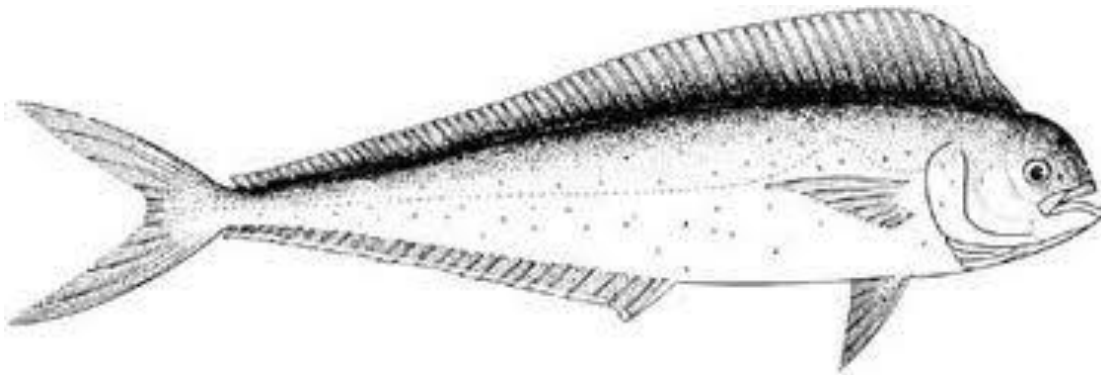


CERMES Technical Report No 58

# CRFM/CLME Large Pelagic Fishery Case Study– Governance Assessment

CENTRE FOR RESOURCE MANAGEMENT AND ENVIRONMENTAL STUDIES

# DRAFT



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**Caribbean  
LME  
Project**

*Sustainable Management of the Shared  
Living Marine Resources of the  
Caribbean Large Marine Ecosystem  
(CLME) and Adjacent Regions*

2012

# CRFM/CLME Large Pelagic Fishery Case Study – Governance Assessment

Centre for Resource Management and Environmental Studies

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Cover graphic courtesy FAO

## Acronyms

ACS	Association of Caribbean States
CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community and Common Market
CARICOMP	Caribbean Coastal Marine Productivity Programme
CCA	Causal Chain Analysis
CERMES	Centre for Resource Management and Environmental Studies
CLME	Caribbean Large Marine Ecosystem
CRFM	Caribbean Regional Fisheries Mechanism
CSC	Caribbean Sea Commission
CSI	Caribbean Sea Initiative
CSME	CARICOM Single Market and Economy
EAF	Ecosystem Approach to Fisheries
EBM	Ecosystem-based Management
EEZ	Exclusive Economic Zone
ESDU	Environmental Sustainable Development Unit
FAO	Food and Agricultural Organization
FFO	Fisherfolk organisation
GEF	Global Environmental Fund
ICCAT	International Commission for Conservation of Atlantic Tunas
IFREMER	French Research Institute for Exploration of the Sea
IGFA	International Game Fish Association
IOCARIBE	Inter-governmental Oceanographic Commission – Caribbean Sub-commission
IUU	Illegal, Unregulated and Unreported (fishing)
LAPE	Lesser Antilles Pelagic Ecosystem Project
LME	Large Marine Ecosystem
LMR	Living Marine Resources
MCS	Monitoring, Control and Surveillance
MEA	Multilateral Environmental Agreement
MPA	Marine Protected Area
NGO	Non-Governmental Organization
NMFS-SEFSC	National Marine Fisheries Service - Southeast Fisheries Science Center
NOAA	National Oceanic and Atmospheric Administration
OECS	Organization of Eastern Caribbean States
OSPESCA	Organization of the Fishing and Aquaculture Sector of the Central American Isthmus
SAP	Strategic Action Programme
SICA	Central American Integration System
SIDS	Small Island Developing States
TBF	The Billfish Foundation
TCP	Technical Cooperation Programme
TDA	Transboundary Diagnostic Analysis
TWAP	GEF Transboundary Waters Assessment Project
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
WCR	Wider Caribbean Region
WECAFC	Western Central Atlantic Fishery Commission

## Summary

Assessments of governance such as this one for the large pelagics fishery are few. The purpose of this assessment is to examine and illustrate aspects of the governance arrangements for the issues identified for the large pelagics fishery in order to facilitate discussion on governance among stakeholders. This discussion can lead to shared views of what should be in place, what principles should be prominent and how the system should be structured. The assessment is not intended to lead to a prescriptive output regarding what should be in place. Nonetheless, some broad observations can be made on aspects of the system that need attention if arrangements are to be structured to enable good governance, including the promotion of intersectoral and inter-issue integration that is needed for an ecosystem approach.

The assessment was carried out at two levels:

- Level 1 examined the governance arrangements or architecture
- Level 2 made a very preliminary assessment of their performance.

The issues examined to determine their governance arrangements were:

1. Overfishing oceanic large pelagics regularly assessed by ICCAT
2. Overfishing coastal large pelagics not regularly assessed by ICCAT
3. Managing ocean environmental quality to support large pelagics

Ideally, governance arrangements for the issues should have been assessed with input from key stakeholders. However, this was not practically feasible at the time. Apart from a brief survey of participants at the CRFM 10<sup>th</sup> Caribbean Fisheries Forum the assessment was done purely from the literature and the experience of the authors. The integration among these arrangements needed for an ecosystem approach to fisheries was also examined.

The main observation from Level 1 analysis is that the governance arrangements involving the ICCAT management of oceanic large pelagics are relatively well developed except for inadequately engaging stakeholders in the region. Connected to this, the governance of coastal large pelagic fisheries is not well developed within the CLME area apart from the collection and analysis of some data and offering of some advice through CRFM and WECAFC. There are US plans for some coastal large pelagics, and there is the US system of regional fisheries councils, but these are currently not at all connected with the situation in the insular Caribbean. There is no integrated set of arrangements for managing the ocean environment aimed at supporting fisheries for large coastal or oceanic pelagics.

At Level 2, the performance of the ICCAT system as a whole was lightly assessed in this first round. Again the ratings are based almost entirely on the existing ICCAT system which concerns primarily the oceanic large pelagics. The deficiency of this system is that it does not adequately address the western Atlantic in terms of the coastal large pelagic that are extremely important especially for small-scale fisheries.

As stated before, the results presented in this report are primarily to encourage discussion at national and sub-regional levels. At this stage, it would be very informative for the fishery stakeholders (broadly categorised as at least government, harvest and postharvest), at least in CRFM Member States, to thoroughly review the findings. It is very likely that their assessment of governance at both levels will differ from that given here and that there may be significant differences among the stakeholders as well. Again, at this stage, it is more important to fully understand these differences and the reasons behind them than to build consensus without this understanding as the foundation upon which to proceed.

The governance arrangement for large pelagics will be strengthened to address both ocean wide and regional large pelagic, including linkages to the regional arrangement for pollution through EAF

- Determine with ICCAT an approach to shared operational jurisdiction over large pelagics
- Develop with ICCAT an EAF plan for ocean wide large pelagics that traverse the region
- Develop with ICCAT an EAF management plan for regional large pelagics
- Establish a mechanism for integration and implementation of the above EAF management plans
- Implement selected key EAF activities

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## 1 Introduction

### 1.1 The CLME Project and LME Governance Framework

The Caribbean Large Marine Ecosystem and Adjacent Areas (CLME) Project ([www.clmeproject.org](http://www.clmeproject.org)) aims to improve the management of shared living marine resources (LMR) within the Wider Caribbean Region (WCR). The Causal Chain Analyses and Transboundary Diagnostic Analyses (Heileman 2011, Phillips 2011) have identified weak governance as a root cause of the problems facing these social ecological systems (Mahon and others 2011a). The CLME Project therefore has a strong emphasis on assessing LMR governance systems and on proposing ways of strengthening them. Due to the overarching importance of governance in the CLME, among the typical five modules of an LME project, the subject has received special attention and some new thinking. The background to the way that governance is addressed in the CLME Project, including the development of the LME Governance Framework, is discussed in Mahon and others (2011a).

The CLME Project is designed to begin the process of building the framework for the WCR through a series of targeted activities aimed at specific parts of the framework and at testing the effectiveness of the LME Governance Framework concept (Mahon and others 2008, Fanning and others 2009b). This is expected to be a long term process of conceptualising, operationalising, testing, learning and adapting that involves the over two dozen countries in the WCR and its various ecosystems (e.g. continental shelf, pelagic and reef). This is no simple undertaking. It requires a systematic but incremental approach.

The purpose of the CLME pilot projects and case studies, such as this one, is to examine and understand key parts of the governance framework through 'learning by doing'. The pilots and cases explore, by means of practical examples, how developing functional policy cycles and linkages may lead to improved transboundary LMR governance in the WCR. These projects have been designed to encompass the full range of transboundary LMR situations, each with emphasis on a different level of the LME governance framework and a different geographical region of the WCR.

### 1.2 About this report

The governance assessment of these pilots and case studies uses a common methodology (Mahon and others 2012) that is summarised next. We then apply the methodology to assess governance of the large pelagic fishery and set out lessons learned. This report is for discussion and use by all case study participants and interested parties. It contributes to the elaboration of the regional governance framework and formulation of the Strategic Action Programme (SAP) which is the next major stage of the CLME project. There is an abundance of literature related to this case. Since the target audience for this report comprises primarily fisheries stakeholders we assume familiarity with, or access via internet to this literature. Kindly consult the resources mentioned later if you require background on the fishery.

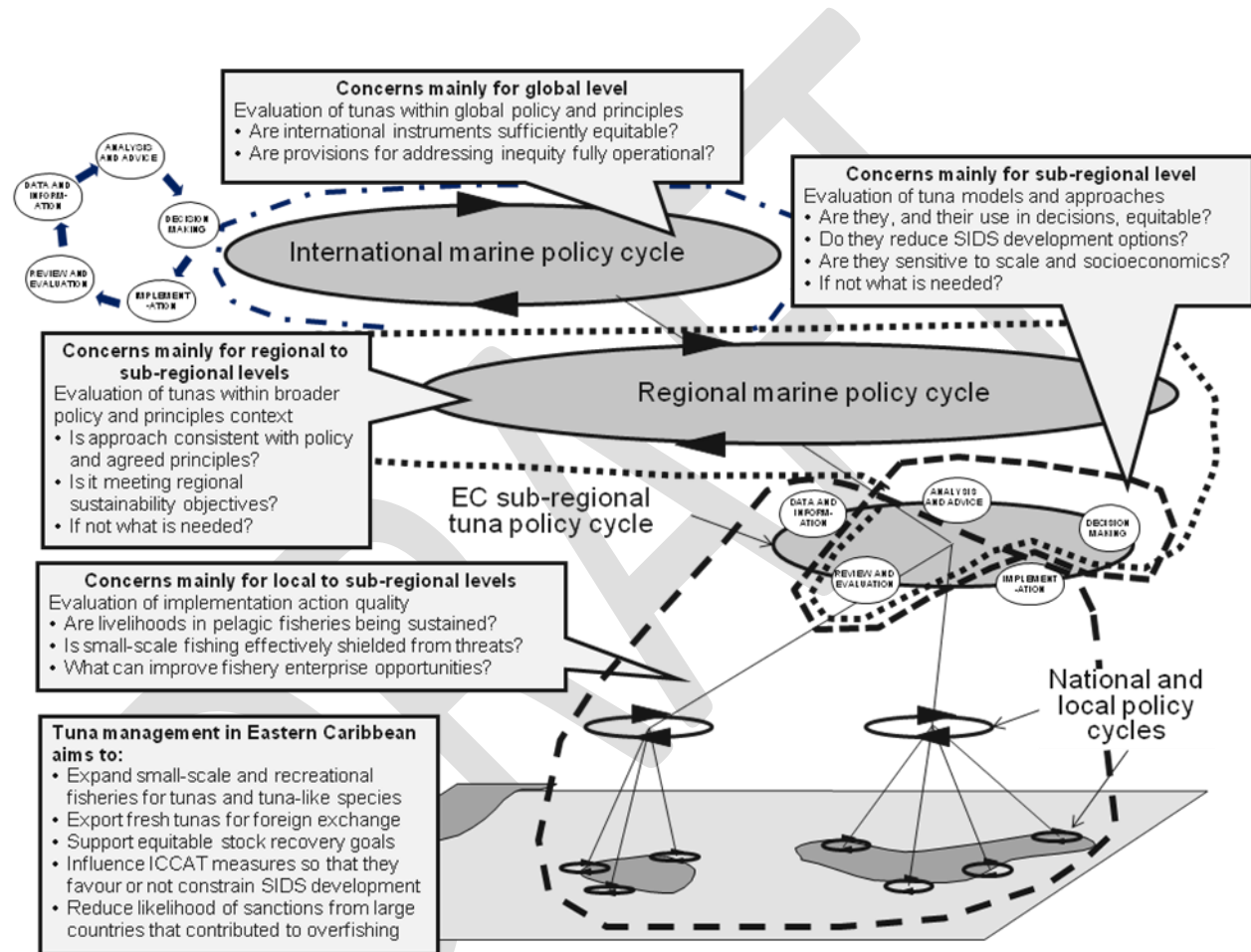
## 2 Overview of governance assessment

### 2.1 General approach to assessment

The approach to doing the LMR governance assessment for the CLME project builds on the methodology developed by Mahon and others (2011b, 2011c) for the Transboundary Waters Assessment Programme (TWAP). TWAP is a GEF project to develop indicators for monitoring all aspects of the projects in the GEF's International Waters (IW) portfolio. The discussion and methodology paper by Mahon and others (2012) addresses the monitoring of governance. While the focus is on the LME component of the IW Programme, the assessment approach and methodology was developed for the entire GEF IW

programme. To a large extent it was based on experience gained in developing the CLME Project and is therefore considered appropriate for adaptation to the CLME pilots and case studies.

Examples of how governance arrangements can be visualised include one for the Eastern Caribbean tuna fishery (Figure 1). It shows how management objectives drive different questions appropriate to various zones that align with the national, sub-regional, regional and international levels of jurisdiction in the policy cycle for this fishery. Different stages of the policy cycle are more prominent at different levels, such as tuna fishery decision-making ultimately being at the international level to manage at the geographic scale of the Atlantic Ocean for some species, but ideally retaining links to sub-regional, regional and national level decisions as well, reflecting the nesting of institutional arrangements.



**Figure 1 Tuna in the Eastern Caribbean as a large pelagic fishery example of a multi-level policy cycle governance arrangement**

(Source: Mahon and others 2011b)

The TWAP approach to be adopted and adapted here is two-level. It is described in detail by Mahon and others (2011b, 2011c). It has been adapted to the CLME pilots and case studies in a working paper (Mahon and others 2012). Level 1 assesses governance architecture or structural arrangements, and a methodology has been developed for this. Level 2 assesses the performance, or actual operational functioning, of the governance arrangements or architecture identified in Level 1. As an analogy, Level 1 is like the structure of a house. It should be well-designed to function with all the key components (e.g. has windows and doors). Level 2 is the functionality such as how well ventilation and security actually



work (e.g. windows are not opened enough for air flow or doors are not closed securely) despite good design. Level 1 assessment steps are outlined in Figure 2 and their outputs will be described in the assessment section. In summary, first we identify the social-ecological system that is the large pelagic fishery and then the main transboundary and shared issues related to it. Next we investigate what, if any, governance arrangements exist to address the issues, paying attention to the policy cycle model.

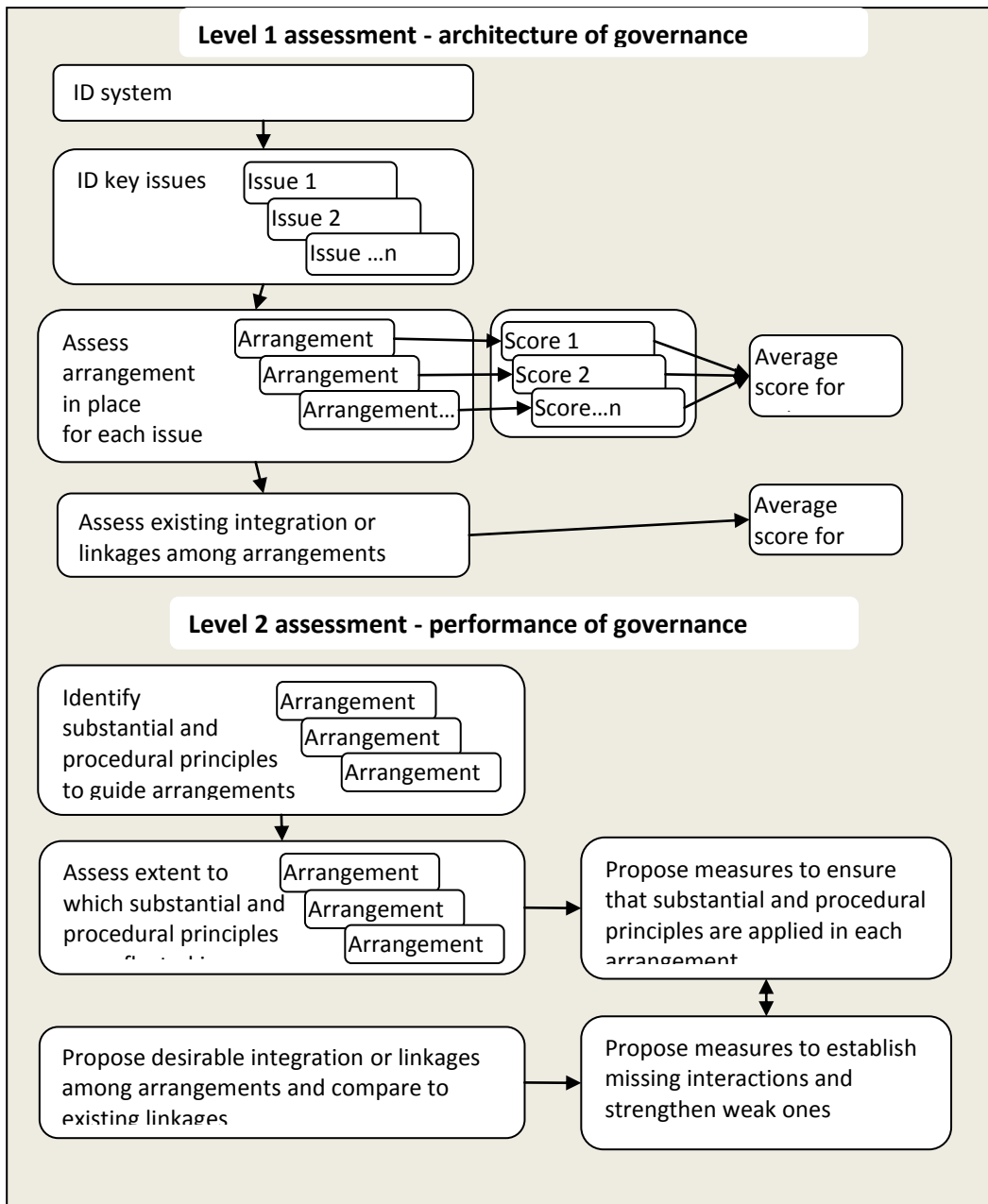


Figure 2 Level 1 and Level 2 processes used for assessing governance for CLME fishery social ecological systems

Where an arrangement addresses several issues or an issue is addressed by several arrangements we look to see if or how arrangements can be integrated for a more complete picture of the structure,

taking the principles of ecosystem-based management into account as well. In Level 2 we use a suite of governance principles to evaluate the actual performance of arrangements.

## 2.2 The Large Pelagic Fishery Case Study

The Caribbean Regional Fisheries Mechanism (CRFM) Secretariat is the implementing agency for the case study on the large pelagic fishery. A very thorough description of the case study contained in the Report of the First Meeting of the Consultancy Steering Committee on 11 February 2011 in Barbados (CRFM 2011). Barbados, Dominica, French West Indies (Martinique and Guadeloupe), Grenada, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, USA, and Venezuela are the participating states listed in the research proposal, but the document also identifies Brazil, Cuba and Mexico as countries of possible interest. Case study collaborating organisations are given as CERMES-UWI, FAO/WECAFC, OECS Secretariat, CARICOM Secretariat, IFREMER (Martinique), Universidad de Oriente (Venezuela), the Regional Fisherfolk Organisation, plus NMFS-SEFSC of the USA. The immediate objective of the case study (CRFM 2011) is twofold:

- to fill important knowledge gaps that will contribute to the final TDA
- to inform the development of the SAP and the CLME management and governance framework, which will include priority actions for the sustainability of large pelagic fisheries.

A critical further statement about the above objectives (CRFM 2011:23) is that:

*This will help promote a cooperative mechanism for involvement of Caribbean countries in the activities of the International Commission for the Conservation of Atlantic Tunas (ICCAT) for certain large pelagic species. It will also help establish a regional mechanism for the management of other large pelagic species that are of significance to the Caribbean region but which are not currently being addressed by ICCAT.*

Although the title suggests a single fishery, the case study actually examines a suite of pelagic fisheries that operate at different levels (from local to international) on different scales (e.g. geographic, time, jurisdictional, institutional) (McConney and others 2007). This is described by CRFM (2011:22) thus:

*The large pelagic species that are assessed and managed by the International Commission for the Conservation of Atlantic Tuna (ICCAT) are the most 'high-profile' species with ocean-wide distribution sustaining the largest catches, often by distant water fleets. Few countries of the region presently participate in ICCAT's activities. The CARICOM Fishery Resources Assessment and Management Programme (CFRAMP, now CRFM) has been working towards the participation of CARICOM countries in ICCAT. A main problem is that many countries of the Caribbean, often SIDS, presently take only a small proportion of the catch of species managed by ICCAT. These countries may, by virtue of the size and productivity of their EEZs, be entitled to a larger share, but lack the technical capacity or the financial resources to participate in ICCAT where their case would be made. Numerous other large migratory pelagic species that are either not included in the ICCAT mandate or not actively managed by ICCAT are important to the fisheries of Caribbean countries, e.g. dolphinfish, blackfin tuna, cero and king mackerels, wahoo and bullet tunas. The information base for effective governance and management of these species is virtually non-existent, perhaps because of the simultaneous absence of the relevant governance mechanism.*

The case study is divided into a series of specific TDA and SAP components, some of which are underway while others are finished. Of particular interest to the governance assessment are the components to:

- Undertake a region-wide assessment on the status of key regionally-distributed large pelagic species using available data and information

- Assess the nature and importance of recreational fisheries in the region
- Undertake a stakeholder analysis, including an assessment of capacity to take part in the regional and international management processes
- Evaluate the existing policy cycles and linkages among the countries involved in the large pelagic fisheries and make recommendations to improve them. This will include a review and analysis of existing policy, legal and institutional arrangements and investments for management and governance of large pelagics.
- Convene a joint regional meeting with stakeholders and technical officials to review the recommendations from the evaluation exercise, including the proposal for a sub-regional decision-making mechanism/forum, and seek their input and support.
- Convene a joint regional meeting with stakeholders and technical officials to prepare an initial regional management plan for key regionally-distributed species
- Mobilize the CRFM network and in particular the Large Pelagics Fisheries Working group in order to ensure that all lessons learnt from field experiences as well as the stakeholders' perspectives will be taken into account in the agreements prepared and in the information and recommendations made by the case study

Implementing these components will provide considerable insight into the current and potential actual dynamics of the governance associated with large pelagics. We may see, for example, if and how the outputs of CRFM Scientific Meetings get incorporated into national, regional and international fisheries policy or management. This case study brings into sharp focus the issues associated with translating fisheries data into management information or policy advice for decision-making at multiple levels.

CRFM (2011) also stresses the importance of considering climate change. Recent publications on the likely impacts of climate change on fisheries worldwide (Cochrane and others 2009, Grafton 2010) and on the Pacific with a focus on tuna fisheries (Bell and others 2011) underscore the concern amidst much uncertainty. Attention is turning to an EBM/EAF vision for pelagic ecosystems in the Wider Caribbean Region (McConney and others 2011) particularly following the results of the FAO Lesser Antilles Pelagic Ecosystem (LAPE) project (<http://www.fao.org/fishery/eaf-lape/en>) which investigated trophic interactions and the ecosystem impacts of fishing large pelagics and flyingfish and recommended formalized EAF management plans for fisheries and ecosystems at national and regional levels (FAO 2008, Fanning and Oxenford 2011). In the context of EAF, Singh-renton and others (2011:197):

*propose that a principal EAF authority for large pelagic fish resources be assigned at each recognised level of governance (local, national, regional, international) to serve a central coordinating role for networking and reporting at that level. A management partnership arrangement involving the International Commission for the Conservation of Atlantic Tunas (ICCAT) and Caribbean regional fisheries organisations (RFOs) may provide the best option for a principal EAF authority at the Caribbean level. As with organisations charged with conventional fisheries management, each principal EAF authority will be expected to pursue good governance and management practices while nurturing the required inter-sectoral integration and compatibility over the entire sea areas and governance boundaries concerned. Capacity building, public education and the cost of implementing an agreed EAF for large pelagic fish resources also warrant special attention.*

Singh-Renton and others (2011) illustrate their proposal in an arrangement that they say is cost-effective (Figure 3). Theirs is among the most recent of the several endeavours (see also Singh-Renton and others 2003, Mahon and McConney 2004) that have attempted to grapple with and set out arrangements that could lead to the sustainable management and development of this mixed bag of fisheries under the new ocean regime that arose from the 1982 United Nations Convention on the Law of the Sea (UNCLOS)

and especially its coming into force in 1994. Berry and Tietze (2012) add substantially to this analysis and recommend that countries become parties to major international fisheries instruments such as the:

- Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO Compliance Agreement)
- Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement)
- Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
- Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)
- Code of Conduct for Responsible Fisheries (CCRF)

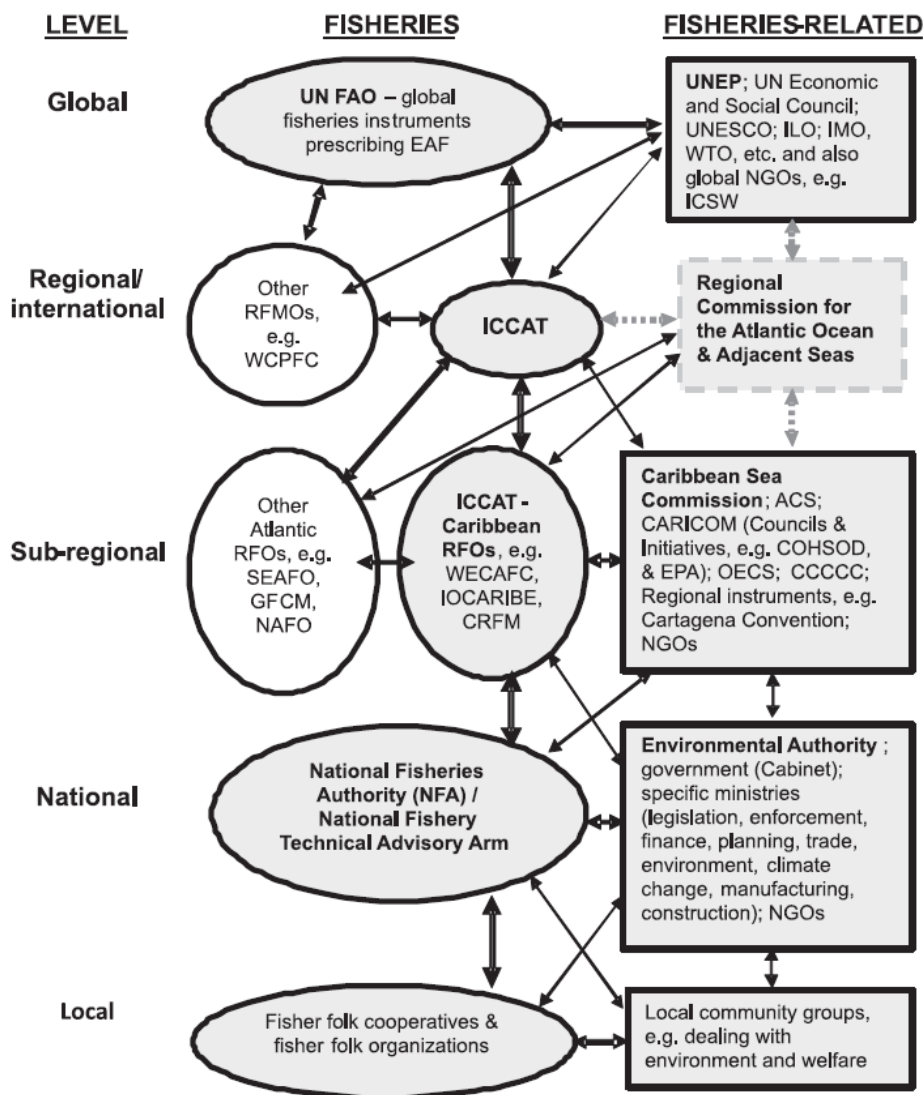


Figure 3 Organisational networking arrangements for implementing EAF for large pelagics in the CLME (Source: Singh-Renton and others 2011)

Mahon and McConney (2004) recall that at the Ninth Session of WECAFC in September 1999 expansion of large pelagic fisheries was one of the two priority areas identified under WECAFC’s Fisheries Management Strategy for the region. As a result, FAO approved the Technical Cooperation Programme (TCP) project on Preparation for expansion of domestic fisheries for large pelagic species by CARICOM countries (TCP/RLA/0070) that got underway in 2001 and ended in 2003. Project activities comprised:

- acquisition and synthesis of information on large pelagic fisheries in CARICOM countries and their relation to other Caribbean countries – the importance and value of the fisheries, existing national plans for their development and the distribution, migration routes, stock structure and status of key resources
- comparison of the estimates of existing and potential fisheries for coastal and oceanic large pelagics to determine the scope for and extent of possible expansion within sustainable limits
- a study of the benefits and technical and legal implications of formulating a regional or sub-regional fisheries management arrangement and of joining an existing fisheries management organization or arrangement such as ICCAT
- development of a CARICOM strategy or strategies for management of large pelagic resources, including relations with non-CARICOM regional and extra-regional fishing countries and organizations

They pose the question: “What are the most appropriate institutional arrangements regarding the competent organization [for development and management of large pelagic fisheries]?” They then set out a scheme for examining the options (Figure 4).

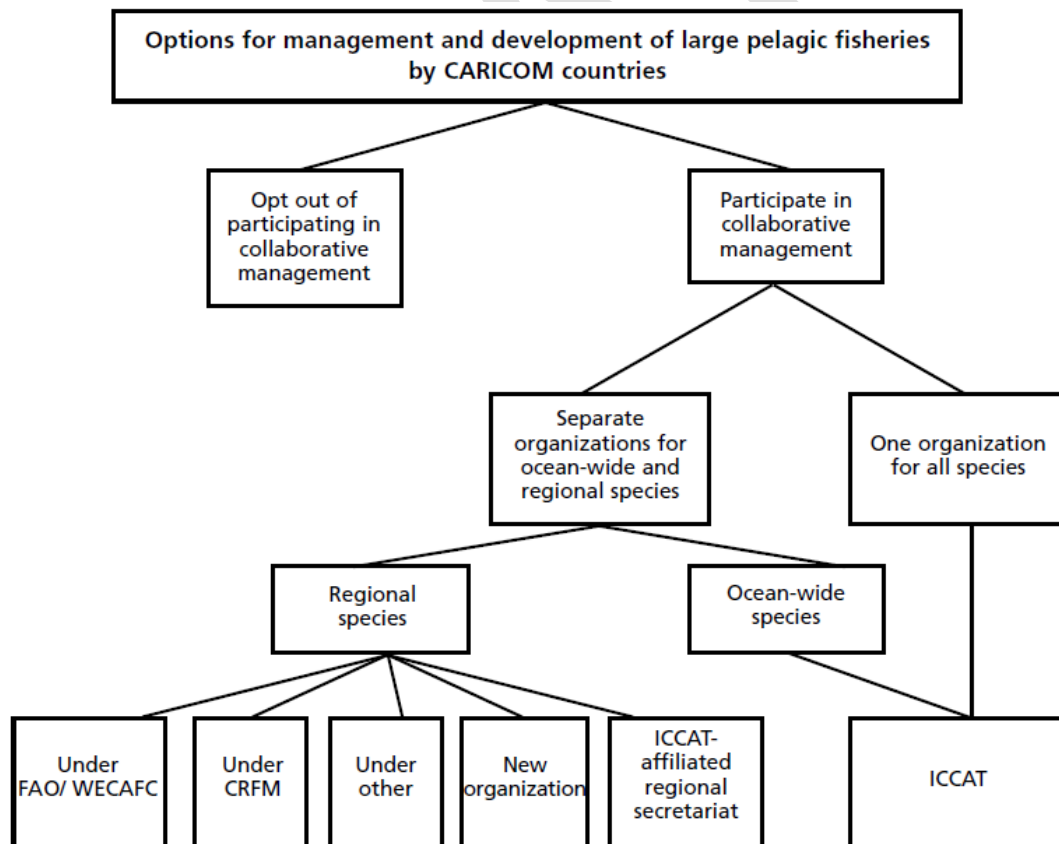


Figure 4 Options for development and management of fisheries for large pelagic species

(Source: Mahon and McConney 2004)

The outputs reported by Mahon and McConney (2004) included:

- reviews of the social and economic importance and potential of fisheries for large pelagics in each participating country and of the benefits and technical and legal implications of formulating a regional or sub-regional fisheries management arrangement and of joining a fisheries management organization or arrangement such as ICCAT
- visual presentations to decision-makers in the participating countries of the major points established in the biological, economic, legal and social studies and their implications for management of resources
- options, developed in consultation with interested parties including ICCAT, for fisheries arrangements to be considered by CARICOM countries for the large coastal pelagics falling within their EEZs and the adjacent international waters of WECAFC states (see Figure 5)

Flow chart indicating proposed approach of CARICOM/CRFM countries to management of their large pelagic resources. The CFU/CRFM plays a key role in each option considered, both for oceanic and coastal resources

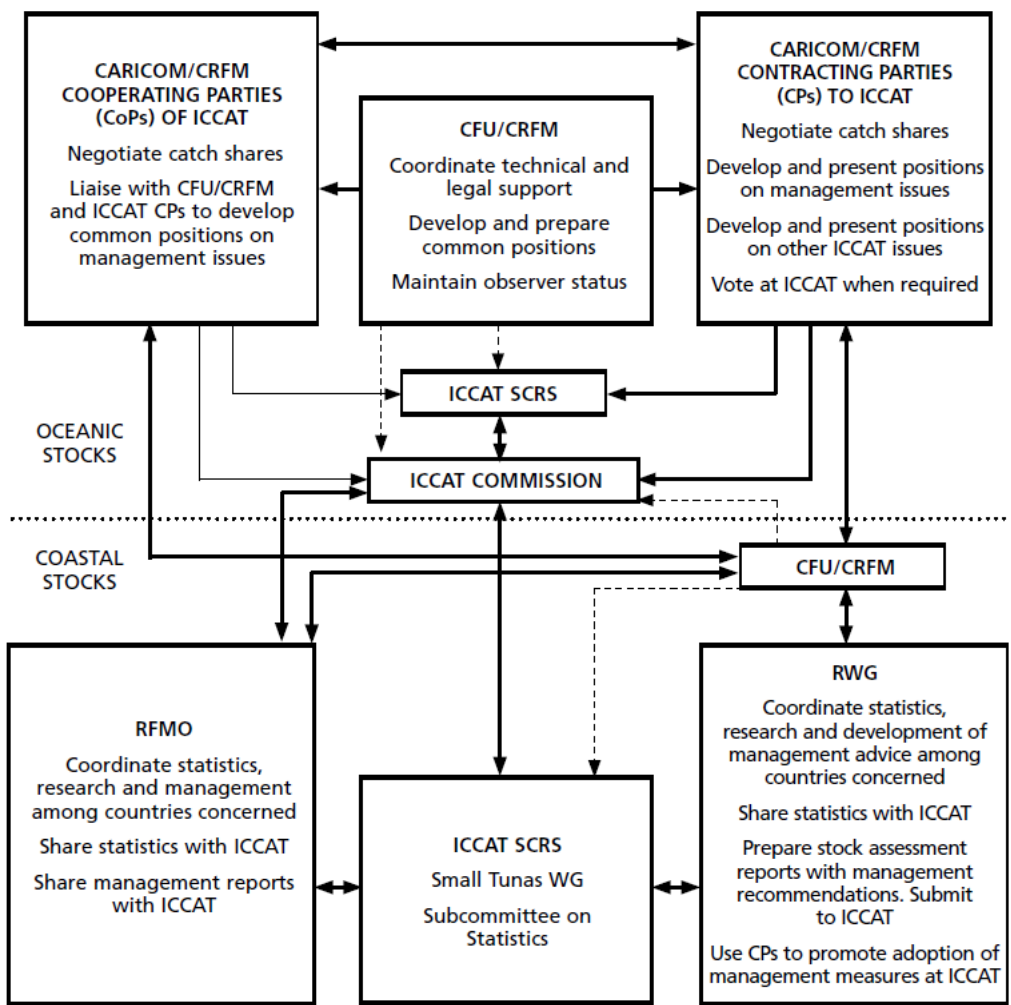


Figure 5 An approach to improving regional management of large pelagic fisheries

(Source: Mahon and McConney 2004)

Throughout all of these initiatives, CFRAMP and then the CRFM have been vital links between ICCAT's international mandate and the SIDS of the English-speaking Caribbean. Invaluable service has been provided via participation and representation in ICCAT meetings, advice to countries, attempts to construct sub-regional negotiating briefs and promote collective action, interpretation of scientific and management information into form more easily consumed by fishery stakeholders in the region and more. The CRFM Large Pelagic Fish Resource Working Group (LPWG) has, over many years at the annual Scientific Meeting, done much to address the status of the stocks of large pelagics that are apparently of more interest and importance to the region than to ICCAT. Indeed one of the most consistent themes throughout all of the above-mentioned initiatives is that there is a functional division of large pelagic into oceanic and coastal which is also those most actively managed by ICCAT versus those least actively managed by ICCAT. All of the initiatives have explicitly suggested that the two groups of species require separate, but connected, governance arrangements in order to be properly managed (Figures 4 and 5). The ICCAT SCRS Sub-Committee on Ecosystems (not shown in Figure 5) that deals with a wide range of issues including the Ecosystem Approach to Fisheries, by-catch assessment and mitigation measures, and oceanographic factors affecting tuna biology and fisheries is also relevant.

Policy instruments that do not yet have governance arrangements associated with them will need to be taken into account. These include the CARICOM Common Fisheries Policy and the Castries (St. Lucia) Declaration on Illegal, Unreported, and Unregulated (IUU) Fishing. They indicate agreement, at least in principle, to take action on a collective basis. The Caribbean Sea Commission that was established in 2006 for the purpose of pursuing the Caribbean Sea Initiative within the Association of Caribbean States (ACS) could become an important player along with FAO/WECAFC as EAF is mainstreamed in the WCR.

The situation with large pelagics in the CLME is exceedingly complex and dynamic. In view of this, the governance assessment is necessarily a snapshot. We expect monitoring and evaluation, which results in learning and adaptation, to be integrated into ongoing efforts for improving fishery governance via this case study. In this spirit, the Level 1 and Level 2 assessments offered below are intended primarily to provoke thought and discussion rather than be a thorough diagnosis or offer any remedial prescriptions. Constructive criticism and alternatives are encouraged. We especially welcome critiques of proposals for governance arrangements that have already been tabled in the projects and papers mentioned above.

### **3 Level 1 assessment – architecture**

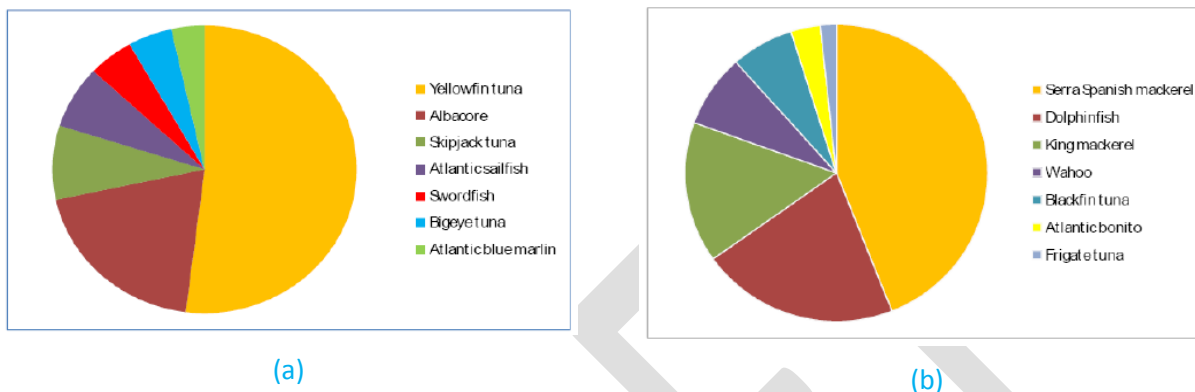
The steps required for the Level 1 assessment were outlined in Figure 2. The outputs of the assessment will be described step-by-step in this section.

#### **3.1 System to be governed**

Governance of LMR must be place-based (Crowder and others 2006, Young and others 2007). Coastal states have marine jurisdictions even if these are not always formally agreed upon through negotiation and delimitation. The geographical boundaries of the system, and the countries involved in the particular fishery social-ecological system, must be clearly identified as a basis for determining the issues and arrangements.

In this case study, the area of the fishery's social-ecological system to be governed is determined mainly by the distribution of the target species and the flag states of the fishing fleets that pursue them. The countries participating in the study are Barbados, Dominica, French West Indies (Martinique and Guadeloupe), Grenada, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, USA and Venezuela. This list includes the eastern Caribbean countries that are participating in the flyingfish case study also being undertaken by the CRFM.

ICCAT has the mandate with respect to tunas and tunalike species Atlantic-wide, including the Caribbean as reviewed by Parsons (2007). Mahon and McConney (2004) provide an appendix of distribution maps for five of the main species assessed by ICCAT. They show that most species have their areas of highest abundance and fishing effort outside of the WCR and the CLME. Mainly the oceanic large pelagic are assessed whereas the coastal large pelagics included in the ICCAT SCRS Small Tunas Species Group are not. Heileman (2011) illustrates this distinction by showing landing statistics for the regularly assessed and not regularly assessed species (Figure 6). The species in each group are shown.



**Figure 6 Species landed by CRFM countries with the highest reported landings that are (a) regularly assessed and (b) not regularly assessed by ICCAT for the period 1990-2006**

(Source: Heileman 2011)

### 3.2 Issues to be governed

The fisheries for large pelagics require an ecosystem approach to fisheries (EAF) which, for the purpose of this report, is synonymous with EBM (Fanning and Oxenford 2011). This is promoted in the CARICOM Common Fisheries Policy and consistent with current management trends as stated before. EAF requires that a comprehensive range of issues relevant to the sustainable use of fishery resources be considered. It is understood that such issues will necessarily be linked or interacting at various points. Issues may need to be combined, or disaggregated into sub-issues in order to match, develop or sustain effective governance arrangements. Ideally, the list of key issues could be agreed upon by the stakeholders in the fishery in an interactive face-to-face session. Since a physical gathering of all stakeholders is not possible in the case of this fishery, issues are extracted from the literature and experiences of knowledgeable informants. Accordingly the following is such a first cut. It is intended that the issues along with the remainder of the assessment be discussed in detail later, at least among CRFM stakeholders, so as to seek consensus. Information on these stakeholders will be provided by the CRFM's stakeholder analysis.

Matters identified as issues for the governance of the fisheries for large pelagics from an EBM/EAF perspective are in Table 1 with references as to the sources of the identification. Due to the EBM/EAF focus we extract issues mainly from two of the most recent publications (Singh-Renton and others 2011, Heileman 2011) which also cover most of the issues raised in earlier documents. For the issues taken from the Pelagic Ecosystem Causal Chain Analysis (Heileman 2011) we preserve the hierarchy of immediate, underlying and root causes. Not all of these apply equally to the fisheries for large pelagic, but the connections among them should be considered. This may also aid institutional memory within CLME and reduce the tendency to revisit, rather than review, matters addressed in previous initiatives.



**Table 1 Large pelagic fishery issues and related sources of information**

<b>Issues identified in the large pelagic fishery</b>	<b>Source of information</b>
Fisheries policy-advisors and managers are not getting information from scientists in a timely fashion	Brown-Peterson and others (2007)
Approaches to reduce overfishing and its negative effects need to be strengthened	Brown-Peterson and others (2007)
Insufficient attention is being paid to instituting effective regional management	Brown-Peterson and others (2007)
Initiatives to engage fishers in management processes and to help find solutions are inadequate	Brown-Peterson and others (2007)
Establish multiple-level governance network for integrated and compatible EAF policy planning and implementation	Singh-Renton and others (2011)
Identify/assign a principal EAF authority to serve a coordinating role at each governance level, and a companion authority for general ecosystem conservation	Singh-Renton and others (2011)
Achieve good practices by the principal EAF authorities	Singh-Renton and others (2011)
Assign principal EAF authority at the regional/international governance level	Singh-Renton and others (2011)
Assign principal EAF authority at the sub-regional/CLME governance level	Singh-Renton and others (2011)
Assign principal EAF authority at the national level	Singh-Renton and others (2011)
Develop agreed management goals and priority operational Objectives	Singh-Renton and others (2011)
Ensure active EAF legislation and management cycle	Singh-Renton and others (2011)
Develop a strong information base with good national statistics	Singh-Renton and others (2011)
Develop a strong information base through research and assessment	Singh-Renton and others (2011)
Establish controls consistent with practical monitoring and surveillance options	Singh-Renton and others (2011)
Establish a suitable monitoring, control and surveillance (MCS) system	Singh-Renton and others (2011)
The additional costs of EAF implementation	Singh-Renton and others (2011)
Unsustainable exploitation <ul style="list-style-type: none"> <li>• Immediate causes: Catches beyond sustainable levels, including immature and/or spawning individuals; by-catch and discards</li> </ul>	Heileman (2011)
Habitat degradation and community modification <ul style="list-style-type: none"> <li>• Immediate causes: Pollution; Overfishing and destructive fishing practices; Global warming and climate change</li> </ul>	Heileman (2011)
Pollution <ul style="list-style-type: none"> <li>• Immediate causes: Sewage; Nutrients; Sediments; Hydrocarbons; Agricultural chemicals; Heavy metals and POPs; Solid waste</li> </ul>	Heileman (2011)

The issues in the table and list above are widely known, but for further information refer to the source documents. It is possible to reformulate the issues, or group or disaggregate them further, but it is unlikely that such changes will make material difference to the discussion on governance arrangements. This discussion, we suggest, needs to focus first on three broad composite issues:

1. Overfishing oceanic large pelagics regularly assessed by ICCAT
2. Overfishing coastal large pelagics not regularly assessed by ICCAT
3. Managing ocean environmental quality to support large pelagics

This three-item list contains many sub-issues that are linked and overlapping, including recreational fisheries for the two sets of species (see Figure 6 for the list breakdown). The two fisheries overfishing issues should be sufficiently distinct to elicit differences in their policy cycles and metrics of how structurally complete the governance arrangements are. Pollution and habitat degradation, which are the other major CLME TDA categories besides overfishing and are listed in Table 1, are combined into one issue of oceanic environmental quality as the third composite item. The main concern that pervades the recent literature and discussion on management of fisheries for large pelagics in the WCR is whether one or more (sub-)regional governance arrangements are warranted and feasible compared to more a comprehensive and active jurisdiction over all species and fisheries issues by ICCAT. This dilemma is an overarching and fundamental one for large pelagic fisheries that must be addressed first before more operational issues can be tackled. The environmental issue brings together intersectoral, EBM/EAF and climate change matters within its ambit.

### 3.3 Early images of policy cycle participation

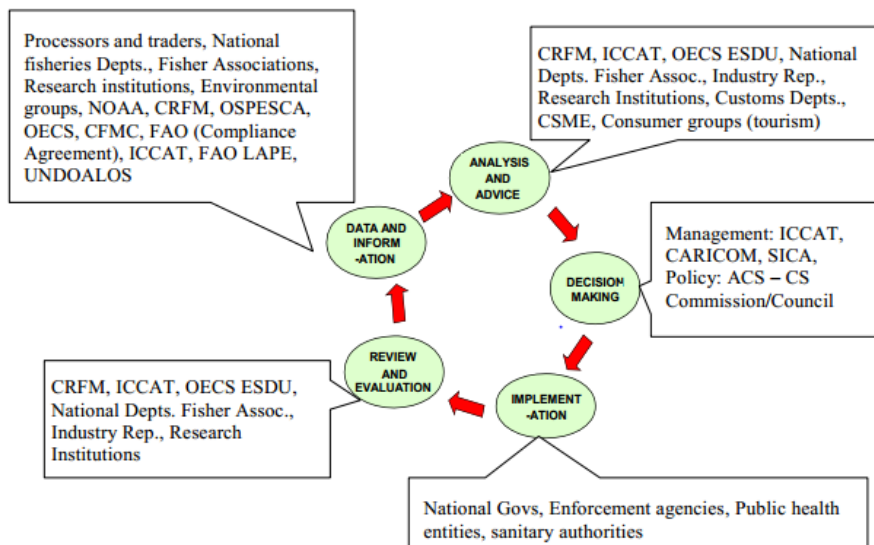
Early in the CLME project (the PFD-B phase), attention was given to the likely participants at various levels in each stage of a policy cycle for all large pelagic. The results are shown in Table 2 and Figure 7.

**Table 2 Policy cycle and multi-level governance stakeholders in the large pelagics pilot project, located in the open sea ecosystem as identified in the PDF-B phase of the project**

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
<b>Data and Information</b>	local FFOs, vendors, processors, traders	national fisheries depts., national FFOs, research institutions, environmental groups, research institutions, government science and technology institutions	OECS, CRFM, OSPESCA, CFMC, GCFI, FAO LAPE	A wide variety of technical entities with expertise in relevant areas e.g. NOAA, FAO, ICCAT, UNDOALOS
<b>Analysis and Advice</b>		national fisheries and environment depts. national FFOs, industry representatives, research institutions, customs depts.,	ACS Caribbean Sea Commission reviews advice provided in response to specific requests to appropriate	ICCAT

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
		consumer groups, (tourism)	agencies CRFM, OECS ESDU, CSME	
<b>Decision-making</b>			ACS Caribbean Sea Commission, SICA, CARICOM	ICCAT
<b>Implementation</b>		national governments, enforcement agencies, public health entities, sanitary authorities		
<b>Review and evaluation</b>		national fisheries and environment depts. national FFOs, industry representatives, research institutions	Caribbean Sea Commission and technical agencies, CRFM, OECS-ESDU	ICCAT

Source: Modified from Mahon and others (2011a) as adapted from Parsram (2007)

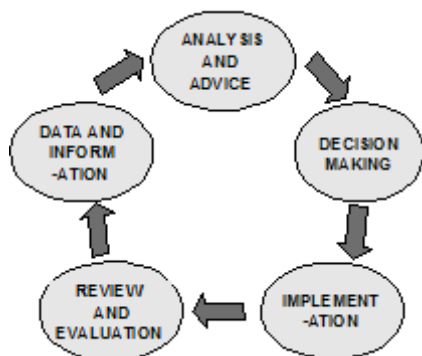


**Figure 7 Stakeholders by policy cycle stage for the large pelagic**

(Source: Mahon and others 2011a)

The current analysis builds upon these results, incorporating new views on policy cycles and interested parties. The governance arrangements for each issue are investigated in detail next.

### 3.4 Identify arrangements for each issue



**Figure 8 Model basic policy cycle used for governance assessment**

The assessment of incompleteness of an arrangement for an issue (Table 3) is based upon whether there are organizations with responsibility for the various stages of the policy cycle for that issue. The columns showing responsible agencies or bodies in Tables 4-6 (one table for each issue), were filled based on information in the literature and the experience of the CERMES consultants. These tables can all be reviewed and revised by the fishery stakeholders via several consultative modes, the most interactive but costly of which is face-to-face meeting. Other alternatives are through internet communication or ‘round robin’ edits. Where an organisation or body exists that has the potential to perform a function, but has not demonstrated any evidence of achieving that potential, the completeness receives a zero in order to reflect the current structure. This differs from evaluating the performance of arrangements as done in Level 2 of the governance assessment. It

says that structurally the body is basically invisible. We examine each issue using a model of a policy-cycle (Figure 8).

We present the tables in sequence below, but note that after the left half of Table 3 is initially filled in, then Tables 4-6 must be filled in before the right half can be completed. Tables 4-6 provide the data for insertion in the columns of completeness and priority. The table notes describe the contents in more detail. After Table 6 there is a summary discussion of the findings.

**Table 3 Wider Caribbean large pelagic fishery ecosystem governance architecture - System summary<sup>1</sup>**

System name: Wider Caribbean large pelagic fishery		Region: Eastern Caribbean		
Countries <sup>3</sup> : Ten (Barbados, Dominica, French West Indies [Martinique and Guadeloupe], Grenada, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, USA, Venezuela. Brazil, Cuba and Mexico are countries of additional possible interest.				
<i>Complete these columns then assess issues using the arrangements tables</i>		<i>After completing the arrangements tables, complete these columns</i>		
Trans-boundary issue <sup>2</sup>	Collective importance for countries involved <sup>4</sup>	Completeness of governance arrangement <sup>5</sup> % (category)	Priority for intervention to improve governance <sup>6</sup>	Observations <sup>7</sup>
Overfishing oceanic large pelagics regularly assessed by ICCAT	2	71% (1)	2	Countries in the region have little influence within ICCAT except for the largest e.g. USA
Overfishing coastal large pelagics not regularly assessed by ICCAT	3	14% (3)	9	Holds the most potential for new fisheries development and fish export opportunities
Managing ocean environment quality to support large pelagics	1	10% (3)	3	Not of highest priority despite growing importance
System architecture completeness index <sup>8</sup> >>		32%	5	<< System priority for intervention <sup>8</sup>

Table notes:

- <sup>1</sup> This table provides an overview of all the arrangements in the system and their status.
- <sup>2</sup> There is the question of how far down in detail these should go. This can be a matter of choice, and part of the flexibility of the system, but it should ideally be to the level where the transboundary issue requires a separate arrangement for management. To use a fishery example, individual species or groups of species may each require their own assessment and measures, but may all be handled in one institutional arrangement. However, for geopolitical reasons, some species or groups of species may require separate processes and should be treated as separate issues needing separate arrangements. Ideally, these issues should be identified and quantified in a TDA. If not, experts knowledgeable about the system may have to identify them.
- <sup>3</sup> Indicates how many of the total number of countries are involved in the particular issue.
- <sup>4</sup> This should be based on the TDA but may have to be based on expert judgement, or other sources of regional information. It is to be scored from 0-3.
- <sup>5</sup> The percentage given in this column is derived from the completeness scores allocated on the arrangement specific page (see Tables). This score will then be reallocated into a category where none = 3, low = 2, medium = 1 and high = 0) for input into the Priority for intervention column. The reason for reversing the score is that the higher the completeness, the less the need for intervention.
- <sup>6</sup> This priority would be calculated as the product of the 'collective importance for countries involved' for the issue and 'completeness of governance arrangement' category. It can range from 0-9.
- <sup>7</sup> This provides the opportunity for brief comments that may help the user interpret the information provided on the summary page, but is not intended to be a substitute for annotation.
- <sup>8</sup> Average.

It does not matter at which stage in the policy cycle the filling in of the governance assessment starts. Some may find it more intuitive to start with 'data and information' as the first row to be filled in while others may prefer another starting point.

In order to keep them compact the following tables make considerable use of acronyms. Most will be familiar to fisheries stakeholders, but use the list of acronyms in the front text for further information. The table also uses double-layered organisational identification in places (e.g. CARICOM-CRFM, SICA-OSPESCA) to acknowledge that, especially at the policy level, organisations may be internally networked to intervene through whichever entity is deemed most appropriate as the spokesperson or lead agency. When 'CRFM' is used it likewise means all or any of that organisation's several layers of components.

**Table 4 Wider Caribbean large pelagic fishery – Assessment for issue of overfishing oceanic large pelagics regularly assessed by ICCAT**

<b>Issue: Overfishing oceanic large pelagics regularly assessed by ICCAT</b>				
<b>Policy cycle stage<sup>1</sup> (governance function)</b>	<b>Responsible organisation or body<sup>2</sup></b>	<b>Scale level or levels<sup>3</sup></b>	<b>Completeness<sup>4</sup></b>	<b>Observations<sup>5</sup></b>
Policy analysis and advice	CRFM Caribbean Fisheries Forum, WECAFC working groups and Scientific Advisory Group TBF, IGFA, FAO, ICCAT Contracting Parties in the WCR, ICCAT SCRS Sub-Committee on Ecosystems	Sub-regional, regional, and extra-regional	1	Potential for this is not yet operationalised outside of ICCAT
Policy decision-making	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC,	regional, and extra-regional	2	Potential for this is not yet operationalised

<b>Issue: Overfishing oceanic large pelagics regularly assessed by ICCAT</b>				
<b>Policy cycle stage<sup>1</sup> (governance function)</b>	<b>Responsible organisation or body<sup>2</sup></b>	<b>Scale level or levels<sup>3</sup></b>	<b>Completeness<sup>4</sup></b>	<b>Observations<sup>5</sup></b>
	NOAA-NMFS			outside of ICCAT bodies
Planning analysis and advice	ICCAT Contracting Parties within the ICCAT structure, CBD, CITES, FAO, ICCAT SCRS Sub-Committee on Ecosystems	regional, and extra-regional	3	Operationalised in ICCAT's mandate and incorporates some biodiversity issues
Planning decision-making	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, NOAA-NMFS, OECS Secretariat,	regional, and extra-regional	2	Potential for this is not yet operationalised outside of ICCAT bodies
Implementation	ICCAT Contracting Parties within the ICCAT structure, CBD, CITES, FAO	national, regional, and extra-regional	3	Operationalised in ICCAT's mandate and incorporates biodiversity issues as EAF strengthens within ICCAT
Review and evaluation	ICCAT, ICCAT Contracting Parties, CRFM, national FFOs, universities, fisheries authorities, enforcement agencies, OECS, public health entities, fish traders	local, national, regional, and extra-regional	2	Weak linkages between ICCAT and most Caribbean fisheries organisations with exception of some Contracting Parties and CRFM Secretariat
Data and information	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, NOAA-NMFS, OECS Secretariat, GCFI	national, regional and extra-regional	2	Potential for this is not yet fully operationalised
Overall total <sup>6</sup> and % completeness >>>			15/21 =71%	

<b>Arrangements by issue table notes (applies to all of the similar following tables)</b>
<ol style="list-style-type: none"> <li>1. This column lists the governance functions that are considered to be necessary at two levels: (1) the meta-level of policy preparation and setting; and (2) the policy cycle level as per Figure 3.</li> <li>2. The organisation or organisations responsible for the function should be listed here</li> <li>3. These are the level or levels on the jurisdictional scale at which the function is performed. There are five levels on the scale of jurisdiction: local, national, sub-regional, regional, and extra-regional.</li> <li>4. Rate on a scale of 0 = absent, 1 = low (ad hoc, irregular, unsupported by formal documentation or little known by stakeholders), 2 = medium, 3 = high (clearly identifiable, regular, documented or supported by policy and legislation and widely known among stakeholders)</li> <li>5. This provides the opportunity for brief comments that may help the user interpret the information provided, but is not intended to be a substitute for annotation.</li> <li>6. Assume each step is equally important and receives equal weighting for the completeness overall.</li> </ol>

In this table we see that, as expected, ICCAT dominates the arrangement and that the management of the large pelagics in which ICCAT is interested is well developed. The main weakness is the linkage between ICCAT governance components and the organisations in the region with which it should interface. EAF is increasingly being incorporated into ICCAT. Whether biodiversity issues (e.g. sea birds, sharks and sea turtles as by-catch) are addressed only in ICCAT (SCRS Sub-Committee on Ecosystems) or in biodiversity governance arrangements outside of ICCAT, or both, are matter that are still evolving.

**Table 5 Wider Caribbean large pelagic fishery– Overfishing coastal large pelagics not regularly assessed by ICCAT**

<b>Issue: Overfishing coastal large pelagics not regularly assessed by ICCAT</b>				
<b>Policy cycle stage<sup>1</sup> (governance function)</b>	<b>Responsible organisation or body<sup>2</sup></b>	<b>Scale level or levels<sup>3</sup></b>	<b>Completeness<sup>4</sup></b>	<b>Observations<sup>5</sup></b>
Policy analysis and advice	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, NOAA-NMFS, UNDOALOS	national, regional and extra-regional	0	No arrangement in place
Policy decision-making	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA	national, regional and extra-regional	0	No arrangement in place
Planning analysis and advice	CRFM Scientific Meeting, national fisheries and environment depts. national FFOs, industry representatives, research institutions, CARICOM-CRFM, OECS-ESDU, CSME, ICCAT, WECAFC/OSPESCA/CRFM/CFMC Working Group on Recreational Fisheries, WECAFC Working Group on the Management of Deep Sea fisheries, NOAA-NMFS, ICCAT SCRS Small Tunas Species Group and Sub-Committee on Ecosystems	national, regional and extra-regional	1	No formal arrangement in place, but WECAFC, OSPESCA and CRFM meetings may provide some advice
Planning decision-making	CRFM Caribbean Fisheries Forum, CRFM Ministerial Council, ACS-CSC, SICA-OSPESCA, ICCAT	national, regional and extra-regional	0	No arrangement in place
Implementation	Fisheries authorities, fisher groups, university & other research collaborations, CRFM Secretariat, national governments, enforcement agencies, public health entities, sanitary authorities	national, regional	0	No arrangement in place as CRFM members take no or ad hoc action and there is no connection to USA or other management plans
Review and evaluation	CARICOM-CRFM, OECS, ICCAT, GCFI, NOAA, FAO/WECAFC, FAO, SICA-OSPESCA, national fisheries and environment depts. national FFOs, industry representatives, research institutions,	national, regional and extra-regional	1	No arrangement in place but some discussion takes place at CRFM meetings
Data and	customs depts., consumer groups,	local, national,	1	CRFM Scientific

<b>Issue:</b> Overfishing coastal large pelagics not regularly assessed by ICCAT				
<b>Policy cycle stage<sup>1</sup> (governance function)</b>	<b>Responsible organisation or body<sup>2</sup></b>	<b>Scale level or levels<sup>3</sup></b>	<b>Completeness<sup>4</sup></b>	<b>Observations<sup>5</sup></b>
information	national fisheries depts., local FFOs, national FFOs, vendors, processors, traders, recreational fishers, charter boat operators, research institutions, environmental groups, OECS, CRFM, FAO, OSPESCA, CFMC, GCFI, FAO/WECAFC, NOAA, ICCAT	sub-regional, and extra-regional		Meetings attempt to manage some fishery data but these are incomplete and socio-economic data are scarce
Overall total <sup>6</sup> and % completeness >>>			3/21 =14%	

As noted by the several studies summarised earlier, the governance arrangement for (mainly regional) coastal large pelagics is poorly developed. Ultimately most of the governmental and non-governmental fisheries organisations in the Wider Caribbean Region will need to become involved due to the potential of large pelagics for both commercial and recreational (especially catch and release) fisheries depending upon their stock status and management measures.

**Table 6 Wider Caribbean large pelagic fishery – Assessment for issue of managing ocean environmental quality to support large pelagic**

<b>Issue:</b> Managing ocean environmental quality to support large pelagics				
<b>Policy cycle stage<sup>1</sup> (governance function)</b>	<b>Responsible organisation or body<sup>2</sup></b>	<b>Scale level or levels<sup>3</sup></b>	<b>Completeness<sup>4</sup></b>	<b>Observations<sup>5</sup></b>
Policy analysis and advice	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, UNEP-CEP, OECS-ESDU, ICES, CITES, CBD, IMO	regional, and extra-regional	0	No arrangement in place except for few sub-issues
Policy decision-making	OECS-ESDU, CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, CEHI, UNEP-CEP, IOCARIBE, CCCCC, UWI, national fisheries and environment depts. national FFOs, research institutions	national, regional, and extra-regional	0	No arrangement in place, but sub-issues e.g. land-based pollution, climate change etc may have own governance arrangements so separating governance arrangements into these may be useful in the next round
Planning analysis and advice	OECS-ESDU, CARICOM-CRFM, ACS-CSC, SICA-OSPESCA, ICCAT, CEHI, UNEP-CEP, ICCAT SCRS Sub-Committee on Ecosystems	national, regional, and extra-regional	0	No arrangement in place except for few sub-issues
Planning decision-making	SICA-OSPESCA, ICCAT, CEHI, UNEP-CEP, OECS-ESDU, CARICOM-CRFM,	national, regional, and	0	No arrangement in place except for few sub-



Issue: Managing ocean environmental quality to support large pelagics				
Policy cycle stage <sup>1</sup> (governance function)	Responsible organisation or body <sup>2</sup>	Scale level or levels <sup>3</sup>	Completeness <sup>4</sup>	Observations <sup>5</sup>
	national fisheries and environment depts. national FFOs, research institutions, enforcement agencies	extra-regional		issues
Implementation	SICA-OSPESCA, ICCAT, CEHI, UNEP-CEP, IOCARIBE, OECS-ESDU, CARICOM-CRFM, CEHI, CCCCC, FAO-WECAFC, GCFI	regional, and extra-regional	0	No arrangement in place except for few sub-issues
Review and evaluation	national fisheries depts., national FFOs, research institutions, CIMH, environmental groups, OSPESCA, research institutions, OECS, CRFM	local, national, regional	2	Very little currently on the impacts of climate change and variability on any of the region's fisheries, and little pollution monitoring
Data and information	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, UNEP-CEP, OECS-ESDU, CIMH	regional, and extra-regional	0	No arrangement in place except for few sub-issues
Overall total <sup>6</sup> and % completeness >>>			2/21 =10%	

Although climate change is sometimes stated as a priority area for attention and action in fisheries there is little evidence to date of it being actively addressed in plans. Oceanic marine pollution is not routinely monitored by fisheries authorities. Discarded floating fishing gear, waste and debris of terrestrial origin and a variety of chemical pollutants are all potential threats.

### 3.5 Summary of findings

Returning to Table 3 we see that there is an overall completeness score of 32% for the policy cycles covering the three issues and the level of priority averages at about 5 for this fishery system. Low levels of completeness for the coastal large pelagics and fisheries environment are masked by the fairly well developed (and fairly complete) ICCAT dominated arrangements for assessed oceanic large pelagics.

There is not yet the legal-institutional mandate and administrative support to establish and sustain a regional fisheries management organisation (RFMO) for coastal large pelagics. This direction needs to be agreed upon and negotiated within and beyond the CRFM. Perhaps the CARICOM Common Fisheries Policy will provide a foundation and starting point for the required multi-stakeholder engagement, but WECAFC is an alternative if it becomes empowered to assume management responsibility.

Tables 4-6 identify mainly the formal arena in which governance interactions are played out. However, governance as understood in the CLME Project includes the interactions of all the actors with interests in governance outcomes. In order to understand and assess governance processes the roles of and interactions among all the actors must be considered. There are typically high levels of private sector investment in both commercial and recreational fisheries for large pelagics. This requires identification of these actors and their roles with reference to the policy cycles. It also provides the opportunity to identify where partnerships exist and/or can be developed. The full identification of all stakeholders is beyond the scope of this assessment of governance architecture and arrangements. A table in which the stakeholders can be identified is set up in Appendix 1 for future use. The stakeholder analysis contracted

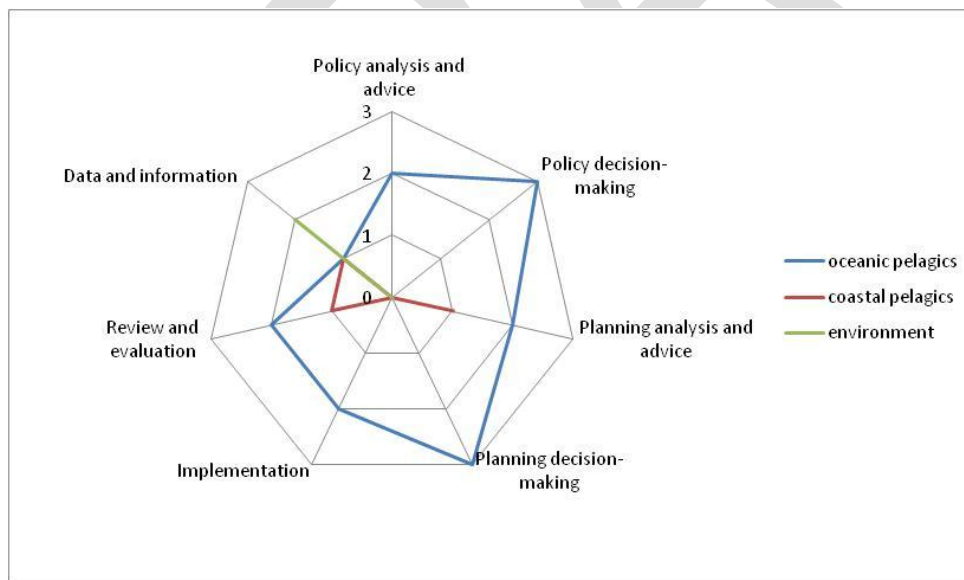
by the CRFM Secretariat as a case study activity (CRFM 2012) cannot be used as a basis for filling in the table and developing useful practical detail on the policy cycles through a perspective on partnerships. Unlike previous analyses it does not use the policy cycles to identify stakeholders and their roles, but it does provide other general insights into the capacities of the various stakeholders.

The completeness of policy cycle stages in the governance arrangements for the issues in Tables 4-6 is summarized in Table 7 and Figure 9. If the assessment could be conducted with some government, harvest and postharvest stakeholders as anticipated in Appendix 1, it would be informative to know what variation there is among stakeholders and the reasons for variation observed.

**Table 7 Summary of completeness scores by issue and policy cycle stage**

Issue arrangement Stage	Overfishing oceanic large pelagics regularly assessed by ICCAT	Overfishing coastal large pelagics not regularly assessed by ICCAT	Managing ocean environmental quality to support large pelagics
Policy analysis and advice	2	0	0
Policy decision-making	3	0	0
Planning analysis and advice	2	1	0
Planning decision-making	3	0	0
Implementation	2	0	0
Review and evaluation	2	1	0
Data and information	1	1	2

Table and figure key: 0=absent; 1=low; 2= medium; 3= high level of policy cycle completeness



**Figure 9 Summary of completeness scores by issue and policy cycle stage**

Figure 9 reinforces the image of the oceanic large pelagic policy cycle being the only one well developed. For the other two issues, it is mainly at the CRFM Scientific Meetings and within WECAFC that provides a low level of activity particularly in the data and information and the planning advice stages of the policy cycle.

### 3.6 Integration and linking of arrangements

The assessment of integration is based on the extent to which issue specific arrangements in a system share a responsible body at various policy cycle levels. The information on responsibility for various stages from Tables 4-6 is summarized in Table 8. Integration is 100% due to the substantial overlap of stakeholders at each stage of the policy cycle across all three issues (no graphic necessary to illustrate).

**Table 8 Agencies with responsibility for issues of the Wider Caribbean large pelagic fishery**

<b>Issue</b> <b>Stage</b>	<b>Overfishing oceanic large pelagics regularly assessed by ICCAT</b>	<b>Overfishing coastal large pelagics not regularly assessed by ICCAT</b>	<b>Managing ocean environmental quality to support large pelagics</b>
<b>Policy analysis and advice</b>	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, NOAA-NMFS	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA	OECS-ESDU, CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, CEHI, UNEP-CEP, IOCARIBE, CCCCC, UWI
<b>Policy decision-making</b>	ICCAT Contracting Parties within the ICCAT structures, CITES, CBD, FAO	CRFM Scientific Meeting, national fisheries and environment depts. national FFOs, industry representatives, research institutions, CARICOM-CRFM, OECS, CSME, ICCAT, FAO-WECAFC, NOAA-NMFS	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, UNEP-CEP, OECS-ESDU
<b>Planning analysis and advice</b>	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, NOAA-NMFS, OECS	CRFM Caribbean Fisheries Forum, CRFM Ministerial Council, ACS-CSC, SICA-OSPESCA, ICCAT	OECS-ESDU, CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, CEHI, UNEP-CEP, IOCARIBE, CCCCC, UWI, national fisheries and environment depts. national FFOs, research institutions
<b>Planning decision-making</b>	ICCAT Contracting Parties within the ICCAT structures, CITES, CBD, FAO	Fisheries authorities, fisher groups, university & other research collaborations, CRFM Secretariat, national governments, enforcement agencies, public health entities, sanitary authorities	OECS, CARICOM-CRFM, ACS-CSC, SICA-OSPESCA, ICCAT, CEHI, UNEP-CEP

<b>Issue</b> <b>Stage</b>	<b>Overfishing oceanic large pelagics regularly assessed by ICCAT</b>	<b>Overfishing coastal large pelagics not regularly assessed by ICCAT</b>	<b>Managing ocean environmental quality to support large pelagics</b>
<b>Implementation</b>	ICCAT, ICCAT Contracting Parties, CRFM, national FFOs, universities, fisheries authorities, enforcement agencies, OECS, public health entities, fish traders	CARICOM-CRFM, OECS, ICCAT, GCFI, NOAA, FAO/WECAFC, FAO, SICA-OSPESCA, national fisheries and environment depts. national FFOs, industry representatives, research institutions,	SICA-OSPESCA, ICCAT, CEHI, UNEP-CEP, OECS, CARICOM-CRFM, national fisheries and environment depts. national FFOs, research institutions, enforcement agencies, environmental groups,
<b>Review and evaluation</b>	CARICOM-CRFM, ICCAT, ACS-CSC, SICA-OSPESCA, FAO-WECAFC, NOAA-NMFS, OECS, GCFI	customs depts., consumer groups, national fisheries depts., local FFOs, national FFOs, vendors, processors, traders, recreational fishers, charter boat operators, research institutions	SICA-OSPESCA, ICCAT, CEHI, UNEP-CEP, IOCARIBE, OECS, CARICOM-CRFM, CEHI, CCCCC, FAO-WECAFC, GCFI
<b>Data and information</b>	fishers, local FFOs, vendors, processors, fish traders, recreational fishers, charter boat operators, national fisheries depts., national FFOs, research institutions, environmental groups, enforcement agencies, OECS, CRFM, OSPESCA, FAO/WECAFC, GCFI, NOAA-NMFS	Fisheries authorities, fisher groups, university & other research collaborations, NGOs, international agencies, CDEMA, CCCCC	national fisheries depts., national FFOs, research institutions, environmental groups, OSPESCA, research institutions, OECS, CRFM

The operationalisation of instruments such as the IUU Declaration and the CARICOM Common Fisheries Policy, along with the recent WECAFC bodies, may serve to aid the further integration of governance arrangements for this fishery, but this will take time.

## **4 Level 2 assessment - performance of governance arrangements**

The Level 2 assessment evaluates the functionality and performance of governance arrangements according to criteria agreed upon by stakeholders. Mahon and others (2010) provide the conceptual background to a process for examining governance arrangements in transboundary water systems.

### **4.1 Principles for assessment**

The principles that should guide the establishment and the functioning of a governance arrangement, and the extent to which they are being observed in the processes, are an important part of a governance

assessment. Assessing them can provide very practical insight into where the systems need the most attention. Key end product principles are: sustainability, efficiency, rationality, inclusiveness, equity, precaution and responsiveness. In order to reach these ends, process principles include: transparency, accountability, comprehensiveness, participation, representativeness, information and empowerment. Processes and products are linked and overlap. Table 10 sets out a suite of 13 principles used in CLME fishery governance assessments (Mahon and others 2012). Each of the principles is named and then explained to facilitate shared understanding and improved reliability in cases where several people are conducting the ratings and then pooling results. In a face-to-face assessment, starting with the exercise of exchanging examples of the principles in practice could reduce much uncertainty in the results. In this case there was a single person assigning the scores.

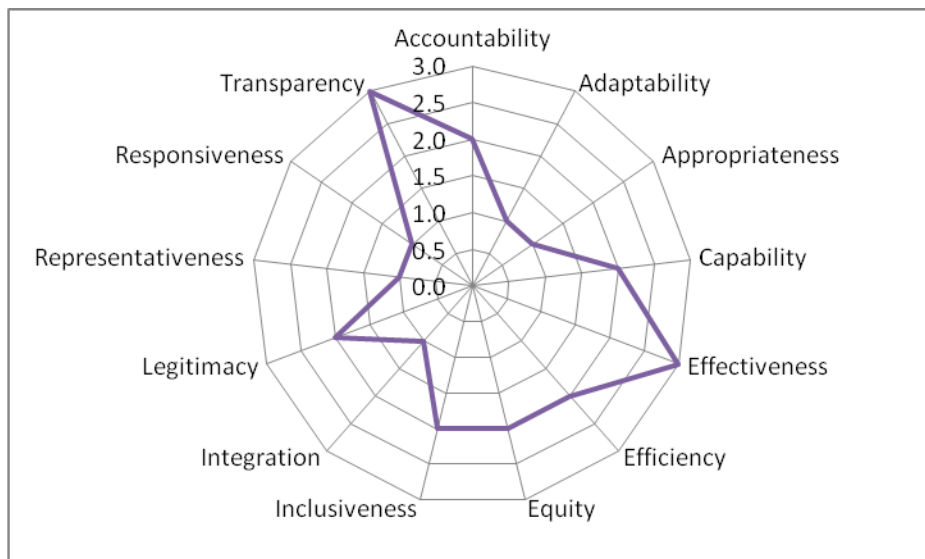
**Table 9 Principles to be assessed and the statements that can be used to assess them**

<b>Principle</b>	<b>Statement</b>
Accountability	The persons/agencies responsible for the governance processes can be held responsible for their action/inaction
Adaptability	The process has ways of learning from its experiences and changing what it does
Appropriateness	Under normal conditions, this process seems like the right one for what it is trying to achieve
Capability	The human and financial resources needed for the process meet its responsibility are available.
Effectiveness	This process should succeed in leading to sustainable use of ecosystem resources and/or control harmful practices
Efficiency	This process makes good use of the money, time and human resources available and does not waste them.
Equity	Benefits and burdens that arise from this process are shared fairly, but not necessarily equally, among stakeholders
Inclusiveness	All those who will be affected by this process also have a say in how it works and are not excluded for any reason.
Integration	This process is well connected and coordinated with other related processes.
Legitimacy	The majority of people affected by this process see it as correct and support it, including the authority of leaders
Representativeness	The people involved in this process are accepted by all as being able to speak on behalf of the groups they represent
Responsiveness	When circumstances change this process can respond to the changes in what most think is a reasonable period of time
Transparency	The way that this process works and its outcomes are clearly known to stakeholders through information sharing

## 4.2 Assessment of performance

Key stakeholder groups may be asked to provide a score for the governance arrangement for each issue for each of the 13 principles in Table 10. Response categories are: disagree strongly = 1, disagree = 2, agree = 3, agree strongly = 4. It would have been ideal to conduct such a stakeholder exercise but this was not feasible in the fishery for large pelagics. For the Level 2 assessment we have instead relied once more on the literature and the experiences of the authors. If we take the arrangements and, based on the level of integration, consider them to constitute one ICCAT-centred suite in the absence of functional coastal large pelagic and supporting environment arrangements, then a single performance assessment is

possible as below. Figure 10 summarises results of the Level 2 assessment of the arrangement for the large pelagic fishery that has ICCAT as its core.



**Figure 10 Summary Level 2 governance assessment**

It does not rate the relative importance of the principles since all are taken to be important, but it suggests that performance in general is fair. Most scores tend to lie between disagree (score 2) and agree (score 3). The general impression that the processes are moderately functional with regard to the principles means that improvement of these perceptions and scores could be a governance objective.

This general conclusion provides the opportunity to reflect on what might be done differently in order to improve the arrangements with respect to the principles. This would be best done in consultation with the stakeholders by asking them what they would like to change in order for them to feel comfortable that the principle was being observed in the process.

Functional linkages and interaction within governance arrangements as well as between them are a critical component of the governance system. While the clustering analysis found structural (governance architecture) arrangements that reflect integration as being possible or likely, their existence does not mean that integration is actually taking place. This can best be determined by in depth interviews and by examination of the documentation of the functioning arrangements. Sound architecture is seen as a necessary, but not sufficient condition for integration required for an ecosystem approach to fisheries.

It should also be noted that integration can take place in the absence of appropriate formal structure on an ad hoc basis, through individual initiative and personal contacts. While this is better than nothing and may be all that is possible given the prevailing architecture, it is not considered to be a sustainable, transparent, accountable approach to addressing the challenge of integration across issues.

## 5 Conclusions and recommendations

Assessments of governance architecture such as carried out for this case study are not common. The purpose of the assessment carried out here was to measure and visualise the governance arrangements for the issues identified for the large pelagic fishery in order to facilitate discussion among stakeholders. This discussion can lead to shared interest in what should be in place, what principles should be prominent and how the system should be structured. The assessment is not intended to lead to a

prescriptive output regarding what should be in place. Nonetheless, some broad observations can be made on aspects of the system that need attention if arrangements are to be structured in a way that is likely to lead to good governance, including the promotion of intersectoral and inter-issue integration that is needed for an ecosystem approach to fisheries.

There is an urgent need to better operationalise governance arrangements for the issues (addressing Level 1), and by making them known and more open to all stakeholders to take part in the processes effectively facilitate improved performance (helps to address Level 2). Although much more can be read into the results, we acknowledge that this first draft of the assessment is fairly crude and has not been participatory.

We recommend that the governance arrangements for large pelagics be strengthened to address both ocean wide and regional large pelagics, including linkages to the regional arrangement for pollution through EAF. Countries participating in the fisheries for large pelagics in the WCR should:

- Determine with ICCAT an approach to shared operational jurisdiction over large pelagics
- Develop with ICCAT an EAF plan for ocean wide large pelagics that traverse the region
- Develop with ICCAT an EAF management plan for regional large pelagics
- Establish a mechanism for integration and implementation of the above EAF management plans
- Implement selected key EAF activities

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## Appendix 1: Suggested table for scoring the completeness of policy cycle stages for the five governance issues by country and stakeholder group

A table can be filled in for each of the issues below and others can be added.

1. Overfishing oceanic large pelagics regularly assessed by ICCAT
2. Overfishing coastal large pelagics not regularly assessed by ICCAT
3. Managing ocean environmental quality to support large pelagics

The three stakeholder groups suggested can be further sub-divided and others added as informed by the stakeholder analysis (a component of the case study for which CRFM Secretariat has contracted a consultant). The process can be a compilation of results from national consultations although a more collective and interactive process of sub-regional consultation may be possible by engaging government representatives knowledgeable about this fishery while they are attending CRFM or other meetings.

Issue:																											
Policy cycle stage	Country A			Country B			Country C			Country D			Country E			Country F			Country G			Overall					
Stakeholder group GOV=government HAR=harvest sector POS=postharvest	G	H	P	G	H	P	G	H	P	G	H	P	G	H	P	G	H	P	G	H	P	G	H	P	G	H	P
	O	A	O	O	A	O	O	A	O	O	A	O	O	A	O	O	A	O	O	A	O	O	A	O	O	A	O
	V	R	S	V	R	S	V	R	S	V	R	S	V	R	S	V	R	S	V	R	S	V	R	S	V	R	S
Policy analysis and advice																											
Policy decision-making																											
Planning analysis and advice																											
Planning decision-making																											
Implementation																											
Review and evaluation																											
Data and information																											

## Appendix 2. Suggested table for identification of stakeholders by issue

In Appendix 1 it was recognised that stakeholders may need to be broken down into finer groups than government, harvest and postharvest sectors. Indeed further disaggregation is useful for understanding the policy cycles and institutional relationships especially in the Level 2 analysis. This information will be supplied by the stakeholder analysis (a component of the case study for which CRFM Secretariat has contracted a consultant).

<b>Issue</b>			
<b>Policy cycle stage (governance function)</b>	<b>National/local stakeholders</b>	<b>(Sub-)regional stakeholders</b>	<b>International stakeholders</b>
<b>Policy analysis and advice</b>			
<b>Policy decision-making</b>			
<b>Planning analysis and advice</b>			
<b>Planning decision-making</b>			
<b>Implementation</b>			
<b>Review and evaluation</b>			
<b>Data and information</b>			