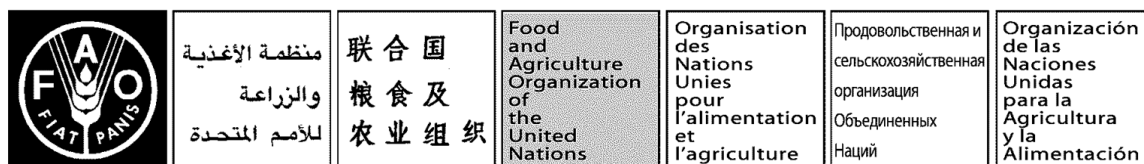


June 2023

E

WESTERN CENTRAL ATLANTIC FISHERY COMMISSION (WECAFC)
TWELFTH (VIRTUAL) SESSION OF THE SCIENTIFIC ADVISORY GROUP (SAG)
19-20 June 2023
“Best practices of fisheries using moored (or anchored) fish aggregating devices (aFAD) Volume V – aFAD fisheries governance”¹

This document is the fifth volume of an aFAD fisheries best practices manual series for the Caribbean region.

¹ Prepared by Susan Singh-Renton, FAO Consultant

LIST OF ACRONYMS

CARICOM - Caribbean Community
CARIFICO - Caribbean Fisheries Co-management Project
CCRIF - Caribbean Catastrophe Risk Insurance Facility
COAST - Caribbean Oceans and Aquaculture Sustainability Facility
CRFM - Caribbean Regional Fisheries Mechanism
EAF - Ecosystem Approach to Fisheries
ETP – Endangered, Threatened and Protected Species
EU - European Union
FAD - Fish Aggregating Device
GOV/MC – Government Management Cycle
aFAD – Moored (Anchored) Fish Aggregating Device
FAO - Food and Agriculture Organisation of the United Nations
ICCAT - International Commission for Conservation of Atlantic Tunas
ICT - Information and Communications Technology
IFREMER - The French Institute for Exploitation of the Sea
IOTC – Indian Ocean Tuna Commission
IND/MC – Industry Management Cycle
INTER-GOV/MC – Inter-governmental Management Cycle
IUU - Illegal, Unreported, and Unregulated
JICA - Japan International Cooperation Agency
MAGDELESA - Moored Fish Aggregating Devices in the Lesser Antilles
MC – Management Cycle
MCS - Monitoring, Control and Surveillance
OECD – Organisation for Economic Co-operation and Development
OSPESCA - Organisation of the Fisheries and Aquaculture Sector of the Central American Isthmus
RFAB - Regional Fisheries Advisory Body
RFB – Regional Fisheries Body
RFMO - Regional Fisheries Management Organisation
SAG – Scientific Advisory Group
SCI/MC – Science Management Cycle
SDG - Sustainable Development Goal
SSF - Small-scale Fisheries
STAG – Stakeholder Advisory Group
UNESCO - United Nations Educational, Scientific and Cultural Organization
WECAFC - Western Central Atlantic Fishery Commission

FOREWORD

Initial experimentation with the use of moored (anchored) fish aggregating devices (aFADs) in the Caribbean region began in the 1960s. The main drivers for development of aFAD fisheries have been the need to reduce fishing costs, increase fishing efficiency, to improve fishers' livelihoods as well as national food security and to reduce fishing pressure on over-exploited coastal resources. The development of aFAD fisheries in the region has been influenced by the socio-economic and bio-physical conditions of the respective countries, as well as fisheries governance and management arrangements.

This manual is the fifth volume in a best practice manual series designed to guide users in sustainable and profitable management of the aFAD fisheries sub-sector in the Caribbean. The series of aFAD best practice manual volumes is a collaborative effort of the CRFM, the Caribbean Fisheries Co-management Project (funded by the Japan International Cooperation Agency - JICA), the French Institute for Exploitation of the Sea (IFREMER) and the Western Central Atlantic Fishery Commission (WECAFC). These institutions support a regional working group on aFAD fisheries sustainable development that was established at the 15th Session of the WECAFC.

In December 2013, a joint workshop of the respective institutions recommended the development of a manual of best practices to guide the way forward on various aspects of aFAD fisheries governance and management. The recommendation was subsequently endorsed by the 15th Session of the WECAFC and incorporated into the Terms of Reference of the regional aFAD working group. In June 2015, the CRFM convened a Write-Shop to advance development of the aFAD best practices manual. The manual is prepared as five separate volumes addressing the following areas of interest: aFAD design, construction and deployment; maintaining the quality of aFAD-caught fish; resource and business management strategies for sustainable aFAD fisheries; safety and working conditions of aFAD fisheries; and governance of aFAD fisheries. It represents the combined technical efforts of the Working Group partners and targets a wide range of stakeholders, from aFAD fishers to other industry persons, fisheries scientists, and managers.

The experiences that inform the best governance practices used for this manual volume consider to a great extent the experiences of a number of regional initiatives: The WECAFC ad hoc Working Group on the Development of Sustainable Moored Fish Aggregating Device Fishing in the Lesser Antilles that began activities in 2001, expanded its membership and status and has since held 5 meetings; CRFM's JICA-funded study on Formulation of a Master Plan on Sustainable Use of Fisheries Resources for Coastal Community Development in the Caribbean that was conducted during 2009 to 2012; the project on the Moored Fish Aggregating Devices in the Lesser Antilles (MAGDELESA Project) conducted during 2011 to 2014; CRFM's JICA-funded Caribbean Fisheries Co-management (CARIFICO) Project that was implemented during 2013 to 2018, and associated joint meetings involving the relevant working groups of CRFM and WECAFC; Collaborative research with the Texas A&M University and the University of Florida, Florida Sea Grant. The various initiatives contributed to building the technical and scientific evidence base and investigated suitable options for facilitating co-management arrangements.

The first four volumes of the manual were prepared and published in 2015. During the fourth meeting of the Fourth Virtual Meeting of the joint CRFM/WECAFC/JICA/IFREMER Working Group on Fisheries using Moored (Anchored) fish aggregating devices (aFAD) held 14-16 February 2023, it was agreed to develop and finalise the fifth volume of the manual, devoted to best practices on the governance of aFAD fisheries.

EXECUTIVE SUMMARY

This is the fifth volume of a best practice manual designed to guide users in sustainable and profitable management of the aFAD fisheries sub-sector in the Caribbean. The present volume focuses on aFAD fisheries governance. In this manual, governance is defined as “*the process of decision-making and the process by which decisions are implemented (or not implemented)*”. This definition focuses attention on the actors concerned and their processes/arrangements to make and implement decisions.

Regional and global general fisheries management reviews observe pockets of good effort, which often are unable to work in concert for a result that is holistic and sustainable. This is mainly because of governance gaps in the following 4 areas: management and usage of the evidence base for decision-making; transparent and equitable stakeholder engagement in decision-making; a government commitment mechanism for data-driven policy review and adaptation on regular basis; a ‘whole-of-government’ approach for greater policy coherence and support for policies being advocated within and for the fisheries sector.

This manual volume provides guidance in addressing these four major areas of fisheries governance, with emphasis on identifying the actors and suitable processes/ arrangements, considering the additional needs of the aFAD fisheries sub-sector and the typical governance structures of the Insular Caribbean where most aFAD fishing takes place in the Wider Caribbean. The four governance areas represent distinct elements of the overall framework required for good fisheries governance.

The manual identifies eight characteristics of good governance that must be present in the four governance elements. According to these eight characteristics, each element should be supported by a cycle of activities that guides the actors through logical steps for reaching and adapting decisions, namely: planning, analysis and reporting, performance review and amendments. Considering the responsive aspect of governance, all steps should also be completed within a reasonable and practical timeframe and be repeated as a structured cycle of steps on a regular basis for ensuring that decisions remain relevant to new and emerging challenges.

The relevant actors are urged to establish a process management cycle to support each of the 4 governance elements, as follows:

- a Science Management Cycle to address the evidence base;
- an Industry Management Cycle and aFAD Industry Management Cycle to facilitate equitable and transparent stakeholder dialogue;
- Government Management Cycles, one at the ministry level and another at the overall government level to address the required government commitment mechanism for data-driven adaptive policy and policy coherence on blue economy and ocean economy issues involving multiple sectors.

Hence the substantive sections of the present manual volume addresses each of the 4 fisheries governance elements, providing guidance on:

- Identifying the minimum results for each governance element outcome;
- Organising the actors and their processes/ arrangements – each process management cycle;
- Providing best practice examples, especially where relevant for addressing aFAD fisheries issues/ challenges.

Regarding the best practices, these have been informed by: the experiences of the main aFAD fisheries projects conducted in the Wider Caribbean; recent regional reviews of the status and trends in aFAD fisheries sub-sector management; consultations with key informants; and, a literature review of experiences in other parts of the world.

The manual volume points out that the main Caribbean-based RFABs, and the Atlantic tuna RFMO (ICCAT) have similar management cycles at the science and decision-making levels for ensuring good governance. These cycles are often supported by subsidiary bodies and have formal, agreed modes of communication and information exchange. For the RFABs such as WECAFC and ICCAT, the actors are countries. To achieve informed participation and representation in these inter-governmental management cycles, it is therefore important that the national fisheries governance systems are set up similarly, supported by a strong science management cycle. In the case of WECAFC members with aFAD fisheries for tuna and tuna-like species, the formal ICCAT-WECAFC cooperation/ framework arrangement provides an excellent opportunity for expanded support to countries' science management cycles and building the national evidence bases.

In terms of resources for implementing good governance practices, the 'whole-of-government' approach should facilitate easier identification of synergies and required trade-offs in the allocation of human and financial resources. It will also improve complementarity of projects and programmes, facilitating efficiency and effectiveness. Individual countries should develop suitable sustainable financing plans and can pursue this in collaboration with development partners.

1. INTRODUCTION

The technology of the moored (anchored) fish aggregating device (aFAD)², which removes the search element from a fishing trip targeting large pelagic fishes, was being explored by WECAFC countries since the late 1960s and 1970s. More widespread and organised efforts arose in the 1980s, which has resulted in substantive aFAD fisheries growth and development since then^{3,4,5}.

1.1 NATURE AND EXTENT OF AFAD FISHERIES IN WECAFC COUNTRIES

In terms of the nature and extent of aFAD fishing operations in the Wider Caribbean, two recent regional survey-reviews^{3,4,5}, one of which was completed by WECAFC in 2022, provide additional details for the interested reader. aFAD fisheries and the numbers of aFADs deployed have expanded mostly from the 1980s, and are now firmly established, especially in the Insular Caribbean (Figure 1).

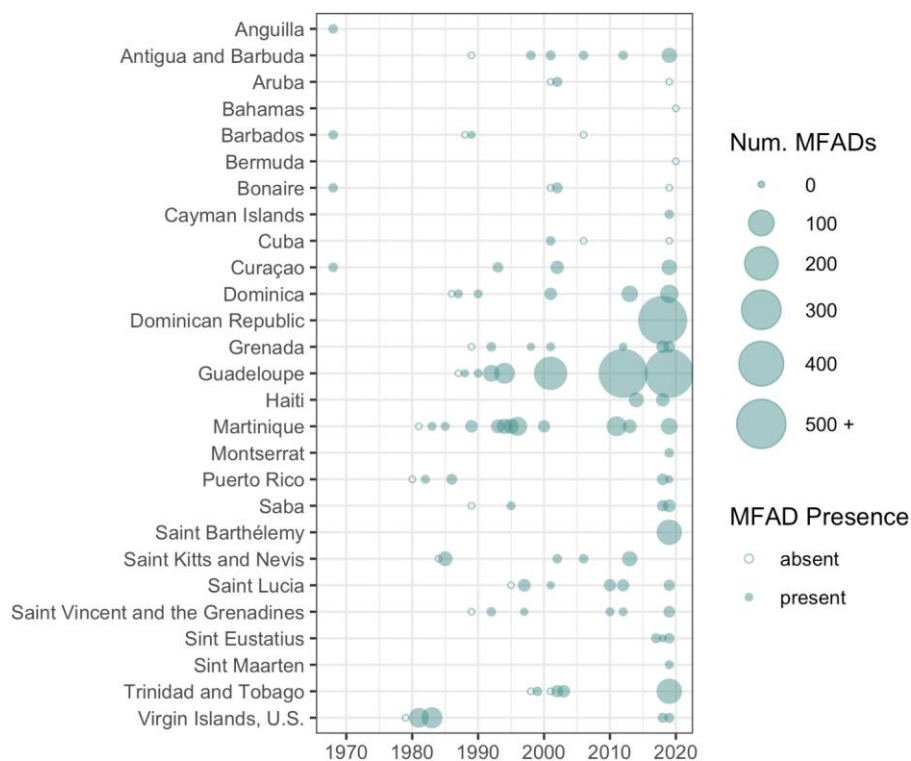


Figure 1. Expansion of aFAD fisheries in the Wider Caribbean during the period 1970-2020. {Source: Wilson et al., (2020)}.

² For this manual, moored FAD (MFAD) also means anchored FAD (aFAD). MFADs usually have a basic structure consisting of a flotation system, a mooring line, an aggregation component and an anchoring system.

³ Wilson, M. W., J. M. Lawson, M. I. Rivera-Hechem, J. C. Villaseñor-Derbez, and S. D. Gaines (2020). Status and trends of moored fish aggregating device (AFAD) fisheries in the Caribbean and Bermuda. *Marine Policy*. 121: 104148. doi: 10.1016/j.marpol.2020.104148

⁴ Valles, H., (2022a). Appendix I - Review of the state and challenges of the Moored Fish Aggregating Device (AFAD) Fishery in the WECAFC region. 53pp.

⁵ Valles, H (2022b). Appendix II – Preliminary Results of the Caribbean Regional Moored Fish Aggregating Device (AFAD) Survey (Sept 2021-Oct 2021). 40 pp.

Based on these reviews, some noteworthy aFAD fisheries characteristics are compiled here as a quick and easy reference.

- 1) *Numbers of aFADs, fishing vessels and fishers* –
 - a. Over 3600 aFADs are deployed, mostly within the insular Caribbean and with Dominican Republic and Guadeloupe being responsible for 86% of deployments.
 - b. An estimated 7200 fishers and 3200 vessels are currently involved in AFAD fishing operations; of these, over 6200 fishers and 2700 vessels comprise commercial and subsistence efforts.
 - c. During 2017-2022, the number of aFAD fishing vessels remained stable or increased in 42% and 47% of the cases surveyed, thereby reflecting continuing and growing investment in these operations.
- 2) *Investment & Access* –
 - a. Investment can be at the level of the individual fisher, a group of fishers, or a national development sponsorship arrangement, which influences access arrangements⁶ (Figure 2). For the first two investment sources, these aFADs are privately owned (private aFADs⁷), and access is more restricted.
 - b. As may be expected, private aFADs are usually for use by those who invested in their construction and deployment. The investing fishers also rely on their own resources for FAD maintenance and replacement.
 - c. Where aFADs have been sponsored through a project or development partnership arrangement, the aFADs are usually set up as public AFADs⁸ for use by all eligible fishers. This has usually resulted in lower investment by fishers for FAD maintenance and replacement.
 - d. Over 97% of deployed FADs in the region are classified as private AFADs³⁴⁵.

⁶ Sidman, C., Lorenzen, K., Sebastien, R., Magloire, A., Cruickshank-Howard, J., Hazell, J., and Masters, J., (2014). *Toward a Sustainable Caribbean FAD Fishery (An Analysis of Use, Profitability and Shared Governance)*. NOAA. 20 pp.

⁷ Wilson et al. (2020) defined “private aFADs” as “those owned and deployed by an individual or small groups of fishers (though they may sometimes be used by additional fishers with or without an owner’s permission)”.

⁸ Wilson et al. (2020) defined “public aFADs” as those “deployed by government, non-profit, aid, or fisher organizations and are accessible to all eligible fishers (e.g., fishers belonging to a certain community or with appropriate permits)”.

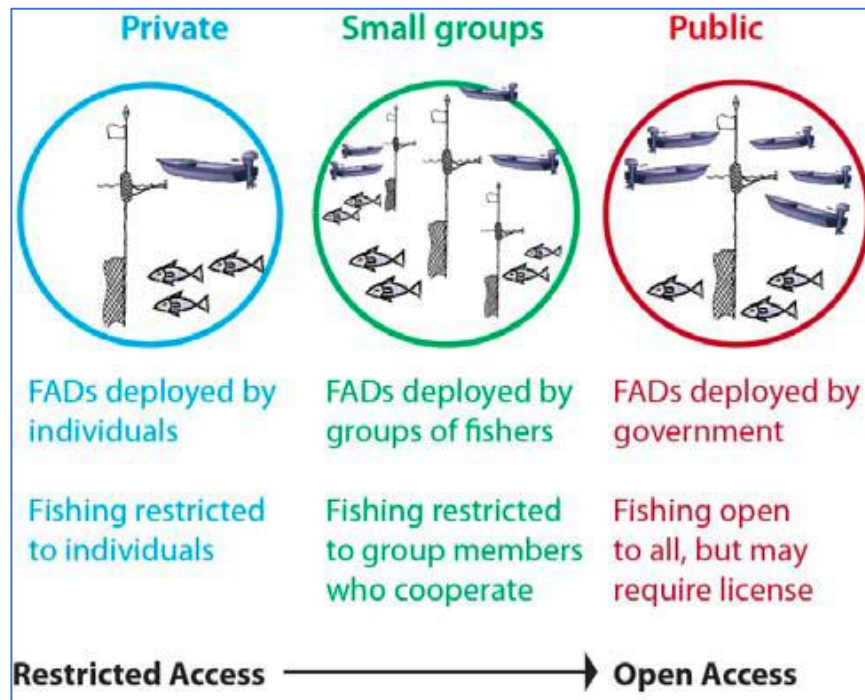


Figure 2. The three main types of aFADs, and their typical investment and access arrangements {Source: Sidman et al., (2014)}

3) Characteristics aFAD investment types –

a. Public aFADs

- i. There have been limited changes in public aFAD numbers since first introduced.
- ii. Public aFADs are usually constructed from longer lasting materials, and hence usually more durable.
- iii. Public aFADs are set up for use by all eligible fishers. This means that public aFADs are usually deployed closer to shore for easier accessibility, and their positions are known by all marine users.

b. Private aFADs –

- i. Private aFADs are more widespread in countries where they are affordable for fishers, open access arrangements continue, and management regulations and enforcement are limited, e.g., Dominican Republic and Guadeloupe³.
- ii. Fishers investing in private aFADs tend to:
 1. set low-cost aFADs with shorter life spans that minimise the investment risks arising from frequent aFAD loss,
 2. set aFADs at increasing distances from shore to avoid use of their aFADs by other fishers, as well as to attract more resources for fishing opportunities.
 3. In some instances, private aFAD construction has regularly included use of materials, such as styrofoam and plastic bottles³, which will have ultimate negative consequences for marine ecosystem health.

- iii. Where deployment regulations are not in place or enforced, private aFADs can often pose a hazard to shipping, and increase instances of fisher conflicts, and illegal fishing.
- 4) *Catch composition* –
- a. aFAD fishery yields consist of tuna, and tuna-like species (billfishes, mackerels, dolphinfishes), with precise species composition and fish sizes varying with country and with aFAD location relative to the coast, as well as fishing techniques.
 - b. Several of these species are highly migratory and require international cooperation for their sustainable management.
- 5) *Regional and international aFAD fisheries science and management support* –
- a. Over the years, bilateral and multilateral projects, focused on aFAD fisheries development and management support, have been sponsored by international development partners, such as FAO’s EU-funded MAGDELESA Project and CRFM’s JICA-funded Master Plan and CARIFICO projects.
 - b. These initiatives provided valuable opportunities to improve aFAD designs and associated fishing methods, and to promote co-management arrangements.
 - c. A dedicated WECAFC aFAD working group has been active since 2001⁹, which later expanded to include other regional partners in joint activities¹⁰ generally aimed at providing guidance on a range of issues pertaining to the sustainable development and management of aFAD fisheries, ranging from FAD technology to marketing, co-management and management planning.

1.2 AFAD FISHERIES MANAGEMENT

1.2.1 Challenges

As the industry’s interest in aFAD fisheries have expanded in the region and considering the distinct characteristics of these fisheries, the supporting fisheries management and hence governance challenges have grown. Several aFAD fisheries challenges have been identified^{4,5,11,12}, which point to challenges about the organisation and capabilities of the governance and management frameworks, as well as concerns about failure to fulfill biological, social, economic, and ecosystem objectives.

The 2022 WECAFC study noted that governance and management challenges were of greatest concern, with the following concerns cited as either high or medium priority by at least 50% of locations (See Table 1).

- non-existent or inadequate local capacity to enforce regulations;
- weak organisation of aFAD fisher groups;
- non-existent or inadequate local aFAD management plans;

⁹ WECAFC (2007). Report of and papers presented at the second meeting of the WECAFC Ad Hoc Working Group on the Development of Sustainable Moored Fish Aggregating Device Fishing in the Lesser Antilles. Bouillante, Guadeloupe, 5–10 July 2004. FAO Fisheries Report. No. 797. Rome, FAO. 2007. 274p.

¹⁰ CRFM, 2013. Report of the CRFM - JICA CARIFICO / WECAFC - IFREMER MAGDELESA Workshop on FAD Fishery Management, 09 - 11 December 2013, St. Vincent and the Grenadines. CRFM Technical & Advisory Document, No. 2013 / 9. 42p.

¹¹ CRFM. 2015. 2015 Draft Sub-Regional Management Plan for FAD Fisheries in the Eastern Caribbean (Stakeholder Working Document). CRFM Technical & Advisory Document 2015/05. 94p.

¹² WECAFC. (2022). Draft Caribbean Regional Management Plan for the Moored Fish Aggregating Device (aFAD). 35 pp.

- non-existent or inadequate local aFAD regulations;
- non-existent or inadequate representation in ICCAT;
- insufficient reduction of fishing pressure on coastal/reef resources¹³;
- weak governance structure across stakeholder groups;
- non-existent or poor data collection systems;
- IUU fishing.

Table 1 Governance challenges of the aFAD fishery and associated priority score breakdown {Source: Valles, H. (2022a)⁴}

Governance challenge	Mean score (1 to 4)	Percentage of respondents				
		High priority	Medium priority	Low priority	Very low priority	Not known
Inexistent/inadequate local capacity to enforce regulations	3.1	55%	23%	5%	18%	0%
Weak organization of MFAD fisher groups	3.1	50%	14%	23%	9%	5%
Inexistent/inadequate local MFAD management plans	2.9	41%	18%	18%	18%	5%
Inexistent/inadequate local MFAD regulation	2.8	50%	9%	5%	32%	5%
Inexistent/inadequate representation in ICCAT	2.7	27%	27%	9%	23%	14%
Weak governance structure across stakeholder groups	2.7	32%	23%	27%	18%	0%
Inexistent or poor data collection systems (biological, economical)	2.6	32%	23%	14%	27%	5%
IUU fishing	2.6	23%	27%	5%	27%	18%
Inexistent/inadequate sharing of info/data on MFADs across region	2.4	18%	27%	23%	27%	0%
Inexistent / insufficient MFAD fisher participation in decision-making	2.3	14%	36%	18%	32%	0%
Transboundary fishing	1.9	14%	14%	14%	45%	14%
Uncontrolled/excessive proliferation of MFADs	1.9	14%	9%	27%	45%	5%

In essence, regulations have more often focused more on aFAD registration, location of deployment and access arrangements, with less attention on monitoring and control of fishing operations^{4,5}. Additionally, monitoring of fishing activities (data collection and its usage) has been inadequate to determine if aFAD fisheries are fulfilling their biological, social, economic and ecosystem objectives in a balanced manner. This understanding was reaffirmed by several key informants consulted during preparation of this manual; the informants indicated continuing weaknesses with respect to monitoring (including science and data collection), as well as control and surveillance (regulations and enforcement).

Several socio-economic challenges were also highlighted, with the highest priority concerns being: high fuel and consumption costs; and non-existent or inadequate fisher training in business management. The biological and ecosystem challenges were not common high priority concerns: as noted by the 2022 WECAFC survey, this could be due to varying operational situations, the size of the aFAD fishery, and/or limited information for assessing relevance of the issues. It may also be that there is broad appreciation that the governance and management challenges are fundamental and give rise to all the other challenges.

Apart from the challenges identified by recent regional studies, the international scientific community has raised concerns regarding: the true long-term impacts of aFADs on species biology and ecology, which has implications for the accuracy of stock assessments and management advice by ICCAT for tuna and billfishes within the Atlantic region; and, aFAD loss and generation of marine debris with its associated problems. Adding to these concerns are the popularity of private aFADs and the dominance in some aFAD catches of certain large tunas and billfishes that are subject to international binding regulations adopted by ICCAT.

¹³ This challenge was listed as an ecosystem challenge by the 2022 WECAFC study, but it can also be considered a management challenge and is therefore re-classified here.

1.2.2 Developments and Opportunities

In 2013, many countries of the Wider Caribbean formally signalled their support to address common challenges affecting sustainable fisheries management in the region through a Caribbean large marine ecosystem (CLME) approach, enshrined in the form of an evidence-based, formulated 10-year Strategic Action Programme (SAP). The vision statement of CLME+ SAP noted a fundamental need for ‘robust, integrative and inclusive governance arrangements at regional, sub-regional, national and local levels’ for adaptive management of the desired ecosystem goods and services for sustaining social, economic and ecosystem well-being. The absolute relevance of the CLME SAP remains today, as both national and regional fisheries governance arrangements continue to grapple with ongoing weaknesses for achieving an ecosystem approach to fisheries (EAF) management.

In addition, CARICOM countries adopted the Caribbean Community Common Fisheries Policy (CCCFP)¹⁴ in 2014, which is a policy on cooperation for conservation, management, and sustainable use of fisheries resources and the associated ecosystems. It provides a useful framework for cooperation among the countries on addressing common challenges.

Consistent with the CLME and hence EAF management approach and to address the challenges identified by the 2022 WECAFC study, several fisheries authorities at the national, regional and international level have undertaken initiatives and provided guidance to improve management of aFAD fisheries. As noted in an earlier section, FAO’s EU-sponsored MAGDELESA project and CRFM’s JICA Master Plan and CARIFICO projects generated valuable information and knowledge products. These projects allowed facilitated close collaboration of a variety of technical experts and local aFAD fishing communities in the Lesser Antilles; several aspects of governance and management, including, *inter alia*: organisation of aFAD fisher groups for cooperation on aFAD construction and deployment and for advancing co-management arrangements for aFAD fisheries; testing of aFAD designs; fish quality control¹⁰.

The region’s aFAD fisheries target highly migratory tuna and tuna-like species that are included in the mandate of ICCAT. All countries harvesting tuna and tuna-like species within the ICCAT Convention Area, which includes the Atlantic Ocean and adjacent Seas, are expected to cooperate with ICCAT management recommendations. ICCAT and other tuna RFMOs have established working groups to consider the management issues of FAD fisheries, also hold joint meetings to facilitate information exchange and harmonisation of approaches. While there is greater use of drifting FADs across the globe, the relevant ICCAT recommendation (Recommendation 21-01)¹⁵ on the conservation and management of tropical tunas takes into account the use of aFADs as well. Additionally, ICCAT’s 2019 recommendation (Recommendation 19-05)¹⁵ on a rebuilding programme in place for blue marlin, white marlin/roundscale spearfish includes a provision for countries and the ICCAT Secretariat to cooperate with WECAFC on fishery statistics.

aFAD management guidance and recommendations by RFBs such as CRFM, OSPESCA and WECAFC, even if not binding, promote regional-level standards of aFAD fisheries management for consideration and incorporation by ICCAT. For example, in 2015, CRFM prepared a sub-regional aFAD fisheries management plan¹⁰ and a model aFAD fishery logbook¹⁶. The CRFM sub-regional aFAD fisheries management plan was subsequently reviewed at the broader regional level by a 2019 meeting of the Joint JICA, IFREMER, CRFM

¹⁴ CRFM. 2020. Caribbean Community Common Fisheries Policy. CRFM Special Publication No. 26. 27p.

¹⁵ ICCAT (2022). Compendium Management recommendation and resolutions adopted by ICCAT for the conservation of Atlantic tunas and tuna-like species. ICCAT

¹⁶ CRFM. (2015). FAD Fishery Model Logbook. CRFM Special Publication No. 4. 21p.

and WECAFC Working Group on aFADs to facilitate its adaptation for wider regional application. Collaborative activities of the CRFM Pelagic Fisheries Working Group and the Joint JICA, IFREMER, CRFM and WECAFC Working Group on aFADs resulted in the development of a series of manuals of best practices in fisheries that use aFADs, addressing: FAD design, construction and deployment¹⁷, maintaining quality of aFAD-caught fish¹⁸, fishing and business strategies¹⁹, and safety and working conditions on fishing vessels²⁰. In 2014, WECAFC adopted a recommendation on measures to be taken by countries for improving aFAD fisheries sustainability. Taking into account efforts and progress made over the years, as well as ongoing challenges, WECAFC amended its 2014 recommendation in 2019²¹ and adopted a further amendment in 2021²². The key elements of the 2021 WECAFC recommendation include the following measures that address the following specific aspects of aFAD fisheries management and industry operations.

- 1) aFAD fisheries management measures:
 - (i) Further development towards finalisation of the regional aFAD management plan and associated guidance to inform preparation of national aFAD management plans and legislation.
 - (ii) Strengthening of stakeholder participation in management plan preparation and implementation.
 - (iii) Adoption of legislation supporting elements of the FAO Code of Conduct for Responsible fisheries and the precautionary approach in the absence of sufficient technical and scientific data.
 - (iv) Harmonisation of aFAD fishing technologies and protocols and hence promotion of compatibility of regulations, which are informed by the best available science that incorporates local and traditional knowledge, and which are in alignment with international best practices.
 - (v) Submit reports to the respective RFBs about progress in implementing the agreed WECAFC recommendations.

- 2) Data collection and information sharing
 - (i) Collection and analysis of biological, ecological, social and economic data and of relevant research to inform management decisions.
 - (ii) Collaboration of WECAFC's Fisheries Data and Statistics Working Group and the Joint JICA, IFREMER, CRFM and WECAFC Working Group on aFADs for development of a standardised data and information management framework to

¹⁷ Gervain, P., Reynal, L., Defoe, J., Ishida, M. and Mohammed, E. (2015). Manual of Best Practices in Fisheries that use Moored Fish Aggregating Devices: FAD Design, Construction and Deployment. CRFM Special Publication No. 6. Vol. I. 55 pp.

¹⁸ Eugène, S., Andrews, C., Dromer, C., Ishida, M. and Mohammed, E. (2015). Manual of Best Practices in Fisheries that use Moored Fish Aggregating Devices: Maintaining Good Quality of FAD-Caught Fish: From the point of capture to the point of sale. CRFM Special Publication No. 6, Vol. II. 21pp.

¹⁹ Reynal, L., Mathieu, H., Dromer, C., Pau, C., Guyader, O. and Mohammed, E. (2015). Fishing and Business Strategies for a Sustainable Anchored FAD Fishery. CRFM Special Publication No. 6. Vol. III. 17p.

²⁰ Le Roy, Y., Reynal, L. (2015). Manual of Best Practices in Fisheries that use Moored Fish Aggregating Devices: Safety and working conditions onboard fishing vessels using FAD. CRFM Special Publication No. 6. Vol. IV. 18 pp.

²¹ WECAFC (2019). Recommendation WECAFC/17/2019/21 amendment to Recommendation WECAFC/15/2014/2 "On the Sustainability of Fisheries Using Moored Fish Aggregating Devices in the WECAFC Area"

²² Recommendation WECAFC/XVIII/2022/1 Amendment to Recommendation WECAFC/17/2019/21 "on the sustainability of fisheries using Moored Fish Aggregating Devices (aFADs) in the WECAFC area."

- inform aFAD research and management objectives, and which incorporates applicable ICT developments to boost efficiency in data collection and validation.
- (iii) Collaboration among the relevant RFBs (WECAFC, CRFM, OSPESCA) for a regional assessment of aFAD fisheries impacts and mitigation measures, and its incorporation into the decision-making process.
 - (iv) Stakeholder and public communication and outreach focused on sharing information and knowledge on aFAD fisheries research and best practices.
- 3) Research on aFADs
- (i) Identification of aFAD fisheries research priorities by WECAFC's SAG to address the key scientific challenges and to provide the relevant scientific foundation for informing sustainable aFAD fisheries management.
 - (ii) Participation by WECAFC member countries in research programmes addressing: fisheries independent surveys of species caught by aFAD fisheries; fishing methods and technologies for reducing impacts on vulnerable and overexploited fish groups; ETP- friendly and environment-friendly aFAD designs; relationships between offshore aFAD fishing and fishing on nearshore/coastal resources.

A wealth of information and knowledge products, as well as formally adopted WECAFC and ICCAT recommendations, are available to guide both aFAD fisheries managers and industry operations. A fundamental remaining gap lies in the governance approach, which was identified by the 2022 WECAFC study,^{4,5} and which comprises the focus of the present manual. Following an introduction of the concept of good governance, the manual highlights key areas of weakness that are typical for fisheries governance in general and proposes steps to address these. Best practice examples are provided where these may be applicable to the region's situations.

2. GOVERNANCE & CHARACTERISTICS OF GOOD GOVERNANCE

There are many definitions of governance. A simple definition that captures the full essence of the concept of governance was provided by UNESCO and states that governance is “the process of decision-making and the process by which decisions are implemented (or not implemented)”²³. This definition is useful for the purpose of this manual, as it focuses attention on the actors concerned and the processes/arrangements to facilitate these actors to reach decisions and to carry out agreed decisions. The actors and processes/arrangements in place can be formal or informal, and do not automatically result in good governance. UNESCO¹⁸ noted that a good governance system should have the following 8 characteristics (Figure 3).

1. Participation – accurate representation of all stakeholder groups, for which groups must be organised and informed.
2. Follow the rule of law – a fair legal system that is impartial in its treatment of issues.
3. Transparency in decision-making – access by stakeholders to information on the process that has been followed for arriving at decisions, and on the process for implementing decisions.
4. Responsiveness – decisions and their implementation are delivered in a timely fashion.
5. Equity and inclusiveness –all actors, especially vulnerable groups, are given fair opportunities to address their human and social development needs.
6. Consensus-oriented – a balance of the range of interests and taking into account the long-term impacts of all concerned.
7. Effectiveness and efficiency –objectives are met, with optimal use of the available resources.
8. Accountability – the actors and processes/ arrangements are held to account for their decisions and actions.

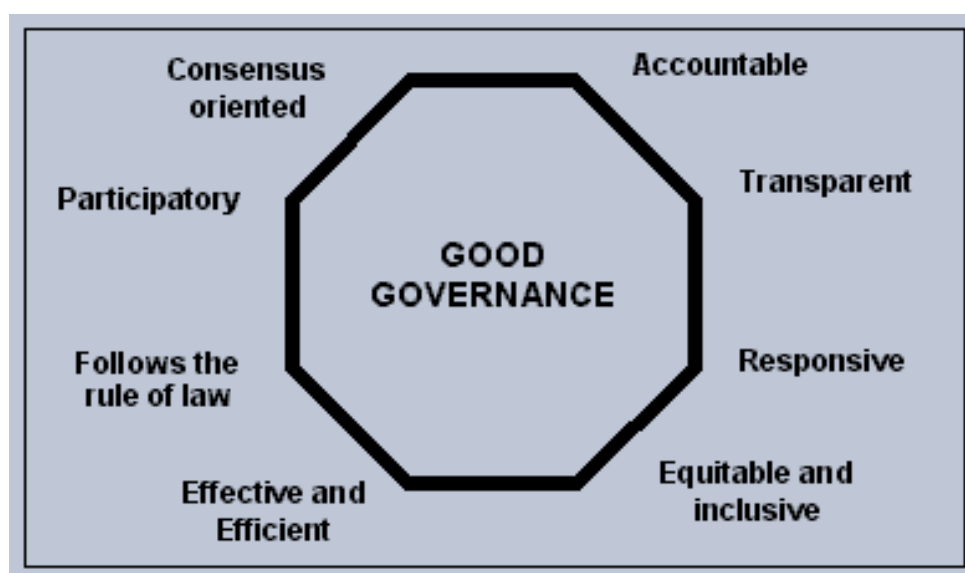


Figure 3. Characteristics of good governance {Source: UNESCO, (2014)}

²³ UNESCO (2014). What is good governance? URL: www.unescap.org/pdd

3. AFAD FISHERIES GOVERNANCE FOR INFLUENCING POLICY & MANAGEMENT

Certain general fisheries management reviews^{24,25} have highlighted that while there may be pockets of good effort by countries, these do not always work in concert for a result that is holistic and sustainable. The principal reason lies in governance gaps.

One of the reviews examined over 1,000 fisheries operating in 30 countries across the globe²⁵ and identified the need for fisheries governance to deliver four key element outcomes capable of influencing policy and management, namely:

1. Strong evidence base and transparency in its management and usage;
2. Transparent and equitable stakeholder dialogue for balanced, acceptable decisions;
3. A government commitment mechanism for data-driven policy review and adaptation on regular basis;
4. A ‘whole-of-government’ approach for greater policy coherence and support for policies being advocated within and for the fisheries sector.

Each of these 4 governance element outcomes are common-sense element outcomes, and many governments would argue that the relevant mechanisms are in place. This is the good news. What may be less apparent is the challenge of poor habits for effective implementation of the mechanisms, particularly the approaches in implementing the processes and arrangements for arriving at the four key fisheries governance element outcomes. For preparation of this manual, a sample of key informants from NFAs and regional institutions reaffirmed recommendations on the way forward. A text analysis of their recommendations reflected clearly the need to strengthen the entire governance framework, i.e., the processes/ arrangements for facilitating the various actors and their respective roles for delivering agreed aFAD fisheries management objectives that range from science and monitoring support to management and MCS (Figure 4). This also reaffirms the conclusions of the 2022 WECAFC survey-review.



Figure 4. Word Cloud, based on text analysis of governance recommendations by a sample of key informants from NFAs and regional institutions.

²⁴ Singh-Renton, S. and McIvor, I. (2015). Review of current fisheries management performance and conservation measures in the WECAFC area. FAO Fisheries and Aquaculture Technical Paper 587. FAO.

²⁵ OECD, (2020). Review of Fisheries 2020. OECD: TAD/FI(2020)7/FINAL, 131 pp. <https://doi.org/10.1787/7946bc8a-en>

In moving forward, the aFAD fisheries governance processes/ arrangements involved should:

- adhere to the principles of good governance (i.e., possess the 8 characteristics discussed section 2);
- include distinct phases, e.g., planning, implementation, analysis and reporting, performance review and evaluation, and amendments adaptation;
- be conducted within a practical timeframe, e.g., usually 1 year;
- be repeated regularly according to agreed and practical timeframe, thereby implementing a management cycle to manage the decision-making process and adaptations of decisions over time to respond to new issues and situations.

Each of the four governance element outcomes is therefore expected to be associated and supported by at least one process management cycle, which we assign names hereinafter for easy reference, i.e.,

1. Strong evidence base – Science Management Cycle;
2. Transparent and equitable stakeholder dialogue - Industry Management Cycle and aFAD Industry Management Cycle);
3. Government commitment mechanism (data-driven adaptive policy) - Government Management Cycle;
4. A ‘whole-of-government’ approach (policy coherence and support) - Government Management Cycle.

Undoubtedly, the aFAD fisheries governance challenges have arisen because they are linked directly with the ongoing challenges of general fisheries governance^{19,20}. The opportunity of the distinct interest and investment attention by industry and governments in aFAD fisheries at this time should be used to recapture attention and investment also for the supporting fisheries governance practices that must underpin the desired successes. aFAD fisheries challenges therefore provide a timely opportunity to inject new effort into addressing fisheries governance challenges.

The rest of this section provides guidance on achieving each of the four fisheries governance element outcomes and incorporation of the current challenges identified for aFAD fisheries, using the following steps:

- Identifying the minimum results for each governance element outcome;
- Organising the actors and their processes/ arrangements – each process management cycle;
- Providing best practice examples, especially where relevant for addressing aFAD fisheries issues/ challenges.

3.1 GOVERNANCE ELEMENT OUTCOME 1: STRONG EVIDENCE BASE AND USAGE - THE SCIENCE MANAGEMENT CYCLE!

3.1.1 Minimum results for measuring achievement of governance element outcome 1

- I. Available accurate and well-maintained evidence base to indicate how well the fisheries are performing in terms of agreed policy, plans and management objectives.
- II. Regular and comprehensive usage of the evidence base by all stakeholders (and their process/ management cycles) to make informed and timely decisions about all aspects of sector policy and management, and especially for informing policy review and changes.
- III. Transparency of usage of evidence base for full accountability and justification of policy and management decisions.

3.1.2 Lead role and responsibility – National Fisheries Authority (NFA)

The NFA has a principal coordinating role for national-level day-to-day management of the fisheries sector.

This coordinating role includes responsibility for keeping the science and technical evidence base strong and current. To facilitate this, the NFA should carry out the following on a routine basis.

- Coordinate regular and consensus-building dialogue with the various fisheries stakeholders, including sub-sector stakeholders, such as those engaged in the aFAD fishing industry about all aspects of the industry management process, ranging from suitable policy directions and industry management objectives to the rules and arrangements for stakeholder cooperation on all aspects of the work of the NFA.
- Collect suitable data for analysing performance against the full range of fisheries policy and management objectives.
- Conduct analyses of the various types of data, including trade-off analyses to support balanced decisions in fulfilling multiple objectives simultaneously.
- Prepare and publish reports to document the data and information collected from stakeholders and the industry, the analyses undertaken, and the policy and management recommendations that should be considered.
- Present these reports to the fisheries stakeholders and to government and document their responses (recommendations and decisions).
- Plan and implement a fisheries public relations programme to raise public awareness of fisheries sector contributions to overall national social and economic development, and linkages between the fisheries sector and other sectors with the intention of advocating for the ecosystem approach to fisheries management.
- repeat the process outlined above in the form of an established and regular management cycle.

Given the importance of the evidence base and its usage in supporting a respectful and mutually beneficial relationship between industry and government, the NFA should establish a formal *Science Management Cycle (SCI/MC)*, which should organise its work and outputs by sub-sector.

Considering the special needs of the aFAD fisheries sub-sector, the NFA's SCI/MC should be governed by the following rules and arrangements.

- 1) Establish an aFAD Science Management Group (aFAD-SCI/MG) to plan and lead the aFAD component of the SCI/MC that is completed within a reasonable timeframe, say 1 year. The aFAD-SCI/MC should consist of at least the following essential steps.
 - a) Formulate work plan for timeframe of SCI/MC, based on aFAD fisheries management plan, associated policy directives and priorities for performance accountability.
 - b) Provide guidance on and oversee data and information management, including the special challenge of implementing a paper or electronic logbook system to facilitate more accurate and real time monitoring of aFAD fishing operations. Like other types of fisheries, aFAD fisheries are expected to deliver on certain policy and management objectives/ outcomes, e.g., promotion of national food security and livelihood security, improving profits, fuel efficiency, increase fisheries production, reduce fishing pressure on nearshore resources, etc.
 - c) Carry out research and data analysis. As needed access additional, required technical expertise via co-operation with the relevant RFB/ RFMO working groups of WECAFC, CRFM, OSPESCA and ICCAT addressing aFAD issues. For the special case of aFAD fisheries, the aFAD-SCI/MG should access expertise to build and use the evidence base as indicated below.
 - i) In addition to monitoring fishing harvest operations, the evidence base should include data and research on aFAD fishery characteristics, aFAD construction investments, aFAD loss and replacement, deployment, aFAD fisheries-related accidents and near accidents, fishing costs and profits, impacts on non-target species, efficacy of any management and mitigating measures adopted.
 - ii) Conduct trade-off analyses for multiple fisheries objectives (social, economic, biological, ecosystem) to generate policy and management advice that makes use of the best available evidence for balanced and coherent decisions.
 - iii) For the special case of the aFAD fisheries where aFAD numbers, densities, and access need to be regulated, value addition and market research are recommended. By this means, investigating and developing investment profiles for all available value addition and market options will diversify and optimise livelihood and business opportunities for this sub-sector.
 - d) Prepare fisheries management advisory reports with science-supported fisheries management recommendations for ministry/ government response, as well as recommendations for improving any essential aspects of the science process.
 - e) Participate in ministry and ‘whole-of-government’ government management cycles via the available channels to make the case for fisheries management actions and desirable policy changes for responsive adaptation and overall national policy coherence.
 - f) Provide feedback on government’s management decisions directly to stakeholder groups, such as the aFAD sub-sector.
 - g) Keep the science management cycle under review, which should include periodic review of the process arrangements for good governance.
- 2) Include a mechanism for regular and transparent dialogue and collaboration with the IND-STAG and the aFAD-IND STAG. This mechanism should include dialogue and collaboration on: issues of interest to the industry; evidence requirements; proposed use of evidence to be presented to government management cycle; feedback and documentation on the actual use of the evidence by government to establish and amend policy and management decisions and actions; full development of co-management arrangements as much as possible.
- 3) Prepare a range of information and knowledge products for different audiences with the aim of presenting strong arguments to support the special needs and interests of the fisheries

sector, as well as the special interests of the aFAD fisheries sub-sector, and which reflect a balance among the multiple fisheries management objectives.

- 4) Make full use of responsible ministry's rules and arrangements to present evidence in manner that is suitable to inform plans and decisions about policy and management of the fisheries sector and sub-sectors. Where such rules facilitate the use of focus groups, study circles, advisory boards, task forces, and consensus workshops, these should be considered. These may include specific communication and reporting channels and timelines for delivery.

3.1.3 Best Practice Examples

Example 1 - Applications of low-cost and digital solutions for monitoring fishing activities

Usually, NFAs have one or more fisheries scientists and fishing technology experts on their staff. However, financial resources are often lacking to support more than basic routine monitoring, and hence the evidence base suffers. Projects are relied upon to support research efforts, but without consistency and follow-up by a formal SCI/MC, the research outputs may not be effectively incorporated into management advice and decisions. However, as digital technologies become increasingly affordable, these should be adopted to help ease the resource constraints that often stifle SCI/MC progress in building a strong evidence base for the aFAD fisheries.

- (i) *The use of SPOT Trace device in Indonesia's artisanal MFAD fisheries*²⁶ – Indonesia has a large artisanal fishery that uses mostly privately deployed AFADs to target tuna species. Estimates of the number of aFADs in this fishery range from 5,000 to 10,000. A regulation was introduced in 2014 to limit the aFAD numbers and to limit the distance between adjacent aFADs. However, awareness by fishers and hence compliance with the regulation remains limited. Very importantly, research and monitoring aFAD fishing activities and performance have been limited because of the vast area of sea involved, as well as the unknown number and location of aFADs. A recent trial in Indonesia has shown that low-cost tracking devices with GPS technology, such as SPOT Trace device, can permit affordable monitoring for both science and management purposes. The technology facilitated tracking of vessel movement patterns. Together with some ground-truthing work via interviews and understanding of fishing habits and the cultural contexts, the vessel tracking data was analysed to yield information about: aFAD numbers and locations, usage, number of fishing vessels visiting the same aFAD, the number of aFADs visited by a single vessel, trip length, catches, and hence quality of fishing trip.
- (ii) *The use of VMS technology by Montserrat for real time vessel tracking* – Montserrat, with support from the UK government and a NGO at different times, has been able to test the use of two types of VMS to track its fishing vessels²⁷. Succorfish, a UK-managed GPS tracking system, was tested on two volunteer vessels in 2014, and showed the potential for use not only for vessel tracking, but also for monitoring trends in fishing effort, and hence improving the cost-efficiency of MCS. In 2016, 25 vessels were voluntarily fitted with a solar-powered VMS for additional trials; this trial

²⁶ Widyatmoko, A. C., Hardest, B. D., Wilcox, C. (2021) Detecting anchored fish aggregating devices (MFADs) and estimating use patterns from vessel tracking data in small-scale fisheries. Scientific Reports. Vol. 11, article number: 17909.

²⁷ FAO. 2023. Report of the Fourth Virtual Meeting of the joint CRFM/WECAFC/JICA/IFREMER Working Group on Fisheries using Moored fish aggregating devices (aFAD), 14–16 February 2022. FAO Fisheries and Aquaculture Report No. 1405. Bridgetown.

highlighted weaknesses in the traditional methods of fisheries data collection and yielded valuable evidence about the relative importance of fishing areas. While individual devices are priced at USD 300-500²⁷, countries could consider options for introducing the technology to aFAD fishers gradually.

- (iii) *The use of a digital platform by Dominica for monitoring*²⁷ – Dominica developed a customised mobile application for use by its fishers, which has improved the efficiency of capturing fisheries catch, effort and economic data. The use of the mobile application is voluntary at present, and hence dependent on fishers’ responsiveness and honesty. However, further development of the system is expected to address these potential biases.
- (iv) *The use of a Fisheries Early Warning and Emergency Response (FEWER) ICT Solution*^{28,29} - FEWER was developed by the CRFM in collaboration with UWI to facilitate communication among fishers, and between fishers and agencies concerned with early warning and emergency services. Many fishers in the Eastern Caribbean have received training in the use of FEWER, and so are familiar with the use of ICT tools. CRFM and UWI partners acknowledged the capacity of FEWER to be expanded to include a tool for fishers to communicate their fishing operations data. This possibility, if pursued, offers potential for another low-cost solution available to the SCI/MC, but could suffer some of the same biases like the mobile application being used by Dominica.
- (v) *The use of digital tools for fisheries-independent monitoring* – In view of global concerns about the impacts of FADs (drifting and moored) on ocean and ecosystem health, tuna RFMO scientists are cooperating to improve the application of electronic tagging (acoustic telemetry) to study individual fish social and diel behaviour and hence address questions concerning their catchability in association with FADs, environmental preferences etc.^{27, 30,31} Additionally, satellite-linked echo sounder buoys attached to FADs are being used to facilitate the remote collection of fisheries-independent information on: trends in the biomass of fish associated with FADs; rate of FAD colonisation; FAD capacity to serve as an ‘ecological trap’, etc.^{30, 31}. Buoys fitted with echo sounders and/or cameras, together with application of artificial intelligence is another developing area of FAD science²⁷. The technologies are still evolving and also expensive. Consequently, the application of these technologies to aFAD fisheries in WECAFC countries in the near future should be explored via formal inter-institutional cooperation arrangements. The formal ICCAT-WECAFC cooperation arrangement provides a suitable platform to facilitate the necessary scientific networking in the interest of cost-efficiency.

Example 2 – Tools for multiple objective analysis and advancing EAF management, with optimised incorporation of local and traditional ecological knowledge and applicable also in instances of limited data

²⁸ FEWER was an initiative of the fisheries component of the Regional Track of the Pilot Programme for Climate Resilience (PPCR). CRFM was the lead agency for coordinating the PPCR’s fisheries component.

²⁹ CRFM. 2018. Final Technical Report: Fisheries Early Warning and Emergency Response (FEWER). CRFM Technical & Advisory Document, No. 2018/04. 44 pp.

³⁰ ICCAT (2017). Chair report of the 1st Joint Tuna RFMO FAD Working Group Meeting. (19-21 April 2017, Madrid, Spain).

³¹ ICCAT (2019). Joint T-RFMO FAD Working Group. Second Meeting. ICCAT: Madrid. 38pp.

Fishers and fishing communities hold a wealth of local and traditional ecological knowledge that could be acquired with minimal cost. Their common sense understanding of issues often allows them to reach logical and practical management solutions, and this is very valuable especially in situations of limited scientific data. In this regard, it is useful to recall CRFM efforts to develop an evidence base that incorporates information on the various and multiple objectives of fisheries management for generating EAF management advice, through application of multi-criteria analysis (MCA) and Ecological Risk Assessment for the Effects of Fishing (ERAEF) for the Eastern Caribbean flyingfish and large pelagic fisheries respectively. In the case of tuna and tuna-like species that are highly migratory, these examples show the value of RFAB/ RFMO support to address shared science and management concerns with efficiency.

1) The MCA tool was applied together with an Analytic Hierarchy Process (AHP) tool for the Eastern Caribbean flyingfish fishery³². This approach allows stakeholders to consider simultaneously the full range of fisheries management objectives (social, economic, biological, economic), and to prioritise them relative to each other. also allows identification and scoring of suitable indicators (based on quality of data) for measuring the various objectives, that in turn helps to inform and prioritise research and data collection efforts. This is especially important, as it engages stakeholders to suggest the best logical balance of objectives and to appreciate the data and information needs. Of course, the process assumes that stakeholders have a good understanding of the challenges at stake – stakeholder dialogue is addressed elsewhere in this manual volume. MCA is increasingly being used in sustainable resource management, as it provides a framework for addressing a range of conflicting and multiple objectives in situations of risk and uncertainty, and for considering multiple decision options to inform management practices.

2) ERAEF was explored for developing an EAF approach for management of the Eastern Caribbean large pelagic fishery³³. ERAEF has also been applied by ICCAT, especially for the data limited situations of several Atlantic shark species³⁴, and the results have helped to inform management recommendations on sharks in instances of limited data availability, as well as on other bycatch species of ICCAT-managed fisheries, e.g., ICCAT Recommendations 15-06 and 21-09 (see footnote 15). ERAEF provides a hierarchical, precautionary framework to assess the vulnerability status of not only the target species of a fishery, but also the relative risks to non-target species because of fishing pressure. It makes use of biological, ecological and environmental data and information, and facilitates both qualitative and quantitative analyses depending on the quality of data.

Example 3 – Provision of platforms for learning and sharing experiences among NFAs, aFAD fishers, and RFABs

FAO's EU-sponsored MAGDELESA Project (see Footnote 10) facilitated a major research project to support the sustainable development and management of aFAD fisheries, in view of the recognition of the potential social and economic benefits, and rapid expansion of activities being observed at the time. Research efforts included attention to aFAD design and

³² Ferrier, E., Singh-Renton, S. and Campbell, B. (2014). Integrating multiple objectives in fisheries management: A case study application for Eastern Caribbean flyingfish. In P. McConney, R. Medeiros, & M. Pena (Eds.), *Enhancing Stewardship in Small-Scale Fisheries: Practices and Perspectives* (pp. 65-72). The University of the West Indies, Cave Hill Campus, Barbados. CERMES Technical Report No. 73.

³³ Proudfoot, M. and Singh-Renton, S. (2012). Exploring the use of an ecological risk assessment tool for management of the large pelagic fishery in the Eastern Caribbean. In CRFM Research Paper Collection (Volume 6, pp. 75-105). CRFM.

³⁴ ICCAT 2012. Report of the Standing Committee on Research and Statistics (SCRS). ICCAT: Madrid. 301 pp.

performance in terms of species aggregations and fishing strategies around aFADs. RFAB meetings were used to facilitate information exchange among countries.

CRFM's JICA-sponsored CARIFICO project facilitated introduction of some best practices regarding strengthening aFAD fisheries co-management arrangements^{35, 36}. In the context of the SCI/MC, countries that participated in the CARIFICO project recorded one or more of the following improvements in aFAD fisheries co-management arrangements: organisation of aFAD fishers as a formal group, improved relations between aFAD fishers and NFAs, which in turn has resulted in a greater willingness by aFAD fishers to share information and contribute positively to an improved aFAD fisheries monitoring system.

Several key informants consulted for the preparation of this manual volume highlighted the important role of support and cooperation played by aFAD fisher groups. The cooperation focused heavily on aFAD construction and deployment, but this paves the way for expanding aFAD stakeholder cooperation towards co-management, particularly in fostering support for data collection and active participation in science and management discussions. In addition, joint RFAB workshops and working group activities facilitate sharing of information and knowledge for adaptive learning, including best practices on research and statistics.

In Summary: Strong Evidence Base and Transparency in its Management and Usage

- *The strength of the NFA's SCI/MC determines the evidence base supporting informed national AFAD fisheries policy and management decisions, and in turn, well-coordinated regional/ international decisions (Figures 5 and 6).*
- *The SCI/MC should provide inputs into all other management cycles on a regular basis, at minimum, annually, and drives the success of other management cycles (Figure 5).*
- *Other management cycles would have access to knowledge, skills and resources that would help to boost the SCI-MC and its outputs, and therefore need to provide complementary support.*

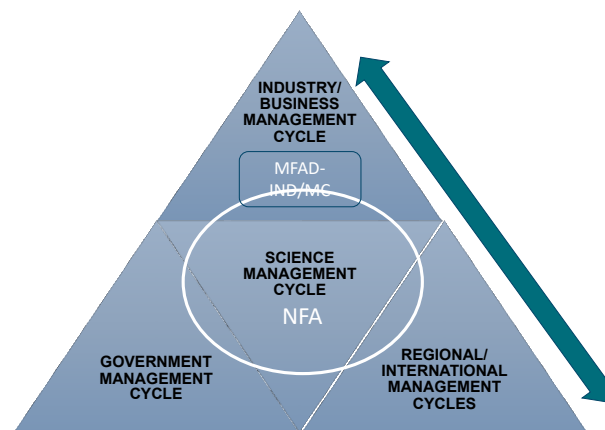


Figure 5. Essential components of fisheries governance framework – aFAD fisheries issues should be included on the agendas of all management cycles, with the science management cycle providing an importance underpinning role in all cases.

³⁵ CRFM, 2017. Report of the CRFM/CARIFICO Seminar: Strengthening Fisheries Co-management in the Region. CRFM Technical & Advisory Document, No. 2017 / 4. 68p.

³⁶ Tamura, M., Ishida, M., Sidman, C., Montes, N., Lorenzen, K. (2018). Facilitating co-managed fisheries in the Caribbean region: Good practices and guidance from the CARIFICO experience. Florida Sea Grant Program & Japan International Cooperation Agency. URL : <https://repository.library.noaa.gov/view/noaa/39896>

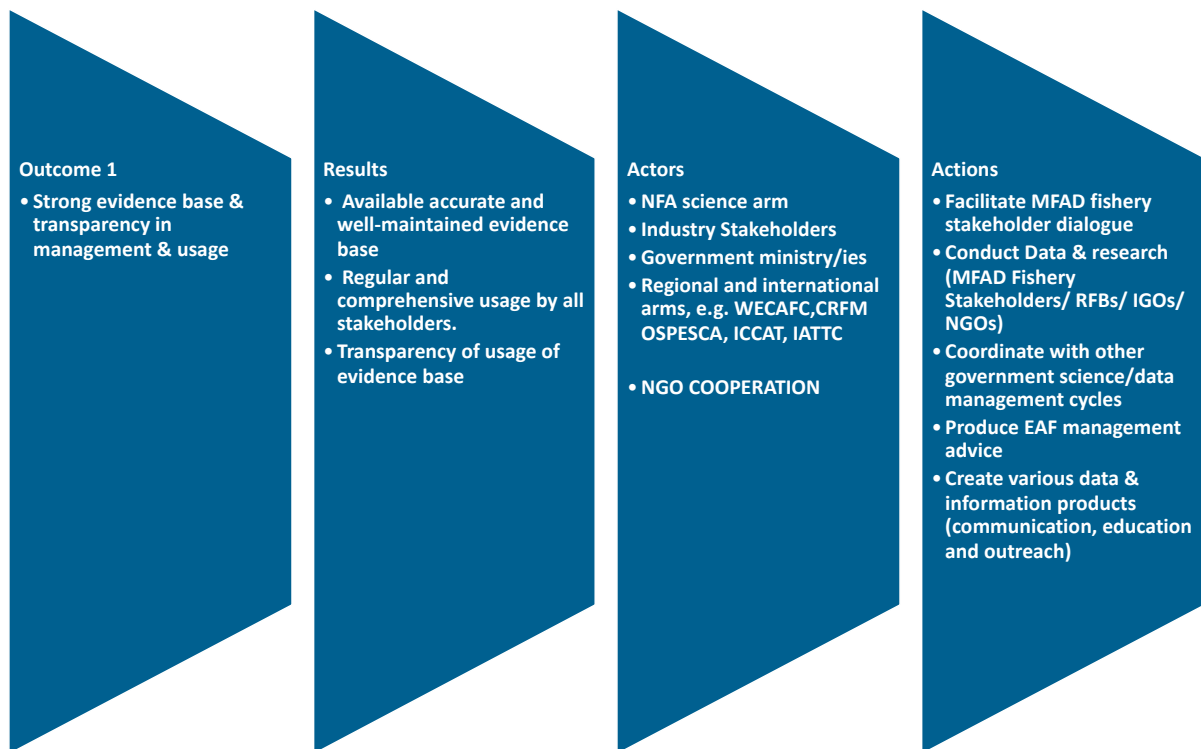


Figure 6. Overview of science management cycle: governance element outcome statement; minimum results for achieving governance element outcome; actors responsible; recommended actions/ processes.

3.2 GOVERNANCE ELEMENT OUTCOME 2: TRANSPARENT AND INCLUSIVE DIALOGUE WITH STAKEHOLDERS – FISHERIES INDUSTRY MANAGEMENT CYCLE & AFAD FISHERIES INDUSTRY MANAGEMENT CYCLE

3.2.1 Minimum results for measuring achievement of governance element outcome 2:

- I. Organised, informed and active Fisheries Industry Stakeholder Advisory Group and sub-sector industry stakeholder advisory groups, e.g., aFAD Industry Stakeholder Advisory Group;
- II. Establishment of conflict resolution process for aFAD Industry Stakeholder Advisory Group;
- III. Established formal and regular mode of cooperation with NFA and government, via the science management and government management cycles;
- IV. Effective and efficient contribution to evidence base and its usage for decision-making; and
- V. Access to information providing full accountability and justification of sector policy and management decisions.

3.2.2 Lead roles and responsibilities – NFA, Fisheries Industry Stakeholder Advisory Group (IND STAG), AFAD Fisheries Industry Stakeholder Group (aFAD-IND STAG)

3.2.2.1 NFA

All stakeholders must ensure their effective representation in each of the management cycles. This section provides specific guidance for the industry stakeholders. The industry's stakeholders would need to be organised and informed for successful cooperation with the NFA and other actors involved in influencing policy and management decisions. Where there is a national fisherfolk organisation or similar body, this can serve the purpose of a Fisheries Industry Stakeholder Advisory Group (IND STAG). Where there is also a Fisheries Advisory Committee (FAC) or Fisheries Advisory Council established for supporting the government management cycle (see section 3.3), the NFA should work closely with the FAC and the IND-STAG to plan and implement stakeholder dialogue activities in alignment with the work of the working timeframes of the SCI/MC and GOV/MC.

3.2.2.2 Fisheries Industry Stakeholder Advisory Group (IND STAG)

Characteristics the IND STAG:

- (i) To ensure a wide cross-section of representation and to avoid conflicts that could arise from under-representation, IND STAG membership should include representation from all fisheries sub-sectors (sub-groups of the IND STAG) along the value chain, fishing cooperatives and other similar bodies, and the NFA.

To be effective in influencing policy and management change and performance, the IND STAG should undertake the following.

- (i) The IND STAG should establish rules and arrangements for the *Industry/Business Management Cycle (IND/MC)*. The time for completion of one management cycle should be aligned with the other allied management cycles. Similar to other management cycles, activities should be conducted in distinct steps: planning; implementation that includes data gathering and analysis to support justification of issue identification, meetings for decision-making, as well as participation in the allied

science and government management cycles; and reporting/ feedback to IND STAG and its membership (sub-sector STAGs).

- (ii) The IND STAG should ensure that its leadership has strong meeting management skills for building consensus and for conflict resolution, and strong negotiation skills for representing IND STAG positions in other management cycles.
- (iii) The IND STAG should make use of virtual meeting platforms to support the broadest level of meetings participation, as and when required.
- (iv) The IND STAG should identify the support that it could offer to the SCI/MC. Besides the IND STAG, other government departments and NGOs often collect data of interest to fisheries management. This collaboration and sharing of data would help to improve the evidence base and optimise use of limited human and financial resources.
- (v) For the specific case of aFAD fisheries, the aFAD Fisheries Industry Stakeholder Advisory Group (aFAD-IND STAG) should meet to discuss and document its science management issues on a regular basis. Areas of agreement can be documented and put forward immediately to: the general IND STAG; via the general IND STAG to the SCI/MC; and via the SCI/MC to the GOV/MC and regional/ international management cycles.

3.2.2.3 AFAD Fisheries Industry Stakeholder Group (AFAD-IND STAG)

Organising AFAD-IND STAG activities

aFAD fishers are encouraged to organise themselves as a sub-group of a community/ fisherfolk group, and/ or a sub-group of a national fisherfolk group or organisation, i.e., a sub-group of the IND-STAG discussed in previous section. In addition, the aFAD-IND STAG should organise its activities like the other management cycles, to establish an aFAD-IND/MC.

To the extent possible, aFAD-IND/MC activities should be carried out in the following distinct steps:

- (i) planning;
- (ii) implementation that includes data gathering and processing to support justification of issue identification and recommendations;
- (iii) meetings for decision-making;
- (iv) participation in the allied science and government management cycles (see sections 3.1 and 3.3); and
- (v) reporting/ feedback.

The aFAD-IND STAG should choose its leader carefully, ideally through a formal and transparent election process where this is socially acceptable. The leader should be:

- (i) politically neutral,
- (ii) able to attend meetings regularly,
- (iii) to explain the issues clearly,
- (iv) to promote broad and representative membership and participation,
- (v) to understand and represent all stakeholder concerns (equity and inclusiveness),
- (vi) be a good negotiator who can build consensus and manage conflict resolution, and who stays faithful to the agreed aFAD-IND STAG's positions on issues,
- (vii) to take time to keep pace with not just the social and economic issues surrounding fisheries management in general, but with the environmental and conservation issues, including the regional and international standards and expectations of sustainable aFAD fisheries management.

Skills requirements

The aFAD-IND STAG should ideally be supported by experts (from the community if possible) with skills and expertise in the following areas, e.g.:

- (i) administration and management of the group (managing membership, funds, meeting management, communication and reporting;
- (ii) Social and economic issues - to address effective inclusion of aFAD fishers' needs in national social protection and economic planning and development;
- (iii) statistics and scientific research – to address issues pertaining to climate change, conservation, aFAD research; data contribution by the fishing community;
- (iv) co-management/ managing for results – to
 - manage documentation for and about meetings and other activities, e.g., aFAD-IND STAG's inputs (reports) into local/ national general fisheries management process, feedback to aFAD-IND STAG about results gained so far regarding aFAD fisheries management objectives, development of recommendations for actions, management decisions and actions.
 - identify the steps in the overall fisheries governance process, and hence ensure organised and informed representation while complying with the acceptable communication and reporting protocols. There is usually a multi-step process, which must be borne in mind, e.g., for the French Department of Martinique, the aFAD fisher group would need to organise representation of their issues at the national, regional and EU levels (Figure 7).
- (v) knowledge of local/ community/ national fisherfolk cooperative's functions – to address contributions that fisherfolk cooperatives could be asked to make, such as – management of aFAD user fees, management of aFAD material supplies, collective ordering of supplies, etc.

The aFAD-IND STAG should make use of family and community relations where possible. Women and youth often have important complementary skills e.g., effective organisers, documenters, business managers, ICT skills, data analysis skills, information management, etc. By this means, there can be an efficient use of all available human resources by the aFAD-IND STAG.

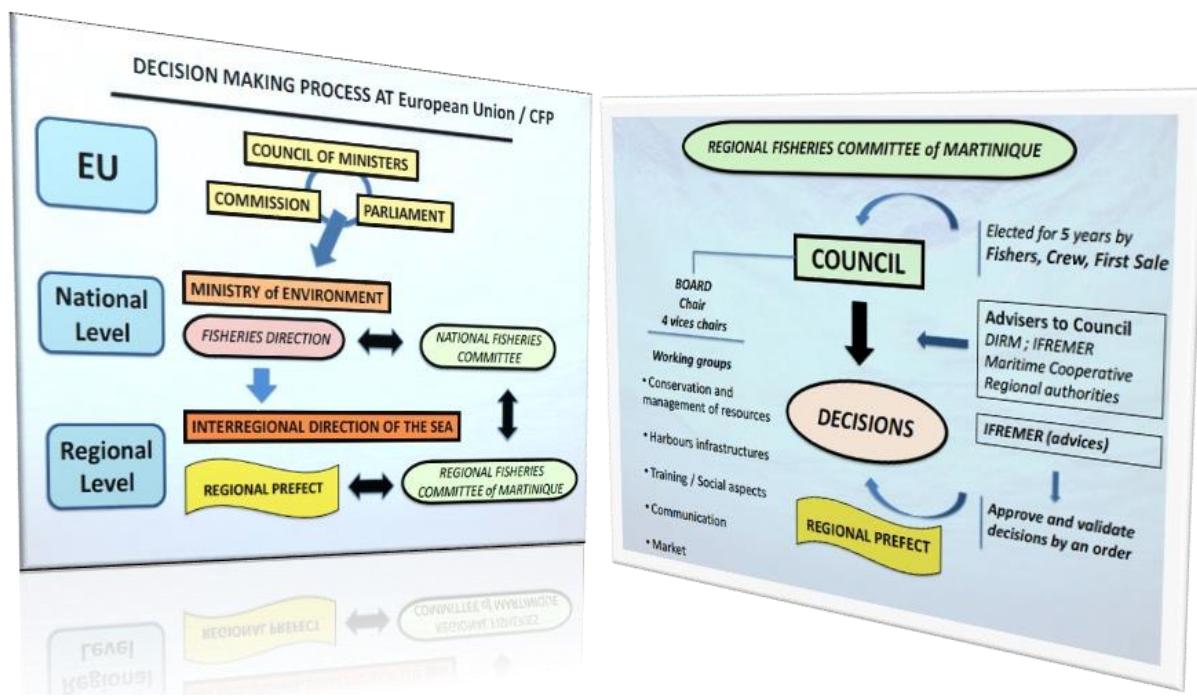


Figure 7. Levels of fisheries sector management /decision-making for Martinique. {Source: CRFM (2013) – Martinique report presentation}.

3.2.3 Best practice examples

Example 1 – Improved organisation and understanding by aFAD fishing communities for cooperation and co-management

- (i) *MAGDELESA and CARIFICO project experiences* – These projects facilitated close collaboration between the project’s technical experts, NFA staff and the fishing communities concerned with aFAD fisheries development and performance. Project managers and technical experts worked with NFA staff and fishers on aFAD design, construction, deployment and fishing trials. In the case of the CARIFICO project, the process encouraged aFAD fishers to work together as a group on project activities. Additionally, the CARIFICO project facilitated aFAD fisher exchanges among the participating countries. By this means, aFAD fishers improved their understanding of a range of aFAD fisheries issues, and of the benefits also of fisheries co-management.

As a result of this approach, CARIFICO-participating countries reported various successes³⁷ regarding aFAD fisher cooperation with NFA activities. These often included several of the following developments: greater fisher willingness to share information and contribute to data collection activities; good participation by aFAD fishers in meetings; creation of aFAD fisher groups; fisher support for draft regulations for aFAD fisheries; agreement on aFAD design, deployment, and fishing rules (Photo 1). In addition, in some cases, countries noted that the aFAD fishers voluntarily adapted their fishing strategies for improved fishing performance, and their post-harvest handling of fish for improved sales.

To sustain efforts for further development of successful co-management of these fisheries, countries pointed to the need for: development of mutual respect for the NFA and aFAD fisher group roles; information sharing for optimised shared responsibility for fisheries management; continued support to the aFAD fisher groups in building their co-management capabilities; making the best use of local knowledge in building the evidence base for decisions; improving information dissemination to aFAD fishers and fisheries management accountability.



Photo 1: Fisherfolk group in Grenada working together on aFAD design and construction. {Source: CRFM, (2013) – Grenada Report}.

³⁷ CRFM, 2017. Report of the CRFM / CARIFICO Seminar: Strengthening Fisheries Co-management in the Region. CRFM Technical & Advisory Document, No. 2017 / 4. 68p.

- (ii) *CRFM/ NFA/ University of Florida Sea Grant Funded aFAD project experiences*⁶ – This project investigated the governance arrangements for private and public aFADs to determine suitable options for sustainability of operations, and co-management arrangements for optimising: roles of the various actors and catches and profits. The project provided an opportunity for developing a close, daily working relationship of fisheries managers, scientists and the fishers. In terms of fisher collaboration, the fishers responded positively to data-driven recommendations, consensus-oriented discussions and decisions, and a non-regulatory form of co-management. The project scientists also used simple ways to illustrate their science, using colours, commonly understood symbols and icons as shown in the example graph of Figure 8. Scientists also reached out to fishers and held discussions at locations convenient and comfortable for fishers (Photo 2).

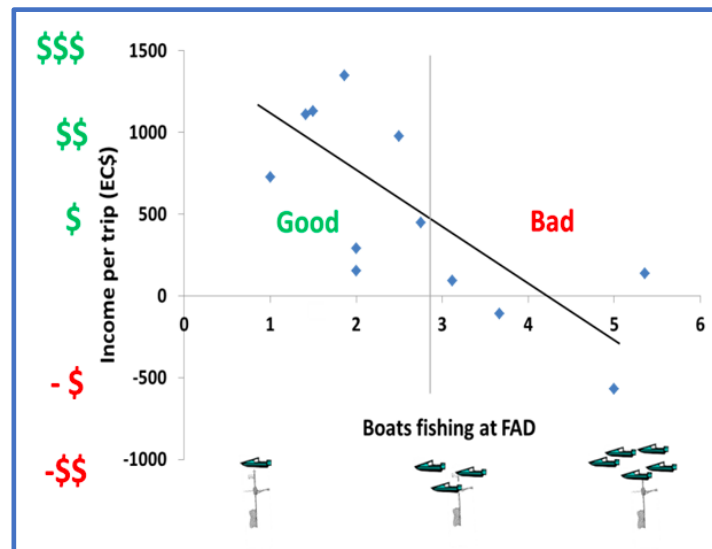


Figure 8. An example of a simple and effective graphical illustration, prepared to communicate an important message to fishers. {Source: Sidman et al., (2014)}



Photo 2. Talking science at locations convenient and comfortable for fishers. {Source: Sidman et al., (2014)}

Example 2 – Expanding knowledge and expertise of National Fisherfolk Organisations and the Caribbean Network of Fisherfolk Organisations.

The Caribbean Network of Fisherfolk Organisations (CNFO)³⁸, which was created by a CRFM-led initiative in 2004, and which was formally launched in 2009, has grown into a very strong and powerful voice for Caribbean primary fisherfolk. National fisherfolk organisations (NFOs) comprise the membership of the CNFO, and many of them are now active organisations within their respective countries. The strong statuses of both the CNFO and several of its member NFOs have arisen because of a sustained effort to build the capacity of fisherfolk to manage their organisations, as well as to improve their communication and advocacy skills.

Over the years, CNFO and member NFO representatives have received opportunities to improve their knowledge about regional and international fora involved in fisheries management, as well as the prevailing issues. This has allowed the CNFO and member NFOs to play stronger policy and management advisory roles over time. CNFO is a formal observer at CRFM meetings and has presented positions on key regional and international issues, such as the CARICOM Common Fisheries Policy, and formulation of FAO's SSF Guidelines³⁹. The CNFO website serves as an active hub for information access and communication (Photo 3).

aFAD fisher groups or organisations should collaborate with their respective NFOs for additional and experienced support in dealing with the relevant national government management cycles. Likewise, it is of interest for aFAD fisher groups, through their respective NFOs, to raise relevant issues for attention by the CNFO, especially where a regionally coordinated position is desirable for safeguarding the interests of the industry.



Photo 3. Examples of CNFO products available on its website: a recent CNFO newsletter (pictured at left) and quick reference card for the SSF Guidelines (pictured at right). {Source: www.cnfo.fish}

In summary: Transparent and Inclusive Dialogue with Stakeholders

³⁸ <https://cnfo.fish/>

³⁹ FAO (2015). The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. FAO: Rome. <https://www.fao.org/documents/card/en/c/14356EN>

- *Formal, inclusive participation and dialogue arrangements for each of the key actors within each of the management cycles are essential for equity and inclusiveness in decision-making.*
- *Formal and regular relations among the management cycles will facilitate partnership arrangements for efficient and effective use of the full, available knowledge base, skills and resources for both industry and resource management purposes.*
- *Optimised exchanges among the management cycles require coordinated cycle planning and implementation, supported by agreed communication and reporting protocols established for each cycle.*
- *At the level of the industry stakeholder actors, aFAD fisheries stakeholder groups are necessary for organising and informing aFAD-IND STAG fisher representation in the each of the management cycles (Figure 9).*



Figure 9. Overview of industry management cycle: governance element outcome statement; minimum results for achieving governance element outcome; actors responsible; recommended actions/ processes.

3.3 GOVERNANCE ELEMENT OUTCOME 3: GOVERNMENT COMMITMENT MECHANISM FOR DATA-DRIVEN POLICY ADAPTATION – THE MINISTRY GOVERNMENT MANAGEMENT CYCLE (GOV/MC)

3.3.1 Minimum results for measuring achievement of governance element outcome 3

- I. Data-driven and consensus-oriented decision-making process.
- II. Transparency and accountability of the decision-making process.
- III. Effectiveness of decisions, with special attention to equity and inclusiveness.
- IV. Informed and timely policy and management decisions, incorporating precaution and balance in addressing conflicting needs.

3.3.2 Key roles and responsibilities for the NFA and Ministry responsible for fisheries management

3.3.2.1 NFA

The NFA's SCI/MC includes the following roles and responsibilities that provide the link between the SCI/MC and the GOV/MC:

- (i) Preparation of a range of information and knowledge products for different audiences with the aim of presenting strong arguments to support the special needs and interests of the fisheries sector, including sub-sectors such as the aFAD fisheries sub-sector, and which reflect a balance among the multiple fisheries management objectives.
- (ii) Make full use of responsible ministry's rules and arrangements to present evidence in timely manner and in a suitable format to inform plans and decisions about policy and management of the fisheries sector. These may include consideration and compliance with specific communication and reporting channels and timelines for delivery.

3.3.2.2 – Ministry responsible for the fisheries sector

In the interest of achieving good governance, the Ministry responsible for fisheries management should strive for transparency and accountability in the formulation of policy plans and adaptations. If not yet in place, the Ministry should establish or identify a suitable body to serve as a Fisheries Management Forum (FMF) for guiding the process and arrangements, i.e., a ministry-level government management cycle, for fisheries policy and management decisions.

The ministry-level government management cycle should consist of the usual steps of planning, implementation, review and evaluation, etc. The execution of the cycle should involve at least the following essential tasks.

- (i) Receive and process NFA's scientifically informed advice about the fisheries sector and specific sub-sectors, such as the aFAD fisheries sub-sector. Request scientific advice that is holistic and hence considers trade-offs among the multiple objectives.
- (i) Host meetings at regular/ scheduled time intervals and facilitate active participation. FMF membership should include the IND STAG, with a cross-section of its sub-group leaders, including suitable representatives of vulnerable groups within the sector, the NFA, and representatives of ministries managing sectors with overlapping interests and those managing cross-cutting issues of concern, e.g., ocean governance, climate change, social protection.
- (ii) The FMF should make use of modern digital technologies (virtual meeting platforms), as needed and if socially acceptable, to support full participation and transparency of

forum discussions. Otherwise, FMF meetings should be held at locations easily accessible to the stakeholder groups concerned.

- (iii) Facilitate data-driven decision-making on sector (and sub-sector) policy and EAF management and keep this under regular review.
- (iv) Document the usage of the scientific evidence base for arriving at decisions and facilitate information/ document dissemination in various formats to the industry's various stakeholder groups via their respective representatives on the FMF.
- (v) Establish pre-agreed rules for applying the precautionary approach in the absence of sufficient scientific information.
- (vi) Review and evaluation of the FMF process and arrangements to ensure adherence to the 8 characteristics of good governance.

3.3.3 Best practice examples

Example 1 – Belize's National Fisheries Advisory Board⁴⁰, and Fisheries Council⁴¹ as a proxy for the FMF

Though it has never been a legally recognised entity, Belize's Fisheries Advisory Board (FAB) has been active since 1965, bringing together both government and non-government actors to discuss a range of management and development issues. While the membership was always determined by the Minister, in collaboration with a senior advisor and administrators, certain criteria were used to select suitable members with a range of expertise and experience. Over the years, the FAB has been able to advise the Minister on various fisheries management matters and has prepared meeting reports for accountability.

In 2020, the introduction of new legislation created an opportunity to incorporate the concept of the FAB into legislation [Fisheries Resources Act (2020)] and expand the concept to create the Belize Fisheries Council (FC). The membership of the Fisheries Council appears to be much broader than the FAB, including representation from other ministries with activities related to the blue economy (see Table 2).

While the FAB has served Belize well over the years, perhaps because of close interactions with the ministers responsible for fisheries, both the FAB and the FC operate in an advisory capacity only. Notwithstanding, the FC can make scientifically justified recommendations on policy and management directions that are documented in its meeting reports, and this makes a very good proxy for a FMF. Several Eastern Caribbean countries have a legally mandated body, often a Fisheries Advisory Committee that can serve at least as a proxy for a formal FMF.

Table 2. Composition of Belize's FAB and FC compared {Source: CANARI (2021)}

⁴⁰ McConney, P., Mahon, R. and Pomeroy, R. (2003). Belize Case Study: Fisheries Advisory Board in the Context of Integrated Coastal Management.

⁴¹ Caribbean Natural Resources Institute (CANARI). (2021). Institutional analysis for ecosystem stewardship in the fisheries sector of Belize. of enabling Barataria, Trinidad: CANARI.

Purpose	Composition	Legally mandated
To deal with stakeholder concerns and advise government on fisheries management practices, including establishment of fishing priority areas	Chief Executive Officer of Ministry responsible for fisheries (Chair) Chief Executive Officer of CZMAI or his designate Chief Environmental Officer or his designate Senior Economist of the Ministry responsible for economic development or his designate Chief Tourism Officer of the Ministry responsible or his designate Two members selected from among the largest producing registered fishing cooperatives Two members selected from among the registered fishermen organisations One member representing a non-governmental organisation, with an interest in conservation and sustainable use of fisheries resources, the corporate headquarters of which is in Belize A person with expertise in fisheries science Fisheries Administrator	Established under Fisheries Resources Act No. 7 of 2020.

Example 2 – Suriname’s Seabob Working Group, a multi-stakeholder forum, making use of RFABs for coordinating fisheries science and management actions for Marine Stewardship Council (MSC) certification.

Suriname’s Atlantic Seabob trawl fishery has been MSC-certified since 2011. To obtain and maintain this international certificate of a sustainably managed fishery, Suriname’s NFA established a Seabob Working Group to oversee the coordination of all science and management actions required, and a website (www.seabob.sr) to increase transparency of the governance process and information access (Photo 4).

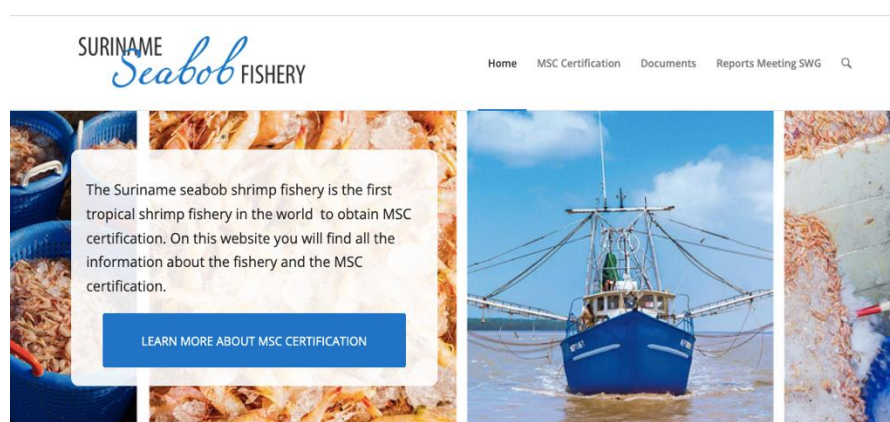


Photo 4. Screenshot of homepage of Suriname’s website established to promote transparency of its Seabob Working Group meeting reports and other activities related to governance and management of its Seabob fishery {Source: www.seabob.sr}.

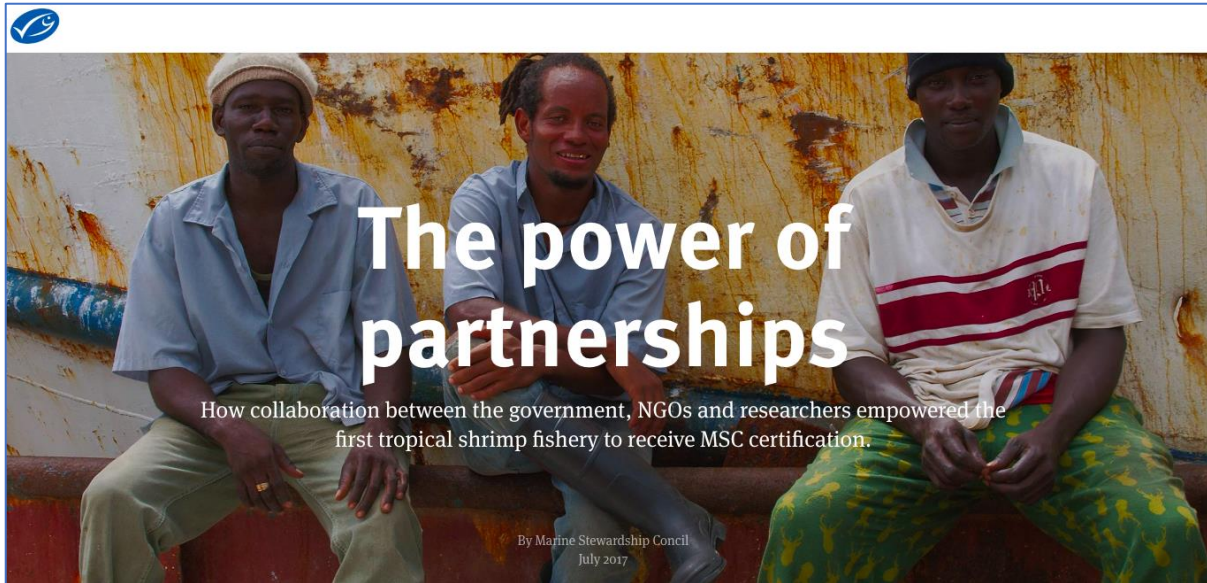


Photo 5. MSC web page that portrays case study of Suriname and “The Power of Partnerships”.

The Working Group has been active over the years, and its membership includes both government and industry actors, as well as NGO partners (Photo 5). In view of the very publicised MSC initiative, the ministry is visibly accountable for its support for the work and recommendations of the Seabob Working Group. This has enabled advancement of policy and management changes to allow Suriname to maintain its MSC certificate through at least 3 5-year certification periods. Also, of interest to note is that the Working Group has also accessed CRFM and WECAFC expertise at various times for science support and peer review of the evidence base, as needed. At minimum, and in the same way that Suriname’s Seabob Working Group has worked as a fisheries management advisory forum specifically for that country’s seabob trawl fishery, a similar arrangement could be established for the aFAD fisheries, pending formal establishment of a legally mandated and ministry led FMF.

The examples of Belize and Suriname reflect arrangements that initially arose because of demand and the strength of stakeholder representation, with legislation following afterwards.

Example 3 – Maldives’ Tuna Advisory Committee and Local Councils’ Shared Management Roles⁴²

The Maldives is an archipelagic state in the northern Indian Ocean, and has a MSC-certified aFAD skipjack tuna fishery. The Maldives’ fisheries legislation mandates the establishment of a Tuna Advisory Committee that has an inter-ministerial membership and industry members also. The Tuna Advisory Committee’s role is to provide guidance to the Minister responsible for decisions on tuna conservation, management, sustainable development, research, and trade. Although its authority is advisory only, the advice carries the weight of support by the Maldives Marine Research Institute, which in turn, works in close collaboration with the NFA’s own technical arm and with the relevant international tuna RFMO (IOTC) on research, stock assessment and development of management advice. Development of regulations might involve several consultations prior to finalisation. Additionally, while legislation and

⁴² Criquet, G., Gascoigne, J., and Halim, A., (2023). Maldives Pole and Line Skipjack Tuna fishery. Public Certification Report. Global Trust Certification Ltd. 209 pp.

regulation decisions are taken at the Ministry level, local councils in charge of the different islands and atolls have authority to manage fishing operations within their respective jurisdictions, and in harmony with the Ministry's adopted measures. All decisions must be taken in accordance with the national fisheries legislation and regulations. The local councils can also be appointed to assist with fisheries enforcement activities, which is an advantageous arrangement in view of the many islands and atolls concerned.

In summary: Government Commitment Mechanism for data-driven policy adaptation on a regular basis

- *National fisheries policy and legislation should reflect government's commitment to the application of the ecosystem approach to aFAD fisheries management and associated range of goals and objectives.*
- *The ministry government management cycle should be supported by a process/arrangement that includes dialogue, planning, multi-objective evidence base management, consultation and decision-making, review and evaluation, and that applies the 8 characteristics of good governance.*
- *The ministry government management cycle will need to be able to receive and process multi-objective policy and management advice to inform balanced, trade-off decisions, and which considers the aFAD fisheries sub-sector needs (Figure 10).*



Figure 10. Overview of ministry government management cycle: governance element outcome statement; minimum results for achieving governance element outcome; actors responsible; recommended actions/ processes.

3.4 GOVERNANCE ELEMENT OUTCOME 4: A ‘WHOLE-OF-GOVERNMENT’ APPROACH TO POLICY AND ECONOMIC PLANNING (NATIONAL INTER-SECTORAL COMPONENT OF GOVERNMENT MANAGEMENT CYCLE)

3.4.1 Minimum results for measuring achievement of governance element outcome 4

- I. Holistic national policies and management decisions for fisheries that are informed by trade-off analyses among economic sectors, and which therefore provide a balanced and supported approach to achieving multiple management objectives (biological, social, economic, ecological).
- II. Equitable use of human and financial resources for management of the fisheries sector and important sub-sectors such as the aFAD fisheries sub-sector.

3.4.2 Key roles and responsibilities for NFA and the Ministry responsible for fisheries management

3.4.2.1 NFA & fisheries ministry & most appropriate government arrangement for coordination of the blue economy/ocean governance

Previous mention was made of the Wider Caribbean’s efforts and commitment to address common challenges affecting sustainable fisheries management through a Caribbean large marine ecosystem (CLME) approach, which resulted in formal agreement to implement an evidence-based, 10-year Strategic Action Programme (SAP). An essential, target of the CLME SAP has been to establish and give life to national inter-sectoral coordination mechanisms within the countries concerned, as a key building block of the ocean governance framework for achieving ecosystem-based management. While several countries have been able to establish national inter-sectoral committees (NICs), some of the countries with the most important aFAD fisheries and highest aFAD fishing populations, namely Dominican Republic, Guadeloupe, Haiti and Dominica, still have no NICs⁴³ (Figure 11).

⁴³ Compton, S., P. McConney and R. Mahon. 2019. National Intersectoral Coordination Mechanisms (NICs) Final Report. Contract for Small Services 00094752/2015/01/UWI-CERMES. Centre for Resource Management and Environmental Studies, The University of the West Indies, Cave Hill Campus, Barbados. 15pp.

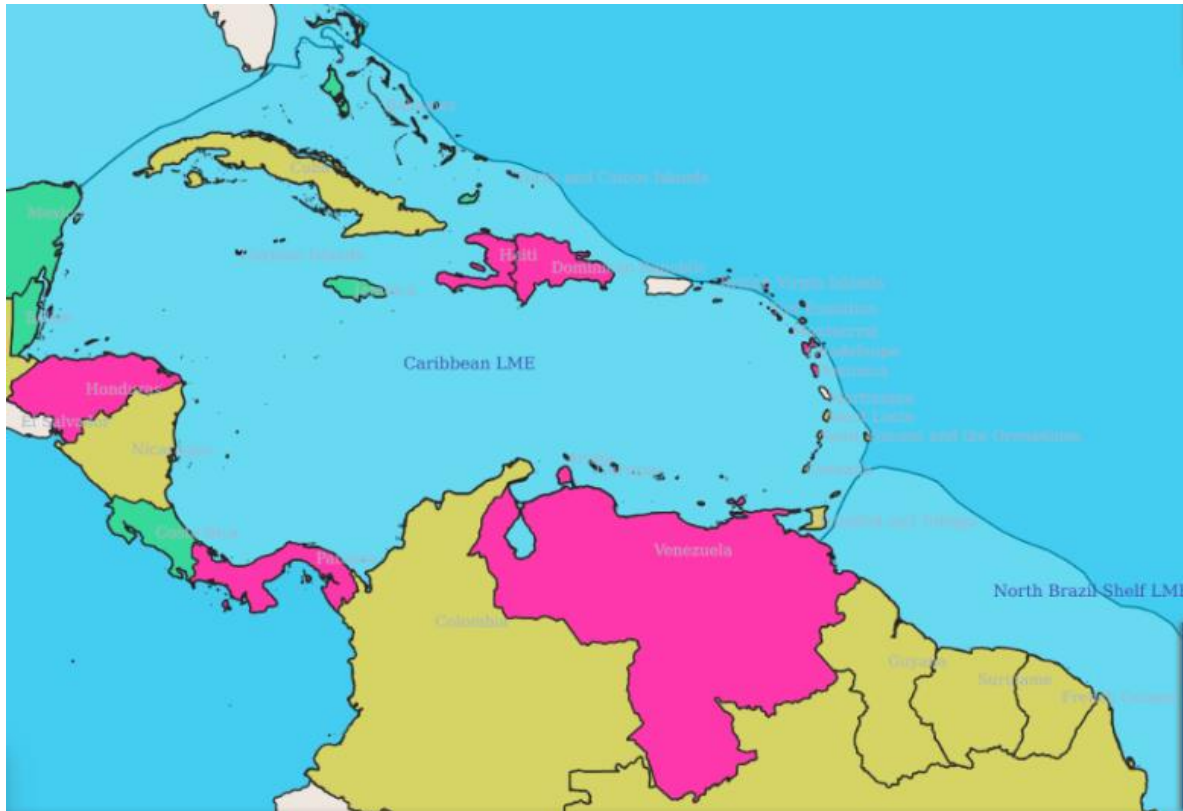


Figure 11. Chart showing status of NICs for countries that signed the CLME SAP: No NIC (pink), near NIC (green), and established NIC (yellow).
 {Source: <https://clmeplus.org/national-inter-sectoral-coordination/>}

In cases where the NIC is not yet established, the NFA should consider using an existing committee devoted to marine resource governance, ocean governance or blue economy as its working fisheries-NIC. Where no such committee exists, it may be easier to obtain support to establish a national fisheries inter-sectoral task force: the establishment of the task force can be rationalised for a specific purpose, e.g., to address the cross-sectoral issues arising from the aFAD fisheries, such as conflicts with other sectors, e.g., maritime shipping lanes, marine litter caused by aFAD losses, and trade and economic development.

The key roles and responsibilities noted in section 3.3.2 for the NFA and Ministry apply here as well, and are essential to guarantee effective participation of the fisheries sector in the NIC. As a guide, an ideal NIC should have certain features, as shown in Box 1.

Conceptually, NICs are based on the principles of good governance. An ideal NIC should be flexible enough to accommodate different types of governance arrangements and exhibit all or a favorable combination of the following features:

1. Support comprehensive and equitable inclusion of stakeholders;
2. Encourages individuals to become champions and leaders;
3. Be politically and administratively endorsed with clear legal mandate;
4. Have well-established processes in place for reviewing and evaluating progress and effectiveness;
5. Promote and enable multi-level, multi-sector integration;
6. Facilitate linkages between national and regional government processes; and
7. Be able to address specific tasks within broader contexts and adaptive capacity.

Box 1. Some key features for ensuring a successful NIC. {Source: Compton et al., (2019)}

NIC Membership/ participation –

The NIC should be supported by both inter-sectoral scientific and management arms, with the fisheries sector being represented by a delegation consisting of senior representatives from the SCI/MC, the IND/MC (see section 3.2) and from the ministry's fisheries management forum or its proxy.

If the current FAC is serving as the fisheries management forum, as well as the NIC, then apart from the SCI/MC and IND/MC, the NFA and its ministry should ensure that the FAC/ NIC membership includes an essential cross-section of the various economic sectors concerned with any aspect of ocean governance or blue economy. These additional sectors should be supported by their relevant scientific and management arms as well.

NIC component of GOV/MC –

The NIC should operate according to rules and arrangements that are at least informally agreed, if not legally mandated.

To deliver the 'whole-of-government' approach to policy and economic planning, the NIC's processes/ arrangements should follow a management cycle, similar to other management cycles. To facilitate inter-sectoral networking at the science and management levels, the following additional guidance is provided.

- 1) Adhere to the principles of good governance (i.e., possess the eight characteristics discussed section 2).
- 2) As far as possible, the NIC should be chaired by a Minister or his/her official representative.
- 3) Establish a NIC government management cycle with distinct work phases, e.g.: setting holistic objectives, and planning; data compilation, trade-off analysis and scientific reporting; consultation and decision-making; review and evaluation; communication, outreach, and final reporting. The implementation of these phases should be supported by inter-sectoral science and management arms, with the science arm providing inputs at each step.
- 4) NIC outputs should include reports of its policy and management decision-making process and final decisions, which can be used by all ministries, as well as the primary ministry responsible for planning and economic development. NIC outputs should also include preparation of reports that can be used to organise and inform a country's participation in regional and international fora, e.g., RFABs, RFMOs, UN. NIC outputs should include products for raising public awareness and appreciation the issues at stake.
- 5) Identify and access relevant sources of additional expertise for the NIC, either from within the government domain or the private sector if funds allow, or via collaboration with development partners or making timely use of project resources when available. Additional expertise may be required for trade-off analyses, and for non-scientific tasks, such as communications and outreach.
- 6) Complete the NIC government management cycle within a practical timeframe, e.g., 1 year;
- 7) Repeat the NIC government management cycle regularly according to agreed and practical timeframe, thereby achieving a holistic 'whole-of-government' decision-making process and adaptations of decisions over time in response to new issues and situations.

3.4.3 Best practice examples

Example 1 – National Ocean Governance Committees established to advance Eastern Caribbean Regional Ocean Policy (ECROP) for countries of the Organisation of Eastern Caribbean States (OECS).

The Eastern Caribbean Regional Ocean Policy (ECROP) was adopted by OECS States as a comprehensive framework on ocean governance and particularly for guiding development of

the blue economy⁴⁴. ECROP has resulted in the harmonisation of national ocean governance arrangements in the countries concerned, including preparation of national ocean policies (NOPs)⁴⁵. The national ocean policies have been designed to embrace several principles some of which are pertinent to the fisheries sector and especially for the present aFAD fisheries governance needs, such as ecosystem-based management, use of sound science and best practice, precautionary approach, public and private participation, etc. For instance, regarding the principle of *public and private participation*, the NOP, the text of which is similar across the OECS membership, emphasises the need for full participation of the public, the private sector and NGOs in decision-making, and facilitation of co-management and public-private partnerships.

Each NOP lists multiple policy outcomes addressing issues across economic sectors, and thereby requiring an inter-sectoral approach to coordinating implementation. Each OECS country has established either a National Ocean Governance Committee (NOGC) or a National Ocean Coordination Committee (NOCC), the membership of which includes multiple ministries, to deliver the NOP. Consequently, the NOGC/NOCC can usefully serve the purpose of a suitable NIC in OECS countries. It should be noted though that in some cases, such as St. Lucia, the NOP states clearly that the NOGC is an advisory body only.

Notwithstanding, the existence of the NOGC/NOCC in many Eastern Caribbean countries provides a good inter-sectoral forum for advancing EAF management, and for incorporating the aFAD fisheries issues in the context of ongoing plans and decisions regarding ocean governance and development of the blue economy.

Example 2 – Creating a ministry for an integrated approach to ocean governance and blue economy

There are several examples across the world where governments have identified a specific ministry to coordinate the sustainable development of sectors dependent on ocean space and resources. For example, in Mauritius, a ministry dedicated to the ocean economy and supported by the National Ocean Council (NOC) that serves as a consultative body, has worked to promote a holistic agenda over several years⁴⁶. An Ocean Economy roadmap was prepared for Mauritius in 2013, and this has been used to guide the government's approach since then. The Ministry of Ocean Economy, Fisheries, Marine Resources and Outer Islands was created in 2015, to promote a more coordinated approach, as well as to improve ownership and accountability. Mauritius' Ocean Economy has focused on: evaluating the potential for contribution of the relevant sectors to economic development, trade, poverty alleviation and inequality; overcoming barriers for realising this potential; long-term sustainability, with attention to environmental conservation and the risks of climate change.

The NOC component of the Mauritius Ocean Economy governance arrangement operates as a high-level NIC but without decision-making power and a dedicated budget⁴⁶. Its success is dependent on governance arrangements for building and using a strong evidence base, and on decision-making mechanisms capable of delivering Mauritius' government's commitment to long-term sustainability and the whole-of-government approach via its Ocean Economy agenda.

In another similar example, Barbados opted to restructure ministry portfolios in 2018 to create a new ministry to coordinate key sectors that currently contribute to aspects of the blue

⁴⁴ Renard, Y., and Walker, L. (2021). End-of-Project Review and Evaluation of the Caribbean Regional Oceanscape Project (CROP). 104 pp. <https://www.oecs.org/en/our-work/knowledge/library/ocean-governance/end-of-project-review-and-evaluation-december-2021>

⁴⁵ <https://www.oecs.org/en/our-work/knowledge/library/ocean-governance>

⁴⁶ Smith, J.L. (2017). The ocean economy in Mauritius. Making it happen, making it last. (Eds., Cervigni, R., and Scandizzo, P.L.). World Bank Technical Report. 330 pp.

economy. A blue economy roadmap⁴⁷ has since been developed, which: identifies fisheries as one of the priority sectors for development alongside marine energy, tourism and others; recognises the need to balance the social, economic and environmental pillars for sustainability; and incorporates key governance principles such as evidence-based decision-making and multi-scalar polycentric governance arrangements (Figure 12). As such, the governance arrangements are expected to involve inter-governmental coordination, as well as partnership arrangements with the private sector, NGOs, civil society and the public at large. The examples of bringing together under a single ministry several if not all ocean-dependent economic sectors provide an important first step of acknowledging and acting on the necessity for inter-sectoral and inter-departmental networking for achieving a balanced ‘whole-of-government’ approach. They must work in concert with other governance elements for overall long-term success.

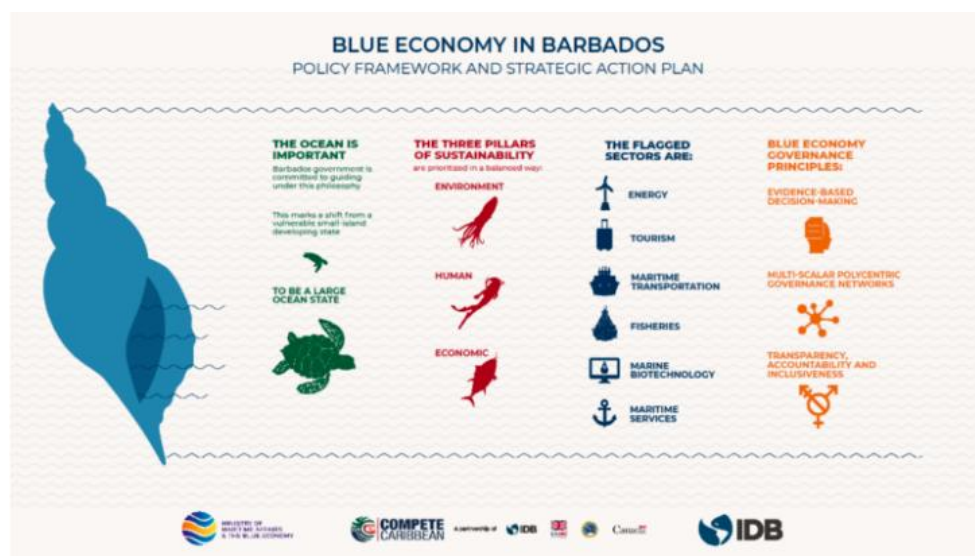


Figure 12. Key steps and elements of Blue Economy Roadmap for Barbados. {Source: Smith, J.L. (2017)}

In summary: ‘Whole-of-Government’ approach for policy coherence and support for AFAD fisheries -related policies

- *National fisheries policy and legislation should reflect government’s commitment to the application of the ecosystem approach to aFAD fisheries management and associated range of goals and objectives. A ‘whole-of-government’ approach must be in place to support the ecosystem approach to fisheries management.*
- *The ‘whole-of-government’ government management cycle should be supported by a process/arrangement that includes dialogue, planning, evidence base management, consultation and decision-making, review and evaluation, and that applies the 8 characteristics of good governance.*
- *The ‘whole-of-government’ government management cycle will require strong, multi-disciplinary and cross-sectoral evidence base management to inform policy and management coherence across the related sectors of the economy, and which considers the aFAD fisheries sub-sector needs.*

⁴⁷ <https://blogs.iadb.org/sostenibilidad/en/a-blue-roadmap-for-barbados/>

- *The aFAD fisheries sub-sector's aFAD-IND/MC should ensure its issues are addressed appropriately by the relevant actors and elements of each process management cycle in accordance with good governance practices (see Figure 13).*



Figure 13. Overview of 'whole-of-government' government management cycle: governance element outcome statement; minimum results for achieving governance element outcome; actors responsible; recommended actions/ processes.

3.5 CURRENT AFAD FISHERIES ISSUES FOR ATTENTION BY ALL THE MANAGEMENT CYCLES

Key issues were identified in the recent regional reviews, and in consultation with key informants for the preparation of this manual.

- For each of the issues identified, each of the management cycles would have to provide inputs, with the SCI/MC and the aFAD-IND/MC expected to:
 - collaborate to strengthen the evidence base - *Governance outcomes 1 & 2 &*
 - provide justifications for any fisheries policy and management recommendations to be adopted or adapted by the GOV/MC - *Governance outcomes 3 & 4.*
- Recommendations should be formulated to provide both rules and arrangements for successful implementation, *i.e., the decisions to be taken, as well as the process by which the decisions will be implemented - second part of our governance definition!*

3.5.1 List of Issues

3.5.1 aFAD Access

- 1) Management of registration and licensing system;
- 2) Instituting a limited entry system, with TURF system & aFAD Code of Conduct;
- 3) Regulating private and public aFADs;
- 4) Regulating or at least incentivising aFAD technology choices (longer lasting materials to reduce replacement costs and environmental impacts, construction protocols, fishing gears).

3.5.2 aFAD fisheries practices

- 1) Safety at sea (labour standards) - promoting practices to minimise the risk of incidents of accident and death – this should include incentives for improving safe practices and investments related to safety at sea. Licensing rule should include condition requiring compulsory training of captain in safety at sea dealing specifically with aFAD deployment and maintenance and/ or certification determined by a test of knowledge gained from aFAD Manual on this topic. A suitable knowledge test should be developed for this purpose.
- 2) Quality and sanitation standards (improve economic returns, food safety, reduce wastage). Licensing rule should include conditions requiring at least one member of crew aboard aFAD fishing vessel to be (i) trained in fish handling and/ or certification in use of aFAD Manual on this topic - a suitable knowledge test should be developed for this purpose; and (ii) presence of essential equipment for proper fish handling and good sanitation practices. Arrangements for achieving quality products for sale should include assigning responsibilities to ports and markets to provide facilities and services required for cold chain management of landing, processing, sale and transport operations.
- 3) Code of conduct (safety at sea and fisher satisfaction) is required to ensure responsible fishing practices, including for aFAD construction and deployment, and to minimise conflicts between fishers and groups of fishers.
- 4) Research, monitoring and reporting (fisheries management – SDG 14, EAF, precautionary approach, value addition, management compliance, management performance) – the rules and arrangements should cover all aspects of aFAD fishing operations, to build the evidence base to account for performance on agreed policy and specific management objectives and to balance the trade-offs through implementation of EAF. Arrangements would necessarily include participation in the aFAD fisheries advisory group of a range of technical experts to address the range of disciplines associated with different types of objectives, e.g., social, economic, ecological, environmental. It must also include experts

who can perform the necessary trade-off analyses to generate policy and management advice that makes use of all available evidence. Value addition and market research are recommended, as resources are not infinite, and diversify industry options for employment and business opportunities.

- 5) Risk insurance – The Caribbean Ocean and Aquaculture Sustainability Facility (COAST)⁴⁸, is an insurance facility that was introduced in recent years to address specific fisheries industry needs in view of the increased frequency of adverse weather events. aFAD fishers should monitor the evolution of this facility and its availability in their country. In this regard, good information on aFAD deployments and investments would be required.
- 6) Social insurance and retirement systems (SDG on universal social protection) – the rules and arrangements should facilitate regular education sessions for industry stakeholders about the benefits of national social protection and pension programmes and options for their full inclusion in these programmes. Limited entry license arrangements would also help the fishers concerned to have greater security of profits, which would enable them to invest in social insurance and retirement programmes.

4. A NOTE ON RFABS/RFMOS AND THE INTER-GOVERNMENTAL /MANAGEMENT CYCLE (INTER-GOV/ MC)

The RFABs (WECAFC, CRFM and OSPESCA), and tuna RFMO (ICCAT) have established management cycles for ensuring their good governance. ICCAT, which adopts binding fisheries management regulations for Atlantic tuna and tuna-like species, has established subsidiary bodies to implement a science management cycle and a regulation management cycle, with formal, agreed modes of communication and information exchange between the two cycles. Likewise, WECAFC has numerous technical working groups that report to its Scientific Advisory Group (SAG), which in turn, reports to the WECAFC Commission that is responsible for adopting actions based on the scientific advice.

Members of the regional RFABs, and/ or ICCAT, WECAFC countries are expected to participate fully in the inter-governmental management cycles (INTER-GOV/MC) established by these organisations, and such participation should be mutually beneficial. Where national fisheries governance arrangements include an established SCI/MC, this will support sustained technical cooperation and development of the national evidence base, and hence provide a solid foundation for informing good decisions at both the national and international levels.

In the case of WECAFC's aFAD fisheries that target tuna and tuna-like species, good governance arrangements for science-supported and responsive cooperation with ICCAT are important for effective representation of the specific development and management interests and needs. A formal ICCAT-WECAFC cooperation/ framework arrangement is already in place which should be utilised for this purpose.

⁴⁸https://www.ccrif.org/projects/coast/caribbean-ocean-and-aquaculture-sustainability-facility?language_content_entity=en

5. SOME GUIDANCE ON MANAGING HUMAN AND FINANCIAL RESOURCES

The ‘whole-of-government’ approach should facilitate easier identification of synergies and consideration of trade-offs in the allocation of human and financial resources. Fisheries and aFAD fisheries issues should be incorporated seamlessly and be supported by a strong evidence base to inform good decisions. If this can be achieved, government budget allocations should be expected to address priorities in an equitable fashion.

In applying the ‘whole-of-government’ approach, this would also improve the complementarity of projects and programmes sponsored by international development partners for maximum efficiency and effectiveness. Government arrangements with external donors should therefore ideally be managed through a whole-of-government approach. For fisheries governance, this approach would also help to support EAF management. Key informants, who have worked closely with aFAD fisheries, note that national fisheries authorities, research institutions, and RFABs/ RFMOs often have staff that have expertise and experience working with aFAD fisheries, and these resources could be accessed via the national governance arrangements, or via dedicated project arrangements. These views clearly lend support to the proposed ‘whole-of-government’ approach for planning and budgeting purposes.

In addition, key informants point out that sustainable financing case studies should be conducted to inform sustainable financing plans for aFAD fisheries. Efforts should be made to develop and promulgate legislation for improving aFAD governance, and this would make it easier to request direct budget allocations to support the recommended good governance practices required for aFAD fisheries. In the case of the French West Indies, options should be explored for obtaining support for the use of European maritime and fisheries funds (EMFF) for aFADs related projects. Other suggestions by key informants note the need for an aFAD user fee system that could provide a source of funds for certain aspects of aFAD fisheries management, e.g., aFAD repair and replacement. They also recommend that countries explore the possibilities of public-private partnership human and financial support in the context of the long-term economic sustainability of aFAD fisheries. In view of the limited resources of WECAFC countries currently involved in aFAD fisheries, the sharing of responsibilities between organised aFAD fisher groups and government is considered necessary for the way forward.