

CRFM WORKING GROUPS: TERMS OF REFERENCE



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FOREWORD

The Terms of Reference for the CRFM's Working Group on Aquaculture was developed in consultation with CRFM Member States and approved at the 10th meeting of the Caribbean Fisheries Forum, held in the Bahamas in March 2012. The Terms of Reference for the CRFM's Pelagic Fisheries Working Group (PWG), the Reef and Slope Fisheries Working Group (RSWG) and the Continental Shelf Fisheries Working Group (CSWG) as well as the CRFM's Data, Methods and Training Working Group (DMTWG) were similarly developed and approved by the 12th Meeting of the Caribbean Fisheries Forum, held in Dominica in April 2014 and endorsed for immediate implementation by the 8th Meeting of the Ministerial Council, held in Dominica in May 2014.

The main objective of the aquaculture working group is to promote sustainable aquaculture development at the national and regional levels and to advise the Caribbean Fisheries Forum accordingly on policies, programmes and projects. The underlying objective of each fisheries working group is to promote the sustainable utilization of the respective fisheries resources and associated ecosystems through review and analysis of fisheries and related data and information, and use of these products for formulation of suitable management strategies, consistent with the ecosystem, precautionary and participatory approaches to fisheries management. Consistent with the three approaches the objective of the DMTWG is to improve the quality of data used for fisheries analyses, to facilitate acquisition of data and information for a wider range of analyses, to develop and test assessment methods best-suited to the quality and types of data available in CRFM Member States and to facilitate the necessary training of members of the Working Group to undertake the respective analyses.

The four fisheries Working Groups represent consolidation of the previous Large Pelagic Resource Working Group, Small Coastal Pelagic Fish Resource Working Group and Working Group on ICCAT into the Pelagic Fisheries Working Group, consolidation of the Reef and Slope Fish Resource Working Group and the Conch and Lobster Resource Working Group into the Reef and Slope Fisheries Working Group, and reconfiguration of the Shrimp and Groundfish Resource Working Group into the Continental Shelf Fisheries Working Group. The Data, Methods and Training Working Group was also reconfigured into a new working group of the same name.

The consolidation and reconfiguration of the above-mentioned Working Groups, and development of new Terms of Reference, became necessary in order to, *inter alia* : (1) broaden their respective mandates to include consideration of a wider range of scientific issues and to include management-related issues under their portfolios thereby strengthening the science-policy interface; (2) ensure consistency with international best practices in fisheries and ecosystem assessment and management; (3) align the activities of the Working Groups with agreed regional policies, strategies and action plans as well as regional initiatives and projects; (4) improve transparency and accountability in the conduct of the activities of the Working Groups; (5) improve the policy and management implementation framework within the CRFM institutional structure; and (6) improve monitoring and evaluation of activities of the Working Groups.

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TERMS OF REFERENCE OF THE CRFM WORKING GROUP TO PROMOTE SUSTAINABLE AQUACULTURE DEVELOPMENT

1. Background and Rationale

According to the FAO State of World Fisheries and Aquaculture Report 2010, aquaculture continues to be the fastest-growing animal-food-producing sector and to outpace population growth, with the per capita supply from aquaculture increasing from 0.7 kg in 1970 to 7.8 kg in 2008, an average annual growth rate of 6.6 percent.

Aquaculture accounted for 45.7 percent of the world's fish food production for human consumption in 2008, up from 42.6 percent in 2006. It is set to overtake capture fisheries as a source of food fish. While aquaculture production (excluding aquatic plants) was less than 1 million tonnes per year in the early 1950s, production in 2008 was 52.5 million tonnes, with a value of US\$98.4 billion.

The majority of fishers and aquaculturists are in developing countries, mainly in Asia, which has experienced the largest increases in recent decades, reflecting in particular the rapid expansion of aquaculture activities. In 2008, 2.9 percent of fishers and fish farmers were in Latin America and the Caribbean.

The aquaculture sector is not well developed in the CARICOM region, with significant development limited to countries like Jamaica and Belize. Other countries like Guyana, Suriname and Trinidad and Tobago have begun to put more emphasis on aquaculture as an area for development. The practices mainly involve the use of ponds to culture such species as penaeid shrimp (*Penaeus* spp.), tilapia (*Oreochromis* spp.), carp (*Ctenopharyngodon idellus*, *Hypophthalmichthys nobilis*, *Hypophthalmichthys molitrix*) and cachama (*Colossoma macropomum*). Also, there is long line culture for algae (*Euचेuma* spp. and *Gracelaria* spp.) in St. Lucia and the mangrove oyster (*Crassostrea rhizophorae*) in Jamaica.

Most CARICOM states have limited land and fresh water resources, however some, like Suriname, Guyana and Belize, do have ample supplies. On the other hand, most states have larger expanses of marine space than land mass, which offers the potential for the promotion and development of mariculture. As such the approach to aquaculture development will have to be multifaceted in its focus, design and implementation in order to address the needs of those with ample land and fresh water resources and those with less of these resource endowments, while incorporating the commercial elements of aquaculture. The CRFM has identified the promotion and development of aquaculture as one of the programme areas within its 2002 Strategic Plan and CRFM First Medium Term Plan (2004 – 2007) and CRFM Second Medium Term Plan (2008 - 2011). With this in mind, it identified aquaculture development policy formulation as one of the areas to be addressed under the CRFM/JICA Master Plan Study (2009 2011), which included the delivery of two Regional Aquaculture Development Planning Workshops in March and August 2011 involving Belize, Guyana, Haiti, Jamaica, Suriname and Trinidad and Tobago. Some of the common issues identified at the March 2011 Regional Workshop were in the areas of aquaculture policy, legislation, institutional capacity to conduct research, development and provide extension services, technology, feed production and marketing.

In relation to the recently approved Draft Agreement Establishing the Caribbean Community Common Fisheries Policy, objective (a) of section 4.3 is aimed at promoting the sustainable development of fishing and aquaculture industries in the Caribbean Region as a means of, *inter alia*, increasing trade and export earnings, protecting food and nutrition security, assuring supply to Caribbean markets and improving income and employment opportunities, while section 10 Fisheries Sector Development states that Participating Parties, to the extent of their capabilities, will endeavor to promote and adopt measures to enhance the development of the fisheries and aquaculture sectors and to improve the welfare and socio-economic conditions of fishers and fishing communities, including, *inter alia*, by:

- (a) improving the business, financial and insurance environment;
- (b) promoting and facilitating joint ventures;
- (c) promoting access to training;
- (d) supporting capital investment;
- (e) promoting the involvement of stakeholders, in particular in planning and management activities, including by supporting the formation and strengthening of fisherfolk organizations. The Policy document in section 20 also recognizes the need to develop a protocol on aquaculture.

With the above in mind and recognizing the need to put in place a mechanism to promote and provide support for the development of aquaculture in the region, the Secretariat, in keeping with Article 11 Sub-Committees of the Forum of the CRFM Agreement, is proposing that a working group for the promotion of aquaculture development be established.

2. Objectives

The objective of the working group would be to:

1. Promote sustainable aquaculture development at the national and regional levels, mainly for the purposes of:
 - increasing food production and security;
 - improving rural income and employment;
 - diversifying farm production; and
 - increasing foreign exchange earnings and savings.
2. Advise the Forum on policies, programmes and projects to promote the development of aquaculture.

3. Terms of Reference

The terms of reference for the establishment of a CRFM Working Group to Promote Aquaculture Development are as follows:

1. Assist member states in conducting feasibility studies, socio-economic analyses, policy, planning and project formulation;
2. Promote interdisciplinary research on selected aqua-farming systems for adaptation or improvement of technologies, and for the development of new technologies that are environmentally suitable/appropriate and utilizing renewable energy sources;
3. Promote market and value added product research to facilitate improved marketing and trade of fish and fish products from the aquaculture sector;
4. Provide assistance to train and upgrade the core personnel needed for national aquaculture planning, research, training, extension and development;
5. Keep under review the policy and legal frameworks for sustainable aquaculture development in the region including the gaps and weakness, and propose recommendations to the Forum for their improvement;
6. Develop guidelines for the introduction of alien/exotic/non-indigenous fish species into aquaculture operations and the avoidance of invasive species and pathogens in such operations;
7. Provide guidance for the adoption and implementation of credible aquaculture certification schemes;
8. Identify bottlenecks and constraints to aquaculture development and make proposals to the Forum to address them;
9. Monitor scientific and technological developments in aquaculture and keep the Forum updated;
10. Promote the establishment of a regional information system to address common priorities that may be identified with respect to information and knowledge exchange.
11. Assist member states in strengthening their national aquaculture agencies/organizations;
12. Assist the national agencies/organizations in testing and adapting existing technologies to local requirements and in the training of technicians, extension workers and farmers;
13. Promote the transfer of appropriate aquaculture technologies and techniques developed at the national and regional levels;
14. Facilitate the exchange of national experts, technical know-how and information within the framework of TCDC; and
15. Assist in the development of programmes for the promotion of the participation of women and youth in the aquaculture industry/sector at all levels.

4. Mode of Operation

The CRFM Secretariat will be responsible for coordinating the activities of the Working Group.

The Working Group, through the CRFM, should work closely with staff of national and regional aquaculture and related institutions, and of regional organizations such as the FAL Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean (COPESCAALC), FAO Aquaculture Network for the Americas (RAA) and the Network of Aquaculture Centres in Asia-Pacific (NACA) in order to make full use of available technical expertise.

5. Membership of the Working Group & Participation

The membership of the group would be comprised of Member States and agencies which are interested in collaborating and cooperating in the promotion of aquaculture development at the national and regional levels.

6. Working Group Meetings

The Working Group will meet by way of regular electronic meetings and an annual on-site meeting subject to the availability of funding.

PELAGIC FISHERIES WORKING GROUP (PWG)

1. Background and Rationale

1.1 General

Pelagic fisheries resources are diverse within the CARICOM region which falls within the broader Caribbean Large Marine Ecosystem (CLME). They range from small coastal pelagic resources which include species such as jacks, scads and flyingfish that are local in distribution, being confined mainly to the Exclusive Economic Zones of Member States or straddling EEZs of two or more Member States, to regional, large pelagic resources that include species such as blackfin and bullet tunas, dolphinfish, wahoo, cero, Spanish and king mackerels that migrate more or less within the CLME and then to oceanic, large, highly-migratory pelagic resources such as yellowfin tuna, bigeye tuna, skipjack tuna, billfishes Atlantic swordfish and sharks that are distributed over areas that extend beyond the CLME. The differences in distribution, stock delineation and country participation in the respective fisheries necessitate varying levels of collaboration in research, assessment, management and conservation which inform the required respective governance regimes.

The pelagic ecosystem provides a range of ecosystem services such as provisioning, regulating, cultural and supporting services (CLME, 2011, p. 69). 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 transport for migratory species, and biodiversity functions related to sea turtles, sea birds and marine mammals.

The small coastal pelagic fisheries contribute significantly to national food security, and are of considerable socio-economic importance to rural fishing communities in particular. The larger, migratory pelagic fisheries contribute commercially, both to national and regional food security, and to foreign exchange earnings through trade, both internal and external to the CARICOM region, and license fees from open ship registries. The larger migratory pelagic species are also of importance to recreational fisheries. Detailed descriptions of the respective fisheries are provided in reports of the CRFM Annual Scientific Meetings. As with most fisheries in the region, the impacts of excessive fishing, pollution, habitat destruction and climate change and variability on the resources are of growing concern.

1.2 Small coastal pelagic fisheries

Small coastal pelagic fishing operations of CARICOM Member States are conducted usually close to or from the seashore, using small open vessels, sometimes assisted by divers, and deploying gears such as seines, gillnets and castnets at varying times of day depending on the availability of the resource which is likely influenced by environmental cycles. Due to the communal nature of these fishing operations the respective fisheries are important to social stability in small, rural and impoverished communities. The extensive coastlines of Member States, the nature and changeable timing of fishing operations, the lack of knowledge on the movement and distribution of the stocks,

the complexity of the small coastal pelagic fisheries and the difficulty this complexity poses for both fisheries statistical coverage and management necessitate collaboration among States likely to share the resource for sustainable utilization, management and conservation of the resources and related ecosystems.

Flyingfish fisheries are concentrated in the southern end of the Lesser Antilles chain. Barbados, Tobago, Martinique and Saint Lucia all have large flyingfish fisheries and to a lesser extent Dominica and Grenada. Barbados accounts for about two thirds of the regional catch. Compared to other countries in the region, Barbados also adds more value to flyingfish catches through processing and sale to the tourism sector. Altogether 1700 boats of small to medium size are engaged in flyingfish fisheries. These vessels are mainly artisanal pirogues. However, Barbados has also developed a “semi-industrial type” iceboat fleet and Tobago has followed similarly, but to a lesser extent. The main gear used is the surface set gillnet with fish aggregating devices, however, fishers also use pelagic lines on the respective fishing trips. Consequently, both flyingfish (mainly the four-wing flyingfish) and their large pelagic predators are caught in this fishery. As well, there has been growing importance of flyingfish as a source of bait for the developing longline fishery that targets large pelagic species.

1.3 Large pelagic fisheries

Large pelagic fishing operations of CARICOM Member States utilize 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 (Berry and Tietze, 2012). Larger decked vessels, mainly medium sized longliners, were introduced in the 1980s 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. The impetus for this development in several cases was the need for continued contribution of fisheries to food security in light of declining catches in the inshore areas, including reef fisheries, due mainly to overexploitation.

Due to the nature and distribution of large migratory pelagic resources the required collaboration for effective assessment and management extends beyond the geopolitical reach of CARICOM. Such resources are also targeted by large-scale fishing fleets of many non-CARICOM nations bordering the CLME region, the Atlantic Ocean and Mediterranean Sea, as well as distant water fishing nations. The required regional and international management is directed by the 1982 United Nations Convention on the Law of the Sea and strengthened by other international instruments such as the 1993 Compliance Agreement and the 1995 UN Fish Stocks Agreement.

1.4 ICCAT

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is a Regional Fisheries Management Organization (RFMO), which was established in 1969 to co-ordinate the management of all tunas and tuna-like species in the Atlantic Ocean and adjacent seas, including the Caribbean Sea, the Gulf of Mexico and the Mediterranean Sea. The Atlantic Ocean and its adjacent Seas comprise the ICCAT Convention Area. ICCAT-managed species include all Atlantic tuna and billfish species, swordfish, several tuna-like species such as kingfish and mackerels, and many shark species, comprising a total of 25 tuna species and 57 shark species. In recent years, ICCAT has assumed responsibility for monitoring and managing the level of bycatch in all Atlantic tuna fisheries, including bycatch of non-target, non-fish species such as seabirds, turtles and whales. Current ICCAT management measures include catch limits, effort controls, time and area closures, minimum size limits, catch and trade restrictions. Recent requirements include submission of

management plans for swordfish fisheries and fisheries utilizing Fish Aggregating Devices (FADs). In addition efforts are being made to introduce more rigorous reporting and compliance monitoring schemes, including, *inter alia*: catch documentation schemes for small tuna and tuna-like species, improvement of data on artisanal fisheries; addressing concerns of impacts of FAD fisheries on the capture of juvenile fish (yellowfin tuna and blue marlin in particular), and placing greater focus on sharks and bycatch species.

Various international fisheries instruments prescribe that where an RFMO exists and has the competence for conservation and management of fisheries resources, States in whose jurisdictions the resources occur, as well as States which have a real interest in the fisheries, should co-operate with the RFMO by becoming a Member of the organization and should participate actively in the organization's work. ICCAT's management measures are adopted for enforcement throughout the ICCAT Convention Area that includes the CARICOM/CRFM fishing region. Consequently, ICCAT measures can directly help or hinder fisheries development and management activities within the region.

Recent developments at ICCAT, including the significant decline in abundance of several large tuna and billfish species of global commercial and recreational importance, and also an increasing demand by ICCAT for nations to implement more active and tighter surveillance of tuna and tuna-like fishing operations throughout the ICCAT Convention Area, make it necessary for CRFM/CARICOM countries to effect proactive participation in ICCAT. Currently four CARICOM Members States, Barbados, Belize, St Vincent and the Grenadines and Trinidad and Tobago are Contracting Parties to the ICCAT. In addition, CARICOM's representation at ICCAT has been facilitated in the capacity of Observer since 1991.

1.5 Regional and International Initiatives since 2002

In 2002 the main technical advisory arm of the CRFM, the Caribbean Fisheries Forum, agreed to establish the Large Pelagic Fish Resource Working Group (LPWG) and the Small Coastal Pelagic Fish Resource Working Group (SCPWG) that were linked to similar but temporary working groups formulated under the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP)¹. In 2012 a Working Group on ICCAT was also established. Since 2002, introduction of a number of regional and international initiatives warrant update of the Terms of Reference for the respective Working Groups. These initiatives include:

1. Application of international best practices in fisheries management which utilize the precautionary, participatory and ecosystem approaches;
2. Recognition of the ecological linkages through predation and competition among pelagic species², both small and large, which must be considered in the assessment and management of the respective resources;

¹ The CFRAMP was a ten-year project, which began in 1991, with funding and technical support from CIDA and ICOD (Canada) and which provided the justification and framework for establishment of the CRFM.

² Heileman, S., Mohammed, E. & Fanning, P. 2008. Derivation of diet compositions in the Lesser Antilles pelagic ecosystem. Scientific basis for ecosystem-based management in the Lesser Antilles including interactions with marine mammals and other top predators. FAO/Government Cooperative Programme FI:GCP/RLA/140/JPN Technical Document 7, 77pp.

3. The increasing need to quantify impacts of climate change and variability on resource availability (production, distribution), post-harvest and marketing systems to inform disaster risk management planning and decision-making.
4. Development and implementation of a strategic action programme under the Caribbean Large Marine Ecosystem and Adjacent Regions (CLME+) Project that seeks to address improved governance under an EAF approach focusing on overexploitation, habitat destruction and pollution with climate change being a cross-cutting issue for the pelagic³ and flyingfish⁴ fisheries in the CLME;
5. The need to broaden fisheries analyses to include economic valuation of the resources and ecosystem goods and services, socio-economic assessment, and consideration of ecological and environmental issues including climate change;
6. The CRFM Independent Performance Review and associated recommendations⁵;
7. Recommendations of the Workshop to Develop a Strategy to Strengthen Capacity in CRFM Member States in the Area of Statistics and Information⁶;
8. Development of a Draft Agreement Establishing the Caribbean Community Common Fisheries Policy;
9. The Castries (2010) Declaration on Illegal, Unreported and Unregulated Fishing;
10. Development of a Draft Sub-Regional Fisheries Management Plan for Flyingfish in the Eastern Caribbean that promotes EAF management;
11. Development of a Draft Sub-regional Fisheries Management Plan for the Blackfin Tuna that promotes EAF management;
12. Endorsement of a CRFM-OSPESCA Joint Action Plan and the associated Memorandum of Understanding to strengthen cooperation and understanding between CRFM and OSPESCA to promote and ensure conservation and sustainable use of the fishery and aquaculture resources of the Caribbean region, endorsed by the Ministerial Council in Belize in September 2012;
13. Implementation of the JICA Project – CARIFICO – on co-management in fisheries using fish aggregating devices;

³ Tietze, U. and Singh-Renton, S. 2012. Strategic Action Programme for the Effective Governance and Management of Large Pelagic Fisheries in the Caribbean Large Marine Ecosystem (CLME). CRFM Technical & Advisory Document, Np. 2012/15. 40p.

⁴ Tietze, U. and Singh-Renton, S. 2012. Strategic Action Programme for the Effective Governance and Management of Flyingfish Fisheries in the Caribbean Large Marine Ecosystem (CLME). CRFM Technical & Advisory Document, Np. 2012/14. 42p.

⁵ CRFM, 2013. Report of the CRFM Independent Performance Review. CRFM Management Report. 79 pp.

⁶ CRFM, 2014. Report of Workshop to Develop Draft Strategy to Strengthen Capacity in CRFM States in the Area of Fisheries Statistics and Information, 10-12 February 2014, St. Vincent and the Grenadines. *CRFM Technical & Advisory Document*, No. 2014/1. 135p.

14. Establishment of joint regional working groups on flyingfish in the Eastern Caribbean, fisheries using Fish Aggregating Devices (FAD) and recreational fisheries under the Western Central Atlantic Fishery Commission, with the CRFM being the lead agency on the flyingfish and FAD fisheries Working Groups;
15. ICCAT's more stringent management measures that call for improvements in data collection, catch certification and traceability, development of management plans and addressing bycatch issues in pelagic fisheries.

As a consequence of the above initiatives the previous Large Pelagic Resource Working Group, the Small Coastal Pelagic Fish Resource Working Group and the Working Group on ICCAT are consolidated into a Pelagic Fisheries Working Group with the following revised Terms of Reference.

2. Objective

The objective of the Pelagic Fisheries Working Group is to promote the sustainable utilization of pelagic resources and associated ecosystems through review and analysis of fisheries and related data and information and use of this for formulation of suitable management strategies, consistent with the ecosystem, precautionary and participatory approaches to fisheries management.

3. Terms of Reference

The Terms of Reference for the Working Group are as follows:

1. To provide a forum for:
 - a. review of fisheries statistical and sampling procedures, and for advising on improvements in recording and reporting of pelagic fisheries data;
 - b. sharing of data and information on pelagic fisheries in accordance with any agreed data and information sharing arrangements;
 - c. developing multidisciplinary approaches to fishery assessment, including the consideration of social, economic, and environmental data and information, and local knowledge;
 - d. review and discussion of the biology and ecology of pelagic fish resources;
 - e. review of existing research programmes on pelagic fisheries;
 - f. providing informed advice on sustainable development and management of pelagic fisheries and the performance of existing management measures;
 - g. development and coordination of statistical and research programmes on pelagic fisheries;
2. To develop and implement biennial work plans;
3. To identify funding requirements through development of a biennial budget linked to the work plan at (2) above;
4. To recommend funding sources and to develop proposals to source funding in support of pelagic resource research programmes;

5. To build stakeholder awareness on proposed management strategies for pelagic fisheries and to facilitate their involvement in the management process;
6. To value the contribution of pelagic fisheries to employment, income and food security; .
7. To examine the impacts of environmental factors and climate change and variability on the productivity, abundance and distribution of pelagic fisheries as well as the respective post-harvest and marketing systems;
8. To report on the activities of the Working Group, including the scientific basis for conclusions reached and suggested management actions to the Annual Scientific Meetings, meetings of the Caribbean Fisheries Forum and the Ministerial Council, and to international fora, as required;
9. To ensure the timely publications of research documents and reports prepared by the Working Group;
10. In the case of shared large pelagic fish stocks managed by ICCAT:
 - a. to provide technical advice to CRFM countries for recording and reporting of fisheries statistics to ICCAT, and to coordinate the annual submission of CRFM large pelagic fishery statistics to ICCAT;
 - b. to prepare and submit an annual regional (CRFM) report to ICCAT, on behalf of those countries which are not members of ICCAT, but which have established large pelagic fisheries; and
 - c. to provide in general coordinated support for technical and management contributions to the ICCAT process at the SCRS and Commission levels.
11. To provide guidance on the national and regional management issues and objectives in accordance with internationally accepted standards and guidelines;
12. To consider and endorse recommendations for improving management of fisheries based on available scientific information and agreed management objectives;
13. To report on regional management performance to the CRFM Ministerial Council;
14. To prepare management action (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council; and
15. To provide, depending on resource availability, support for CRFM Member States in meeting their research obligations under joint Working Groups with other Regional Fisheries Bodies.

4. Mode of Operation

4.1 Work Plans

The activities of the Working Group shall be informed by a biennial PWG work plan that is endorsed by the Caribbean Fisheries Forum inter-sessionally. The format of the work plan, which is to be agreed upon, would facilitate improved transparency and accountability with respect to the

activities of the Working Group. As far as is practically possible, the work plan shall be aligned with the national work plans of the respective Member States.

4.2 Role of CRFM Member, and Associate Member States

- a. To implement the work plan of the Working Group at the national level;
- b. To monitor and evaluate implementation of the work plan at the national level;
- c. To report to the Working Group on progress made in implementation of the work plan;
- d. To implement statistics, research and management recommendations of the Working Group at the national level;
- e. To communicate matters related to activities of the Working Group to stakeholders and members of the public;
- f. To convene national consultations for the purpose of educating stakeholders on proposed management strategies of the Working Group and to receive and consider stakeholder feedback in the decision-making process as well as to consult on data inputs, analysis interpretation, practicality and performance of management measures;
- g. To share data and information with the Working Group in accordance with any agreed data and information sharing arrangements;
- h. To facilitate strengthening of national and regional capacity in the area of fisheries analyses through technical cooperation among Member States (see selection of Consultants under Working Group Meetings);
- i. To facilitate expert participation by its representative(s) in activities of the Working Group; and
- j. To designate a National Technical Focal Point with responsibilities as outlined at 4.3.
- k. In respect of Member States that are ICCAT Contracting or Cooperating Parties (ICCAT CPCs), and those States that are not ICCAT CPCs but which report on their fisheries to ICCAT to specifically:
 - i. strengthen the present CARICOM/ CRFM working relationship with ICCAT, with the ultimate aim of developing the CRFM's capacity to engage fully in a formal management partnership arrangement with ICCAT and other interested regional parties that are concerned with management of large pelagic fish resources within the Caribbean Large Marine Ecosystem and its adjacent ecosystems;
 - ii. monitor developments at ICCAT through participation and reporting by Member States that are Contracting Parties to the ICCAT;
 - iii. consider and formulate regional strategies and responses to address critical issues, especially those of common concern;
 - iv. establish and implement an effective communication, education, and reporting strategy for nurturing region-wide, multi-level support for proactive participation in ICCAT;
 - v. undertake ICCAT-related tasks, as directed by the Forum from time to time; and
 - vi. report to the Forum on the respective deliberations and recommendations.

4.3 Role of National Technical Focal Point

The National Technical Focal Point should be involved in aspects of statistics, research and management of the respective species/fisheries/resource, and under the Working Group, will have the following responsibilities:

- a. To coordinate development and implementation of activities of the work plan of the Working Group at the national level;
- b. To maintain dialogue with the Chair and/or Vice-Chair of the Working Group, other National Technical Focal Points and the CRFM Secretariat for the purpose of executing the work plan;
- c. To represent the respective Member State at meetings of the Working Group;
- d. To participate in all activities of the Working Group;
- e. To share information arising from scientific meetings with the national fisheries directorate and other national committees that may require such information;
- f. To coordinate the preparation of an annual country report in accordance with agreed guidelines and to present the report at meetings of the Working Group;
- g. To prepare national data for review and analysis at scientific meetings; and
- h. To assume the role of Rapporteur at meetings – to review and analyse fisheries data, prepare and deliver technical reports on fisheries data analyses conducted, and to provide recommendations for research, statistics and management.

4.4 Role of the Working Group Chair and Vice-Chair

The Chair and Vice-Chair for tasks at the level of the Caribbean Fisheries Forum will be the corresponding designates elected according to *Rule 13 Election of Chairman and Vice-Chair* of the Rules of Procedure of the CRFM (dated 05 August 2002) and the corresponding roles thereof. In respect of technical level tasks, the Chair and Vice-Chair of the Working Group are to be agreed upon among those Member States for which the respective fishery resources are of particular importance. The positions of Chair/Vice-Chair may be rotated among the respective countries. By virtue of the position, the Chair is required to have a good appreciation of the assessment and management issues regarding the respective fishery resources, experience in the forum of the respective Working Group, experience in scientific report writing and statistical skills. The Vice-Chair is expected to assist the Chair in undertaking the assigned responsibilities. In addition, National Focal Points acting as Species or Special Rapporteurs⁷ may also be required to Chair Species or other Special Sessions of the respective groups. The role of Chair is as follows:

- a. To supervise coordinated development and implementation of the work plan at the regional level, through collaboration with National Technical Focal Points;
- b. To report quarterly on progress of the work plan to the CRFM Secretariat;

⁷ Special Rapporteurs are those responsible for addressing issues that are not species specific, e.g., FAD fisheries.

- c. To oversee preparation of the written technical report of the Working Group for publication in the CRFM Annual Scientific Meeting Report;
- d. To report on the activities of the Working Group, both current and planned, to the plenary session of the CRFM Annual Scientific Meeting as well as meetings of the Caribbean Fisheries Forum, when required;
- e. To oversee all dataset preparations and fishery analyses of the Working Group and to submit complete copies of all Working Group material and any accompanying data and information in support of the technical reports generated to the CRFM Secretariat's repository for future reference and for training purposes;
- f. To bring to the attention of the Data, Methods and Training Working Group matters related therein.

4.5 Role of the CRFM Secretariat

- a. To assist with coordination of the activities of the Working Group;
- b. To facilitate meetings (both electronic and on-site);
- c. To provide support for development and implementation of harmonized data and information systems;
- d. To provide support for preparation of and submission of project proposals for external funding;
- e. To develop and implement regional research programmes;
- f. To coordinate the formulation and adoption of recommendations by the Working Group to facilitate the decision-making process at the sub-regional level;
- g. To facilitate the development of regional and international institutional linkages for the purposes of fisheries research and management⁸; and
- h. In respect of matters related to ICCAT, to monitor related developments through CRFM representation, participation and reporting, currently facilitated through the observer status granted to CARICOM which has been in effect since 1991 and to provide general technical expertise.

4.6 Role of the Caribbean Fisheries Forum

- a. To provide guidance on the national and regional management issues and objectives in accordance with internationally accepted standards and guidelines;
- b. To consider and endorse recommendations for improving management of fisheries based on available scientific information and agreed management objectives;

⁸ Such institutions include but are not limited to: the University of the West Indies, the Institute of Marine Affairs, the Organization of Eastern Caribbean States, the Caribbean Community Climate Change Centre, the International Commission for the Conservation of Atlantic Tunas

- c. To report on regional management performance to the CRFM Ministerial Council; and
- d. To prepare management action (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council.

5. Membership of the Working Group

Membership in the Working Group is open to all CRFM Member and Associate States. However, those Member States with a real interest in the fisheries concerned are expected to assume lead chairing and rapporteur roles.

6. Working Group Meetings

- a. Electronic meetings - all Member States should participate in electronic meetings if the species/fishery/resource is of national importance;
- b. On-Site meetings - all Member States should participate in on-site meetings if the species/fishery/resource is of national importance. Sponsorship of participation at the scientific meetings will be dependent on available core funds and expected contributions. Sponsorship of participation in the meetings of the Caribbean Fisheries Forum is also dependent on available core funds.
- c. Other fisheries staff - to make full use of available regional technical expertise, fisheries staff in territories adjacent to CRFM Member States, of regional and international fisheries organizations, of research institutes and universities may be invited to participate in meetings of the Working Group.
- d. Consultants - if the assistance of a consultant is needed, a suitably qualified and experienced consultant will be sought and contracted by the CRFM Secretariat to participate in the meetings and to complete specific tasks. First preference will be given to sources of resident regional expertise (at Fisheries Departments and research institutions) in the selection of Consultants.
- e. An on-site meeting should be convened at least once every two years.

7. Communication

Communication is critical to the efficient execution of the work programme of the Working Group, particularly during the inter-sessional periods so as to maximize the quality of outputs. Available ICT tools, such as the CRFM DGroups, Skype Conference and GoToMeeting should be utilized for this purpose as far as possible. The outputs of the Working Group would be communicated through the CRFM Secretariat, and in accordance with the agreed CRFM Communications Strategy.

8. Outputs

The outputs of the Working Groups shall include: (1) information for management decision-making, including proposed management actions and management performance, at the national and regional levels, taking into account the need to reach a broad range of stakeholders (2) recommendations for statistics and research; (3) cleaned data sets, and completed fisheries analyses/assessment models stored for reference and training purposes; (5) fisheries officers trained in the respective statistical analyses; (6) regional and sub-regional cooperation in the management of pelagic fisheries.

9. Budget

The core budget of the CRFM is used to fund on-site meetings. Funds may be used from donor-funded projects when the activities of the Working Groups are of relevance to such projects.

10. Amendments to the Terms of Reference

The Terms of Reference are to be reviewed and amended, at least biennially, under the guidance of the Caribbean Fisheries Forum (CFF) or its Executive Committee, and implemented following endorsement by the CFF.

REEF AND SLOPE FISHERIES WORKING GROUP (RSWG)

1. Background and Rationale

1.1 General

For the purpose of this document, reef resources refer to those resources which spend most of their lives on island shelves, while deep slope resources refer to those resources which spend most of their lives on the deep slopes and submerged banks that occur further offshore. The respective resources include fish, lobster and Queen Conch, among others. These resources have been an important source of food, employment and foreign-exchange earnings of many CARIFORUM countries.

Several reef resources in CRFM States are believed to be fully or over-exploited, based on evidence indicating changes in species composition (disappearance of large species of fish from the catch), decreasing mean size of fish caught and trends in abundance. It is generally assumed that reef and slope resources do not undergo large-scale movements, and can be managed at the local or country level. However, islands sharing a common shelf may also be sharing the same reef and slope resources. Such a situation warrants regional collaboration in assessment and management. Global efforts in managing reef resources have focused on establishment of Marine Protected Areas and the region is seeking to implement similar measures. As well, in order to address the spread of lionfish (alien invasive species) in the Caribbean region a regional strategy to control the species in the wider Caribbean has been developed and there is need to implement this strategy nationally. The impacts of climate change and variability on reef resources has also been the subject of concern, due to the general impacts of coral bleaching and consequent destruction of reef habitat, but other concerns regarding changes in species distribution, population abundance and availability to fisheries, physiological impacts, among others, have not yet been fully investigated. A Regional Plan of Action for Coral Reefs to address some of these issues is currently being developed, consistent with the Strategy and Action Plan – Climate Change Adaptation and Disaster Risk Management in Fisheries and Aquaculture in the CARICOM region (CRFM, 2013)⁹. Due to their proximity to the coast and associated human activities reef ecosystems are also particularly susceptible to pollution and habitat destruction.

Comprehensive descriptions of reef fisheries (fish, Queen Conch and Caribbean Spiny Lobster) in CRFM Member States and details of fisheries analyses are provided in reports of the CRFM Annual Scientific Meetings. Information on Queen Conch fisheries is also available from FAO (2007¹⁰ and 2012¹¹), MRAG (2013¹²) and SOFRECO (2013¹³). Further details on lobster fisheries are available in

⁹ CRFM, 2013. McConney, P., J. Charlery, M. Pena. Climate Change Adaptation and Disaster Risk Management in Fisheries and Aquaculture in the Caribbean Region. Volume 2 – Strategy and Action Plan. *CRFM Technical & Advisory Document*, No. 2013/6. 35 p.

¹⁰ FAO. 2007. Regional Workshop on the Monitoring and Management of Queen Conch, *Strombus gigas*. Kingston, Jamaica, 1-5 May 2006. *FAO Fisheries Report*. No. 832. Rome, FAO. 2007. 174p.

¹¹ FAO, WECAFC. 2012. Report of the First Meeting of the CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch, Panama City, Panama, 23 – 25 October 2012. *FAO Fisheries and Aquaculture Report* No. 1029. Bridgetown, Barbados, FAO. 155p.

¹² MRAG. 2013. Support to improve and harmonize the scientific approaches required to inform sustainable management of queen conch (*Strombus gigas*). Final Technical Report of the ACP Fish II Programme – Strengthening Fisheries Management in ACP Countries. 287 p.

the baseline review of the status and management of the Caribbean Spiny Lobster fisheries (CRFM, 2011)¹⁴ and a recently completed study to review the methodologies used for monitoring and evaluation of the spiny lobster stocks in the WECAFC countries and to develop a common methodology (Hedley and Seijo, 2014)¹⁵. The Queen Conch fishery has received greater attention than other reef species due largely to concern regarding issues of trade. Since November 1992 the species was included in Appendix II of CITES, which requires that CITES permits be issued for all exports and in 2012 a non-governmental, US-based organization petitioned for inclusion of the species on the US Endangered Species Act, a move which could lead to prohibition of trade with the most lucrative market for CARIFORUM countries.

1.2 Queen Conch

In May 2012 at a Workshop of Queen Conch Experts, convened in Miami, Florida put forward a number of recommendations relating to data collection, stock assessment models, harvest strategy, precautionary controls, fishing capacity, ecosystem management, decision-making process, enforcement and compliance and CITES. These recommendations were presented to and endorsed by the first meeting of the regional working group on Queen Conch fisheries (FAO, 2012), which subsequently articulated the accompanying Declaration of Panama (Miami, October 2012). The recommendations of the Working Group were subsequently presented to and supported by the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at its sixteenth meeting, held in Bangkok (Thailand) in March 2013.

The Declaration of Panama was endorsed at the 15th Session of WECAFC, in Port of Spain, Trinidad and Tobago, in March 2014. It calls for WECAFC Member-State support for development of a regional plan for the management and conservation of the species; support for development, adoption and implementation of sub-regional regulations; increased awareness and capacity-building of fishers on issues regarding safety-at-sea and in particular risk management in and alternatives to compressed-air diving; improvement and standardization of trade data and statistics for the species as well as its derivatives; and strengthened participation of fishers in the management decision-making process.

The status of the queen conch fishery in CARIFORUM countries is not known precisely, but it is suspected that some stocks are over-exploited (MRAG, 2013). Jamaica and the Dominican Republic report the largest landings of queen conch meat with each country reporting annual landings of about 1000t, followed by the Turks and Caicos Islands (737-965 t) and the Bahamas (453-680t) per year and Belize (138-257 t). In the Bahamas, Antigua and Barbuda, Turks and Caicos Islands and St Vincent and the Grenadines, fishers target conch predominantly during the lobster closed season. In Dominica and Barbados conch is fished opportunistically. In Jamaica, Belize, Dominican Republic and Turks and Caicos Islands, conch is a major target species for export. The main fishing methods are free diving and SCUBA and surface compressor (hookah) diving techniques. While most fisheries in the CARICOM region use artisanal vessels, Jamaica also uses industrial vessels which serve to house crew and divers and from which daily fishing takes place using smaller dories.

¹³ SOFRECO. 2013. Training in Underwater Visual Survey Methods for Evaluating the Status of *Strombus gigas*, Queen Conch Stocks. Final Technical Report of the ACP Fish II Programme – Strengthening Fisheries Management in ACP Countries. 359 p.

¹⁴ CRFM. 2011. Baseline Review of the Status and Management of Caribbean Spiny Lobster Fisheries in the CARICOM Region. *CRFM Technical & Advisory Document*, No. 2011/5. 64p.

¹⁵ Headley, M. and Seijo, J. C. 2014. A review of the methodologies used for monitoring and evaluation of the spiny lobster stocks in the WECAFC countries and the development of a common methodology. *in press*.

In 2013 a study aimed at improving and harmonizing the scientific approaches required to inform sustainable management of the species was conducted (MRAG, 2013) and fisheries officers in the region were trained in underwater conch survey methods and analysis of related data (SOFRECO, 2013). In an effort to manage their fisheries, the CARIFORUM countries have implemented various regulations, but overfishing is still a serious concern, and the underlying causes need to be addressed (MRAG, 2013). In 2013, under the ACP Fish II Programme, a regional management options paper was developed for the Queen Conch which provides specific guidance in respect of future management of the Queen Conch fisheries in the region (MRAG, 2013). A common regional approach to manage the queen conch fishery has been identified as an important step for CRFM Member States. The main issues that need to be addressed regionally are: IUU fishing activities, including poaching and illegal trade; monitoring, control and surveillance; enforcement; the nature and extent of resource sharing through larval dispersal, and; regional cooperation in management, including the harmonization of management regulations. The main objectives of queen conch management in the region are the conservation of the species, sustainable harvest, and re-building of stocks where they are depleted.

1.3 Lobster

In terms of lobster fisheries in CARIFORUM countries, the Bahamas, Dominican Republic, Belize, the Turks and Caicos Islands and Antigua and Barbuda¹⁶ report the highest average annual landings of the Caribbean Spiny lobster between 2002 and 2012, of 2948 t, 1331 t, 693 t, 319 t, and 239 t respectively (Headley and Seijo, 2014). In the Bahamas and Belize corresponding average annual exports are 2507 t and 654 t respectively. Fishing occurs from artisanal vessels and traps are the most popular fishing gear. Free-diving and diving using SCUBA and compressed air/hookah were also popular, with gillnets and trammel nets used to a lesser extent. Lobster aggregating devices are also used.

Due to high demand and market prices the fishing pressure on spiny lobster populations has intensified in many countries (CRFM, 2011). The practice has been that fishers move to new grounds as the original ones become depleted and by the mid-1990s declining trends in landings pointed to either full- or over-exploitation of the resource. Since the stocks of Caribbean spiny lobster cross many national boundaries this poses specific difficulties and requirements for effective management. Martinez et al., (2007)¹⁷ identify a number of problems associated with the sustainable management of the regional fishery, including: the open-access nature of the fishery and failure to control fishing effort; poor enforcement of existing regulations, namely in the form of large-scale landings of juvenile lobster and berried females; diving accidents; large-scale illegal, unregulated and unreported (IUU) fishing; lack of monitoring, control and surveillance; lack of harmonization amongst fisheries regulations of the countries involved; insufficient financial resources and human capacity in government institutions; and lack of capacity (organizational, human, financial and technical) among fishers and others involved in the fishery to engage meaningfully in its management. Successful management and conservation of the spiny lobster is therefore dependent on: cooperation in joint research and assessment; good conservation practices and stewardship of the resource and habitat by fishers and coastal communities and an understanding of its life cycle and the trans-boundary behaviour in its different stages, and responsible regional fishery co-management (Headley and Seijo, 2014). Currently a regional agreement is being developed for collaboration in the conservation, management and sustainable use of the Caribbean Spiny lobster among CRFM Member States.

¹⁶ Data for Antigua and Barbuda refers to the period 2002 to 2010.

¹⁷ Martinez, S., Monnereau, I., and Fanning, L. 2007. CLME Full Project Component 4: Spiny Lobster Pilot Project. Caribbean Large Marine Ecosystem Project.

1.4 Regional and International Initiatives since 2002

In 2002 the main technical advisory arm of the CRFM, the Caribbean Fisheries Forum, agreed to establish a Reef and Slope Fish Resource Working Group (RSWG) and a Conch and Lobster Working Group (CLWG) that were linked to similar but temporary working groups formulated under the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP)¹⁸. Since 2002, introduction of a number of regional and international initiatives warrant update of the Terms of Reference for the respective Working Groups. These initiatives include:

1. Application of international best practices in fisheries management which utilize the precautionary, participatory and ecosystem approaches;
2. Recognition of the ecological linkages through predation and competition among species which must be considered in the assessment and management of the respective resources;
3. The increasing need to quantify impacts of climate change and variability on resource availability (production, distribution), post-harvest and marketing systems to inform disaster risk management planning and decision-making.
4. Development and implementation of a strategic action programme under the Caribbean Large Marine Ecosystem and Adjacent Regions (CLME+) Project that seeks to address improved governance under an EAF approach focusing on overexploitation, habitat destruction and pollution with climate change being a cross-cutting issue for the reef/lobster /queen conch fisheries in the CLME;
5. The need to broaden fisheries analyses to include economic valuation of the resources and ecosystem goods and services, socio-economic assessment, consideration of ecological and environmental issues including climate change;
6. The CRFM Independent Performance Review and associated recommendations¹⁹;
7. Recommendations of the Workshop to Develop a Strategy to Strengthen Capacity in CRFM Member States in the Area of Statistics and Information²⁰;
8. Development of a Draft Agreement Establishing the Caribbean Community Common Fisheries Policy;
9. The Castries (2010) Declaration on Illegal, Unreported and Unregulated Fishing;
10. Endorsement of a CRFM-OSPESCA Joint Action Plan and the associated Memorandum of Understanding to strengthen cooperation and understanding between CRFM and OSPESCA to promote and ensure conservation and sustainable use of the fishery and aquaculture resources of the Caribbean region, endorsed by the Ministerial Council in Belize in September 2012;

¹⁸ The CFRAMP was a ten-year project, which began in 1991, with funding and technical support from CIDA and ICOD (Canada) and which provided the justification and framework for establishment of the CRFM.

¹⁹ CRFM, 2013. Report of the CRFM Independent Performance Review. CRFM Management Report. 79 pp.

²⁰ CRFM, 2014. Report of Workshop to Develop Draft Strategy to Strengthen Capacity in CRFM States in the Area of Fisheries Statistics and Information, 10-12 February 2014, St. Vincent and the Grenadines. *CRFM Technical & Advisory Document*, No. 2014/1. 135p.

11. Development of regional management options that provide guidance on all aspects of a harvest strategy (data collection; data analysis; decision-making and applied control);
12. Efforts to develop regional agreements for cooperation in the management, conservation and sustainable use of the queen conch and Caribbean spiny lobster;
13. The need to monitor performance of marine protected areas in promoting recovery of overfished living marine resources;
14. Development of a Regional Strategy for the Control of Invasive Lionfish in the Wider Caribbean; and
15. Establishment of joint regional working groups on fish spawning aggregations, Queen Conch as well as Spiny Lobster fisheries under the Western Central Atlantic Fishery Commission, with the CRFM being a partner agency.

As a consequence of the above initiatives, the previous Reef and Slope Fish Resource Working Group and the Conch and Lobster Working Group are consolidated into a Reef and Slope Fisheries Working Group with the following revised Terms of Reference.

2. Objective

The objective of the Reef and Slope Fisheries Working Group is to promote the sustainable utilization of reef and slope resources and associated ecosystems through review and analysis of fisheries and related data and information and use of this for formulation of suitable management strategies, consistent with the ecosystem, precautionary and participatory approaches to fisheries management.

3. Terms of Reference

The Terms of Reference for the Working Group are as follows:

1. To provide a forum for:
 - a. review of fisheries statistical and sampling procedures, and for advising on improvements in recording and reporting of reef and slope fisheries data;
 - b. sharing of data and information on reef and slope fisheries in accordance with any agreed data and information sharing arrangements;
 - c. developing multidisciplinary approaches to fishery assessment, including the consideration of social, economic, and environmental data and information, and local knowledge;
 - d. review and discussion of the biology and ecology of reef and slope resources;
 - e. review of existing research programmes on reef and slope fisheries;
 - f. providing informed advice on sustainable development and management of reef and slope fisheries and the performance of existing management measures;
 - g. development and coordination of statistical and research programmes on reef and slope fisheries;

2. To develop and implement biennial work plans;
3. To identify funding requirements through development of a biennial budget linked to the work plan at (2) above;
4. To recommend funding sources and to develop proposals to source funding in support of reef and slope resource research programmes;
5. To build stakeholder awareness on proposed management strategies for reef and slope fisheries and to facilitate their involvement in the management process;
6. To value the contribution of reef and slope fisheries to employment, income and food security;
7. To examine the impacts of environmental factors and climate change and variability on the productivity, abundance and distribution of reef and slope fisheries as well as the respective post-harvest and marketing systems;
8. To report on the activities of the Working Group, including the scientific basis for conclusions reached and suggested management actions to the Annual Scientific Meetings, meetings of the Caribbean Fisheries Forum and the Ministerial Council, and to international fora, as required;
9. To ensure the timely publications of research documents and reports prepared by the Working Group;
10. To provide guidance on the national and regional management issues and objectives in accordance with internationally accepted standards and guidelines;
11. To consider and endorse recommendations for improving management of fisheries based on available scientific information and agreed management objectives;
12. To report on regional management performance to the CRFM Ministerial Council; and
13. To prepare management action (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council; and
14. To provide, depending on resource availability, support for CRFM Member States in meeting their research obligations under joint Working Groups with other Regional Fisheries Bodies.

4. Mode of Operation

4.1 Work Plans

The activities of the Working Group shall be informed by a biennial RSWG work plan that is endorsed by the Caribbean Fisheries Forum inter-sessionally. The format of the work plan, which is

to be agreed upon, would facilitate improved transparency and accountability with respect to the activities of the Working Group. As far as is practically possible, the work plan shall be aligned with the national work plans of the respective Member States.

4.2 Role of CRFM Member, and Associate Member States

- a. To implement the work plan of the Working Group at the national level;
- b. To monitor and evaluate implementation of the work plan at the national level;
- c. To report to the Working Group on progress made in implementation of the work plan;
- d. To implement statistics, research and management recommendations of the Working Group at the national level;
- e. To communicate matters related to activities of the Working Group to stakeholders and members of the public;
- f. To convene national consultations for the purpose of educating stakeholders on proposed management strategies of the Working Group and to receive and consider stakeholder feedback in the decision-making process as well as to consult on data inputs, analysis interpretation, practicality and performance of management measures etc;
- g. To share data and information with the Working Group in accordance with any agreed data and information sharing arrangements;
- h. To facilitate strengthening of national and regional capacity in the area of fisheries analyses through technical cooperation among Member States (see selection of Consultants under Working Group Meetings);
- i. To facilitate expert participation by its representative(s) in activities of the Working Group; and
- j. To designate a National Technical Focal Point with responsibilities as outlined at 4.3.

4.3 Role of National Technical Focal Point

The National Technical Focal Point should be involved in aspects of statistics, research and management of the respective species/fisheries/resource, and under the Working Group, will have the following responsibilities:

- a. To coordinate development and implementation of activities of the work plan of the Working Group at the national level;
- b. To maintain dialogue with the Chair and/or Vice-Chair of the Working Group, other National Technical Focal Points and the CRFM Secretariat for the purpose of executing the work plan;
- c. To represent the respective Member State at meetings of the Working Group;
- d. To participate in all activities of the Working Group;

- e. To share information arising from scientific meetings with the national fisheries directorate and other national committees that may require such information;
- f. To coordinate the preparation of an annual country report in accordance with agreed guidelines and to present the report at meetings of the Working Group;
- g. To prepare national data for review and analysis at scientific meetings; and
- h. To assume the role of Rapporteur at meetings – to review and analyse fisheries data, prepare and deliver technical reports on fisheries data analyses conducted, and to provide recommendations for research, statistics and management.

4.4 Role of the Working Group Chair and Vice-Chair

The Chair and Vice-Chair for tasks at the level of the Caribbean Fisheries Forum will be the corresponding designates elected according to *Rule 13 Election of Chairman and Vice-Chair* of the Rules of Procedure of the CRFM (dated 05 August 2002) and the corresponding roles thereof. In respect of technical level tasks, the Chair and Vice-Chair of the Working Group are to be agreed upon among those Member States for which the respective fishery resources are of particular importance. The positions of Chair/Vice-Chair may be rotated among the respective countries. By virtue of the position, the Chair is required to have a good appreciation of the assessment and management issues regarding the respective fishery resources, experience in the forum of the respective Working Group, experience in scientific report writing and statistical skills. The Vice-Chair is expected to assist the Chair in undertaking the assigned responsibilities. In addition, National Focal Points acting as Species or Special Rapporteurs²¹ may also be required to Chair Species or other Special Sessions of the respective groups. The role of Chair is as follows:

- a. To supervise coordinated development and implementation of the work plan at the regional level, through collaboration with National Technical Focal Points;
- b. To report quarterly on progress of the work plan to the CRFM Secretariat;
- c. To oversee preparation of the written technical report of the Working Group for publication in the CRFM Annual Scientific Meeting Report;
- d. To report on the activities of the Working Group, both current and planned, to the plenary session of the CRFM Annual Scientific Meeting as well as meetings of the Caribbean Fisheries Forum, when required;
- e. To oversee all dataset preparations and fishery analyses of the Working Group and to submit complete copies of all Working Group material and any accompanying data and information in support of the technical reports generated, to the CRFM Secretariat's repository for future reference and for training purposes;
- f. To bring to the attention of the Data, Methods and Training Working Group matters related therein.

²¹ Special Rapporteurs are those responsible for addressing issues that are not species specific, e.g., FAD fisheries.

4.5 Role of the CRFM Secretariat

- a. To assist with coordination of the activities of the Working Group;
- b. To facilitate meetings (both electronic and on-site);
- c. To provide support for development and implementation of harmonized data and information systems;
- d. To provide support for preparation of and submission of project proposals for external funding;
- e. To develop and implement regional research programmes;
- f. To coordinate the formulation and adoption of recommendations by the Working Group to facilitate the decision-making process at the sub-regional level; and
- g. To facilitate the development of regional and international institutional linkages for the purposes of fisheries research and management²².

4.6 Role of the Caribbean Fisheries Forum

- a. To provide guidance on the national and regional management issues and objectives in accordance with internationally accepted standards and guidelines;
- b. To consider and endorse recommendations for improving management of fisheries based on available scientific information and agreed management objectives;
- c. To report on regional management performance to the CRFM Ministerial Council; and
- d. To prepare management action (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council.

5. Membership of the Working Group

Membership in the Working Group is open to all CRFM Member and Associate States. However, those Member States with a real interest in the fisheries concerned are expected to assume lead chairing and rapporteuring roles.

6. Working Group Meetings

- a. Electronic meetings - all Member States should participate in electronic meetings if the species/fishery/resource is of national importance.

²² Such institutions include but are not limited to: the University of the West Indies, the Institute of Marine Affairs, the Organization of Eastern Caribbean States, the Caribbean Community Climate Change Centre, the International Commission for the Conservation of Atlantic Tunas

- b. On-Site meetings – all Member States should participate in on-site meetings if the species/fishery/resource is of national importance. Sponsorship of participation at the scientific meetings will be dependent on available core funds and expected contributions. Sponsorship of participation in the meetings of the Caribbean Fisheries Forum is also dependent on available core funds.
- c. Other fisheries staff – to make full use of available regional technical expertise fisheries staff in territories adjacent to CRFM Member States, of regional and international fisheries organizations, of research institutes and universities may be invited to participate in meetings of the Working Group.
- d. Consultants – if the assistance of a consultant is needed, a suitably qualified and experienced consultant will be sought and contracted by the CRFM Secretariat to participate in the meetings and to complete specific tasks. First preference will be given to sources of resident regional expertise (at Fisheries Departments and research institutions) in the selection of Consultants.
- e. An on-site meeting should be convened at least once every two years.

7. Communication

Communication is critical to the efficient execution of the work programme of the Working Group, particularly during the inter-sessional periods so as to maximize the quality of outputs. Available ICT tools, such as the CRFM DGroups, Skype Conference and GoToMeeting should be utilized for this purpose as far as possible. The outputs of the Working Group would be communicated through the CRFM Secretariat, and in accordance with the agreed CRFM Communications Strategy.

8. Outputs

The outputs of the Working Groups shall include: (1) information for management decision-making, including proposed management actions and management performance, at the national and regional levels, taking into account the need to reach a broad range of stakeholders (2) recommendations for statistics and research; (3) cleaned data sets, and completed fisheries analyses/assessment models stored for reference and training purposes; (5) fisheries officers trained in the respective statistical analyses; (6) regional and sub-regional cooperation in the management of reef and slope fisheries.

9. Budget

The core budget of the CRFM is used to fund on-site meetings. Funds may be used from donor-funded projects when the activities of the Working Groups are of relevance to such projects.

10. Amendments to the Terms of Reference

The Terms of Reference are to be reviewed and amended, at least biennially, under the guidance of the Caribbean Fisheries Forum (CFF) or its Executive Committee, and implemented following endorsement by the CFF.

CONTINENTAL SHELF FISHERIES WORKING GROUP (CSWG)

1. Background and Rationale

The continental shelf resources of CARIFORUM countries comprise mainly shrimp and groundfish species. The respective fisheries are of particular importance to Suriname, Guyana and Trinidad and Tobago making significant contributions to food security and employment. As well, the fisheries are a source of foreign exchange through the export of shrimp and red snappers mainly. Detailed descriptions of the respective fisheries and resource assessments are available in reports of the CRFM Annual Scientific Meetings.

The shrimp resources include four of the larger penaeids (southern brown shrimp, *Farfantepenaeus subtilis*; pink spotted shrimp, *F. brasiliensis*, southern pink shrimp, *F. notialis* and southern white shrimp, *Litopenaeus schmitti*) and the smaller seabob shrimp, *Xiphopenaeus kroyeri*, with their general distribution and abundance differing markedly among the countries in the region (Phillips, 2011)²³. The groundfish resources such as red snapper (*Lutjanus purpureus*), weakfish (*Cynoscion sp.*), whitemouth croaker or corvine (*Micropogonias furnieri*) and sea catfish (*Arius sp.*) are important for commercial and social reasons, with the red snapper probably being the most important groundfish in the region because of its wide distribution range and export value. The fisheries are multi-gear, multi-species and multinational, using fishing methods that can be classified as industrial or artisanal depending on the level of mechanization. The major gear used for the capture of shrimp is the trawl net, while groundfish species are also taken by other bottom-set gears such as traps, gillnets, longlines.

Globally there has been growing concern regarding trawl fisheries due to the high levels of by-catch species in the catch, many of which are juveniles that impact recruitment to other important commercial fisheries, and well as habitat damage caused by the fishing method. As with most fisheries in the region, the impacts of excessive fishing, pollution, habitat destruction and climate change and variability on the resources are of growing concern.

The WECAFC Ad Hoc Working Group on Shrimp and Groundfish has since the 1980s conducted assessment of the respective resources and proposed management recommendations. In the 1990s the then CFRAMP collaborated with the FAO in convening a number of workshops aimed at assessment of the resources and improving on previous management advice.

In 2002 the main technical advisory arm of the CRFM, the Caribbean Fisheries Forum, agreed to establish a Shrimp and Groundfish Resource Working Group that was linked to a similar but temporary working group formulated under the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP)²⁴. Since 2002, introduction of a number of regional and international initiatives however, warrant update of the Terms of Reference for the respective Working Group. These initiatives include:

²³ Phillips, T. 2011. CLME Continental Shelf Transboundary Diagnostic Analysis. 76p.

²⁴ The CFRAMP was a ten-year project, which began in 1991, with funding and technical support from CIDA and ICOD (Canada) and which provided the justification and framework for establishment of the CRFM.

1. Application of international best practices in fisheries management which utilize the precautionary, participatory and ecosystem approaches;
2. Recognition of the ecological linkages through predation and competition among species which must be considered in the assessment and management of the respective resources;
3. The increasing need to quantify impacts of climate change and variability on resource availability (production, distribution), post-harvest and marketing systems to inform disaster risk management planning and decision-making.
4. Development and implementation of a strategic action programme under the Caribbean Large Marine Ecosystem and Adjacent Regions (CLME+) Project that seeks to address improved governance under an EAF approach focusing on overexploitation, habitat destruction and pollution with climate change being a cross-cutting issue for shrimp and groundfish resources in the North Brazil-Guianas Shelf;
5. The need to broaden fisheries analyses to include economic valuation of the resources and ecosystem goods and services, socio-economic assessment, consideration of ecological and environmental issues including climate change;
6. The CRFM Independent Performance Review and associated recommendations²⁵;
7. Recommendations of the Workshop to Develop a Strategy to Strengthen Capacity in CRFM Member States in the Area of Statistics and Information²⁶;
8. Development of a Draft Agreement Establishing the Caribbean Community Common Fisheries Policy;
9. The Castries (2010) Declaration on Illegal, Unreported and Unregulated Fishing;
10. Endorsement of a CRFM-OSPESCA Joint Action Plan and the associated Memorandum of Understanding to strengthen cooperation and understanding between CRFM and OSPESCA to promote and ensure conservation and sustainable use of the fishery and aquaculture resources of the Caribbean region, endorsed by the Ministerial Council in Belize in September 2012;
11. Development of Fisheries Management Plans for Suriname, Guyana and Trinidad and Tobago under the recently completed ACP Fish II Programme aimed at strengthening fisheries sectoral policy development and implementation;
12. Reactivation of the WECAFC Working Group on Shrimp and Groundfish resources in the Northern Brazil-Guianas Shelf as a joint regional working group with the CRFM being a partner agency;

²⁵ CRFM, 2013. Report of the CRFM Independent Performance Review. CRFM Management Report. 79 pp.

²⁶ CRFM, 2014. Report of Workshop to Develop Draft Strategy to Strengthen Capacity in CRFM States in the Area of Fisheries Statistics and Information, 10-12 February 2014, St. Vincent and the Grenadines. *CRFM Technical & Advisory Document*, No. 2014/1. 135p.

13. Planned implementation of an FAO/Global Environment Facility Project on Sustainable Management of By-catch in Latin America and Caribbean Trawl Fisheries (REBYC-II)²⁷ in which Suriname and Trinidad and Tobago are participants;
14. The project proposed by the FAO on Investing in Ecosystem-based Shrimp and Groundfish Fisheries Management of the Guianas-Brazil Shelf²⁸ for IDB support.

As a consequence of the above initiatives the previous Shrimp and Groundfish Resource Working Group is reconfigured as a Continental Shelf Fisheries Working Group with the following revised Terms of Reference.

2. Objective

The objective of the Continental Shelf Fisheries Working Group is to promote the sustainable utilization of continental shelf resources and associated ecosystems through review and analysis of fisheries and related data and information and use of this for formulation of suitable management strategies, consistent with the ecosystem, precautionary and participatory approaches to fisheries management.

3. Terms of Reference

The Terms of Reference for the Working Group are as follows:

1. To provide a forum for:
 - a. review of fisheries statistical and sampling procedures, and for advising on improvements in recording and reporting of continental shelf fisheries data;
 - b. sharing of data and information on continental shelf fisheries in accordance with any agreed data and information sharing arrangements;
 - c. developing multidisciplinary approaches to fishery assessment, including the consideration of social, economic, and environmental data and information, and local knowledge;
 - d. review and discussion of the biology and ecology of continental shelf resources;
 - e. review of existing research programmes on continental shelf fisheries;
 - f. providing informed advice on sustainable development and management of continental shelf fisheries and the performance of existing management measures;
 - g. development and coordination of statistical and research programmes on continental shelf fisheries;
2. To develop and implement biennial work plans;
3. To identify funding requirements through development of a biennial budget linked to the work plan at (2) above;

²⁷ The goal of this project is to mitigate problems associated with bycatch and discards and to enhance conservation of sensitive habitats in the LAC bottom/shrimp trawl fisheries through effective public and private sector partnerships and adoption of best practices that support sustainable livelihoods.

²⁸ The project is intended to conduct economic evaluation of the shrimp and groundfish stocks, bio-economic analyses and to develop a sub-regional fisheries management plan, among other things.

4. To recommend funding sources and to develop proposals to source funding in support of continental shelf resource research programmes;
5. To build stakeholder awareness on proposed management strategies for continental shelf fisheries and to facilitate their involvement in the management process;
6. To value the contribution of continental shelf fisheries to employment, income and food security;
7. To examine the impacts of environmental factors and climate change and variability on the productivity, abundance and distribution of continental shelf fisheries as well as the respective post-harvest and marketing systems;
8. To report on the activities of the Working Group, including the scientific basis for conclusions reached and suggested management actions to the Annual Scientific Meetings, meetings of the Caribbean Fisheries Forum and the Ministerial Council, and to international fora, as required;
9. To ensure the timely publications of research documents and reports prepared by the Working Group;
10. To provide guidance on the national and regional management issues and objectives in accordance with internationally accepted standards and guidelines;
11. To consider and endorse recommendations for improving management of fisheries based on available scientific information and agreed management objectives;
12. To report on regional management performance to the CRFM Ministerial Council; and
13. To prepare management action (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council; and
14. To provide, depending on resource availability, support for CRFM Member States in meeting their research obligations under joint Working Groups with other Regional Fisheries Bodies.

4. Mode of Operation

4.1 Work Plans

The activities of the Working Group shall be informed by a biennial CSWG work plan that is endorsed by the Caribbean Fisheries Forum inter-sessionally. The format of the work plan, which is to be agreed upon, would facilitate improved transparency and accountability with respect to the activities of the Working Group. As far as is practically possible, the work plan shall be aligned with the national work plans of the respective Member States.

4.2 Role of CRFM Member, and Associate Member States

- a. To implement the work plan of the Working Group at the national level;

- b. To monitor and evaluate implementation of the work plan at the national level;
- c. To report to the Working Group on progress made in implementation of the work plan;
- d. To implement statistics, research and management recommendations of the Working Group at the national level;
- e. To communicate matters related to activities of the Working Group to stakeholders and members of the public;
- f. To convene national consultations for the purpose of educating stakeholders on proposed management strategies of the Working Group and to receive and consider stakeholder feedback in the decision-making process as well as to consult on data inputs, analysis interpretation, practicality and performance of management measures etc;
- g. To share data and information with the Working Group in accordance with any agreed data and information sharing arrangements;
- h. To facilitate strengthening of national and regional capacity in the area of fisheries analyses through technical cooperation among Member States (see selection of Consultants under Working Group Meetings);
- i. To facilitate expert participation by its representative(s) in activities of the Working Group; and
- j. To designate a National Technical Focal Point with responsibilities as outlined at 4.3.

4.3 Role of National Technical Focal Point

The National Technical Focal Point should be involved in aspects of statistics, research and management of the respective species/fisheries/resource, and under the Working Group, will have the following responsibilities:

- a. To coordinate development and implementation of activities of the work plan of the Working Group at the national level;
- b. To maintain dialogue with the Chair and/or Vice-Chair of the Working Group, other National Technical Focal Points and the CRFM Secretariat for the purpose of executing the work plan;
- c. To represent the respective Member State at meetings of the Working Group;
- d. To participate in all activities of the Working Group;
- e. To share information arising from scientific meetings with the national fisheries directorate and other national committees that may require such information;
- f. To coordinate the preparation of an annual country report in accordance with agreed guidelines and to present the report at meetings of the Working Group;
- g. To prepare national data for review and analysis at scientific meetings; and

- h. To assume the role of Rapporteur at meetings – to review and analyse fisheries data, prepare and deliver technical reports on fisheries data analyses conducted, and to provide recommendations for research, statistics and management.

4.4 Role of the Working Group Chair and Vice-Chair

The Chair and Vice-Chair for tasks at the level of the Caribbean Fisheries Forum will be the corresponding designates elected according to *Rule 13 Election of Chairman and Vice-Chair* of the Rules of Procedure of the CRFM (dated 05 August 2002) and the corresponding roles thereof. In respect of technical level tasks, the Chair and Vice-Chair of the Working Group are to be agreed upon among those Member States for which the respective fishery resources are of particular importance. The positions of Chair/Vice-Chair may be rotated among the respective countries. By virtue of the position, the Chair is required to have a good appreciation of the assessment and management issues regarding the respective fishery resources, experience in the forum of the respective Working Group, experience in scientific report writing and statistical skills. The Vice-Chair is expected to assist the Chair in undertaking the assigned responsibilities. In addition, National Focal Points acting as Species or Special Rapporteurs²⁹ may also be required to Chair Species or other Special Sessions of the respective groups. The role of Chair is as follows:

- a. To supervise coordinated development and implementation of the work plan at the regional level, through collaboration with National Technical Focal Points;
- b. To report quarterly on progress of the work plan to the CRFM Secretariat;
- c. To oversee preparation of the written technical report of the Working Group for publication in the CRFM Annual Scientific Meeting Report;
- d. To report on the activities of the Working Group, both current and planned, to the plenary session of the CRFM Annual Scientific Meeting as well as meetings of the Caribbean Fisheries Forum, when required;
- e. To oversee all dataset preparations and fishery analyses of the Working Group and to submit complete copies of all Working Group material and any accompanying data and information in support of the technical reports generated to the CRFM Secretariat's repository for future reference and for training purposes;
- f. To bring to the attention of the Data, Methods and Training Working Group matters related therein.

4.5 Role of the CRFM Secretariat

- a. To assist with coordination of the activities of the Working Group;
- b. To facilitate meetings (both electronic and on-site);
- c. To provide support for development and implementation of harmonized data and information systems;

²⁹ Special Rapporteurs are those responsible for addressing issues that are not species specific, e.g., FAD fisheries.

- d. To provide support for preparation of and submission of project proposals for external funding;
- e. To develop and implement regional research programmes;
- f. To coordinate the formulation and adoption of recommendations by the Working Group to facilitate the decision-making process at the sub-regional level; and
- g. To facilitate the development of regional and international institutional linkages for the purposes of fisheries research and management³⁰.

4.6 Role of the Caribbean Fisheries Forum

- a. To provide guidance on the national and regional management issues and objectives in accordance with internationally accepted standards and guidelines;
- b. To consider and endorse recommendations for improving management of fisheries based on available scientific information and agreed management objectives;
- c. To report on regional management performance to the CRFM Ministerial Council; and
- d. To prepare management action (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council.

5. Membership of the Working Group

Membership in the Working Group is open to all CRFM Member and Associate States. However, those Member States with a real interest in the fisheries concerned are expected to assume lead chairing and rapporteur roles.

6. Working Group Meetings

- a. Electronic meetings - all Member States should participate in electronic meetings if the species/fishery/resource is of national importance;
- b. On-Site meetings - all Member States should participate in on-site meetings if the species/fishery/resource is of national importance. Sponsorship of participation at the scientific meetings will be dependent on available core funds and expected contributions. Sponsorship of participation in the meetings of the Caribbean Fisheries Forum is also dependent on available core funds.
- c. Other fisheries staff - to make full use of available regional technical expertise fisheries staff in territories adjacent to CRFM Member States, of regional and international fisheries

³⁰ Such institutions include but are not limited to: the University of the West Indies, the Institute of Marine Affairs, the Organization of Eastern Caribbean States, the Caribbean Community Climate Change Centre, the International Commission for the Conservation of Atlantic Tunas

organizations, of research institutes and universities may be invited to participate in meetings of the Working Group.

- d. Consultants – if the assistance of a consultant is needed, a suitably qualified and experienced consultant will be sought and contracted by the CRFM Secretariat to participate in the meetings and to complete specific tasks. First preference will be given to sources of resident regional expertise (at Fisheries Departments and research institutions) in the selection of Consultants.
- e. An on-site meeting should be convened at least once every two years.

7. Communication

Communication is critical to the efficient execution of the work programme of the Working Group, particularly during the inter-sessional periods so as to maximize the quality of outputs. Available ICT tools, such as the CRFM DGroups, Skype Conference and GoToMeeting should be utilized for this purpose as far as possible. The outputs of the Working Group would be communicated through the CRFM Secretariat, and in accordance with the agreed CRFM Communications Strategy.

8. Outputs

The outputs of the Working Groups shall include: (1) information for management decision-making, including proposed management actions and management performance, at the national and regional levels, taking into account the need to reach a broad range of stakeholders (2) recommendations for statistics and research; (3) cleaned data sets, and completed fisheries analyses/assessment models stored for reference and training purposes; (5) fisheries officers trained in the respective statistical analyses; (6) regional and sub-regional cooperation in the management of continental shelf fisheries.

9. Budget

The core budget of the CRFM is used to fund on-site meetings. Funds may be used from donor-funded projects when the activities of the Working Groups are of relevance to such projects.

10. Amendments to the Terms of Reference

The Terms of Reference are to be reviewed and amended, at least biennially, under the guidance of the Caribbean Fisheries Forum (CFF) or its Executive Committee, and implemented following endorsement by the CFF.

DATA, METHODS AND TRAINING WORKING GROUP (DMTWG)

1. Background and Rationale

The CRFM Ad Hoc Working Group on Methods was established in 2005 to devote specific attention to developing and testing assessment methods that could be applied to data-poor situations and that could make better use of the types and quality of data collected by CRFM countries. An on-site meeting of the Ad Hoc Working Group was convened once a year during the period 2005-2007. During its third and final meeting held in November 2007, the Ad Hoc Working Group reviewed its progress and recommended that establishment of CRFM Working Group on Data and Methods, based on the following justification.

The ad hoc Working Group acknowledged the need to keep under continual review the assessment methodologies adopted and currently being applied, as well as the need to investigate new methodologies. Additionally, the advantage of examining data management issues and conducting assessment preparatory tasks was recognized. The Ad Hoc Working Group further noted the importance of ensuring opportunities for continued training, both formally and “hands-on”, and also for facilitating networking with other agencies, institutions, projects, etc., which are involved in addressing issues of interest to the Working Group. Consequently in 2008 the Data, Methods and Training Working Group was established to address the need for specific attention to developing and testing assessment methods applicable to data-poor situations and for making most efficient use of the types and quality of data collected by CRFM Member States. Due to a number of regional and international initiatives since then however, it has become necessary to update the Terms of Reference for the Working Group. These initiatives include:

1. Application of international best practices in fisheries management which utilize the precautionary, participatory and ecosystem approaches;
2. Recognition of the ecological linkages through predation and competition among species which must be considered in the assessment and management of the respective resources;
3. The increasing need to quantify impacts of climate change and variability on resource availability (production, distribution), post-harvest and marketing systems to inform disaster risk management planning and decision-making.
4. Development and implementation of a strategic action programme under the Caribbean Large Marine Ecosystem and Adjacent Regions (CLME+) Project that seeks to address improved governance under an EAF approach focusing on overexploitation, habitat destruction and pollution with climate change being a cross-cutting issue for specific fisheries in the CLME;
5. The need to broaden fisheries analyses to include economic valuation of the resources and ecosystem goods and services, socio-economic assessment, consideration of ecological and environmental issues including climate change;

6. The CRFM Independent Performance Review and associated recommendations³¹;
7. Recommendations of the Workshop to Develop a Strategy to Strengthen Capacity in CRFM Member States in the Area of Statistics and Information³²;
8. Development of a Draft Agreement Establishing the Caribbean Community Common Fisheries Policy;
9. The Castries (2010) Declaration on Illegal, Unreported and Unregulated Fishing;
10. Endorsement of a CRFM-OSPESCA Joint Action Plan and the associated Memorandum of Understanding to strengthen cooperation and understanding between CRFM and OSPECA to promote and ensure conservation and sustainable use of the fishery and aquaculture resources of the Caribbean region, endorsed by the Ministerial Council in Belize in September 2012; and
11. Establishment of several joint regional working groups under the Western Central Atlantic Fishery Commission.

2. Objectives

The objectives of the Data, Methods and Training Working Group are to improve the quality of data used for fisheries analyses, to facilitate acquisition of data and information for a wider range of analyses that are consistent with the ecosystem approach to fisheries management, to develop and test assessment methods best-suited to the quality and types of data available in CRFM Member States and to facilitate the necessary training of Members of the Working Group to undertake the respective analyses. In seeking to achieve these objectives the Working Group must integrate the ecosystem, participatory and precautionary approaches to fisheries management.

3. Terms of Reference

The Terms of Reference for the Working Group are as follows:

1. To provide a forum for keeping under review:
 - a. recommendations to improve data collection required to facilitate analyses and assessments;
 - b. data, information and knowledge management and fishery assessment methodologies, with emphasis on those that are suitable for application to Caribbean fisheries;
 - c. agreed criteria for evaluating the performance and suitability of data management and fishery assessment methodologies proposed and utilized;

³¹ CRFM, 2013. Report of the CRFM Independent Performance Review. CRFM Management Report. 79 pp.

³² CRFM, 2014. Report of Workshop to Develop Draft Strategy to Strengthen Capacity in CRFM States in the Area of Fisheries Statistics and Information, 10-12 February 2014, St. Vincent and the Grenadines. *CRFM Technical & Advisory Document*, No. 2014/1. 135p.

- d. recommendations on data, information and knowledge management and assessment methodologies.
2. To facilitate the sharing of data and information for training purposes in accordance with any agreed data and information sharing arrangements;
3. To develop and implement biennial work plans;
4. To identify funding requirements through development of a biennial budget linked to the work plan at (2) above;
4. To recommend funding sources and to develop proposals to source funding in support of improvements in data quality, assessment methodologies and required training;
5. To conduct screening of data and to advise the CRFM Secretariat on those datasets of acceptable quality for analysis at scientific meetings;
6. To advise on acquisition of data and information to enable multidisciplinary approaches to fishery assessment, including the consideration of social, economic, and environmental data and information, and local knowledge;
7. To facilitate training opportunities to improve understanding and application of the methodologies proposed;
8. To consider and pursue additional tasks pertaining to the development and application of data, information and knowledge management and fishery assessment methodologies;
9. To document findings in meeting reports, and present findings and recommendations to the Annual Scientific Meetings, meetings of the Caribbean Fisheries Forum and the Ministerial Council, and to international fora, as required;
10. To collaborate with other agencies and institutions with similar and related interests;
11. To engage stakeholders in efforts to improve data quality, through *inter alia*, identification of minimum data requirements and sources of data and information to inform multidisciplinary data analyses;
12. To provide guidance on the national and regional data, information, knowledge and data analysis management issues and objectives in accordance with internationally accepted standards and guidelines;
13. To consider and endorse recommendations for improving the scientific methods used to analyse regional fisheries and fisheries-related data;
14. To report on performance of the scientific approaches to the CRFM Ministerial Council; and
15. To prepare management recommendations (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council.

4. Mode of Operation

4.1 Work Plans

The activities of the Working Group shall be informed by a biennial DMTWG work plan. The format of the work plan, which is to be agreed upon, would facilitate improved transparency and accountability of the activities of the Working Group. As far as is practically possible, the work plan shall be aligned with the national work plans of the respective Member States.

4.2 Role of CRFM Member, and Associate Member, States

- a. To implement the work plan, including recommendations, of the Working Group at the national level;
- b. To monitor and evaluate implementation of the work plan at the national level;
- c. To report to the Working Group on progress made in implementation of the work plan;
- d. To communicate matters related to activities of the Working Group to stakeholders and members of the public;
- e. To convene national consultations for the purpose of educating stakeholders on the need for their involvement in the data collection process and to identify minimum data requirements to enable multidisciplinary approaches to fishery assessment, including the consideration of social, economic, and environmental data and information, and local knowledge;
- f. To share data and information with the Working Group in accordance with any agreed data and information sharing arrangements;
- g. To facilitate strengthening of regional capacity in the area of fisheries analyses through technical cooperation among Member States (see selection of Consultants under Working Group Meetings);
- h. To facilitate expert participation by its representative(s) in activities of the Working Group; and
- i. To designate a National Technical Focal Point with responsibilities as outlined at 4.3.

4.3 Role of National Technical Focal Point

The National Technical Focal Point should be involved in aspects of statistics, research and management of the respective species/fisheries/resource and under the Working Group will have the following responsibilities:

- a. To coordinate implementation of activities under the work plan of the Working Group at the national level;
- b. To maintain dialogue with the Chair and/or Vice-Chair of the Working Group, other National Technical Focal Points and the CRFM Secretariat for the purpose of executing the work plan;

- c. To represent the respective Member State at meetings of the Working Group;
- d. To participate in all activities of the Working Group;
- e. To share information arising from scientific meetings with the national fisheries directorate and other national committees that may require such information;
- f. To prepare national data for review and analysis at scientific meetings; and
- g. To participate, as required, in the pre-screening of data for analysis at scientific meetings.

4.4 Role of the Working Group Chair and Vice-Chair

The Chair and Vice-Chair for tasks at the level of the Caribbean Fisheries Forum will be the corresponding designates elected according to *Rule 13 Election of Chairman and Vice-Chair* of the Rules of Procedure of the CRFM (dated 05 August 2002) and the corresponding roles thereof. In respect of technical level tasks, the Chair and Vice-Chair of the Working Group are to be agreed upon among those Member States. The positions of Chair/Vice-Chair may be rotated among the respective countries. By virtue of the position, the Chair is required to have a good appreciation of issues regarding data, methods and training, experience in the forum of the respective Working Group, experience in scientific report writing and basic statistical skills. The Vice-Chair is expected to assist the Chair in undertaking the assigned responsibilities. The role of Chair is as follows:

- a. To supervise coordinated implementation of the work plan at the regional level, through collaboration with National Technical Focal Points;
- b. To report quarterly on progress of the work plan to the CRFM Secretariat;
- c. To oversee preparation of the written technical report of the Working Group for publication in the CRFM Annual Scientific Meeting Report;
- d. To report on the activities of the Working Group, both current and planned, to the plenary session of the CRFM Annual Scientific Meetings as well as meetings of the Caribbean Fisheries Forum, when required;
- e. To oversee all data screening activities prior to scientific meetings and to advise the CRFM Secretariat on those datasets to be accepted for analysis at scientific meetings;
- f. To advise the CRFM Secretariat on the regional training requirements to facilitate broad, multidisciplinary approaches to data/ information/ knowledge management and fisheries assessments/analyses.

4.5 Role of the CRFM Secretariat

- a. To assist with coordination of the activities of the Working Group;
- b. To facilitate meetings (both electronic and on-site);
- c. To provide support for development and implementation of harmonized data, information and knowledge systems;

- d. To provide support for preparation of and submission of project proposals for external funding, including proposals for training;
- e. To coordinate the formulation and adoption of recommendations by the Working Group to facilitate the decision-making process at the sub-regional level; and
- f. To facilitate the development of regional and international institutional linkages for the purposes of fisheries research and management³³.

4.6 Role of the Caribbean Fisheries Forum

- a. To provide guidance on the national and regional data, information, knowledge and data analysis management issues and objectives in accordance with internationally accepted standards and guidelines;
- b. To consider and endorse recommendations for improving the scientific methods;
- c. To report on performance of the scientific approaches to the CRFM Ministerial Council; and
- d. To prepare management recommendations (either declarations/resolutions/proposals) for consideration for adoption by the CRFM Ministerial Council or the relevant designated subsidiary body of the CRFM Ministerial Council.

5. Membership of the Working Group

Membership in the Working Group is open to all CRFM Member and Associate States.

6. Working Group Meetings

- a. Electronic meetings - all Member States should participate in electronic meetings if the species/fishery/resource is of national importance;
- b. On-Site meetings - all Member States should participate in on-site meetings if the species/fishery/resource is of national importance. Sponsorship of participation at the scientific meetings will be dependent on available core funds and expected contributions. Sponsorship of participation in the meetings of the Caribbean Fisheries Forum is also dependent on available core funds.
- c. Other fisheries staff - to make full use of available regional technical expertise fisheries staff in territories adjacent to CRFM Member States, of regional and international fisheries organizations, of research institutes and universities may be invited to participate in meetings of the Working Group.

³³ Such institutions include but are not limited to: the University of the West Indies, the Institute of Marine Affairs, the Organization of Eastern Caribbean States, the Caribbean Community Climate Change Centre, the International Commission for the Conservation of Atlantic Tunas

- d. Consultants – if the assistance of a consultant is needed, a suitably qualified and experienced consultant will be sought and contracted by the CRFM Secretariat to participate in the meetings and to complete specific tasks. First preference will be given to sources of resident regional expertise (at Fisheries Departments and research institutions) in the selection of Consultants.
- e. An on-site meeting should be convened at least once every two years.

7. Communication

Communication is critical to the efficient execution of the work programme of the Working Group, particularly during the inter-sessional periods so as to maximize the quality of outputs. Available ICT tools, such as the CRFM DGroups, Skype Conference and GoToMeeting should be utilized for this purpose as far as possible. The outputs of the Working Group would be communicated through the CRFM Secretariat, and in accordance with the agreed CRFM Communications Strategy.

8. Outputs

The outputs of the Working Groups shall include: (1) information for management decision-making, including proposed management actions, at the national and regional levels, taking into account the need to reach a broad range of stakeholders (2) recommendations for statistics and research; (3) cleaned data sets, and completed fisheries analyses/assessment models stored for reference and training purposes; (5) fisheries officers trained in the respective statistical analyses; (6) regional and sub-regional cooperation in the management of shared fisheries resources.

9. Budget

The core budget of the CRFM is used to fund on-site meetings. Funds may be used from donor-funded projects when the activities of the Working Groups are of relevance to such projects.

10. Amendments to the Terms of Reference

The Terms of Reference are to be reviewed and amended, biennially or as required, under the guidance of the Caribbean Fisheries Forum (CFF) or its Executive Committee, and implemented following endorsement by the CFF.



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