines document started. The guidelines were finally published in 2011 after several redraftings to ensure that different views were accurately reflected and that the document became a useful reference for promoting reconciliation of fisheries management and biodiversity conservation in the context of MPAs.

12. The guidelines are part of the FAO Technical Guidelines series supporting the 1995 Code of Conduct for Responsible Fisheries[2] and should be read as a complement to other documents on fisheries management in this series, in particular *The ecosystem approach to fisheries*[3] and *The human dimensions of the ecosystem approach to fisheries*.[4]

13. The FAO MPA and Fisheries Guidelines contain a discussion on what MPAs are and how they fit within the context of fisheries management and EAF. They include a review of the probable biological and ecological effects of MPAs as well as their social and economic implications. The guidelines also address various aspects of MPA planning and implementation, including their institutional, legal and policy context and information needs.

14. With regard to defining MPAs, there is a wide range of views on what constitutes an MPA. The guidelines refrain from providing a definitive definition and take an inclusive approach by considering any marine geographical area afforded greater protection than the surrounding waters for biodiversity conservation or fisheries management purposes to be an MPA. However, the understanding is that the term is usually applied to areas specifically designated to protect a certain ecosystem and not necessarily very large areas zoned for different purposes (e.g. the entire exclusive economic zone [EEZ] of a country). Spatial–temporal–gear closures are historically some of the most common fisheries management measures. In the broadened context of EAF, it is likely that spatial management measures and MPAs with multiple objectives will increase in importance. However, it should be remembered that an MPA is one management tool among many and not always the most suitable one.

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[1] FAO. 2011. *Fisheries management. 4. Marine protected areas and fisheries*. FAO Technical Guidelines for Responsible Fisheries No. 4, Suppl. 4. Rome. 198 pp. (also available at www.fao.org/docrep/015/i2090e/i2090e00.htm).

[2] FAO. 2011. *Code of Conduct for Responsible Fisheries*. [Includes a CD–ROM]. Rome. 91 pp. (also available at www.fao.org/docrep/013/i1900e/i1900e00.htm).

[3] FAO. 2003. *Fisheries management. 2. The ecosystem approach to fisheries*. FAO Technical Guidelines for Responsible Fisheries No. 4, Suppl. 2. Rome. 112 pp. (also available at www.fao.org/docrep/005/Y4470E/Y4470E00.HTM).

[4] FAO. 2009. *Fisheries management. 2. The ecosystem approach to fisheries. 2.2 The human dimensions of the ecosystem approach to fisheries*. FAO Technical Guidelines for Responsible Fisheries No. 4, Suppl. 2, Add. 2. Rome. 88 pp. (also available at www.fao.org/docrep/012/i1146e/i1146e00.htm).

15. Among the key messages conveyed by the guidelines is that MPAs and MPA networks are potentially powerful tools with both biodiversity conservation and fisheries management outcomes but that in order to gain the most benefits, the two types of usages need to be bridged. The process – i.e. how MPAs are planned and implemented – is key for successful results. Only meaningful public and stakeholder participation can ensure compliance, long-term sustainable support and equitable results. Hence, there is a need to create awareness and support good practices.

Discussion

16. In their remarks following the plenary presentations, workshop participants noted the complexity of socio-ecological systems and the need to look at the usefulness of MPAs for different types of fishery resources. While MPAs may be the solution for some fisheries, the problems should be defined first in order to determine whether an MPA is the best solution. Accordingly, the recommendation by the FAO MPA and Fisheries Guidelines that MPAs need to be integrated into broader management systems was emphasized.

17. It was also noted that some of the main challenges in the Caribbean region are those of reducing poverty and ensuring sustainable livelihoods. If fishers are required to stop fishing in the MPA, there needs to be an understanding of what happens to them: can they fish elsewhere and is this resource utilization sustainable? Or do they find new livelihoods? There are probably too many people fishing in some countries, but alternative livelihoods are not easy to find. Tourism is often considered an option, but assurance that benefits will flow back to small-scale fishing communities is needed.

18. Ms Georgina Bustamante (CaMPAM coordinator) presented the CaMPAM on behalf of UNEP-CEP/SPAW. CaMPAM was created in 1997 in support of the Cartagena Convention and its SPAW Protocol, the only legally binding regional environmental agreement. CaMPAM provides training for MPA managers (training of trainers – ToT), a Small Grants Fund, a regional MPA database, MPA managers meetings and networking with an internet forum (CaMPAM List) that reaches out to more than 900 MPA scientists and practitioners of the Wider Caribbean and other parts of the world. More recently, it has also included an MPA managers' mentorship programme.

19. Among the lessons learned and areas where CaMPAM have had some success is the establishment of partnerships with local and regional institutions that have similar activities. The network has been able to assist fishers, and MPA and tourism managers, through its training programme and communication efforts. For the future, there is a need to adapt to changing needs as well as to create socio-economic incentives for more effective management. There is a recognition that there needs to be a combination of effective multiuse protected areas, responsible fishing and tourism practices, and a transition to measures that have less impact on coastal livelihoods. CaMPAM is moving towards the promotion of marine managed areas (MMAs) and managed access, and community members will need capacity development to manage their resources.

CARIBSAVE

20. Mr Owen Day (CARIBSAVE) presented the work of C-FISH (www.c-fish.org). This is a four-year project (2012–16) funded by UKaid through the Caribbean Community Climate Change Centre and implemented by CARIBSAVE. The aim is to improve the management of no-take MPAs in Jamaica, Grenada, Saint Vincent and the Grenadines and Saint Lucia in order to promote sustainable livelihoods and increase the resilience of coastal resources to climate change. The project has focused on two main areas. First, it has worked to strengthen the capacity of non-governmental organizations (NGOs) and community-based organizations, mandated to manage MPAs, by providing financial and technical resources for priority needs, such as salaries for wardens, patrol boats, surveillance equipment, and monitoring tools. The second area of focus has been to develop opportunities for sustainable livelihoods that are linked to the management of the MPA and where synergies can be developed between the ecological objectives of the MPA and the socio-economic aims of the local community. These opportunities include offshore fishing, seamoss farming, community-based tourism, crafts and coral restoration.

21. Community-based microbusinesses are being developed in collaboration with private-sector partners (e.g. Sandals Foundation, Virgin Holidays, Royal Caribbean Cruises, and Travel Foundation) that can provide access to markets and also have a mutual interest in the success of the MPAs. The marketing and sale of these products and services offered by the local community can also be combined with innovative financing mechanisms for the management of the MPAs (see www.c-fish.org/c-fish-fund). In many countries of the Caribbean Community and Common Market (CARICOM), MPAs have failed to meet their objectives, but recent successes (e.g. Bluefields Bay, Galleon St. Elizabeth and Oracabessa fish sanctuaries, all in Jamaica) are showing that closer integration of the traditional management objectives of MPAs with community programmes aimed at social development and livelihood diversification can have a transformative effect on the behaviour and compliance of fishers, and, consequently, on the value and resilience of critical coastal ecosystems.

ECMMAN

22. Ms Sherry Constantine (TNC) presented the Eastern Caribbean Marine Managed Areas Network (ECMMAN) project, which is an initiative funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. It is a four-year project that started in late 2013 and covers the six Eastern Caribbean countries of Saint Kitts and Nevis, Antigua and Barbuda, Dominica, Saint Lucia, Saint Vincent and the Grenadines, and Grenada. The project is being implemented by the TNC in collaboration with each respective participating country, and its objectives are:

- Declare new MMAs and strengthen existing MMAs.
- Build strong constituencies for sustainable livelihoods and ocean use.
- Improve and update an Eastern Caribbean Decision Support System (ECDSS) that provides accessible decision making tools and incorporates current ecological, socio-economic, and climate change data.
- Institute sustainability mechanisms to support the MMA network, including regional political commitments and actions, collaboration mechanisms on marine and coastal resources, and sustainable financing.

23. The target of ECMMAN is to have 6–10 new MMAs established and to strengthen the management of at least 17 existing MMAs. The project engages in consultative processes in country to set conservation objectives. The project also supports local staff, including the salaries of rangers in

some cases, and the establishment of management plans.

The NOAA Coral Reef Conservation Programme and Gulf and Caribbean Fisheries Institute (GCFI) Partnership

24. Ms Dana Wusinich-Mendez (Atlantic and Caribbean Team Lead, NOAA Coral Reef Conservation Program – CRCP) and Ms Emma Doyle (MPA Support, GCFI) introduced the NOAA–GCFI Caribbean MPA Capacity Building Network, a successful capacity-building partnership that has been established in the past three years between some 30 ecologically connected MPAs in the Caribbean, a donor agency (i.e. CRCP) and the GCFI. The starting point was the selection of ten countries/territories to participate in an assessment of MPA management capacity. Selection criteria were the ecological significance of their coral reefs, level of commitment to international agreements, evidence of investment in MPAs, and linkages to coral reef ecosystems of the United States of America. The MPA management agencies in each country/territory were then invited to nominate specific MPAs to take part in the assessment, based on criteria including biological value, conservation viability and degree of threat.

25. The assessment applied a new tool for a guided self-evaluation of management capacity by MPA managers. Developed from an expanded version of the NOAA CRCP MPA Management Assessment Checklist, the tool covers 25 different aspects of MPA management capacity and systematically assesses capacity on a three-tiered scale. It also captures input from managers about their highest priority needs and desired approaches to capacity building. High priority needs expressed by MPA managers across the Caribbean included sustainable financing, law enforcement, management planning and monitoring. Technical support and training were the approaches to capacity building preferred by participating MPA managers.

26. The findings from the Caribbean MPA Management Capacity Assessment are informing strategic capacity-building actions by NOAA CRCP and the GCFI, as well as by other organizations involved in coral reef conservation. To date, NOAA CRCP and the GCFI have addressed gaps in management capacity related to the top priority needs of sustainable financing, law enforcement, management planning and socio-economic monitoring.

27. Peer-to-peer sharing at the regional level has provided participants with the opportunity to learn from each other's experience in facing common challenges on sustainable financing and law enforcement. Follow-up support has enabled the local implementation of lessons learned at regional peer-to-peer activities and facilitated the scaling up of best practices. Tailored on-site assistance has helped to address site-specific needs in relation to management planning and monitoring. Both NOAA CRCP and GCFI have leveraged significant funding from other donors and partners such as UNEP-CEP, the TNC, the Mesoamerican Reef Fund (MAR Fund), the Organization of American States (OAS) and AusAid to help MPA managers address their capacity-building needs.

28. To date, the capacity-building efforts by NOAA CRCP and the GCFI in the Caribbean have seen 42 Caribbean MPAs involved in learning and sharing, 27 priority Caribbean MPAs filling gaps in management capacity, 23 MPAs networking about law enforcement, 18 MPAs receiving targeted site-specific assistance, and 90 participants in peer-to-peer workshops on top-priority MPA management topics. Future plans are to continue to address top-priority MPA management capacity needs and to assess progress.

BIOPAMA

29. Ms Hyacinth Armstrong-Vaughn (Protected Areas Officer, BIOPAMA coordinator) talked about the Biodiversity and Protected Areas Management Programme (BIOPAMA). This is a four-year initiative of the African, Caribbean and Pacific Group of States (ACP) Secretariat that is funded by the European Union (Member Organization). Its main objectives are to: improve access to and availability of information on biodiversity and socioeconomic issues to improve decisions for protected area management so that there is better policy- and decision-making using available science and knowledge; improve technical and institutional approaches to planning and management of protected areas that will enhance biodiversity conservation and sustain livelihoods; and enhance regional cooperation and networking for biodiversity conservation.

30. Executed in 15 Caribbean countries, BIOPAMA tries to achieve results through access and benefit sharing, targeted capacity-building actions and the establishment of regional centres, known as observatories, for the interpretation and management of data. Capacity building in the Caribbean will focus on: enhancing protected area staff and practitioners' professional development and networking; supporting country-level obligations to multilateral environmental agreements (MEAs), and facilitating implementation of tools and strategies to enhance overall capacity development related to protected area management. These activities will be done in partnership with existing programmes and initiatives as much as possible. The Caribbean Observatory for protected areas and biodiversity, hosted by the Centre for Resource Management and Environmental Studies at the University of the West Indies, Cave Hill, Barbados, enhances BIOPAMA's capacity-building efforts and provides technical and institutional support for the effective management and interpretation of data relevant to protected areas and biodiversity.

CERMES/UWI

31. Relevant work by CERMES of the UWI was presented by Ms Hazel Oxenford (UWI). The centre has strived to build capacity for sustainable marine resource management through action and learning across the Caribbean in the last two decades. Much of this work has involved improving the use of MPAs as a tool for sustainable management of fisheries and other coastal resources and has had a strong stakeholder livelihoods focus. Examples of projects and programmes in which CERMES has been the lead or significant partner working in MPAs include:

- the "Coastal Resources Co-Management Project" (CORECOMP) to encourage governance reform through co-management of MPAs;
- the "How is your MPA doing?" project to evaluate management successes and challenges;
- the "Sustainable Grenadines Project", focused on developing capacity among community stakeholders in sustainable integrated development and conservation;
- the "MarSIS" project using participatory GIS to develop a georeferenced marine information system widely accessible to all categories of resource user, for use in transboundary marine spatial planning;
- the "MarGov" initiative to strengthen adaptive capacity for MPA governance based on resilience thinking;
- "SocMon Caribbean" as the regional node to train stakeholders in socio-economic monitoring techniques;
- the "Future of Reefs in a Changing Climate" (FORCE) project focusing on identification of successful governance structures, sustainable livelihoods, valuation of reef fish resources and identification of simple indicators of fishing pressure for use by managers.

32. These projects have been applied in more than 16 MPAs across the Caribbean, with considerable focus on Belize (Laughing Bird Caye National Park, Gladden Spit and Silk Cayes Marine Reserve, Sapodilla Cayes Marine Reserve), the transboundary Saint Vincent and the Grenadines and Grenada Grenadine Islands, and Jamaica (Negril Marine Park).

Work on MPAs by the FAO Fisheries and Aquaculture Department

33. Ms Lena Westlund (FAO consultant) presented the work carried out by the FAO Fisheries and Aquaculture Department in relation to MPAs. She explained that the reasons for the department becoming involved in MPAs included their increasing importance in global fora both as a tool for biodiversity conservation and also increasingly for fisheries management. In fisheries, spatial–temporal–gear closures are historically some of the most common fisheries management measures, but they are not generally referred to as MPAs. Ms Westlund pointed out the importance of seeing MPAs as one fisheries management tool among a suite of others and that it is not always the most promising option. A key issue when implementing MPAs is that fishing communities and small-scale fishers often bear the costs, while not necessarily receiving the benefits – at least not in the short term – and this situation needs to be understood and considered in MPA planning and management.

34. As already presented by Ms Sanders, FAO published technical guidelines on MPAs and fisheries in 2011. This was followed by regional workshops in Asia, West Africa and the Southwest Indian Ocean, and now in the Caribbean. Several case studies were carried out in support of the guidelines development process and have since been published in the FAO Fisheries and Aquaculture Technical Paper series.

35. FAO has also participated in recent international congresses of the International Union for Conservation of Nature (IUCN) related to MPAs and protected areas (IMPAC3, Marseilles, France, October 2013) and in the World Parks Congress (Sydney, Australia, November 2014). At those events where FAO participated in these congresses, the perspective of fisheries and fishers was discussed.

36. Other FAO MPA activities – ongoing and planned – include:

- participation in a workshop on management of Latin American Coastal MPAs to Secure Sustainable Livelihoods and Food Security in September 2014 in Guatemala;
- participation in an analysis on how fisheries regulations and closed areas interact to affect fisheries yield, fishing communities and ecosystems;
- additional regional workshops (Pacific);
- projects: Trinidad and Tobago, Haiti, China;
- work on indigenous peoples' and community conserved territories and areas (ICCAs), locally managed marine areas (LMMAs), and local and traditional knowledge.

37. Ms Westlund also mentioned three international instruments that are of high relevance to MPAs, fisheries and food security:

- Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines);
- Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (the Tenure Guidelines);
- Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security (the Right to Food Guidelines).

Discussion

38. Comments and questions in relation to the above presentations included the following:

- There is a need to develop the capacity of local communities to take part actively in managing the resources on which they depend.
- In addition to addressing management constraints in the form of lack of community participation and limited capacity available, agreed management plans and a strategic vision are required.
- "Alternative" livelihoods is a difficult issue as it is not evident how to drastically change the jobs that people in coastal communities do. The focus should rather be on complementing and developing existing livelihoods, and a better term to use would be livelihood "diversification", which should be demand-led.
- Sustainable financing of MPAs and MMAs is a concern. Often, projects fund the setting up of protected or managed areas and possibly an initial phase of operations, but it is uncertain what happens after this initial phase.
- There are apparently several platforms being developed for data sharing, and there may be a need to pull together some of these into a more coherent framework. It was suggested that regional organizations such as CARICOM might have a role to play in this respect.

MPAs AND ADAPTIVE FISHERIES CO-MANAGEMENT

39. The presentations and discussions on the second day were organized in four different sessions:

- MPAs as a tool for fisheries management
- Collaboration with fisherfolk
- Compliance and enforcement
- Sustainable financing

Presentations and discussion on MPAs as a tool for fisheries management

Findings from Eastern Caribbean 2013–14 research cruise

40. Mr Robert Steneck (University of Maine, the United States of America) made a presentation on the "Status of Eastern Caribbean Coral Reefs: Insights from an Antillean Odyssey". He explained that evidence is growing that seaweed (macroalgae) is harmful to reef corals. Macroalgae poison corals, reduce reproductive output, causes coral larvae not to settle and can prevent the recruitment of baby corals. Herbivores, especially deep-grazing large parrotfish and *Diadema* sea urchins can reduce algal abundance and increase coral recruitment. He studied the coral reefs of the eastern Caribbean (from Anguilla to the Grenadines) and Saint Croix in the United States Virgin Islands. His team traversed more than 1 500 km, stopping to study 55 reef sites, conducting more than 4 km of coral and algal transects and almost 20 km of fish transects. The no-take reserve MPAs with good compliance (Sint Maarten, Saint Lucia, Tobago Cays and Saint Croix's Buck Island) were compared with adjacent fished sites. Overall, fish biomasses in general, and herbivorous fish in particular, were twice as abundant in the no-take reserves compared with adjacent fished reefs. Coincident with that were a significant decline in macroalgae and an increase in adult and juvenile coral abundance. All data point to the idea that herbivores are the primary driver of seaweed management. Therefore, management should set goals to increase the populations of herbivores to the point that algal abundance declines to healthy levels.

The FAO Tenure Guidelines and impacts of MPAs on fisheries

41. Mr Raymon van Anrooy (FAO/WECAFC) made a presentation on the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, and on the use of MPAs as a fisheries management tool. He started with describing what the guidelines are for and outlining what governance and tenure are. Tenure relates to "How people get access to natural resources, land, fisheries, forestry, etc." It deals with ownership/holding of land, fisheries and forest resources. Tenure systems may be based on written policies and laws, but also on unwritten customs and practices.

42. The Tenure Guidelines are valuable to the sector as small-scale fishers need secure access to resources – their livelihoods depend on these resources, and it is important to recognize and allocate rights to fishery resources to support socially, ecologically and economically sustainable resource use. They are important also in relation to the establishment and management of MPAs, as they recognize competition for the use of coastal and marine water resources in the Caribbean (tourism, housing, industry, agriculture, energy, fisheries, etc.). They acknowledge a diverse range of existing tenure rights related to the use of resources. They help to build a case for small-scale fisheries, a sector that is often not prioritized, suffers from a poor image and is not associated with economic growth in the Caribbean. As customary rights of small-scale fishers to resources are often ignored by decision-makers, the guidelines may help to strengthen their tenure rights.

43. Mr van Anrooy noted that regional-level awareness-raising workshops had been held in Guyana (June 2013) and Colombia (October 2013), in which some fisherfolk representatives and fisheries authorities from the region had participated. In support of capacity development to implement the guidelines, a technical guide[5] was developed, which advises on implementation aspects and provides various cases where MPAs have weakened or strengthened tenure rights of fishing communities.

44. In the second part of his presentation, Mr van Anrooy noted the race for the largest MPA and the rapid rate in MPA coverage. Since 1984, the spatial extent of MPAs globally has grown at an annual rate of 4.6 percent.

45. He stressed that MPAs were not the main fisheries management tool, but instead were one among many fisheries management measures available (e.g. closed seasons, gear and method restrictions, effort restrictions, licences, harvest restrictions, length/size limits, catch limits, fish holding restrictions, trade restrictions). Referring to the IUCN definitions for MPAs, he noted that they essentially focused on protection and conservation and not on the management of fish stocks.

46. He added that MPAs were for some situations the best management option, but recognized that MPAs alone did not protect against external effects, such as agricultural runoff, terrestrial mining effects, urban pollution/waste spills, coastal development (tourism/housing), oil spills, invasive species, aquatic animal diseases, illegal fisheries, hurricanes and storms, and climate change (coral bleaching, acidification, etc.).

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[5] FAO. 2013. *Implementing improved tenure governance in fisheries – a technical guide to support the implementation of the voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security*. Preliminary version, September 2013. Rome. 71 pp. (also available at www.fao.org/docrep/018/i3420e/i3420e00.htm).

47. In terms of management measure, MPAs may be easy to sell to the general public and government, and may look like a cheap and easy solution for overfishing and reef conservation, but in fact MPAs on their own will not do the job.

48. Scientific evidence exists that MPA claims generally underestimate catch decreases resulting from exclusion of commercial fishing and recreational fishing, and on the other hand overstate net benefits from export of fish from closed areas to neighbouring areas.

49. In MPA planning, implementation and evaluation processes, there are gaps on:

- data on small-scale and recreational fisheries (catch, catch per unit of effort [CPUE] through time) and information on socio- economic impacts;
- information related to movements of reef fish, lobster, pelagics, etc. in and out of MPAs;
- information on spawning and egg/larval transport, sources and sinks of, for example, lobster and conch, although some studies are trying to fill these gaps at present.

50. Mr van Anrooy conceded with the following general observations:

- There is no doubt that MPAs will increase in number and size in the Caribbean.
- There is a strong focus on increasingly large no-take areas by conservation groups.
- MPAs are often established without clear criteria.
- Fisheries communities are insufficiently involved in planning, management and monitoring of MPAs.
- Monitoring and evaluation of success/failures of MPAs shows large gaps – MPAs are not being reconsidered if they do not appear to serve the purpose.
- Other fisheries management / integrated coastal zone management options are hardly considered.
- Ecosystem-based management is mentioned frequently by conservation groups but not applied properly.

51. He recommended that the small-scale and recreational fishers and their organizations:

- Insist on transparency and full disclosure on selection process for representative areas and the criteria for no-take/closed areas.
- Insist on good science as the basis for decision-making on MPAs.
- Insist on respecting of tenure rights, including traditional and custom rights – application of the Tenure Guidelines.
- Make decision-makers aware of the Technical Guidelines on MPAs and Fisheries.
- Insist on application of the EAF and the SSF Guidelines.
- Insist on involvement at all stages of the processes, including in evaluations and monitoring.
- Engage as stakeholders early and energetically – read proposals critically and mobilize/organize in advocacy groups.
- Make clear to decision-makers that often other fisheries management measures are more effective than MPAs and closed areas.

MPAs and EAF: a regional fishery body (RFB) perspective

52. Mr Peter Murray[6] (Caribbean Regional Fisheries Mechanism [CRFM] Secretariat) talked about the "EAF and MPAs – the CRFM Perspective". The CRFM mandate for the EAF is enshrined in the Caribbean Community Common Fisheries Policy (CCCFP), where it is stated as a fundamental principle as well as being cited as a significant part of the policy's conservation and management strategy. The governance entities of the CRFM have also "called upon all CRFM Member States to strengthen their commitment to and implementation of the ecosystem approach to fisheries and aquaculture" and "reaffirmed and declared the ecosystem approach to fisheries and aquaculture as a key guiding principle for the CRFM and partner organisations". Thus, the EAF has been "enshrined" in the "legal" framework for fisheries management in CARICOM. The link between the EAF and MPAs, as a tool for fisheries management, centres on the need for the diversity of exploited habitats and the diversity of habitats and species in them to be maintained and possibly enhanced as "insurance" against negative consequences of future changes. In this context, the CRFM recognizes a number of key considerations that are crucial for buy-in and sustainability: MPAs are only one of many EAF management tools; MPAs are not only about "no take" – for them to be a successful tool, there is need for balancing multiple goals; MPAs should positively contribute to the livelihoods of fishers; and "economies of scale" are probably better sustained by "regionalization" of MPAs.

Jamaica

53. Mr Karl Aiken[7] (Senior lecturer, UWI) made a presentation on the "Jamaica Marine Sanctuary Programme". Introducing MPAs is a strategy about which other Caribbean nations have long beaten Jamaica to the finish line. This is no longer true, as by the close of 2014 the Government of Jamaica had introduced 14 small fish-sanctuary-type MPAs around the island. These areas have been administratively re-titled Special Protected Fishery Conservation Areas or SPFCAs. The areas chosen first satisfied selected ecological and fisheries criteria and, importantly, had an associated fishers group that was chosen to enforce these MPAs. This is the result of several years of work by the Fisheries Division and the fishers in conjunction with the Fisheries Advisory Board of Jamaica. The fish sanctuaries include sheltered coastal habitats with mangroves, seagrass beds, sand patches and coral, while having modest fisheries resources, primarily juvenile in size. Close collaboration with and participation of fishers is a key feature of these new sanctuaries. At the close of 2014, these fish sanctuaries were at least partly funded and most were active. Increases in two small adjoining fish sanctuaries on the north coast, which are being continually studied, have shown some spectacular recovery patterns. The increase in parrotfishes (*Scaridae*) has been a stunning 585 percent, while the overall fish biomass increase, since 2010, has been slightly more than 400 percent. In addition, the increase in surgeonfish has been of the order of 1 500 percent. Some of these large increases are a reflection of the extraordinary low population levels that existed prior to introduction of the MPAs. Live coral cover is also up by 57 percent, while algal cover reduction is 47 percent. If these recovery estimates are typical of other fish sanctuaries, then Jamaican resources will clearly benefit from an increase in the number of such MPAs. Funding of operational activities continues to be a major issue. A programme of publicity is planned, which will continue indefinitely.

54. Mr Inilek Wilmot (Manager, Boscobel-Oracabessa Sanctuary) presented experiences from the Oracabessa Bay Fish Sanctuary (OBFS) and the Boscobel Fish Sanctuary (BFS), which are located on the north coast of Jamaica about 20 km east of Ocho Rios.

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[6] Presentation also on behalf of Ms Susan Singh-Renton.
[7] Presentation had co-authors Mr Oliver Squire, Mr G. André Kong and Mr Stephen Smikle.

55. The OBFS is managed as a partnership between the fishers of Oracabessa and the Oracabessa Foundation. This partnership is the basis of the success of the sanctuary. The fishers and the foundation agreed from the stage of conception that the process would be participatory. More than 75 community meetings were conducted from 2009 to 2010, and the sanctuary was gazetted in 2010. Core funding was provided by the government, and additional funding was provided by CARIBSAVE, which enables the employment of 12 wardens through a rotational employment system. This rotational system was put in place to allow a greater number of fishers to participate in the day-to-day management of the sanctuary.

56. The sanctuary has expanded its focus to sea turtle conservation and coral reef restoration. There are more than 13 000 sea turtle hatchlings returned to the sea each year, and to date there has been the planting of 4 000 pieces of coral on the reefs inside the sanctuary.

57. After four years of enforcement, there have been very positive trends in fish stock recovery and fish habitat improvement inside the sanctuary:

- Fish biomass has increased by 1 313 percent.
- Average fish size has increased by more than 100 percent.
- Live coral has increased by 200 percent.
- Algae cover has decreased by 57 percent.

58. However, the sanctuary is facing serious financial challenges at the moment – in fact, it is the greatest challenge being faced. Once this challenge has been addressed, it is aimed to increase enforcement coverage from 17 hours per day to 24 hours per day.

59. The BFS is managed by the Sandals Foundation but employs fishers as wardens. Although the sanctuary was gazetted in 2010, staffing was not at an effective level until 2013. The level of community buy-in has increased since the new staffing was implemented. The approach of the management is to prioritize conflict resolution. This approach started to change the perception of the community about the sanctuary from an area belonging to the hotel to an area for fisheries management.

60. To better enable the fishers to participate in management, the Sandals Foundation has partnered with the Fisheries Division to assist the fishers of the area to form a representational organization. This process has recently started and is anticipated to take about a year.

61. The foundation realizes that the sanctuary is just a part of managing the fishing ground, and has a vision to expand management to the fishing ground in order to best serve the fishing industry. The foundation also intends to eventually achieve 24-hour enforcement coverage and to begin work on coral restoration.

62. Two presentations were made on experiences in Mexico with regard to fish population assessments and fisheries monitoring and evaluation:

- Mr Yrvin Ramirez Hernandez (Sub-director, Parque Nacional Arrecife Alacranes, Mexico) presented findings from a population assessment of queen conch (*Strombus gigas*) at the Arrecife Alacranes National Park.

- Ms Ericka Hernandez Montenegro (Operations Coordinator, Parque Nacional Arrecifes de Xcalak, Mexico) made a presentation on the monitoring and evaluation of the lobster fishery in Arrecifes de Xcalak National Park.

Discussion

63. In the discussions that followed the presentations, there were different views on the usefulness of MPAs as a fisheries management tool and what would be required to make MPA management successful. There are many different MPAs and they are implemented under different conditions, making comparisons difficult. It appears that there is little doubt that fish biomass increases inside a protected area, but the effects outside the MPA are more uncertain. In order to understand the impacts, monitoring is needed, and it would be important to be able to compare what happens inside and outside the protected area with what happens when there is no protection.

64. It was noted that MPAs should be embedded in broader frameworks of coastal development. Often, MPAs are externally driven without taking sufficient account of the needs for livelihoods of fishing communities. Probably, MMAs are a better tool as sustainable use and conservation can be combined within such areas. It was noted that in many cases conservation could be achieved with other measures than strict no-take areas, e.g. a change of fishing gear or seasonal closures.

Presentations and discussion on collaboration with fisherfolk

Workshop on strengthening organizations and collective action in fisheries: towards the formulation of a capacity development programme

65. Ms Susana Siar[8] (Fisheries Officer, FAO) gave a summary of the FAO workshop on strengthening organizations and collective action that had been held shortly before the MPA workshop. Preliminary conclusions from this other workshop included:

- In small-scale fisheries, it is important to live with and respect diversity.
- Not one organization model is applicable everywhere: the context always matters and must be taken into account.
- Better fishers' organizations are formed when culture and history are taken into account.
- People need collective action, equal representation, and empowerment in the policy process and in the organization.
- Different actors have different roles to play – government, fishers' organizations, NGOs, academia, research and FAO.
- It is important to look at the enabling environment:
  - external: support from other agencies, political support, legal framework;
  - internal: communities and organizations.

66. The workshop conclusions will be further refined and used as a basis for planning follow-up work by FAO on collective action, organizational strengthening and capacity development.

Fisherfolk collaboration

67. Mr Steve Alexander (PhD student/Associate Researcher, University of Waterloo, Canada) made a presentation on "A social relational network perspective for MPA science, policy and practice: empirical insights from Jamaica' Special Fishery Conservation Areas". Considering the social

[8] This presentation was made also on behalf of Daniela Kalikoski and Robert Lee.

relational dimensions of MPAs is important for understanding their success and potential for management effectiveness. Formal and informal social networks are central to multiactor governance arrangements (e.g. co-managed MPAs) and have been repeatedly cited as a key attribute in the broader natural resource management literature. However, not all networks are structurally equal, with research suggesting that different patterns of social relations contribute to different management outcomes. A social relational network perspective provides a basis to contribute more systematically to the empirical analysis of key social attributes and processes associated with MPA establishment and governance. For example, it serves as a mechanism to identify: (i) the diversity of relevant stakeholders; (ii) actors in diverse positions; and (iii) actors with particular types of ties. Applied in this way, it can help to address issues of marginalization, avoid potential conflict, and guide network-building activities. A comparative analysis of two co-managed Special Fishery Conservation Areas (i.e. marine reserves) was carried out to understand how patterns of relational ties and interactions between and among fisherfolk and other local-level actors (e.g. managers, wardens, community NGOs) enhanced or constrained collaboration. This approach provided insights into possible barriers, such as the presence of marginalized actors and/or power imbalances. In addition, results identified enabling network structures (e.g. density of relations, degree of network centralization) and empirical conditions that enhanced collaborative and collective action towards marine conservation and protection in Jamaica.

68. Mr Trysion Walters (Fisherman and Warden of the Galleon Fish Sanctuary/SWEFFA representative, St Elizabeth, Jamaica) talked about fisherfolk collaboration. The southwest coast of Jamaica offers a unique opportunity for fisherfolk collaboration as 3 MPAs, 2 fishing cooperatives and numerous fish landing beaches are located within a small geographic range. These and other stakeholders (such as private sector, NGOs, and universities) have come together to form the South West Jamaica Friends of Fishers Alliance (SWEFFA) to address the growing needs of information sharing, increased compliance with MPAs, and improved fisheries management. This collaboration aims to address these needs through a series of community-based activities, culminating in improved fisheries management in the area.

Fisher representation in the making and managing of MPAs

69. Mr Mitchell Lay (Coordinator, Caribbean Network of Fisherfolk Organisations [CNFO], Antigua and Barbuda) discussed fisher representation in the establishment process and managing of MPAs and implementation of the ECMMAN project. He started by explaining that the CNFO is comprised of fisherfolk organizations and fisherfolk leaders from the member States of the CRFM and currently has participation from 17 member States, including Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Turks and Caicos Islands.

70. The CNFO's mission is "To improve the quality of life for fisherfolk and develop a sustainable and profitable fishing industry through network, representation and capacity building", and the network embraces the vision of having "Primary, national and regional fisherfolk organisations with knowledgeable members collaborating to sustain fishing industries that are mainly owned and governed by fisherfolk who enjoy a good quality of life achieved through the ecosystem based management of fisheries resources". The network is one of the partners implementing the ECMMAN project being led by the TNC, funded by the German Government and involving the six Eastern

Caribbean States of Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. The main objectives of this project include:

- strengthening of existing MPAs;
- declaration of new MMAs;
- building strong constituencies for sustainable livelihoods and ocean use (CNFO is major actor is achieving this objective);
- improving and updating the ECDSS;
- instituting sustainability mechanisms.

71. As an implementing partner, the CNFO has constituted a CNFO Eastern Caribbean Committee to provide support in addressing fishers' livelihoods concerns on social, cultural, economic, pollution and other issues relevant to fishers.

72. Both MMAs and MPAs have a significant impact on fishers' livelihoods, including reducing the available resource base by limiting access and increasing competition in available areas. This is a serious issue that poses a risk to the survival of fishers and has negative impacts on fisher families. Often, MMAs/MPAs do not address the food and nutrition security of fisher families and the national community, and they often represent a negative impact on these, as fishers utilize their catch and sell to local communities. This contributes to healthy communities that benefit from the protein/nutrition from seafood. The use of seafood is also a major ingredient in the social and cultural lives of Caribbean communities.

73. Often, MMAs/MPAs overlook the reality of sustainable use, as they usually limit access to resource spaces that provide habitat for pelagics and other fisheries resources that can be sustainably harvested without compromising the main management objectives of these MPAs. The issue of an ecosystem audit of MMAs/MPAs can be taken on board, and should include seasonal and transient resources.

74. It should be noted that MMAs/MPAs represent one tool in a suite of fishery management options and they are not suitable for all locations and situations. Existing management measures should be considered before any MMAs/MPAs are considered, and the possible impacts of adding an MMA/MPA to the existing measures assessed. Often, MMAs/MPAs are placed on top of existing measures, and constitute a significant obstacle to fisher livelihood sustainability. Non-fisher interests take precedence (recreation, tourism) when MMAs/MPAs are created and in general practice exclude fishers, while accommodating other uses of the marine space. Some of these uses work against the management objectives by increasing pollution levels.

75. Full participation of fishing communities is critical to the success of any fishery management measure, including MMAs/MPAs, and mechanisms to ensure effective participation should be incorporated in planning and implementation.

76. The presentation by Mr Terrence Philips (Caribbean Natural Resources Institute – CANARI) provided an overview of the project Strengthening Caribbean Fisherfolk to Participate in Governance, which is aimed at enhancing the capacity of fisherfolk organizations to participate effectively in fisheries governance and management of shared living marine resources to improve food security in the CARICOM region. It is a four-year project (started January 2013), which is funded by the EuropeAid programme (EUR1 032 099) of the European Union (Member Organization) and is being

implemented by five project partners (CANARI, CERMES/UWI, Panos Caribbean, CNFO, and CRFM). To date, project achievements have included: the identification of the capacity-building priorities for fisherfolk organizations in the CARICOM region to participate in fisheries governance and management at the national and regional levels; the establishment of the Caribbean Fisherfolk Action Learning Group (comprised of 18 fisherfolk leaders and 3 leaders from national fisheries authorities as a community of change agents from across the region); the establishment of a regional group of mentors to assist fisherfolk organizations in building their capabilities for governance; the completion of national fisherfolk workshops in seven focus countries (Barbados, Dominica, Grenada, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, and Suriname); the launching of the Fisherfolk Strengthening Fund (small grant facility); and the sponsoring of CNFO representatives to the Second World Small-Scale Fisheries Congress (Mexico, September 2014), the Caribbean Week of Agriculture (Suriname, October 2014), and the GCFI (Barbados, November 2014).

Discussion

77. Comments made after the presentations included noting the importance of ensuring that MPAs contribute positively to the livelihoods of local communities – the starting point for planning any management measures should be the people and not the fish. It is very important how MPAs are planned. Adequate research needs to underpin decisions, and communities have to be involved from the start. The information required includes not only ecological and biological data but also social and economic knowledge. There is a need for information on which to base the decisions, including whether the community (including the fishers) want an MPA or not. There should be a balance found between reduced fishing effort and livelihood security, and synergies should be identified, i.e. MPAs should be designated where they can contribute positively to both livelihoods and biodiversity conservation.

78. A lack of incentives and ineffective management are current concerns. Efforts should be made to confirm the value or impact of existing MPAs before creating new ones. It was also noted that there needs to be a change of perspective when discussing livelihoods; instead of searching for and promoting “alternative livelihoods” the focus should be on creating “sustainable livelihoods”.

Presentations and discussion on compliance and enforcement

79. Ms Emma Doyle (GCFI) gave a presentation that provided an overview of MPA enforcement and how to build compliance with MPA rules and regulations. She defined enforcement as actions to promote compliance with MPA rules and regulations. She also identified three key elements of MPA enforcement: (i) having an enforcement presence in a protected area for surveillance and detection of infractions; (ii) the response made to infractions, such as standard operating procedures for interception, and necessary steps for case prosecution; and (iii) the complementary outreach, education and communication efforts to encourage early and continued involvement of a wide variety of stakeholders in MPA decision-making, so as to build voluntary compliance with rules and regulations. She explained that the application of these aspects of enforcement varied according to the site-specific context for enforcement, for example, different categories of violations, and the realities of MPA management and resourcing at each site, such as the strength of partnerships for MPA management.

80. Mr Julio Maaz (Community Fisheries Coordinator, Wildlife Conservation Society) talked about compliance in the context of the managed access programme in Belize. This programme uses a stakeholder-based approach to fisheries management by the implementation of territorial user rights in fisheries (TURFs). Unlike traditional approaches to managing fisheries, managed access empowers

fishers and managers to collaborate as stewards of the resource by ending open-access fishing and establishing TURFs. Compliance is one part of implementing the approach, and a key to success is the engagement by fishers. Some of the lessons learned with regard to improving compliance include:

- Fishers will comply if they perceive that the implementation of the laws and enforcement are fair across the board and if they feel that they are treated with respect.
- Fishers report illegal activities if they see actions taken.
- Fishers submit data when they receive feedback.
- Fishers with more information make better decisions.
- Fishers have ownership of the programme if they are included in management and decision-making.

Presentations and discussion on sustainable financing

81. Mr Owen Day (CARIBSAVE)[9] made a presentation on the "C-FISH Fund and Innovative Approaches to Financing and Livelihood Diversification". The C-FISH Fund is a private–public partnership especially designed to provide sustainable financial support to Caribbean fish sanctuaries. The C-FISH Fund will use a range of innovative and "business-based" fund-raising mechanisms that will both support livelihoods in vulnerable communities and encourage the engagement of tourists, donors and stakeholders. The C-FISH Fund has the support of Virgin Holidays, Travel Foundation, Sandals Foundation and Royal Caribbean. Other organizations and companies have also expressed support. The C-FISH Fund is a complementary activity of the Caribbean Fish Sanctuaries Partnership Initiative, which is being implemented by CARIBSAVE.

82. Ms Nathalie Zenny (TNC) talked about the Caribbean Challenge Initiative (CCI) and the Caribbean Biodiversity Fund. The CCI is a coalition of governments, companies and partners working together to accelerate action on the marine and coastal environment. Founded in 2008 by a group of Caribbean governments eager to enhance the conservation of their marine and coastal resources, the CCI has since grown to include private-sector membership and garner more than USD75 million in funding commitments. In May 2013, CCI Governments and territories signed a CCI Leaders Declaration committing them to protect and conserve 20 percent of their marine and coastal resources by 2020.

83. The CCI companies committed to changing business practices and supporting the conservation actions of the CCI Leaders Declaration by endorsing the CCI Corporate Compact. At the heart of this initiative are two overarching, time-bound goals to be achieved in each participating country/territory:

- 20-by-20 Goal. To effectively conserve and manage at least 20 percent of the marine and coastal environment by 2020.
- Sustainable Finance Goal. To achieve the "20 by 20" Goal, to have in place fully functioning sustainable finance mechanisms that will provide long-term and reliable funding to conserve and sustainably manage the marine and coastal resources and the environment in each participating country and territory.

84. Mr Joseph Villafranca (Programme Manager, Toledo Institute for Development and Environment [TIDE]) presented the experiences of the Port Honduras Marine Reserve. TIDE was established in 1997 as a result of illegal poaching of West Indian manatees mainly by Guatemalan fishers. TIDE introduced managed access fisheries in July 2011 in response to increasing fishing

[9] This presentation had co-authors Simone Lee, Newton Eristhee and Michelle McNaugh.

pressure on a decreasing resource base. While still in its infancy, the programme is already showing signs of great success. At present, 84 percent of the TIDE funding consists of grants, but there is recognition that it is important to diversify funding sources and become less reliant on donors. Flexible funding allows being more responsive to events. Some non-grant funding sources include TIDE tours, fundraising galas, consultancy work, park entrance fees, a volunteer programme and the establishment of an endowment fund.

WORKING GROUP SESSION: KEY INGREDIENTS FOR SUCCESSFUL MPAS IN THE CONTEXT OF FISHERIES

Working group arrangements and terms of reference

85. The purpose of the working groups was to provide inputs into the plenary discussions and contribute to the overall workshop objectives. Accordingly, participants were divided into four different groups to discuss the following topics:

Group 1: MPAs as a tool for fisheries management

- In what situations have MPAs proved to be a useful for fisheries? E.g. social values, economic returns, increased yield, conflict reduction. What are the factors that influence these successes?
- In what situations have MPAs not created benefits or have even been harmful to fisheries?

Group 2: Collaboration with fisherfolk

- What are the goals of fisherfolk collaboration?
- What are the incentives for fisherfolk to collaborate?
- Examples of good practices of fisherfolk collaboration and involvement.
- Examples of bad practices of fisherfolk collaboration and involvement.

Group 3: Alternative or diversified livelihoods for fishing communities dependent on areas of MPAs or proposed MPAs

- What have been the problems with the approaches taken in the past?
- What are good examples in this region? What factors led to these examples functioning well?

Group 4: Compliance and enforcement

- Why is compliance often a problem?
- What are the characteristics of MPAs with high compliance?
- What are good examples in this region? What factors led to these examples functioning well?

86. The results from the working groups – summarized below – were reported on by the groups in plenary. The detailed terms of reference for the working group sessions are attached in Appendix 4.

Summary of working group conclusions

Group 1

87. The group discussing “MPAs as a tool for fisheries management” noted that it was hard to generalize whether MPAs had been successful in this respect or not. Different stakeholder groups may perceive success in different ways.

88. The MPAs do not work on their own, but need to be integrated into management frameworks (EAF or ecosystem-based management), considering also what happens outside the MPAs. Coastal resources should be managed holistically and marine spatial planning is an important tool. Moreover,

for successful MPAs, the three "Ps" must be considered: purpose, position and people. There has to be a clearly defined purpose, the position or placing of the MPA is crucial, and there has to be buy-in from the people who will be affected.

89. It is also essential that the necessary human and financial resources be available for implementing the MPA. Money matters also in the sense that fishers will continue to need to have an income also in the short term, and this has to be taken into consideration when establishing an MPA. There are cases where MPAs have negatively affected fishing communities or have increased illegal fishing because small-scale fishers have not had the capacity and resources to fish beyond the MPA boundaries. In situations of poverty, it is difficult to impose protection of fish stocks as "discussions of conservation on a hungry belly is just conversation!". Moreover, sustainable financing of MPA management needs to be secured in the longer term, and this is often a great concern as many MPAs are funded by projects that are limited in time.

Group 2

90. Group 2 discussed "Collaboration with fisherfolk" and started by identifying the goals for fisherfolk collaboration. These include: giving fisherfolk a sense of ownership of the fishery resources; improving compliance; and reducing management costs.

91. Collaboration is about respecting people and remembering that fisheries and MPA management is about managing people not fish. At the same time, collaboration means working **with** people, not **at** them. Often, there is a lack of recognition of local and traditional knowledge. Real bottom-up approaches and an understanding of the needs of fishing communities, i.e. that food and shelter are likely to have higher priority than conservation, are required. Fisherfolk need to be treated equitably, but it should also be remembered that fishing communities are not homogenous and efforts have to be made to ensure true representation. It is also important to note that there can be different scales and series of incentives.

Group 3

92. When discussing "Alternative or diversified livelihoods for fishing communities dependent on areas of MPAs or proposed MPAs", group 3 noted that livelihoods concerned not only fishers but also other family and community members. There should be a focus on sustainable livelihoods and diversification. Alternative livelihoods are often rejected because they are too different from fishing and not associated with or based around traditional occupations and knowledge. It is also important to ensure that new livelihoods are sustainable so that the problem is not just moved, e.g. reducing overfishing in one fishing area but increasing exploitation to an unsustainable level in another. Similarly, if creating better market opportunities for fishery products, fisheries management mechanisms need to be in place to avoid overfishing caused by increased demand.

93. There is a need for holistic approaches and engagement. Currently fisheries and environment (MPA) issues tend to be dealt with separately. Moreover, MPA managers are not always equipped to deal with livelihoods, and there may be a need for increased cross-sectoral collaboration.

Group 4

94. Group 4 noted that compliance and enforcement were complex problems, as there were multiple factors contributing to an individual's decision as to whether to comply or not comply. These factors are often context-dependent, requiring different strategies, approaches and capacity-building efforts. Those MPAs with high levels of compliance tend to have buy-in from local communities and are aligned with traditional tenure and access rights. Strong relationships between fishing communities (fishers) and MPA managers and staff facilitate compliance. It is also important to have adequate powers of enforcement (administrative and legal processes, information, technologies, etc.) and sufficient operational funds.

95. It should be recognized that those who do not comply are a minority, but that such a minority can trigger increased non-compliance. If regulations are imposed from above and represent a sudden change from "open-access" fishing to "no-take", it is probable that there will be opposition and non-compliance. If non-compliance is defined as illegal fishing, it may give connotation of a criminal act. If there is a lack of trust in the government – because of top-down approaches and lack of respect for customary tenure rights – this may spur a fighting spirit, conflicts and further non-compliance.

MPA MONITORING AND EVALUATION FOR LEARNING

96. The last workshop session addressed the need for monitoring and evaluation. Mr Rodrigo Medeiros (Center for Marine Studies, Federal University of Paraná, Brazil) made a presentation on "Needs for monitoring, evaluation, learning and adapting MPAs: experience from Brazil". He started by outlining the different types of MPAs in Brazil, including no-take protected areas, and sustainable-use protected areas and reserves. These areas should have management plans that are reviewed every five years and that include monitoring programmes. However, MPA monitoring tends to be limited to isolated research using conventional fishery science (catch composition, yield, biology of target fishes) inside/outside the protected area. There is a need to change the scope to also include livelihoods and governance aspects focusing on the social-ecological system. Monitoring should lay the basis for decision-making, and monitoring outcomes need to be communicated. Engagement with fisherfolk and other stakeholders is required, in both monitoring and management processes.

WORKSHOP CONCLUSIONS AND RECOMMENDATIONS

97. In the Caribbean, MPAs are widely used as a tool for biodiversity conservation and fisheries management. They have proved effective in terms of contributing to coral reef rehabilitation, protecting seagrass habitats, and increasing biodiversity and aquatic animal biomass inside their boundaries in numerous locations in the region. For this reason, and in response to international commitments, the number of MPAs has increased rapidly in recent years and is estimated to be about 385 in the Caribbean islands. While most MPAs appear to address certain ecological objectives well, their performance in terms of meeting social and economic objectives requires strengthening. Their impact on fisheries is in many cases not known, in particular with regard to effects outside the MPA boundaries.

98. Whatever the objectives, only well-managed MPAs can be successful. For successful management, engagement by coastal communities and key stakeholders is essential. Participation by

fishers and coastal communities from the very beginning of an MPA planning process is crucial, and the process itself is critical for successful outcomes. There is generally a need to take a more people-focused approach, recognizing that access to fishery resources is fundamental for the livelihoods of fishing communities. Planning and management of MPAs should recognize the three pillars of sustainability: environmental, social and economic sustainability.

99. Within this context, and based on the experiences reported on in the workshop and the key findings generated in the workshop discussions, the following conclusions and recommendations can be made:

- The focus of MPA planning should be the well-being of fishers and their communities (not the fish). Accordingly, participation by coastal communities in MPA planning and management is imperative. In many cases, fisherfolk organizations need to be strengthened to allow for their effective participation in MPA planning and management.
- Secure access by fishing communities to the resources they depend on should be ensured, recognizing the Tenure Guidelines and the SSF Guidelines.
- Accordingly, stewardship by resource users should be promoted. Managed access or TURFs can be useful tools in this respect. Generally, it would appear that MMAs with zoning and a set of different management measures, reflecting the need for areas with multiple purposes, could be more effective than strict no-take areas. However, it should be noted that the terminology is not always clear and that the term “MPA” and other expressions (e.g. marine reserves and fish sanctuaries) often have different meanings in different countries and contexts.
- Lack of compliance with MPA rules is often an issue that is related to overall management effectiveness. Buy-in from coastal communities and participation of resource users in MPA planning and management are essential for good compliance. A combination of incentives for respecting the MPA rules and adequate enforcement mechanisms are also needed.
- For MPAs to be effective as a fisheries management tool, they should be complemented by other fisheries management tools and embedded in broader management frameworks (applying an EAF or ecosystem-based management), including also the area outside the MPA. Moreover, it should be recognized that there often are also many external factors, outside of fisheries, that need to be addressed, e.g. land-based pollution and agricultural runoff, in order to ensure ecosystem health, biodiversity conservation and sustainable fish stocks.
- Where fishing effort needs to be reduced to ensure sustainability, the social and economic importance of fishing and related activities to local communities has to be recognized, and solutions should be identified and developed that respect the needs of the fishers and their families. Instead of spending efforts on identifying “alternative” livelihoods, the focus should be on diversification and securing sustainable livelihoods in a more holistic sense.
- The planning and management of MPAs should be informed by relevant information. Social sciences need to be considered equally with biological research and data. Traditional and local knowledge should be used, and the expertise of fishers and coastal communities respected. Adequate participatory monitoring and evaluation systems should be established that promote adaptive management.
- Considering that many marine resources are shared in the region, and that issues and concerns are often common to several countries, strengthened regional collaboration on

MPAs and fisheries management is needed. Existing RFBs and other stakeholder organizations have important roles to play in this respect.

- Most MPAs are established with the help of external funding, ensuring financing of the MPA only for a limited number of years. Solutions need to be found for how sustainable long-term financing can be secured. Successful MPA implementation requires considerable financial and human resources.

FINAL REMARKS

100. In their final remarks, Mr Raymon van Anrooy (FAO/WECAFC) and Mr Christopher Parker (Fisheries Division, Ministry of Agriculture, Food, Fisheries and Water Resources Management, Barbados) noted that MPAs were often a contentious topic, but that the workshop had been very constructive and important lessons had been learnt and ideas for future MPA planning and management in the region had been generated. The next step should be to consider how to implement the recommendations that were made and agree on roles and responsibilities for different actors and organizations, including the regional fishery bodies, governments, stakeholder civil society organization (CSOs) and NGOs.

101. The annual GCFI conferences provide excellent opportunities for scientists, fishers and other stakeholders to discuss and exchange experiences. Considering the importance of MPAs in the region, sessions dedicated to MPAs and fisheries will continue to be useful in future GCFI conferences.

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APPENDIX 2

FAO Welcome statement

WELCOME STATEMENT

Raymon van Anrooy
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Distinguished colleagues,
Ladies and Gentlemen,

Welcome to Barbados. I am very grateful you have accepted our invitation to participate in the Regional Workshop on MPAs as a tool for responsible fisheries and sustainable livelihoods in the Caribbean.

This workshop is organized by FAO together with the Western Central Atlantic Fishery Commission (WECAFC), Gulf and Caribbean Fisheries Institute (GCFI), the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI/CERMES) and the Fisheries Division of the Ministry of Agriculture, Food, Fisheries and Water Resource Management of Barbados. Contributions are made also by the NOAA Coral Reef Conservation Program, CARIBSAVE and TNC.

The Workshop is organized in response to the increased use of MPAs as a tool for biodiversity conservation but also more recently in fisheries management. FAO developed a Technical Guidelines for Responsible Fisheries on MPAs and Fisheries with the purpose to create a better understanding on how MPAs work in the context of fisheries and how to bridge different MPA objectives. Accordingly this workshop wants to promote effective MPA management and to identify best practices in the Caribbean region and look into the issue of MPAs with multiple objectives. Importantly, the workshop will seek to promote greater cross-sectoral understanding coordination and collaboration in the establishment and management of MPAs.

The main objective of the workshop is to contribute to successful fisheries-oriented MPA management in the countries of the Caribbean region by facilitating an exchange of experiences and views among MPA managers and practitioners, fishers and fishing communities, government representatives – including fisheries, parks and environment departments and agencies – academia and NGOs.

The FAO Fisheries and Aquaculture Department is organizing a series of regional workshops in close collaboration with relevant regional partners, including Regional Fisheries Management Organizations or Regional Fishery Bodies (RFBs), as well as regional projects or initiatives related to ecosystem conservation. This workshop in Barbados is the fourth workshop organized - earlier ones were held in Southeast Asia (Bangkok), Southwest Indian Ocean (Mauritius) and West Africa (Dakar).

During the coming days, we will attempt to identify the issues, best practices and critical processes, and institutional, planning, and implementation elements for implementing MPAs in the context of fisheries and the need for cross-sectoral linkages. This will include reviewing the potential contribution of MPAs to existing fisheries management regimes within an Ecosystem Approach to Fisheries

I sincerely hope that, by the end of the workshop, every participant will be familiar with the FAO Technical Guidelines on MPAs and Fisheries and that we can agree upon recommendations on actions that could be taken by respective governments, RFBs, Fisherfolk Organizations, NGOs, FAO and other projects or programmes in the region, with regard to increasing the awareness of MPAs in a fisheries management context, influencing policies and promoting cross-sectoral collaboration.

Finally, I would like to take this opportunity to thank the government of Japan, which has kindly funded the preparation of the MPA guidelines and this workshop, and my colleagues Jessica Sanders, Lena Westlund, Sonya Thompson and Bertha Simmons for their support in making this workshop possible and enable us to bring together such a large regional group to discuss this important issue.

I thank you all for joining in, dedicating your precious the time to participate in this workshop, and travelling from sometimes very far to get to Barbados.

I wish you a fruitful workshop and a pleasant stay in Barbados, “the home of the flying fish”.

Thank you very much.

APPENDIX 3

Workshop agenda

MPAs as a tool for responsible fisheries and sustainable livelihoods in the Caribbean

6–8 November 2014, Rockley, Christ Church, Barbados

AGENDA

Day 1: Thursday 6 November 2014		
1. Opening session		
8:30-9:15	Welcome remarks	• Ministry of Agriculture, Food, Fisheries and Water Resource Management of Barbados • FAO Fisheries and Aquaculture Officer for the Caribbean
	Workshop introduction and objectives	FAO
	Self-introductions	
2. Introduction and setting the scene		
9:15-10:00	Presentation of the *FAO Technical Guidelines on MPAs and Fisheries (within the context of EAF)*	FAO (Jessica Sanders)
	Overview of the UNEP-CEP/SPAW MPA capacity building program (CaMPAM) and its work with partners in the Caribbean region	CaMPAM (Georgina Bustamante)
10:00-10:30	*Coffee/tea break*	
10:30-12:30	Presentations by actors/partners of on-going MPA related programmes in the Caribbean region	
	• CARIBSAVE (Owen Day)	
	• TNC/ECMMAN (Sherry Constantine) • NOAA/Coral Reef Conservation Program (Dana Wusinich-Mendez/Peter Edwards) • GCFI (Emma Doyle) • IUCN-BIOPAMA (Hyacinth Armstrong) • UWI/CERMES (Hazel Oxenford)	
	Overview of other FAO initiatives: FAO FI department's work on MPAs as well as on small-scale fisheries (the SSF Guidelines)	FAO (Lena Westlund)
12:30-14:00	*Lunch*	
	Side event: ***Implementing the Small-Scale Fisheries Guidelines***	
14:00-17:30	*GCFI general meeting on MPAs and connectivity (UNEP/CaMPAM)*	
18:30	Oistins excursion dinner event	

Day 2: Friday 7 November 2014		
3. MPAs and adaptive fisheries co-management		
3A: MPAs as a tool for fisheries management		
8:30-10:00	Findings from Eastern Caribbean 2013-2014 research cruise	• TNC/ECMMAN - (Bob Steneck)
	The FAO Tenure Guidelines and impacts of MPAs on fisheries	FAO (Raymon van Anrooy)
	MPAs and EAF: an RFB perspective	CFRM (Peter Murray)
	Jamaica:	• UWI Mona (Karl Aiken) • CARIBSAVE (Inilek Wilmot)
	• *Jamaica Marine Sanctuary Programme* • *The Oracabessa-Boscobel Fish Sanctuaries Partnership: A Caribbean Success Story in the making?*	
	Mexico:	• Yrvin Ramirez Hernandez • Ericka Hernandez Montenegro
	• Assessment of *Strombus gigas* (Parque Nacional Arrecife Alacranes) • *Panulirus argus* (Parque Nacional Arrecifes de Xcalak)	
	Discussion	
10:00-10:30	*Coffee/tea break*	
3B: Collaboration with fisherfolk		
10:30-11:30	Summary of the previous 'FAO Workshop on Strengthening organizations and collective action in fisheries: Towards the formulation of a capacity development programme' workshop and reflection of the results in relation to MPAs	Participant from previous workshop (Daniela Kalikoski/Susana Siar/Svein Jentoft)
	Fisherfolk collaboration:	CARIBSAVE:
	• *Social networks in fishing communities and MPAs in Jamaica* • *South-West Jamaica Friend of Fishers Alliance (SWEFFA) – Collective Action for Fisheries Management.*	• Steve Alexander • Trysion Walters
	Fisher representation in the making and managing of MPAs – the Eastern Caribbean Marine Managed Area Network (ECMMAN) project	• CNFO (Mitchell Lay) • CANARI (Terrence Philips)
	Discussion	
3C: Compliance and enforcement		
11:30-12:00	Compliance and enforcement	GCFI (Emma Doyle)
	Compliance aspects of the managed access program	Belize (Julio Maaz)
3D: Sustainable financing		
12:00-12:30	C-Fish fund and innovative approaches to financing and alternative livelihoods	CARIBSAVE (Owen Day)

	Caribbean Challenge Initiative (including Eastern Caribbean project and sustainable financing)	TNC (Nathalie Zenny)
	Port Honduras Marine Reserve	Belize (Joseph Villafranco)
12:30-14:00	*Lunch*	

4. Working group session: key ingredients for successful MPAs in the context of fisheries		
14:00-16:00	4 working groups to good practices and needs for action for achieving fisheries outcomes in MPA management, e.g.,:	
	1. MPAs as a tool for fisheries management 2. Collaboration with fisherfolk in MPA planning, implementation and evaluation 3. Alternative or diversified livelihoods for fishing communities dependent on areas of MPAs or proposed MPAs 4. Compliance and enforcement	
16:00-16:30	*Coffee/tea break*	
16:30-17:30	Working group session (*cont.*)	

Day 3: Saturday 8 November 2014 (half day)		
8:30-10:00	Presentations of working group outcomes and discussion	
	Discussion	
10:00-10:30	*Coffee/tea break*	
6. MPA monitoring and evaluation for learning		
10:30-11:15	Presentation on the needs for monitoring, evaluation, learning and adapting MPAs: experience from Brazil	UFPR (Rodrigo Pereira Medeiros)
	Discussion	
7. Conclusions and recommendations		
11:15-12:15	Wrap-up	
8. Closure of workshop		
12:15-12:30	Closing remarks	FAO/WECAFC (Raymon van Anrooy)
12:30	*Lunch*	

APPENDIX 4

Terms of reference for workshop working groups

All questions should be answered within a Caribbean context and with fisheries in mind.

Working Group 1. MPAs as a tool for fisheries management

- In what situations have MPAs proven to be useful for fisheries? E.g. social values, economic returns, increased yield, conflict reduction, etc. What are the factors that influence these successes?
- Are there examples of MPAs embedded in national level fisheries management plans?
- Are linkages with other fisheries management measures effective? Success cases and failures?
- In what situations have MPAs not created benefits or have even been harmful to fisheries?

Working Group 2. Collaboration with fisherfolk in MPA planning, implementation and evaluation

- What are the goals of fisherfolk collaboration?
- What tools are used to engage fisherfolk and ensure collaboration?
- What are the incentives for fisherfolk to collaborate?
- Examples of good practices of fisherfolk collaboration and involvement
- Examples of bad practices of fisherfolk collaboration and involvement

Working Group 3. Alternative or diversified livelihoods for fishing communities dependent on areas of MPAs or proposed MPAs

- What livelihood diversification options have been piloted in the region for fisherfolk using MPAs and proposed MPAs?
- What have been the problems with the approaches taken in the past?
- Which factors led to limited uptake?
- What are good examples in this region? What factors led to these examples functioning well?

Working Group 4. Compliance and enforcement

- Why is compliance often a problem?
- Which factors lead to non-compliance by fishers?
- What are the characteristics of MPAs with high compliance levels?
- What are good examples in this region? What factors led to these examples functioning well?

Each Working Group is expected to make a 15-minute PPT (on Saturday morning) on the outcomes of the discussions.

The Regional Workshop on Marine Protected Areas (MPAs) as a Tool for Responsible Fisheries and Sustainable Livelihoods in the Caribbean took place in Christ Church, Barbados, on 6–8 November 2014, in conjunction with the Gulf and Caribbean Fisheries Institute (GCFI) 67th Annual Conference. The workshop was organized as part of a series of regional workshops on the FAO Technical Guidelines for Responsible Fisheries on MPAs and Fisheries.

In the Caribbean, MPAs are widely used as a tool for biodiversity conservation and fisheries management. The workshop focused on discussing the role of MPAs in the context of fisheries management. It concluded with a number or recommendations on how to make future MPA planning and management more effective.

The workshop was jointly organized by FAO, the Western Central Atlantic Fishery Commission (WECAFC), the GCFI and the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI/CERMES) and in collaboration with other organizations and projects involved in supporting fisheries management and conservation and MPA management in the Caribbean region.

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