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**DRAFT SUB-REGIONAL MANAGEMENT PLAN
FOR BLACKFIN TUNA FISHERIES IN THE
EASTERN CARIBBEAN
(Stakeholder Working Document)**

**CRFM Secretariat
Belize 2013**

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LIST OF ACRONYMS AND ABBREVIATIONS

BLFFMP	Blackfin Tuna Fisheries Management Plan
CARICOM	Caribbean Community
CBD	Convention on Biological Diversity
CCCFP	Caribbean Community Common Fisheries Policy
CECAF	Fishery Committee for the Eastern Central Atlantic
CFRAMP	CARICOM Fisheries Resource Assessment and Management Program
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLME	Caribbean Large Marine Ecosystem
CNFO	Caribbean Network of National Fisherfolk Organizations
COPESCAALC	Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean
CPPS	Permanent Commission for the South Pacific
CPUE	Catch per Unit of Effort
CRFM	Caribbean Regional Fisheries Mechanism
EAF	Ecosystem Approach to Fisheries
EcoQO	Ecosystem Quality Objective
EEZ	Exclusive Economic zone
FAC	Fishery Advisory Committee
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization of the United Nations
FL	Fork Length
HACCP	Hazard Analysis Critical Control Point
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tuna
ICRW	International Convention for the Regulation of Whaling
IFREMER	L'Institut Français de Recherche pour l'Exploitation de la Mer
IOTC	Indian Ocean Tuna Commission
IUCN	International Union for Conservation of Nature
IUU fishing	Illegal, Unreported and Unregulated Fishing
IWC	International Whaling Commission,
LPWG	Large Pelagic Fish Resource Working Group
LRS	Licensing and Registration System
MARPOL	International Convention on the Prevention of Marine Pollution from Ships
MCS	Monitoring, Control and Surveillance
MMA	Ministero do Meio Ambiente
MOU	Memorandum of Understanding
MSY	Maximum Sustainable Yield
NAFO	Northwest Atlantic Fisheries Organization
NBC	North Brazil Current
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OECS	Organization of Eastern Caribbean States
OLDEPESCA	Latin American Organization for Fisheries Development
OSPESCA	Organization for Fisheries and Aquaculture of the Central American Isthmus
RFO	Regional Fisheries Organization
SAP	Strategic Action Programme
SBO	Societal Benefit Objective
SeaWiFS Project	Sea viewing Wide Field-of-view Sensor Project

SIDS	Small Island Developing States
SPAW	Protocol for Specially Protected Areas and Wildlife
SPS	Sanitary and Phyto-Sanitary
UBN	Unmet Basic Needs
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNGA	United Nations General Assembly
USA	United States of America
WCR	Wider Caribbean Region
WECAFC	Western Central Atlantic Fishery Commission
WGI	Working Group on ICCAT
WSSD	World Summit on Sustainable Development

1. PREFACE

This Sub-regional Fisheries Management Plan for blackfin tuna (*Thunnus atlanticus*) for the Eastern Caribbean is the second management plan prepared following CRFM Ministerial Council adoption of the Agreement on the Establishment of the Caribbean Community Common Fisheries Policy (CCCFP). The CCCFP has as one of its objectives to develop harmonized measures and operating procedures for sustainable fisheries management, post-harvest practices, fisheries research and fisheries trade and the administration of the fishing industry. The agreement is guided by the principle of applying internationally recognized standards and approaches, in particular the ecosystem approach and the precautionary approach to fisheries management. Moreover, the plan addresses joint actions proposed in the 2010 Castries (St. Lucia) Declaration on Illegal, Unreported and Unregulated Fishing of the Caribbean Regional Fisheries Mechanism.

The development of the present sub-regional fisheries management plan for blackfin tuna has been informed by the work carried during the CRFM/CLME Case Study on large pelagic fisheries. The following key activities generated relevant information: review of existing policy, legal and institutional arrangements for governance and management of large pelagic fisheries in the Caribbean Large Marine Ecosystem (CLME); the identification and analysis of stakeholders; data improvement and CRFM Large Pelagic Fish Resource Working Group's (LPWG's) efforts to conduct a sub-regional analysis of the blackfin tuna fishery. The plan is therefore fully compatible with the CRFM/CLME Strategic Action Programme for the Effective Governance and Management of Large Pelagic Fisheries in the CLME (Tietze and Singh-Renton, 2012).

During the 6th, 7th and 8th CRFM annual scientific meetings, the CRFM LPWG reviewed the available data, information and knowledge on blackfin tuna resources, and also considered and conducted preliminary analyses of Eastern Caribbean fisheries data (CRFM 2010, 2011a, 2012a). The CRFM LPWG recommended, given the concerns regarding changes in data collection protocols and the use of FADs and in keeping with the principles of the precautionary approach, that catch levels not be increased above the current levels. Further, the working group deemed it appropriate to establish a multi-annual sub-regional plan with the objective of ensuring that the stock will be exploited under sustainable biological, economic, environmental and social conditions.

For this purpose, the sub-regional management plan aims at progressive implementation of an ecosystem-based approach to fisheries management and contributes to efficient fishing activities of the blackfin tuna resource within an economically viable and competitive small-scale fisheries sector, providing a fair standard of living for those who depend on blackfin and other small coastal tunas and tuna-like fishes and taking the interests of consumers into account.

The sub-regional management plan is not a legally binding instrument, which can form the basis of a legal challenge. The plan can be modified at any time and does not restrict the national authorities' discretionary powers set out in the national Fisheries Acts of the participating countries. The national authorities can, for reasons of conservation or for any other valid reasons, propose modifications of any provision of this plan.

In order to ensure compliance with this sub-regional management plan, the participating countries are requested to adhere to (at least) the following articles of the CCCFP:

- Article 12: Conservation and Management of Fisheries Resources
- Article 13: Registration and Licensing
- Article 14: Inspection, Enforcement and Sanctions

2. MISSION

The sub-regional fisheries management plan for blackfin tuna in the Eastern Caribbean aims to assist the concerned stakeholders to implement an ecosystem-based approach to fisheries management, and to contribute to efficient fishing activities of the blackfin tuna fishery resource within an economically viable and competitive small-scale fisheries sector, providing a fair standard of living for those who depend on fishing blackfin and other small tunas and tuna-like fishes, and taking the interests of consumers into account.

3. GUIDING PRINCIPLES AND VISION FOR THE FUTURE

The present plan is guided by:

- A. The principles as set out in the 1995 FAO Code of Conduct for Responsible Fisheries, and particularly Article 7 of the Code on Fisheries Management.
- B. The fundamental principles of the Caribbean Community Common Fisheries Policy (CCCFP), as outlined in Article 5 of the Agreement establishing the CCCFP:
 - (a) use of the best available scientific information in fisheries management decision-making, taking into consideration traditional knowledge concerning the resources and their habitats as well as environmental, economic and social factors;
 - (b) application of internationally recognized standards and approaches, in particular the precautionary approach to fisheries management and the ecosystem approach to fisheries management;
 - (c) the principle that the level of fishing effort should not exceed that commensurate with the sustainable use of fisheries resources;
 - (d) the participatory approach, including consideration of the particular rights and special needs of traditional, subsistence, artisanal and small-scale fishers;
 - (e) principles of good governance, accountability and transparency, including the equitable allocation of rights, obligations, responsibilities and benefits; and
 - (f) the principle of subsidiarity, in particular that the Competent Agency will only perform those tasks which cannot be more effectively achieved by individual Participating Countries.
- C. National Authorities responsible for fisheries management in the participating countries carry the main responsibility for implementing this sub-regional management plan within their national jurisdictions and for monitoring the status of implementation against the objectives and indicators agreed upon.

The vision for the blackfin tuna fishery is, in line with the Caribbean Community Common Fisheries Policy, an effective cooperation and collaboration among participating countries in the conservation, management and sustainable utilization of the blackfin tuna resource and the related ecosystems in the Eastern Caribbean region in order to secure the maximum benefits from those resources for the people and for the Caribbean region as a whole.

The overall vision for the future of the Wider Caribbean Region (WCR) encompasses healthy marine ecosystems that are adequately valued and protected through robust, integrative and inclusive governance arrangements at local, national, sub-regional and regional levels that effectively enable adaptive management, which maximizes, in a sustainable manner, the provision of goods and services in support of enhanced livelihoods and human well-being.

The overarching Ecosystem Quality Objective (EcoQO) encompasses healthy pelagic ecosystems including the conservation, protection and/or restoration of the fish stocks and biodiversity of the pelagic ecosystem. The objective also aims to safeguard the habitats and community structure of the ecosystems from fishery impacts, direct and indirect physical impacts and pollution impacts that diminish the contributions of these systems to enhanced livelihoods and human well-being.

The overarching Societal Benefit Objective (SBO) encompasses the provision of goods and services by the ecosystems so that it maximizes the systems' contributions to societal well-being and development needs in the Wider Caribbean Region including the preservation of aesthetic, traditional, health and scientific values of the ecosystem. The SBO further envisages contributions from the shared living marine resources to meet the region's food and nutritional and socio-economic development needs. These needs include the alleviation of poverty and reduction of vulnerability of small-scale fishers, their communities and special target groups such as the elderly, women and children in fishing communities.

In terms of governance, the objective encompasses the establishment and implementation of coordinated and cost-effective governance arrangements for safeguarding the environmental health of the large pelagic fisheries ecosystem. It further includes the establishment and implementation of coordinated and cost-effective fisheries governance and management arrangements that are broadly supported, well informed, equipped to implement the ecosystem approach and allow for the equitable participation of all stakeholders.

The objectives for the management and conservation of blackfin tuna fisheries are part of the general objectives for the pelagic fisheries ecosystem for the CLME, which can be divided into ecosystem quality objectives and societal benefit objectives. These objectives can be related to the three key transboundary issues in the CLME project, which were identified by the CLME Project, i.e. unsustainable fisheries, habitat degradation and community modification and pollution. The relationship is shown in table 1 below.

Table 1: Objectives and Strategic Directions for the Pelagic Fisheries Ecosystem for the CLME

TRANSBOUNDARY ISSUES	UNSUSTAINABLE FISHERIES	HABITAT DEGRADATION AND COMMUNITY MODIFICATION	POLLUTION
<i>Ecosystem Quality Objective</i> Conservation, and restoration where necessary, of the health of the pelagic ecosystem within the WCR.	Protection, and restoration where necessary, of the health and natural balance of exploited fish populations occurring within the marine ecosystem, adopting a precautionary management strategy, as needed.	Conservation, and restoration where necessary, of the natural structure and function of the ecosystem, biological diversity, and ecosystem resilience, adopting a precautionary management strategy, as needed.	Conservation, and restoration where necessary, of the health of the aquatic environment, with emphasis on guaranteeing agreed standards of water and habitat quality.

<i>Societal Benefit Objective</i>	Sustainable and optimal use of living marine resources, for meeting the region's food and nutrition security needs, and other social and economic benefits associated with such exploitation.	Responsible and sustainable management of pelagic ecosystem goods and services, for fulfilling social and economic development needs, while also preserving the full aesthetic, traditional, cultural, health, educational and scientific values of such goods and services.	Fulfillment of social and economic development objectives, through responsible management of environmental health, necessary for preventing risks to human health and well-being.
Provision of goods and services by the pelagic ecosystem such that it contributes to societal development needs of the WCR, and to preservation of the associated aesthetic, traditional, health, educational and scientific values.			

4. GEOGRAPHY

The Caribbean Sea Large Marine Ecosystem (CLME) is a semi-enclosed sea located between North and South America. It is bounded by Central America to the west.

Figure 1: Location of the Caribbean Large Marine Ecosystem. (Source: NOAA)



It encompasses an area of 2,515,900 square kilometers and is the second largest sea in the world. The CLME is comprised of four deep basins: the Venezuelan Basin in the east, the Colombian Basin in the west (from which it is separated by a ridge), the Cayman Trough in the northwest, and the Yucatan Basin in the north.

The CLME is considered a Class III, low ($<150 \text{ gC/m}^2\text{-yr}$) productivity ecosystem, according to SeaWiFS Project global primary productivity estimates, although upwelling along the northern coast of Venezuela

contributes to relatively high productivity in that area. Other factors contributing to the greater productivity of South America's northern coast are the nutrient input from rivers and estuaries.

As far as Governance is concerned, as many as 38 countries and dependencies border the Caribbean Sea Large Marine Ecosystem, and need to address the numerous transboundary issues existing in this LME. The Caribbean Large Marine Ecosystem (CLME) Project has been assisting Caribbean countries to improve the management of their shared living marine resources through an ecosystem based approach since 2009 (CLME 2011).

An overview of the physical and political geography of the eastern Caribbean sub-region is provided in CRFM (2012b, pp. 51-53). Figure 1 of the report (p. 51) shows the major surface currents and river outflows affecting the wider Caribbean. Figure 2 of the report (p. 52) provides a synthesis of physical oceanographic characteristics of possible significance to fisheries in the eastern Caribbean.

Country profile data for the eastern Caribbean islands on geography, governance, demography and economy are provided by CRFM (2012b).

5. BIOLOGY AND ECOLOGY

5.1 Growth and Diet

The following section makes reference to the reports of the CRFM LPWG at the CRFM 6th, 7th and 8th annual scientific meetings (CRFM, 2010, 2011b, 2012a) and also draws on information provided by the Florida Museum of Natural History.¹ The maximum reported length for Blackfin tuna is 110 cm fork length (FL) (Collette 2010) with the game fish weight record for this species being 22.4 kg for a specimen caught off the coast of Florida. However, most blackfin tuna are taken at an average size of approximately 50 cm (FL) and a weight of about 3.2 kg. Maturity is reached at around two years of age or around 40-50 cm (FL). Blackfin tuna are considered to be a fast growing, short-lived species that may live past 5 years of age. Growth rates have been reported at 1-1.5 cm per month. Blackfin tuna are known to consume a varied diet including surface and deep-sea fishes, squids, amphipods, shrimp, crabs, stomatopods and decapod larvae. Dolphinfin, blue marlin and skipjack tuna are known predators of blackfin tuna. Spawning is believed to occur offshore in oceanic waters.

5.2 Reproduction

Vieira *et al.* (2005) reported that the coastal waters off Northeast Brazil probably serve as a breeding ground for blackfin tuna. The animals are found in highest abundance in that area during the second half of the year when spawning occurs with peak activity around December. This contrasts with the reported spawning periods for blackfin tuna off Florida (April to November), notably with a peak in May (Collette and Nauen. 1983). The spawning period in the Gulf of Mexico is given as between June to September (Collette and Nauen. 1983). Vieira *et al.* (2005) also note that the animals are total spawners, i.e. reproducing once per spawning period. Battaglia (1993) suggests that spawning in the Caribbean Sea occurs between April and September. The presence of numerous mature males and females around FADs off Martinique during May and June led Taquet *et al.* (2000) to postulate that there was a blackfin tuna breeding ground within the Lesser Antilles. The spawning period implied falls within the period defined for off Florida (Collette and Nauen, 1983) and for the Caribbean (Battaglia, 1993).

These studies therefore collectively suggest that distinct spawning grounds occur throughout the animals' geographic range. However, this information does not address if the animals are faithful to specific

¹See: <http://www.flmnh.ufl.edu/fish/Gallery/Descript/BlackfinTuna/BlackfinTuna.html>

spawning grounds, which would be a more solid basis for stock differentiation at the genetic level. While it seems unlikely that the animals would move from one extreme of their range to the other to spawn, it is quite possible that they may move through portions of their ranges and move to the nearest spawning ground when the time arises.

5.3 Distribution and migration

Blackfin tuna is a highly migratory, warm-water species. It is believed that the species is confined to coastal waters warmer than 20°C (Collette and Nauen, 1983). Blackfin tuna is considered to be one of the most commonly occurring tuna species in the western central Atlantic. Blackfin tuna is an epipelagic species, often found over reefs, bays and offshore. Blackfin tuna are believed to occur only in the western Atlantic Ocean from Massachusetts (USA) (Mather and Shuck. 1952) south to Rio de Janeiro (Brazil) (Mather and Day. 1954), including the Caribbean (Bullis and Mather. 1956, Boobe and Tee-Van. 1936) and the Gulf of Mexico. However, one report indicates the presence of the species off the Canary Islands (Laboratorio Oceanografico de Canarias, 1974).

Very little solid information is available on site faithfulness of blackfin tuna. Doray *et al.* (2004) report the presence of all age groups around FADs off Martinique, albeit at different water depths. The authors further report the presence of 4 month-old juveniles in the area, which coincide well with recruit cohorts produced from March to October spawning events. As such the data support a Caribbean recruit source.

5.4 Stock Structure

At the CRFM Sixth Annual Scientific Meeting (CRFM 2010), the CRFM Large Pelagic Fish Resource Working Group (LPWG) reviewed the available catch data for blackfin tuna in the ICCAT database and discussed some country-specific details of the landings information. Data for seventeen countries were available in the database. However no data were available for some Eastern Caribbean countries where catches might be expected, given the known range of the species. The LPWG listed the countries for which there were catch rates and/or length frequency data available.

Finally the LPWG reviewed recent studies on biology and stock structure. The LPWG concluded that although there is no comprehensive study of stock structure, a genetic study and a tagging study may indicate that there is some finer-scale population structuring within the region. Evidence in the literature also indicates that blackfin tuna may spawn in rather coastal areas.

More specifically, the LPWG noted that the only study on the genetic basis for stock structure was the one carried out by Saxton (2009). This author analyzed data of adult and larvae samples from the Gulf of Mexico and the Northwest Atlantic. The mitochondrial DNA CR-I and six microsatellite loci revealed evidence of significant population differentiation between blackfin tuna from the two locations. This result may indicate that there is some finer-scale population structuring within the Region.

Further support for the local nature of blackfin tuna population structure is found in the tagging study of Singh-Renton and Renton (2007). These authors described the results of a mark/recapture study of 787 blackfin tuna released in the EEZ of St. Vincent and the Grenadines. While only 11 recaptures were reported, 6 were at liberty for >100 d. In all cases, the distance between point of release and recapture was <100 km.

At CRFM's Eighth Annual Scientific Meeting, the CRFM Large Pelagic Fish Resource Working Group (LPWG) examined the stock structure of blackfin tuna (CRFM 2012, p. 47 ff.). The LPWG concluded that while the stock structure of blackfin tuna is not fully understood various lines of evidence suggest that there may be a number of separate stocks across the geographic range of the species. For example, there is evidence of genetic differentiation between the Gulf of Mexico and Northwest USA Atlantic stocks (Saxton. 2009). Given the dominant meso-scale current patterns in the region, it seems unlikely

that there is any south to north transport of viable blackfin tuna larvae from the Caribbean region into the south Atlantic. In such a scenario, the 5°N latitude line similar to that proposed by ICCAT for Atlantic sailfish may be considered as a suitable preliminary hypothetical northern limit for any presumptive southern stock or aggregate of stocks.

The LPWG observed that on the other hand, larvae produced off northern Brazil could become entrained in the North Brazil Current (NBC) and then be either transported along the South American coastline and the southernmost Caribbean islands via the Guiana current or deflected away from the Caribbean islands via the North Equatorial Counter Current. Larvae released at locations along the northern coast of South America could therefore be transported to these southernmost Caribbean islands. However larval flow to the more central and Northern islands in the Caribbean chain is likely to be stymied by the dominant east to west flows in the region from the North Equatorial current and its associated water mass.

The LPWG concluded that it is possible that the larval pool in the Caribbean could at least be augmented with larvae transported from locations along the northern coast of South America primarily via ephemeral North Brazil Current (NBC) rings as they traverse the region (Fig. 1). It is noteworthy that NBC rings form in the latter half of the year (June to January) thus coinciding with the suspected peak spawning period of blackfin tuna off Brazil. While this maximizes the likelihood of larvae being present in this water mass, the true test of these larvae reaching the Caribbean from such distant locations in a viable state hinges on their larval life span and the conditions in the water mass being supportive of larval survival and development.

The LPWG concluded further that without any contradictory information on the subject, for management purposes it is reasonable to presume the existence of a largely self-sustaining Caribbean stock of blackfin tuna. Some additional anecdotal support for this hypothesized south/north stocks division within the Caribbean is the fact that blackfin tuna is not known to be common in either Trinidad or Barbados, where the possible influences of the Guiana current is stronger than in the more northern Caribbean islands where the species is more abundant, effectively describing a gap between the areas of higher abundances of the species and possible stock or groups of stocks located along the South American coast and in the central and northern Eastern Caribbean islands. However it is also unclear if any such Caribbean stock is effectively separate from the Northwest Atlantic stock identified by Saxton (2009).

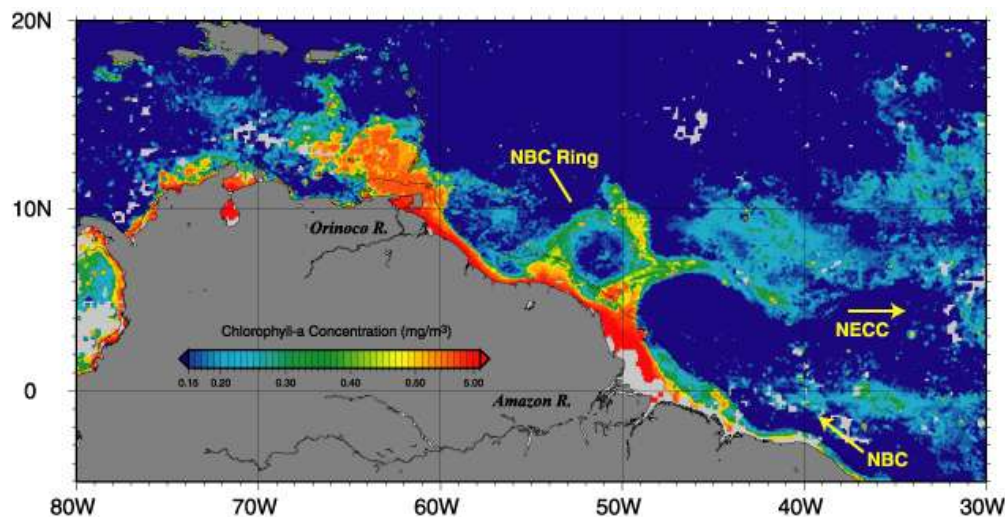


Figure 2: Ephemeral North Brazil Current (NBC) rings.

6. Legal Context

6.1 International law and agreements

Internationally agreed fisheries instruments of direct relevance to blackfin tuna fisheries in the Eastern Caribbean include the following legally binding treaties and agreements:

- 1946 International Convention for the Regulation of Whaling (ICRW Convention);
- 1966 International Convention for the Conservation of Atlantic Tuna (ICCAT Convention);
- 1973 Western Central Atlantic Fishery Commission (WECAFC) established through Resolution 4/61 of the FAO Council under Article IV (1) the FAO Constitution;
- 1982 United Nations Convention on the Law of the Sea (UNCLOS), which came into force in 1994;
- 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO Compliance Agreement), which came into force in 2003;
- 1995 United Nations Agreement for the Implementation of the Provisions of the UN 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), which came into force in 2001;
- 2002 Agreement Establishing the Caribbean Regional Fisheries Mechanism (CRFM Agreement).

Other significant international instruments include the following non-binding declarations/codes:

- 1992 UN Agenda 21: Programme of Action for Sustainable Development, Chapter 17: Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas and coastal areas, and the protection, rational use and development of their living resources. This action plan was agreed to at the 1992 United Nations Conference on Environment and Development (UNCED).
- 1994 Declaration of Barbados on the Sustainable Development of Small Island Developing States (SIDS) and its related Programme of Action for the Sustainable Development of Small Island Developing States.
- 1995 FAO Code of Conduct for Responsible Fisheries, which although largely voluntary, has certain provisions that are already, or may become, legally binding. The code covers all aspects of fisheries, including harvest, fishing operations, management, post-harvest, trade and research, and gives particular attention to Small Island Developing States and small-scale fisheries.
- 2001 Reykjavik Declaration, representing a voluntary commitment to adopt an ecosystem-based approach to fisheries management.
- 2005 Rome Declaration on IUU Fishing, recognizing the impacts of IUU fishing on small-scale fisheries, and calling for improved national and regional monitoring, control and surveillance of unauthorized, illegal fishing and implementation of severe punitive measures.
- 2010 United Nations General Assembly Resolution “Towards the Sustainable Development of the Caribbean Sea for Present and Future Generations” (UNGA 65/155, adopted on 20 December 2010).

Other relevant international considerations include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the 1992 Convention on Biological Diversity (CBD), the 1973/78 International Convention on the Prevention of Marine Pollution from Ships (MARPOL), and the 2002 World Summit on Sustainable Development (WSSD) Johannesburg Plan of Implementation. The 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (Port State Measures Agreement), will in the coming years become an important international instrument for fisheries management in the Caribbean region.

Membership of countries in the Wider Caribbean Region in international fisheries bodies and party to key fisheries agreements is shown in table 2.

Table 2: Membership of Countries in the Wider Caribbean Region in/Party to International Fisheries Bodies and Key Fisheries Agreements (Source: FAO FISHLEX, as of 27.11.2012)

Country	Membership in International Fisheries Body ²	Party to UN Law of the Sea Convention	Party to FAO Compliance Agreement from 1993	Party to UN Fish Stocks Agreement from 1995
Antigua & Barbuda	IWC, WECAFC, CRFM	√		
Bahamas	WECAFC, CRFM	√		√
Barbados	ICCAT, WECAFC, CRFM	√	√	√
Belize	ICCAT, IWC, WECAFC, OLDEPESCA, IOTC, CRFM	√	√	√
Colombia	CPPS, COPESCAALC, WECAFC, IATTC	√		
Costa Rica	COPESCAALC, IATTC, IWC, OLDEPESCA, WECAFC	√		√
Cuba	CECAF, COPESCAALC, NAFO, OLDEPESCA, WECAFC	√		
Dominica	IWC, WECAFC, CRFM	√		
Dominican Republic	COPESCAALC, IWC	√		
Grenada	IWC, WECAFC, CRFM	√		
Guatemala	COPESCAALC, IATTC, ICCAT, OLDEPESCA, WECAFC, IWC	√		
Guyana	OLDEPESCAALC, WECAFC, CRFM	√		
Haiti	WECAFC, CRFM	√		
Honduras	COPESCAALC, ICCAT, OLDEPESCA, WECAFC	√		
Jamaica	COPESCAALC, WECAFC, CRFM	√		√
Mexico	IATTC, ICCAT, IWC, OLDEPESCA, WECAFC	√	√	

² COPESCAALC = Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean, CPPS = Permanent Commission for the South Pacific, CRFM = Caribbean Regional Fisheries Mechanism, IATTC = Inter-American Tropical Tuna Commission, ICCAT = International Commission for the Conservation of Atlantic Tuna, IOTC = Indian Ocean Tuna Commission, IWC = International Whaling Commission, NAFO = Northwest Atlantic Fisheries Organization, OLDEPESCA = Latin American Organization for Fisheries Development, WECAFC = Western Central Atlantic Fisheries Commission

Nicaragua	COPESCAALC, IATTC, ICCAT, IWC, OLDEPESCA, WECAFC	√							
Panama	COPESCAALC, IATTC, ICCAT, IWC, OLDEPESCA, WECAFC	√						√	
Saint Kitts and Nevis	IWC, WECAFC, CRFM	√				√			
Saint Lucia	IWC, WECAFC, CRFM	√				√		√	
Saint Vincent and the Grenadines	IWC, WECAFC, ICCAT, CRFM	√						√	
Trinidad & Tobago	ICCAT, WECAFC, CRFM	√						√	

Membership of eastern Caribbean States to fisheries as well as environmental conventions and treaties is shown in Table 3.

Table 3: Membership of Eastern Caribbean States to International and Regional Fisheries and Environmental Conventions and Treaties (as of June 2012)

Country	UNCLOS	UN Fish Stocks Agreement	FAO Compliance Agreement	CITES	CBD	MARPOL IMO	Cartagena Convention	SPAW Protocol	FAO Port States Measures Agreement
Barbados	√	√	√	√	√	√	√	√	-
Dominica	√	-	-	√	√	√	√	-	-
Grenada	√	-	-	√	√	-	√	-	-
Martinique (France/EU)	√	√	√	√	√	√	√	√	-
Saint Lucia	√	√	√	√	√	√	√	√	-
Saint Vincent & the Grenadines	√	√	-	√	√	√	√	√	-
Trinidad & Tobago	√	√	-	√	√	√	√	√	-

6.2 Regional and bilateral arrangements

Three regional agreements and arrangements govern and support blackfin tuna fisheries and management in the Eastern Caribbean. These include the following:

- 1) The Agreement on the establishment of the Caribbean Regional Fisheries Mechanism (CRFM) under the Caribbean Community (CARICOM) was signed in February 2002. The mission of this inter-governmental organization is “To promote and facilitate the responsible utilization of the region's fisheries and other aquatic resources for the economic and social benefits of the current and future population of the region” and as such its three bodies – the Ministerial Council, the Caribbean Fisheries Forum and the CRFM Secretariat, aim to further the objectives of CRFM. At

- present, there are 17 Member States of the CRFM. Barbados, Dominica, Grenada, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago are all active members of the CRFM.
- 2) The Agreement on the Establishment of the Caribbean Community Common Fisheries Policy (CCCCFP) was endorsed by the CRFM Ministerial Council in 2011. It will (once ratified) govern the fisheries through establishment of measures for conservation, management, sustainable utilization and development of fisheries resources and related ecosystems; the building of capacity amongst fishers and the optimisation of the social and economic returns from their fisheries and the promotion of competitive trade and stable market conditions.
 - 3) The Western Central Atlantic Fishery Commission (WECAFC) was established by the FAO Council in 1973 as Regional Fishery Body under Article VI of the FAO constitution. At present, there are 29 Member States of the WECAFC. All above CRFM member countries are members of WECAFC as well as France (Martinique). WECAFC aims to promote the effective conservation, management and development of the living marine resources in FAO Area 31, in accordance with the FAO Code of Conduct for Responsible Fisheries, and to address common problems of fisheries management and development faced by members of the Commission.

Also of particular relevance in the region are the 1983 Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (i.e. the Cartagena Convention), which entered into force in 1986, and the associated 1990 Protocol for Specially Protected Areas and Wildlife (SPAW), which entered into force in 2000. Membership to these is also shown in Table 3.

The following declarations and resolutions are also of importance for the management of fisheries in general in the Eastern Caribbean:

- 2010 Castries (St. Lucia) Declaration on Illegal, Unreported and Unregulated Fishing of the Caribbean Regional Fisheries Mechanism;
- 2012 Resolution of the members of the Western Central Atlantic Fishery Commission on Strengthening the Implementation of International Fisheries Instruments.

None of the above regional arrangements and agreements has at present any specific jurisdiction over blackfin tuna resources and their management in the Eastern Caribbean. Therefore the sub-regional management plan is not a legally binding instrument, which can form the basis of a legal challenge. The sub-regional plan, however, harmonizes the fisheries management and conservation of the blackfin tuna resources in the Eastern Caribbean. The national authorities' regulatory powers (under the national Fisheries Acts of the participating countries) will enable implementation of the management plan corresponding with the provisions of the international and regional arrangements and instruments.

6.3 National laws and regulations

In terms of fisheries legislation, all of the Commonwealth Caribbean countries have Fisheries Acts, and those of the Eastern Caribbean countries (Dominica, Grenada, St. Lucia and St. Vincent and the Grenadines) are nearly identical, because they were based in large part upon OECS model laws (Berry & Tietze, 2012). The Commonwealth Caribbean fisheries statutes are generic in nature in the sense that they do not tend to have provisions specific to particular fisheries such as blackfin tuna but rather contain provisions applicable to all forms of fishing. The maritime delimitations and corresponding legislation of countries in the Wider Caribbean Region are shown in Annex 1.

While none of the Fishing Acts currently in force expressly requires fisheries authorities to follow the ecosystem based approach and fisheries-related principles such as the precautionary principle, in most of the current Acts there are references to key concepts such as conservation, management, sustainability and use of scientific information. Like the fisheries statutes, most existing national fisheries management plans and policies are of a more generic and general nature, some still in draft form and in the process, or

need of being revised and updated. They do not contain specific provisions for the management and conservation of blackfin tuna.

7. MANAGEMENT UNIT

For the purpose of the present plan, the management unit for blackfin tuna (*Thunnus atlanticus*) should be the combined EEZs of the eastern Caribbean countries from Dominica south to Trinidad and Tobago.

8. FISHERY CHARACTERISTICS

8.1 Ecosystem services of the pelagic ecosystem

Blackfin tuna in the CLME are part of the pelagic ecosystem (Berry & Tietze. 2012). The pelagic ecosystem provides a range of ecosystem services, which can be divided into provisioning, regulating, cultural and supporting services. The provisioning services include the provision of fish for food and for commercial, recreational and subsistence fishing; the generation of wave energy and the provision of a medium for transportation, i.e. shipping and pharmaceutical products. The prominent regulatory service of the pelagic ecosystem is climate regulation. Cultural ecosystem services include recreational and tourism services and values, knowledge systems and educational values as well as spiritual and inspirational values. Supporting ecosystem services of the pelagic ecosystem include habitat for fish, including critical habitat for eggs and larval stages of fish and shellfish, transport of eggs and larvae to feeding and recruitment grounds as well as biodiversity functions related to sea turtles, sea birds and marine mammals.

8.2 Blackfin tuna fisheries in the CLME

In the WECAFC region, the highest quantities of blackfin tuna are landed by Venezuelan fishing fleets (CRFM 2012a). Blackfin tuna accounted for the highest proportion of tunas caught by the pelagic longline fishery in northeast Brazil (56.2%) with an average catch per unit effort (CPUE) of 0.32 individuals per 100 hooks (Hazin *et al.* 2001 in MMA 2006). The species is often taken along with skipjack tunas (*Katsuwonus pelamis*) with which it often forms mixed schools.

The southeastern coast of Cuba is known to be one of the richest fishing grounds for the species. Based on available statistics for the Eastern Caribbean region, the largest recorded quantities of the species are landed in the French Islands of Martinique and Guadeloupe, with Grenada landing the largest quantity among the CRFM member countries.

Blackfin tuna are taken by a number of gears. In Brazil, blackfin tuna are largely taken as by-catch in the longline fisheries that primarily target the highly migratory large pelagic species. However, in one area viz. Rio Grande do Norte State, they are taken in the artisanal handline fishery, which is economically important to the region (Freire *et al.* 2005). In Cuba, blackfin tuna are mainly taken by live bait and pole and line gear. In Venezuela, in addition to bait boat fishing, blackfin tuna are taken on long lines and in purse seines (Cabello *et al.* 2003). In the Eastern Caribbean the species is mainly taken by trolling over coastal shelf areas. The animals are also found around seamounts, drifting objects and moored-FADs; facilitating their capture by simple trolling gear in deeper waters as well (Taquet *et al.* 2000). In fact, Laurans *et al.* (2000) report that the blackfin tuna landed in Martinique are mainly taken by trolling around FADs or over seamounts. Blackfin tuna is also an important species in the sports fisheries of the Bahamas and Florida, where fish are taken on typical rod and reel gear.

8.3 Fishing vessels, gears and postharvest sector

Blackfin tuna are generally caught by fishing vessels, which also fish for other small tunas and tuna-like species as well as for large pelagics such as yellowfin tuna, bigeye tuna, albacore and skipjack tunas, swordfish, sailfishes, marlin and other highly migratory species. Fishing vessels, methods used in the large pelagics fisheries in the Caribbean are described by FAO (2004) and Berry and Tietze (2012).

Fishing vessels fishing for large pelagic species in CARICOM countries can be divided into five categories (FAO. 2004), i.e. open outboard trolling and longline boats, open outboard gillnetters, decked inboard trolling and gillnet vessels, medium longliners (7-15m) and large longliners (>15m). The large majority of vessels are the open outboard powered ones typical of small-scale fisheries. Larger decked vessels, mainly medium sized longliners, were introduced over the last two decades when regional governments and the fishing industry spent considerable effort to develop the Caribbean region's capacity to harvest large pelagic species through the development of longlining.

Such efforts were quite successful with a number of countries now operating medium and large longliners (7 – 15 and >15 m), including Grenada with over 200 longliners, Barbados with 37 registered longliners, Trinidad with 17 longliners and Dominica, Saint Lucia, Saint Vincent and the Grenadines and Guadeloupe with a smaller number of longline vessels. There are also a number of foreign-flagged larger vessels operating from Saint Vincent and the Grenadines and Belize under open ship registries fishing for large pelagic species that generate revenue.

The FAO TCP Project "Preparation for expansion of domestic fisheries for large pelagic species by CARICOM countries" (FAO. 2004) found that in most countries in the Eastern Caribbean, fishing for large pelagic species takes place in territorial waters or the EEZ. From the Eastern Caribbean countries covered by this case study, however, four countries were reported to also fish in adjacent EEZs and only two countries i.e. Trinidad and Tobago and Saint Vincent and the Grenadines were reported to fish in the high seas.

In addition to commercial fishing activities, recreational fishing, most of it also commercial, plays an important role in the exploitation of large pelagic fishes as well as small tunas and tuna-like fishes, particularly when it is directed at long-lived species such as swordfish and other billfishes. Recreational fishing is done by charter boats, by individuals owning their own boat or by visiting sport fishing boats. The numbers of all these types of recreational fishing vessels are not well documented.

Landing sites and shore facilities, where large pelagic species are landed, are numerous in some countries and there are just a few in others. They can be divided into three categories, i.e.

- a developed complex with a building, office, cold storage, ice making equipment, jetty and breakwater if required;
- a small landing site with some government provided facilities such as water supply, gear sheds, lighting, covered working areas;
- beaches with minimal facilities and makeshift structures.

The study carried out by the FAO TCP project also observed that some of the shore infrastructure – in many cases established with donor support - may be underutilized and not well managed as well as unaffordable in terms of management and maintenance requirements. It has also been observed (FAO. 2004) that for large pelagic species, the post harvest sector is less developed and specialized than the harvest sector with the exception for yellowfin tuna and swordfish in the main fishing countries. This is also true for small tunas and tuna-like fishes.

9. STATUS OF THE FISHERY

9.1 State of the stock

The CRFM LPWG concluded at the 8th CRFM Annual Scientific Meeting that no management objectives were available specifically for the blackfin tuna fishery in the Wider Caribbean Region (CRFM 2012a, p. 39). The group noted that no management regulations specifically for blackfin tuna have been found for any of the harvesting nations and that there are no ICCAT regulations currently in place for this species. The working group was unaware of any comprehensive stock assessment of this species. However, based on the lack of any consistent decline in recorded catches of this species through time, the IUCN lists blackfin tuna as a species of “least concern” but recommends close monitoring. However, IUCN also notes that a number of major fishing nations for this species have ceased reporting landings. Some assessment of catch data for the Venezuelan fishery was conducted during the 7th Annual CRFM Scientific meeting. The results of standardized relative indices of abundance of blackfin tuna from the bait boat fishery showed an uneven sustained declining trend beginning in 1997 with a minor recovery at the end of the time series.

In order to assess the blackfin tuna stock in the Wider Caribbean Region, the LPWG evaluated data from Saint Lucia, Grenada, Dominica, and St. Vincent and the Grenadines (CRFM 2012a). The working group concluded that on a qualitative basis there is no evidence that overfishing is occurring on the blackfin tuna stocks. Plots of annual nominal landings for all four islands indicated a general increasing trend. In the case of Saint Lucia, a standardized plot of landings was constructed. Since none of the plots exhibited decreasing trends, there was no evidence of stock depletion at current harvest levels. However, the interpretation of the LPWG considered that changes in behavior, e.g. the use of FADs and improved data reporting were the most probable causes for the increased landings observed over time. As such, in keeping with the principles of precautionary approach, it was recommended that no significant increase in fishing effort be allowed until more information becomes available on the status of the stock (CRFM 2012).

9.2 Issues and constraints

A number of problems currently exist, which are believed to be constraining the development and management of several fisheries including the blackfin tuna fishery in the CLME. Some of the key issues and constraints are listed below:

- lack of a regional mechanism for managing shared resources;
- inadequate fishery information and statistics (particularly socio-economic data) for planning and management;
- inadequate human capacity in fishery departments to conduct required level of research and data analysis;
- inadequate development of participatory management with all stakeholders at national and sub-regional levels;
- constrained access to fishing areas occupied by the shared blackfin tuna stock;
- limited facilities for disposal or use of fish offal at landing sites;
- limited landing site and marketing facilities in some countries;
- inadequate post-harvest technology to ensure a good quality product and reduce fish wastage; i.e. poor quality of landed fish from improper bulk storage at sea and ashore;
- some eastern Caribbean countries have significant difficulties with producing cost-competitive local exports of fresh fish products as a result of very different national economies;
- labour shortage and lack of adequate blast freezing facilities for processing plants;
- vulnerability and poverty of fishers and their family and household members;
- negative impacts of sea and land based human activities such as oil and gas exploration, shipping, pollution, shoreline erosion, runoffs etc. on the marine ecosystems;

- IUU fishing
- lack of, or inadequate, safety equipment and navigational training of crew for some boat types;
- difficulties with accessing credit in the fisheries sector;
- lack of, or inadequate monitoring, surveillance and enforcement;
- competition for use of the coastal zone (landing and launching areas); and
- evaluation of risks due to global environmental change.

9.3 Opportunities

A number of actions/ achievements could provide expansion and development opportunities for the blackfin tuna fishery of the sub-region. These include:

- implementation of a Common Fisheries Policy in the Caribbean;
- availability of new international instruments and regional initiatives to end IUU fishing such as the 2010 Castries (St. Lucia) Declaration on Illegal, Unreported and Unregulated Fishing of the Caribbean Regional Fisheries Mechanism (CRFM) and the FAO Port State Measures agreement;
- delimitation of maritime boundaries (see Annex I) and conclusion of fishing agreements with neighbouring states;
- availability of international support for ecosystem based fisheries management initiatives and food security through fisheries;
- expanding frozen fish storage facilities to reduce seasonality of fish availability and accessibility;
- development of better fish distribution mechanisms for marketing fresh fish in rural areas; and
- increasing interest of stakeholders in information and management measures.

10. MANAGEMENT OBJECTIVES AND INDICATORS

The management objective is to ensure responsible and sustained fisheries, such that the blackfin tuna resource in the waters of the Eastern Caribbean is optimally utilized for the long-term benefit of all people in the Eastern Caribbean region. Responsible management in the face of uncertain information on the true status of the blackfin tuna stock requires a precautionary approach.

The significant trophic, technical and economic linkages between the blackfin tuna fisheries and the fisheries targeting large oceanic pelagic species (e.g. dolphinfish, wahoo, tunas, billfishes) provide strong justification for an ecosystem-based approach to the management of these fisheries. The blackfin tuna stock is shared among the Eastern Caribbean islands and as such these islands are legally obligated to collaborate in its management. An institutional arrangement allowing for sub-regional collaborative management is therefore critical.

Management of blackfin tuna in the Eastern Caribbean is to be guided by three general management objectives that have been identified for another key fishery in the Eastern Caribbean, the flyingfish fishery. Hence, for blackfin tuna, the three general management objectives are further sub-divided into operational objectives. These are shown in Table 4 together with their assessment criteria and descriptions drawing on CRFM. 2012b.

Table 4: Management Goals, Objectives and Indicators for Blackfin Tuna Fishery Resources in the CLME

Management goal/strategic objective	General objective	Operational objective	Indicators
1.Sustained fishery resource - biological	1.1 Sustained resource Ensuring that there are blackfin tuna available for future generations. Preventing overfishing to maintain a healthy stock	- Current average catch rates sustained over the long-term and throughout the area of distribution - Stock biomass is maintained at or above MSY levels	- National CPUEs (spatial) - Total national landings
	1.2 Accurate information. Ensuring that an effective data collection system is in place to provide accurate information and knowledge about the state of the fishery	- National data collection improved and gaps filled	- Sampling coverage - Sampling design
	1.3 Effective management. Ensuring that there is an effective system for adaptive and responsive management and enforcement as needed.	- Establish a harmonized sub-regional data base - Timely submission of data and information to CRFM - Establish authorized access to fishery - Establish precautionary measures as required - Ensure ability to make and enforce management decisions	- Sub-regional data base operational - Annual submission of data - License/permit system to specifically include blackfin tuna - Variety of indicators as required - Legislation and regulations in place - Compliance levels - Ensure ability to collaborate effectively with stakeholders and other countries and organizations both vertically and horizontally - Adaptation to external drivers/perturbations
2. Optimal use of fishery for long-term benefit - socio-economic	2.1 High social benefits and economic/financial returns Optimal social, economic and financial benefits for all involved in the fishery	- Optimize social, economic and financial benefits derived from fishery	- Employment level - Income level - Return on investment - Credit access
	2.2 Affordable food source	Ensuring that blackfin tuna remains an affordable and available source of food for the future	-Per capita consumption - Percentage of population consuming blackfin tuna - Market price of blackfin

			tuna - Relative market price
	2.3 Fair access to fishing grounds	- Ensure fair access to fishing grounds - Minimize conflict/competition with other resource sectors/users.	- Access indicators (e.g. number of vessels, fishers, licenses, permits) - Bi- and multilateral access agreements - Number of conflicts with other resource users
	2.4 Optimal utilization/processing for domestic and export markets	- Develop value addition for the post-harvest sector for domestic and export markets - Promote fish quality and safety for consumers	- Fish and fishery products related SPS standards (e.g. HACCP) - Value of post-harvest production - Export value
3. Sustained ecosystem health – ecological	3.1 Healthy habitat Healthy habitat with minimal degradation and minimal impact from pollution or other negative effects	- Maintain offshore pelagic habitat health - Minimize habitat degradation	- Water quality parameters - Marine debris/pollution occurrence
	3.2 Healthy and resilient ecosystem with balanced trophic levels	- Maintain aquatic biodiversity and healthy ecosystem - Adaptation to climate change and weather extremes	- Species composition of catches (including size) - Trophic levels (predator-prey composition) - Adaptation and vulnerability indicators

10.1 Reference points

The CRFM LPWG recommended at the CRFM 8th Annual Scientific Meeting that catch levels not be increased above the current levels. Thus the current national catch levels of blackfin tuna are the current target reference points for the purpose of this fisheries management plan.

11. DATA, MONITORING AND RESEARCH REQUIREMENTS

11.1 Catch/effort and vessel data

The CRFM LPWG, at the 8th CRFM Annual Scientific Meeting (CRFM 2012a), observed that one of the biggest concerns in the interpretation of the existing data were changes in the amount of actual landings that were being included in the databases and the fact that fishers have increasingly been fishing on FADs.

To adjust data collection accordingly, two primary data collection recommendations were made. Firstly, it was suggested that for each fishing trip/record, a data field should be added/included, which indicates whether the trip was conducted at or near a FAD. Secondly, it was suggested that each data collection

programme should conduct surveys or analysis, which will indicate the proportion of total catch, which is being reported in the database.

In addition to these suggestions, it was proposed to collect length frequency data to assist in the definition of any migration patterns that may exist and to participate in the proposed genetic studies of IFREMER to help define stock structure.

As far as general statistics on catch and effort in large pelagic fisheries in the Eastern Caribbean are concerned, a CRFM/CLME review of existing policy, legal and institutional arrangements for governance and management of large pelagic fisheries in the Caribbean Large Marine Ecosystem (Berry & Tietze 2012) observed that while all countries collect and report catch and effort data from large pelagic fisheries, some general problems prevail as well as problems related to the use of data at a sub-regional level:

- Shortage of staff, training and finances for adequate data collection, recording and analysis;
- Problems with vessel registration data bases because of unrecorded transfer of ownership, change of landing site and use of vessels, lack of updating of vessel registration data bases from annual licensing programmes and fisheries census; delays in/lack of sharing data at the regional level through CRFM and lack of contributing to regional data bases.
- While in some cases, fisher associations and fish processors have supplied catch and processing data to fisheries administrations, the participation of fishers and other stakeholders in the collection and use of statistical data and in the identification of data needs has been modest.
- Delays in/lack of sharing data at the regional level through CRFM and lack of contributing to regional data bases.
- There is a lack of biological, economic and social data on large pelagic fisheries.

Country reports presented at the recent 7th Annual CRFM Scientific Meeting highlighted similar problems. In the case of Grenada, it was pointed out that while the fisheries sector has grown considerably in recent years, investment in data collection and management has not grown. This is the main reason why Grenada's data collection system functions presently at a minimum level providing estimates of total catch. This reflects the minimum investment in personnel, time and equipment for collection and analysis of fisheries statistics.

The confidence level of the data collected from the tertiary landing sites is affected by the lack of a standard format for recording catches. Consequently some confusion exists in the minds of the staff members, who examine and collect data from these sources. Because of the fact that standard logbooks have not been introduced, catch and effort with respect to the longline fishery cannot be measured. This imposes limitations on the value of the data for assessment purposes other than tracking trends in fish landings.

Similar problems were identified specifically with reference to blackfin tuna at the CRFM Eighth Annual Scientific Meeting. With regard to blackfin tuna data, the same meeting found that in the case of Saint Vincent and the Grenadines, Grenada, Dominica and Saint Lucia, only landings data and length frequency data are available but no catch per unit of effort (CPUE) data.

11.1.1 Adequacy of present data collection, analysis and sharing system

A review of the management of large pelagic fisheries in CARICOM countries concludes that while progress has been made with national-level data collection and management, it is still probably insufficient to meet all obligations under Annex I of the United Nations Fish Stocks Agreement (FAO, 2004, p. 106), which countries like Barbados, Martinique (France), Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago have all ratified. Taking into account the deficiencies in data

collection and management highlighted above, this statement applies probably also today to the collection, analysis and sharing of fishery statistics in the Eastern Caribbean.

Annex 1 of the United Nations Fish Stocks Agreement outlines the general principles and the principles of data collection, compilation and exchange, defines basic fishery data, vessel data and information, reporting and the commitment to data exchange (Berry & Tietze, 2012). Under the general principles (Article 1), the Annex highlights that the timely collection, compilation and analysis of data are fundamental to the effective conservation and management of straddling fish stocks and highly migratory fish stocks. The general principles also state that financial and technical assistance shall be provided to developing countries to enable them to meet their obligations.

The general principles of data collection, compilation and exchange (Article 2) state that States should compile fishery-related and other supporting scientific data and provide them in an agreed format and timely manner to the relevant sub-regional or regional fisheries management organization or arrangement. These requirements are reiterated under Article 4 – data exchange.

Article 3 defines basic fishery data as time series of catch and effort data by fishery and fleet, total catch in weight and number by species, discard statistics, effort statistics as well as fishing location by date and time fished. Where appropriate, states shall also collect and share data on catch composition by length, weight and sex and other biological as well as oceanographic and ecological information to be used in stock and other assessments. Article 4 specifies fishing vessel related data to be collected for standardizing fleet composition and vessel fishing power for converting between different measures of effort in the analysis of catch and effort data. From the above overview of shortcomings in data collection and analysis it is clear that countries in the Eastern Caribbean need further technical and financial assistance to cover all data requirements specified in Annex 1 of the United Nations Fish Stocks Agreement.

Apart from the Agreement, obligations for the collection, compilation and sharing of fisheries data also arise under the Agreement on the Establishment of the Caribbean Regional Fisheries Mechanism and under Articles 11 and 16 of the yet to be enacted but then binding Agreement establishing the Caribbean Community Common Fisheries Policy as well as under the non-binding FAO Code of Conduct for Responsible Fisheries (FAO, 1995, Article 6).

11.1.2 Data Collection and networking

The CRFM/CLME review of existing policy, legal and institutional arrangements for governance and management of large pelagic fisheries in the Caribbean Large Marine Ecosystem (Berry and Tietze, 2012) and the CRFM/CLME Strategic Action Programme for the Effective Governance and Management of Large Pelagic Fisheries in the Caribbean Large Marine Ecosystem (Tietze and Singh-Renton, 2012) suggest a number of activities for more effective data collection and networking on large pelagic fisheries, which also would benefit blackfin tuna fisheries. These include:

- Establishment of a sub-regional data base including catch data to be maintained and managed by CRFM. A separate sub-regional database is needed because ICCAT's databases do not include space for social and economic data at present. Additionally, basic catch and effort data should continue to be stored by ICCAT and the sub-regional database should help to strengthen the ICCAT database for ICCAT purposes. To enable CRFM to manage the database, the post of Programme Manager (Statistics and Information) at the CRFM Secretariat should be filled as a matter of urgency.
- Establishment of a regional network for improvement of collaboration of national scientists from fisheries authorities, other agencies and academic institutions in collection

and sharing of data and information needed for integrated evaluations of large pelagic fish resources and small tunas and tuna-like fishes and related ecosystems including social, economic, environmental and climate data.

- Allocation of more staff and resources for the collection, recording and analysis of fisheries statistics and CLME information and provision of adequate training.
- Strengthening of national data collection systems for large pelagic migratory species to ensure supply of adequate data to data bases on large pelagic migratory fish resources. This should include the collection of catch and effort data from recreational fishing for both coastal and oceanic large pelagic species by making it mandatory to submit catch records on a routine basis. Renewal of fishing licenses should be made subject to submission of satisfactory catch records.
- Harmonization and standardization of catch and effort as well as social, economic and ecological data collection systems among all states so that it can be easily shared/pooled for inclusion in CRFM sub-regional/regional data bases.

11.2 Economic, social and ecological information

The ecosystem services provided by the pelagic ecosystem have been described in chapter 8.1. Information on the postharvest sector, which caters to large pelagic fisheries, of which blackfin tuna fisheries form a part, is provided by in chapter 8.2. No information is available on the economics of blackfin tuna fisheries and on the socio-economic status of fishers. In order to close this information gap, studies are proposed in the following chapter, to be carried out under this FMP.

However, a recently completed diagnostic study to determine poverty and vulnerability levels in CARICOM fishing communities (CRFM. 2011b) covered Barbados, Grenada, Saint Vincent and the Grenadines and Trinidad and Tobago. The study included capture fisheries, aquaculture and fish processing. Poverty and vulnerability were identified with reference to unsatisfied basic needs (UBN). Households with more than one UBN were classified as poor households. Households with one UBN were classified as vulnerable.

In the case of Grenada and Saint Vincent and the Grenadines, more than 5 percent of the households in the fisheries/aquaculture sectors were classified as being poor; 6.6 and 5.4 percent, respectively (CRFM. 2011b). In both countries, these households were involved in capture fisheries. The same is true for Trinidad and Tobago, where the percentage of fisheries households living in poverty was 1.3 percent. Poverty in fisheries households was not an issue in Barbados.

Compared to poverty, vulnerability was found to be a much more important issue in all four countries covered by the study. Grenada topped the list with 25.6 percent of fisheries households being vulnerable, followed by Trinidad and Tobago with 15.2 percent, Saint Vincent and the Grenadines with 10.81 percent and Barbados with 7.3 percent.³

Any approach to the management of blackfin tuna fisheries must ensure that other users also do their share to restore and conserve fishery resources. This includes efforts to efficiently regulate industrial fishing fleets, efforts to end IUU fishing, the reduction and prevention of water pollution and coastal erosion caused by housing, quarries, removal of sand and industrial development, and the proper management of other factors, which have an impact of fisheries resources and aquatic habitat.

³ The main components of poverty and vulnerability were lack of access to services, poor quality of dwellings, semi-illiteracy and low levels of education as well as low economic capacity and productivity. Large household and family sizes as well as high illiteracy and semi-illiteracy levels figured prominently among the demographic characteristics of poor and vulnerable households. Another characteristic, poor and vulnerable fisheries households had in common, was that they depended more strongly on fisheries for their income as compared to other households.

11.3 Research Plan

The CRFM LPWG, at the 8th CRFM Annual Scientific Meeting (CRFM 2012a), proposed that research should be done on the impact of FADs on the fishery for each country. Sampling and monitoring programmes appropriate to each country should be designed to collect relevant information on this topic. Studies need to be conducted to better understand migration patterns and stock structure in the region. The working group noticed relatively obvious patterns in peak landings on a monthly scale across islands. Further investigation of these patterns might provide insights as to migratory patterns within the region. In this context, it is recommended that countries collect length frequency data for their catches. The LPWG also noted that IFREMER will be conducting a genetic population study of the blackfin tuna.

The CRFM/CLME review of existing policy, legal and institutional arrangements for governance and management of large pelagic fisheries in the Caribbean Large marine Ecosystem and the CRFM/CLME Strategic Action Programme for the Effective Governance and Management of Large Pelagic Fisheries in the Caribbean Large Marine Ecosystem suggested that studies be carried out to generate economic and social information, which also would benefit blackfin tuna fisheries. It is proposed in this FMP to include and specifically address blackfin tuna fisheries concerns in these studies. The information to be generated by the studies described below should be treated as baseline information, which is to be regularly updated through sample surveys and other means in close cooperation with the stakeholders involved.

The first proposed study of interest to blackfin tuna fisheries is an economic valuation of current national fishing industries for tuna and tuna-like fishes including harvest and postharvest activities and facilities in cooperation with national ICCAT working groups or existing fisheries authorities and FACs (Berry & Tietze, 2012). Valuation should also include projected valuation of plausible industry development scenarios taking into account costs and earnings of harvest and postharvest operations, technological alternatives, sources and type of investments, social and economic benefits as well as impacts on food security, employment and income, social dependency/livelihood vulnerability, ecosystem services and other aspects. The valuation should be carried out in close cooperation with fishers' organizations and fishery industry associations/representatives. The cooperation should include identification of information needs, study design, data collection and analysis. The valuation should generate advice to the CRFM, its member states, fishery industry and fishers' organizations for improving the social, economic and financial performance and benefits of large pelagic fisheries and related value addition in the sub-region through national or sub-regional initiatives and assessment of economic contribution of large pelagic fisheries to regional economy. The study is to be guided by the CRFM Working Group on ICCAT (WGI) and/or LPWG and findings to be shared at the levels of the participating regional fisheries bodies for incorporation into decision-making.

The second study is an economic valuation of current recreational fisheries for tuna and tuna-like fishes in selected Caribbean countries. Studies should cover all costs and benefits including social equity questions, i.e. which social groups benefit and which are negatively affected. Aspects to be covered: estimated capital investment, estimated operating costs, earnings, ancillary benefits through boatbuilding, manufacture/sale of fishing gear and other equipment, expenditure by recreational fishers for boarding and lodging, transport, equipment and other items. The recreational fishery industry should be closely associated with design and implementation of the study. The recently established WECAFC Working Group on Recreational Fisheries should be able to assist with this study.

12. MANAGEMENT ADVICE AND IMPLEMENTATION OF THE PLAN

12.1 Management advice

12.1.1 Precautionary approach

The CRFM LPWG concluded from the assessment of blackfin tuna resources in the Wider Caribbean Area conducted at the 8th CRFM Annual Scientific Meeting (CRFM 2012) that given the concerns regarding changes in data collection protocols and the use of FADs in keeping with the principles of the precautionary approach, it is recommended that catch levels not be increased above the current levels.

The precautionary approach to fisheries management⁴ recognizes that:

- all fishing activities have significant impacts;
- fisheries impacts are not negligible unless proved otherwise;
- the complex and changing fishery system will never be perfectly understood;
- scientific advice for management is therefore always affected by uncertainty;
- management decision processes and sector's compliance add their own uncertainties;
- impacts of fisheries on the system are therefore difficult to predict accurately; and,
- consequences of management errors may be only slowly reversible.

As a consequence, and recognizing that the conduct of fisheries requires that decisions are still made with incomplete knowledge, the approach requires *inter alia* that:

- a level of precaution commensurate to risk be applied at all times to all fisheries;
- it be applied systematically, i.e. in research, management and fishing operations;
- potentially irreversible changes be avoided (to maintain options for future generations);
- undesirable outcomes be anticipated and measures be taken to reduce their likelihood;
- corrective measures be applied immediately and be effective within an acceptable time;
- priority be given to conserving the productive capacity of the resource;
- precautionary limits be put on fishing capacity on highly uncertain resources;
- all fishing activities be subjected to prior authorization and periodic review;
- the burden of proof be appropriately (realistically) placed;
- standards of proof commensurate with the potential risk to the resource be established; and,
- the approach is formalized in a comprehensive legal and institutional framework.

12.1.2 Institutional and legal arrangements at the sub-regional/regional level

As far as institutional and legal arrangements for the management of blackfin tuna and other small tuna and tuna-like species are concerned, the CRFM/CLME review of existing policy, legal and institutional arrangements for governance and management of large pelagic fisheries in the Caribbean Large marine Ecosystem and the CRFM/CLME Strategic Action Programme for the Effective Governance and Management of Large Pelagic Fisheries in the CLME suggest that management and assessment of the region's small tunas and tuna-like species such as blackfin and bullet tunas, dolphinfish, wahoo, cero and king mackerels, which are presently not actively managed by ICCAT, is best achieved through a formal management partnership arrangement between ICCAT and one or more Regional Fisheries Organizations (RFOs), e.g. CRFM, OSPESCA and WECAFC.

The main focus of this management partnership would be to actively assess and manage the region's small-tunas and tuna-like species such as blackfin and bullet tunas, dolphinfish, wahoo, cero and king mackerels, which are currently not actively managed by ICCAT. Such a management partnership might also provide a forum for knowledge sharing between ICCAT and the sub-regional organizations, which

⁴ <http://www.fao.org/fishery/topic/13302/en>

can help to identify EAF management strategies for all large pelagic resources in CLME currently managed by ICCAT and its member states.

A formal management partnership agreement would have to be negotiated with ICCAT through a Memorandum of Understanding (MOU) or otherwise. It is suggested that WECAFC takes the lead in these negotiations as it has the broadest membership among the RFOs and hence many more of its members are also members of ICCAT. Furthermore, WECAFC is also a subsidiary body of FAO as is ICCAT and could seek assistance from FAO regarding the preparation of a MOU. WECAFC should do so in close consultation and cooperation with other RFBs such as the CRFM and OSPESCA.

The CRFM/CLME Strategic Action Programme (SAP) for the Effective Governance and Management of Large Pelagic Fisheries in the CLME further proposes that once a MOU has been concluded, CRFM, in close cooperation with, and assistance from OSPESCA and WECAFC, should take the lead in preparing management plans for the region's small-tunas and tuna-like species such as blackfin and bullet tunas, dolphinfish, wahoo, cero and king mackerels as well as in coordinating the implementation of these sub-regional plans in close cooperation with the concerned countries of the sub-region. The fisheries management plan for blackfin tuna fisheries in the Eastern Caribbean sub-region is the first of the FMPs proposed under the relevant CRFM/CLME Strategic Action Programme.

12.1.3 Licensing and permitting

The sustainable management and conservation of blackfin tuna should benefit from ongoing efforts to harmonize and improve national vessel registration and licensing systems. Expansion of use of LRS is needed to clearly identify vessels fishing for large as well as small coastal pelagic fish resources such as blackfin tuna, track change of ownership, base of operation and use of vessels and provide information to the CRFM to be incorporated in sub-regional/regional data bases.

With a view to limit catch levels of blackfin tuna as suggested by the CRFM LPWG and proposed in chapter 12.1 of this FMP, licensing and registration of vessels which fish for blackfin tuna and other small coastal pelagics should include the issuing of permits similar to the NMFS Highly Migratory Species Commercial Caribbean Small Boat Permit. The so called "Caribbean Permit" is valid only in the US Caribbean defined as the U.S. Exclusive Economic Zone around Puerto Rico and the U.S. Virgin Islands. The permit was created under Amendment 4 to the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan and implemented by a final rule published on October 1, 2012 (77 FR 59842).

The purpose of the amendment is to enact HMS management measures that better correspond with the traditional operation of the small-scale HMS fishing fleet in the US Caribbean Region and to provide the NMFS with an improved capability to monitor and sustainably manage those fisheries. It applies to vessels less than or equal to 45 feet in length overall. It specifies species, daily catch limits, minimum size and authorized fishing gear.

However, blackfin tuna is presently not included in the NMFS HMS Commercial Caribbean Small Boat Permit and therefore not managed in the US Caribbean waters, probably because it is not considered a commercial species in US Caribbean waters, while skipjack tuna, which forms shoals with blackfin tuna is included in the permit.

Similarly to the NMFS Caribbean Permit, permits to be issued for Eastern Caribbean small tuna and tuna-like fisheries should specify the species to be fished, including blackfin tuna (*Thunnus atlanticus*), number of fish to be retained per day, minimum sizes, authorized fishing gear and fishing season.

12.1.4 Supporting legal and policy interventions at the national level

In order to make the above management arrangements comprehensive and successful in the long run, this FMP for blackfin tuna proposes to implement below legal and policy interventions without further delay, which have been recommended by the CRFM/CLME review of existing policy, legal and institutional arrangements for governance and management of large pelagic fisheries in the CLME and the CRFM/CLME Strategic Action Programme for the Effective Governance and Management of Large Pelagic Fisheries in the CLME:

- Delimitation of all maritime boundaries. In the interim, if boundary delimitation is not possible at present, neighbouring states should enter into bilateral or multilateral agreements allowing joint monitoring, control and surveillance (MCS). The OECS Common Fisheries Surveillance Zone could be used as a model, but ideally the scope should embrace the Wider Caribbean Sea. The present status of maritime boundary agreements within the region is given in Annex 1 for reference.
- Review of national fisheries laws of all of the states to ensure that they conform to modern fisheries management standards. Where fisheries laws do not formally require the provision of data to national authorities by fishers, this should be mandated.
- Ensure the national laws fully implement the treaty obligations assumed by each state.
- National Regulations related to fisheries statutes should be enacted and implemented (as permitted by the relevant Fisheries Act), and updated where necessary.
- Review and update fisheries management plans, and where no such management plan exists, one should be created and brought into force as a matter of urgency.
- Formally set out the principles and best practices from non-binding instruments – including the FAO Code of Conduct for Responsible Fisheries and the Castries Declaration on Illegal, Unreported and Unregulated Fishing – in national legislation. Such principles include: using the best available scientific information, applying the precautionary and ecosystem based approaches to fisheries management, the principle of sustainable use, the participatory approach and principles of good governance.
- Harmonization of national fisheries and environmental legislation within the region. Technical assistance, as needed, should be provided for this purpose.

12.1.5 Post-harvest and infrastructure support, strengthening of fisherfolk associations and cooperatives

In order to optimize the use of pelagic fishery resources for long-term socio-economic benefits, national fisheries authorities, in close cooperation with other government agencies, civil society, the private sector, sub-regional and regional fisheries bodies as well as multi- and bilateral donors, funds and development partners, will undertake efforts to improve fisheries infrastructure at landing sites, marketing and utilization of small tunas and tuna like fishes as well as the access of the pelagic fisheries sector to adequate institutional credit and insurance facilities.

Similarly, national fisheries authorities, in close cooperation with other government agencies, civil society, the private sector, sub-regional and regional fisheries bodies as well as multi- and bilateral donors, funds and development partners, will make efforts to strengthen fisherfolk associations and cooperatives and enable them to serve and empower the fisheries sector, particularly the small-scale fisheries sector, so that it can fully participate in the sustainable management and conservation of fishery resources and optimizes its socio-economic benefits derived from these resources.

The CRFM/CLME report on identification and analysis of stakeholders in the large pelagic fishery in the wider Caribbean (CRFM.2012d) recommended the development of a special participation strategy for this purpose. The strategy should aim to encourage participation of stakeholders at all levels at the EAF management cycle, i.e. generation of data and information, analysis of information and generation of

advice, decision-making, implementation, review, evaluation and adaptation of management approaches, strategies and plans.

It is proposed that key stakeholders such as the Caribbean Network of Fisherfolk Organizations (CNFO) are to play an advisory role at the regional level similar to the role FACs, fisherfolk associations and cooperatives are supposed to play at the national level. The stakeholder participation interventions should give special attention to the needs and interests of vulnerable groups within fishing communities and strengthen their resilience through small-scale enterprise development with training and microfinance support, provision of health and other social services.

The CRFM/CLME report on identification and analysis of stakeholders in the large pelagic fishery in the wider Caribbean (CRFM.2012c) recommended further the development of a special participation strategy. The communication strategy should aim to improve public awareness and understanding of the importance of the pelagic fishery and build support for improved management. Key stakeholders such as the Caribbean Network of Fisherfolk Organizations (CNFO), national fisherfolk associations and cooperatives are to develop their own positions on various issues related to fisheries management and conservation and communicate such positions to other stakeholders and policy makers.

12.2 Implementation

The broad steps, activities, responsible party and timeframe for the finalization, adoption, evaluation and revision of this management plan are shown in table 5.

Table 5: Broad steps towards finalization, adoption, evaluation and revision of Sub-regional Blackfin Tuna Fisheries Management Plan

Broad Steps	Activities	Responsible party	Timeframe (to be completed by CRFM/WECAFC)
1. Finalization and adoption of draft Blackfin Tuna Fisheries Management Plan (BLFFMP) by RFBs	1.1 Finalization of Sub-regional Blackfin Tuna Fisheries Management Plan	CRFM/WECAFC ⁵	
	1.2 Approval of draft FMP by CRFM/WECAFC	CRFM/WECAFC	
2. Finalization and adoption of draft plan by broader membership and stakeholders	2. Reviewed by stakeholders at the national and regional level through consultative processes including public hearings, public postings of management plans and comment periods by FACs	National fisheries authorities, CRFM, WECAFC	

⁵ Since WECAFC has no specific activities for large pelagic fisheries during this period, except for recreational fisheries, which is currently heavily focused on billfish species, WECAFC's involvement is still to be formally requested.

3. Finalization and adoption of BLFFMP by RFBs and information of ICCAT	3. Adjustment of BLFFMP by incorporating inputs from consultations	CRFM/WECAFC/ICCAT
4. Formal adoption of BLFFMP	4. Discussion and approval of BLFFMP by Caribbean Fisheries Forum and CRFM Ministerial Council	Caribbean Fisheries Forum and CRFM Ministerial Council
5. Putting Plan into action, implementation	5.1 Change, creation or implementation of legislation, regulations or management plans to allow for application of proposed management measures, as necessary	National fisheries authorities
	5.2 Adoption of BLFFMP at national level	CRFM Member States
7. Formal adoption of BLFFMP by France and Venezuela⁶	7. Formal adoption of BLFFMP by France (Martinique) and Venezuela	French/Martinique/Venezuelan fisheries authorities
8. Plan evaluation and revision	8. Annual review and adjustment of BLFFMP	National fisheries authorities in consultation with stakeholders, CRFM, WECAFC

During implementation of the blackfin tuna fisheries management plan, consultative processes will be used to facilitate participation of stakeholders in the monitoring and adjustment of the management plan. Feedback will be provided to stakeholders on results of the implementation of the plan including information of catch and effort trends, number of licenses/permits issued/renewed, results of stock assessments, industry performance evaluations, etc. The updated management plan will be renewed/updated on a regular basis and inputs from stakeholders will be encouraged and given due regard.

12.3 Co-management

The present functioning and structure of national Fisheries Advisory Committees should be revised to assure participation of all fisheries sub-sectors. Stakeholders from other sectors than fisheries, who have an impact or interest in blackfin tuna fisheries and the related pelagic ecosystem, should also be represented. The selection process for members of Fisheries Advisory Committees should be made transparent and carried out in close consultation with the groups which are to be represented on the FAC. The structure and functioning of the FACs should be more clearly defined and operational ensuring, among other things, that the chairperson of the committees has sufficient time to fulfill her/his tasks.

⁶ This step will be needed only until a management partnership with ICCAT is established.

Impact and outcomes of management decisions on blackfin tuna stocks, stakeholders and marine ecosystem should be regularly reviewed at the national and regional levels and evaluated together with concerned stakeholders who should be representative of the entire ecosystem affecting blackfin tuna fisheries. Depending on the outcome of these evaluations, management plans and measures should be adjusted on a regular basis consistent with ecosystem approach to fisheries management.

12.4 Control and surveillance (CS)

Control and surveillance of blackfin tuna fisheries will be carried out by the national fisheries authorities in close cooperation with the Caribbean Fisheries Forum, and eventually any agreed management partnership arrangement with ICCAT. The functions of CRFM will include the development of a harmonized control and inspection scheme to ensure compliance with management and conservation measures, to review compliance with adopted conservation and management measures and to implement adopted control, surveillance and enforcement measures.

12.5 Financing

Financing the implementation of this sub-regional blackfin tuna fisheries management plan will largely be done at the national level. However, additional funding will be required for the establishment and maintenance of regional databases as well as for carrying out regional management functions of advisory and MCS nature. This funding will be secured with the support of multi- and bilateral donor agencies and funds.

12.6 Monitoring and Evaluation

The deadlines specified in table 5 will guide the monitoring of the steps outlined for finalization, adoption and updating of the sub-regional BLFFMP. The monitoring of the plan will be coordinated initially by the CRFM through its LPWG, supported by the participation of States having a real interest in blackfin tuna, together with scientific observers and representatives of both the CRFM and WECAFC Secretariats. For each step, the responsible parties will be asked to submit brief progress reports to CRFM and WECAFC, outlining the level of achievement with regard to the specific activities identified.

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Annex 1: Maritime Delimitations and Legislation of Countries in the Wider Caribbean Region (Source: FAO FISHLEX)

Country	Territorial Sea	Fishing Zone	Exclusive Economic Zone	International maritime delimitation agreements
Antigua & Barbuda	12 n.m. (Maritime Areas Act, No. 18 of 1982)	200 n.m. (Maritime Areas Act, No. 18 of 1982)	200 n.m. (Maritime Areas Act, 1982)	
Bahamas	12 n.m. (Archipelagic Waters and Maritime Jurisdiction Act, 1993)	200 n.m. (Archipelagic Waters and Maritime Jurisdiction Act, 1993)	200 n.m. (Archipelagic Waters and Maritime Jurisdiction Act, 1993)	
Barbados	12 n.m. (Barbados Territorial Waters Act, 1977-26)		200 n.m. (Marine Boundaries and Jurisdiction Act, 1978)	
Belize	12 n.m. (Maritime Areas Act, 1992)		200 n.m. (Maritime Areas Act, 1992)	
Colombia	12 n.m. (Act No. 10 of 4 August 1978 establishing rules concerning the Territorial Sea, the Exclusive Economic Zone and the Continental Shelf and regulating other matters)		200 n.m. (Act No. 10 of 4 August 1978 establishing rules concerning the Territorial Sea, the Exclusive Economic Zone and the Continental Shelf and regulating other matters)	<p>Maritime Boundary Agreement between Panama and Colombia, 20 November 1976.</p> <p>Treaty on delimitation of marine and submarine areas and maritime co-operation between the Republic of Colombia and the Republic of Costa Rica, 17 March 1977.</p> <p>Agreement on delimitation of the maritime boundaries between the Republic of Colombia and the Republic of Haiti, 17 February 1978.</p> <p>Agreement on delimitation of marine and submarine areas and maritime co-operation between the Republic of Colombia and the Dominican Republic, 13 January 1978.</p> <p>Maritime Delimitation Treaty between Colombia and Honduras, 2 August 1986.</p>

				Maritime Delimitation Treaty between Jamaica and the Republic of Colombia, 12 November 1993.
Costa Rica	12 n.m. (Decree No. 5699 of June 1975, on maritime sovereignty)		200 n.m. (Decree No. 5699 of June 1975, on maritime sovereignty)	Treaty on delimitation of marine and submarine areas and maritime co-operation between the Republic of Colombia and the Republic of Costa Rica, 17 March 1977. Treaty concerning delimitation of marine areas and maritime co-operation between the Republic of Costa Rica and the Republic of Panama, 2 February 1980.
Cuba	12 n.m. (Decree-Law No. 1 of 24 February 1977 concerning the breadth of the territorial sea of the Republic of Cuba)		200 n.m. (Legislative Decree No. 2 of 24 February 1977 concerning the establishment of an Economic Zone)	Exchange of notes constituting an agreement on the delimitation of the exclusive economic zone of Mexico in the sector adjacent to Cuban maritime areas, 26 July 1976. Maritime boundary agreement between the United States of America and the Republic of Cuba, 16 December 1977, applied provisionally as from 1 January 1978. Agreement between the Republic of Haiti and the Republic of Cuba regarding the delimitation of maritime boundaries between the two States, 27 October 1977. Agreement between the Government of the Jamaica and the Government of the Republic of Cuba on the delimitation of the maritime boundary between the two States, 18 February 1994.
Dominica	12 n.m. (Territorial Sea, Contiguous Zone, Exclusive Economic and Fishery Zones Act, 25 August 1981)	200 n.m. (Territorial Sea, Contiguous Zone, Exclusive Economic and Fishery Zones Act, 25 August 1981)	200 n.m. (Territorial Sea, Contiguous Zone, Exclusive Economic and Fishery Zones Act, 25 August 1981)	Agreement on Maritime Delimitation between the Government of French Republic and the Government of Dominica, 7 September 1987.
Dominican Republic	12 n.m. (Law 66-07 of 22 May 2007 (proclaiming archipelagic status)		200 n.m. (Law 66-07 of 22 May 2007 (proclaiming archipelagic status)	Agreement on delimitation of marine and submarine areas and maritime co-operation between the Republic of Colombia and the Dominican Republic, 13 January 1978.

	of the Dominican Republic and containing the lists of geographical coordinates of points for drawing the archipelagic baselines and the outer limits of the exclusive economic zone))		of the Dominican Republic and containing the lists of geographical coordinates of points for drawing the archipelagic baselines and the outer limits of the exclusive economic zone))	Treaty on the delimitation of marine and submarine areas between the Republic of Venezuela and the Dominican Republic, 3 March 1979.
Grenada	12 n.m. (Grenada Territorial Sea and Maritime Boundaries Act, 13 July 1989 (Act No. 25 of 1989))		200 n.m. (Grenada Territorial Sea and Maritime Boundaries Act, 13 July 1989 (Act No. 25 of 1989))	
Guatemala	12 n.m. (Legislative Decree No. 20-76 of 9 June 1976 concerning the breath of the territorial sea and the establishment of an Exclusive Economic Zone)		200 n.m. (Legislative Decree No. 20-76 of 9 June 1976 concerning the breath of the territorial sea and the establishment of an Exclusive Economic Zone)	
Guyana	12 n.m, (marine Boundaries Act, 3 June 1977)	200 n.m. (marine Boundaries Act, 3 June 1977)	200 n.m. (marine Boundaries Act, 3 June 1977), (Exclusive Economic Zone (Designation of Area) Order, 23 February 1991)	

Haiti	12 n.m. (Decree fixing the limits of the territorial sea, 6 April 1972) (Declaration by the Haitian Government of 6 April 1977 establishing the boundary of the territorial waters of the Republic of Haiti at 12 nautical miles and of its Economic Zone at 200 nautical miles) (Decree No. 38 of 8 April 1977 fixing the limits of the territorial sea, Exclusive Economic Zone and continental shelf)	200 n.m. (Declaration by the Haitian Government of 6 April 1977 establishing the boundary of the territorial waters of the Republic of Haiti at 12 nautical miles and of its Economic Zone at 200 nautical miles) (Decree No. 38 of 8 April 1977 fixing the limits of the territorial sea, Exclusive Economic Zone and continental shelf)	Agreement on delimitation of the maritime boundaries between the Republic of Colombia and the Republic of Haiti, 17 February 1978. Agreement between the Republic of Haiti and the Republic of Cuba regarding the delimitation of maritime boundaries between the two States, 27 October 1977.
Honduras	12 n.m. (Maritime Areas of Honduras Act - Legislative Decree 172-99, 30 October 1999)	200 n.m. (Maritime Areas of Honduras Act - Legislative Decree 172-99, 30 October 1999)	Maritime delimitation treaty between Colombia and Honduras, 2 August 1986. Treaty between the Government of the Republic of Honduras and the Government of the United Kingdom of Great Britain and Northern Ireland concerning the delimitation of the maritime areas between the Cayman Islands and the Republic of Honduras, 4 December 2001. Maritime delimitation treaty between the Government of the United Mexican States and the Government of the Republic of Honduras, 18 April 2005.
Jamaica	12 n.m. (Maritime Areas Act, 28	200 n.m. (Exclusive	Maritime delimitation treaty between Colombia and Honduras, 2 August 1986.

	November 1996)		Economic Zone Act, 1991)	Treaty between the Government of the Republic of Honduras and the Government of the United Kingdom of Great Britain and Northern Ireland concerning the delimitation of the maritime areas between the Cayman Islands and the Republic of Honduras, 4 December 2001. Maritime delimitation treaty between the Government of the United Mexican States and the Government of the Republic of Honduras, 18 April 2005.
Mexico	12 n.m. (Decree of 28 August 1968 delimiting the Mexican territorial sea within the Gulf of California)		200 n.m. (Statutory law on the Exclusive Economic Zone, 4 December 1975) (Federal Act relating to the Sea, 20 December 1985)	Treaty on maritime boundaries between the United Mexican States and the United States of America (Caribbean Sea and Pacific Ocean), 4 May 1978). Exchange of notes constituting an agreement on the delimitation of the exclusive economic zone of Mexico in the sector adjacent to Cuban maritime areas, 26 July 1976). Maritime delimitation treaty between the Government of the United Mexican States and the Government of the Republic of Honduras, 18 April 2005.
Nicaragua	12 n.m. (Act No. 205 of 19 December 1979 on the continental shelf and adjacent sea) (Law 420 - Law on maritime spaces of Nicaragua, 15 March 2002)	200 n.m. in the Caribbean sea. Area within the distance to the 200-meter isobar (1965). (Decree 1/L/65 on the national fishing zone, 5 April 1965) (Decree 9-2008 of 13 February 2008 establishing the Special fishing zone in the Caribbean Sea)	200 n.m. (Act No. 205 of 19 December 1979 on the continental shelf and adjacent sea) (Law 420 - Law on maritime spaces of Nicaragua, 15 March 2002)	

Panama		200 n.m. (Act n. 31 - Territorial Sea, 30 January 1967)	Maritime Boundary Agreement between Panama and Colombia, 20 November 1976. Treaty concerning delimitation of marine areas and maritime co-operation between the Republic of Costa Rica and the Republic of Panama, 2 February 1980.
Saint Kitts and Nevis	12 n. m. (Maritime Areas Act, 1984 (Act No. 3), 4 November 1984)	200 n.m. (Maritime Areas Act, 1984 (Act No. 3), 4 November 1984)	
Saint Lucia	12 n.m. (Maritime Areas Act, 1984 (Act No. 6), 18 July 1984)	200 n.m. (Maritime Areas Act, 1984 (Act No. 6), 18 July 1984)	Agreement on delimitation between the Government of the French Republic (Martinique) and the Government of Saint Lucia, 4 March 1981.
Saint Vincent and the Grenadines	12 n.m. (Maritime Areas Act, 1983 (Act No. 15), 8 June 1983)	200 n.m. (Maritime Areas Act, 1983 (Act No. 15), 8 June 1983)	
Trinidad & Tobago	12 n.m. (Territorial Sea Act, 1969 (Act No. 38)).	200 n.m. (Archipelagic Waters and Exclusive Economic Zone Act, 1986 (Act No. 24))	Agreement between the Government the Republic of Trinidad and Tobago and the Republic of Venezuela on the delimitation of marine and submarine areas, 18 April 1990.

The CRFM is an inter-governmental organization whose mission is to “Promote and facilitate the responsible utilization of the region’s fisheries and other aquatic resources for the economic and social benefits of the current and future population of the region”. The CRFM consists of three bodies – the Ministerial Council, the Caribbean Fisheries Forum and the CRFM Secretariat. CRFM members are Anguilla, Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago and the Turks and Caicos Islands.

This version of the *Draft Sub-regional Management Plan for Blackfin Tuna Fisheries in the Eastern Caribbean (Stakeholder Working Document)* was circulated to CRFM Member States on 13 April 2015 for national review, through consultation with the broad range of stakeholders. Reports of the national consultations are expected from Member States by the end of September 2015. Thereafter, the CRFM's Pelagic Fisheries Working Group would review the respective reports, make the necessary amendments to the management plan and submit the revised document to the next meeting of the Caribbean Fisheries Forum for review. Once approved by the Forum the management plan would be submitted to the next meeting of the Ministerial Council for consideration and endorsement for implementation by CRFM Member States. The final endorsed FMP would be published as a CRFM Special Publication.

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