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Western Central Atlantic Fishery Commission (WECAFC)

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Progress achieved under the WECAFC-FIRMS collaboration, and new developments

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Executive summary

This document presents the cross-cutting activities on data and statistics taking place under the WECAFC-FIRMS partnership, coordinated by the governing Task Force. The promising results which were achieved by the WECAFC-FIRMS phase 1 EU funded project are presented, many of which are being strengthened by the phase 2 project, the latter begun in synergy with other regional projects (e.g., CLEM+, recreational billfish). The WECAFC Data and Statistics Working Group will constitute a cornerstone of this new project with the endorsement of a first draft of the Regional Data Collection Reference Framework, the endorsement of the Regional logbook guidelines, and the recommendations on the further development of the WECAFC Regional Database. Among the achievements presented is the EU DEVCO “FIT4CC” project proposal which is expected to boost national capacities in statistics and place in an operational mode the support tools to FMPs, including the regional database and a stock assessment capacity. These integrated efforts taking place under the FIRMS Partnership provide the ingredients to enable WECAFC countries to progress towards SDG14.4 thanks to increased capacities for data collection, stock assessment and the use of the FIRMS monitoring framework for reporting on SDG14.4.1.

The SAG is expected to acknowledge the results and on-going efforts of the project, to advise on the best way to prepare a successful FDS WG, to support FIT4CC and to provide directions

for the further steps of its formulation, and to advise on the implementation of SDG14.4.1 in the region.

Introduction

The FIRMS has as primary goal to facilitate access to high-quality information on the status and trends of global marine fishery resources, fisheries and their management. The overarching aim of the FIRMS partnership is to provide decision-makers with sufficient and reliable information to develop effective fisheries policies in accordance with the Code of Conduct for Responsible Fisheries. FAO provides the secretariat for the FIRMS partnership.

The WECAFC-FIRMS partnership prepared at the [WECAFC-FIRMS Workshop on Marine Resources and Fisheries Inventories](#) (November 2013) and endorsed by WECAFC 15 functions to facilitate access to high-quality information on the status and trends of global marine fishery resources, fisheries and their management. The partnership was developed out of the recognition of the need for improved information on fisheries data and statistics from regional perspective highlighted at [WECAFC 14](#) (February 2012) and [WECAFC 15](#). Limitations in data capacities to support decision making were noted as chief impediments to strong and effective management of marine resources in the region. The development of the partnership provided a viable mechanism through which existing data limitations and gaps could be reduced. Through the partnership focal points were designated representing the region (Ms. Nancie Cummings) and CRFM and OSPESCA sub regions (Ms. June Masters and Mr. James Azeuta).

The FIRMS partnership, steadily growing, now brings together 14 Institutions representing 19 (RFBs)¹, and disseminates through the FIRMS website status and trends reports structured on an inventory backbone of over 1,000 marine resource stocks and about 200 fisheries (<http://firms.fao.org/firms/en>).

The WECAFC-FIRMS “Partnership”, established on request of the WECAFC members with direct involvement of the FIRMS Secretariat, facilitates a variety of significant improvements in the region focusing on fisheries including:

- a. Development of and advancing Fisheries Inventories and Marine Resources Summaries in the region for key fisheries and marine resources.
- b. Promotion of the development of a functional pilot database (RDB) through the “Partnership” targeting five shared regional stocks (Spiny lobster, Queen conch, Flying fish, Billfish, Shrimp and Groundfish).
- c. Support of regional governance through a collaborative task force bringing a set of complementary skills and knowledge of all Caribbean Fisheries issues.
- d. Establishment and promotion of partnerships with other important regional initiatives (e.g., CLME+ project Strategic Action Plan - SAP) thus leveraging resources and building transparency.

¹ Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), Commission for the Conservation of Southern Bluefin Tuna (CCSBT), Directorate-General for Maritime Affairs and Fisheries (DG MARE), FAO Fisheries and Aquaculture Department, General Fisheries Commission for the Mediterranean (GFCM), Inter-American Tropical Tuna Commission (IATTC), International Commission for the Conservation of Atlantic Tuna (ICCAT), International Council for the Exploration of the Sea (ICES), Indian Ocean Tuna Commission (IOTC), Northwest Atlantic Fisheries Organization (NAFO), North Atlantic Salmon Conservation Organization (NASCO), North-East Atlantic Fisheries Commission (NEAFC), Southeast Asian Fisheries Development Center (SEAFDEC), South East Atlantic Fisheries Organization (SEAFO).

[WECAFC/SAG/VII/2015/7](#) summarized the primary aims of the partnership and early achievements. Early activities focused on: strengthening national data collection through completion of inventories of stocks and fisheries in support of the three FMPs published in FIRMS (spiny lobster, flying fish, and Queen conch), the development of a prototype Regional Data Base, and developing a Plan for identifying needs and building capacity and strengthening of selected national data collection systems. This report summarizes activities and describes new initiatives undertaken in 2016 and 2017.

Status of WECAFC-FIRMS collaboration, and main milestones in roadmap

WECAFC-FIRMS phase 1

The EU-DG MARE funded project WECAFC-FIRMS phase 1 (full title “WECAFC Regional Database - Strengthening national data collection and regional data sharing through FIRMS to support priority regional fishery management plans in the WECAFC area”) provided seed funding to catalyze a number of activities and achievements which are hereby reported.

A regional data workshop was held in Barbados on 19-21 January 2016 and was attended by thirteen countries (mostly Caribbean island states), two EU overseas territories, and four regional organizations (<http://www.fao.org/3/a-i5789e.pdf>). The workshop was a cornerstone milestone of the WECAFC-FIRMS phase 1 project.

The workshop addressed the entire data value adding chain from national data collection, through data sharing and analysis at regional level, up to the dissemination of assessment results to the broader public through FIRMS reports. The workshop set out a number of working directions² which led to the following achievements of the WECAFC-FIRMS phase 1 project.

- a. Development of new inventories of fisheries information for several countries and priority species (Appendix 1)
- b. Project concept notes for three national data collection system documenting capacity building needs (Belize, St. Lucia, and St Kitts and Nevis)
- c. Development of the Bahamas Fisheries Management Information System (FisMIS) which begun under the FAO Technical Capacity Programme (TCP). This project was not a dedicated WECAFC-FIRMS Phase I RDB project. However, the FisMIS project is referenced in the context as a regional activity having direct relevance and significance to contribution in the overall strengthening of key fisheries information needed for improving regional fisheries management.
- d. Endorsement of the establishment of the WECAFC Fisheries Data and Statistics Working Group (FDS WG) by the 16th session of WECAFC (June 2016, <http://www.fao.org/3/a-i6031t.pdf>).

² The continued activities of the regional database project in 2016 and 2017 are fully described in the FIRMS SC10 (http://www.fao.org/fi/static-media/MeetingDocuments/FIRMS/FIRMS_FSC10/4ae.pdf)

- e. A document on Minimum data requirements for stock assessment (<https://bluebridge.d4science.org/group/bluebridge-gateway/workspace?itemid=dfb9210e-da0c-4673-a76c-fe395410fbd7&operation=gotofolder>).
- f. Draft of a regional logbook guidelines proposal was developed.
- g. Draft of a Data Collection Reference Framework document (DCRF) was developed.
- h. Dissemination of information on the WECAFC-FIRMS Partnership and the RDB Phase I project was made available to a variety of audiences via:
 - o The iMarine Gateway: the data e-infrastructure was used by the Task force to collate and disseminate multiple products from the FIRMS Phase I project, to document task force e-calls, and to archive the DCRF and logbook guidelines proposal (<https://goo.gl/MHUfdr3>).
 - o A proof of Concept for the Regional Database (RDB) was developed
 - o External participation by the two task force member contributed to in-person real time communications disseminating information on the WECAF-FIRMS Partnership (e.g., poster presentation at the GCFI Annual scientific conference in November 2017 and brochures disseminated at GCFI, Panama 2016)
 - o The CRFM promoted the 'Partnership" through the CRFM online News Portal
 - o Circular mission to St. Kitts and Nevis, St. Lucia and Belize was organized in October/November to better assess countries needs in terms of support to fisheries data and statistics production, needs already expressed during the January 2016 regional workshop
 - o The task force provided additional information on the RDB project at the meeting of the FIRMS Secretariat with CRFM Executive Director November 2016 (Belize)
- i. Formulation and funding decision of the WECAFC-FIRMS phase 2 project to continue advancing the RDB towards a fully functional RDB.
- j. Translation of the FIRMS website into Spanish was made possible through the efforts of the FIRMS program, in the context of the WECAFC-FIRMS phase I project which highlighted the importance of a Spanish version of FIRMS for extending use of FIRMS to Latin American countries Members of WECAFC and OSPESCA
- k. In March 2017, the RDB data and statistics task force convened a coordination meeting (DSCM) with the aim to develop roadmap for advancing the RDB, prioritize future short term (2 year) goals, and to identify and propose synergistic activities in the region having high probability of impacting improvements in basic fisheries data (i.e., emphasizing the key aims of the WECAFC-FIRMS partnership).

Products of the DSCM included:

- o Inventory of fisheries products thus providing the initial minimum data for the region for informing status, monitoring and management
<https://docs.google.com/document/d/1MOSBXTpVYNw3WVAyj6527lp32Qh3SL9wYbsi1pvHpMU/edit?usp=sharing>

³ The access to this folder requires creation of an account in the iMarine infrastructure

- Analytical Matrix developed to guide further implementation and planning of the FIRMS Phase II:
https://docs.google.com/spreadsheets/d/1MLeDHFqcDi2zdHB_93ldPLepRWarsfS-oMcqkZSR8bY/edit?usp=sharing
 - Extension of the RDB project to include billfishes, shrimp and ground fish of Guianas-Brazil shelf as part of the CLME Strategic Action Programme (SAP) and its CLME+ enabling the leveraging of existing collaborations in the region to enhance the partnership
 - *A set of collaboration principles for maximizing impact through optimizing synergies among institutions and projects*
 - Establishing formal governance of the RDB project through a task force, which includes members of the WECAFC Secretariat, of the FIRMS Secretariat, and the FIRMS focal points for WECAFC and CRFM and SICA-OSPESCA.
 - A final report is anticipated quarter 4 2017 for the DCSM.
- I. A recreational fisheries statistics workshop was convened in June 2017 (see draft report under WECAFC/SAG/VIII/2017/inf.6). Although not a dedicated WECAFC-FIRMS Phase I activity, the workshop participants recommended to develop data collection plan based on the products developed and promoted by the WECAFC-FIRMS Partnership. Several additional recommendations were made by the workshop, including the development of ad-hoc legislation to support recreational fisheries monitoring, the use of SmartForms to develop mobile data collection tools and the encouragement of interested countries to report to FIRMS their stocks and fisheries.

WECAFC-FIRMS phase 2 project

The foundation of this phase will be the convening of the Fisheries Data and Statistics working group (FDS WG) which main output is intended to be the endorsement of a first version of the Data Collection Framework, and a validation of the RDB pilot for full implementation. The FDS WG is further detailed in the next paragraph. The activities to accompany this effort are:

- a. Finalizing the WECAFC Data Collection Reference Framework (DCF) and data collection logbook guidelines documents and necessary modules. Presentation of logbook guidelines for data collection is planned for the November 2018 GCFI conference in Merida, Mexico.
- b. Continued development of new inventories and updating old inventories, with their publishing as fact sheets on the FIRMS website
- c. Kick off of RDB phase II is planned for Q1 2018 focusing on rolling out the pilot RDB
- d. Development of RDB data sharing and IT policies and best practices documents

Other WECAFC-FIRMS collaboration activities planned during the coming period:

- a. FAO is building capacity in a few Caribbean countries for integrated fishery statistics and management information systems (FiSMIS), through a combination of resources including FAO's regular program, a global FAO project funded by Japan (JPN228) aiming at developing a generic scalable software framework for supporting National

FiSMIS, and FAO field projects such as the Caribbean Billfish Project and CC4Fish, and national TCP in the Bahamas. A FiSMIS was deployed in the Bahamas, and a new version of FiSMIS is currently being designed for Trinidad and Tobago. Other developments concern support to Grenada in developing Logbook systems for reporting to ICCAT, and mobile phones data collection based on SmartForms for fight against IUU in the Bahamas and data collection in billfish recreational fisheries. All these efforts are closely coordinated towards building standards based, modular and interconnected modules including vessel registry, logbook, VMS, artisanal statistics, landing sales, etc. FAO is here building the basis for a future CARIFIS 2.

- b. The FAO CLME+ sub-project on Shrimp and Groundfish will be kicked-off at the end of 2017 (November), and will allow to extend the spectrum of WECAFC-FIRMS activities to these resources. Synergies will be sought among CLME+ field projects to increase the impact of WECAFC-FIRMS.

Strategic Development of the Fishery data and statistics working group (FDS WG)

During WECAFC 16 the establishment of the Fishery Data and Statistics Working Group (FDS WG) was endorsed by the members: *"The Commission agreed to establish a working group for fisheries data and statistics matters, based on the ongoing work of the WECAFC-FIRMS partnership and supported the development of a regional database in collaboration with the Members and partners in the region."* (http://www.fao.org/fi/static-media/MeetingDocuments/WECAFC16/WECAFC16_adopted_report.pdf)

The first meeting of the FDS WG is proposed for second quarter 2018. The primary aim of the workshop will be:

- a. Review and Adopt FDS WG Terms of Reference for the mandate and functions of the WG
- b. Review and Identify FDS WG priorities for relevant priority marine resources (Conch, Lobster, Flying fish, Groundfish and shrimps) focus of the regional RDB
- c. Review and Endorse Task Force Draft Data Collection Reference Framework Document
- d. Review and make Recommendations on Draft Logbook Guidelines Document
- e. Review establishment of FDS WG steering committee
- f. Review and make Recommendations on data collection best practices guidelines document activity
- g. Review, prioritize and comment on future initiatives of the RDB phase II activities

Anticipated products of the 1st FDS WG workshop are:

- a. Reviewed, recommendations, and endorsements on documents for: FDS WG Mandate, DCRF, Logbook guidelines
- b. Identified FDS WG steering committee composition
- c. Identified Calendar of priority activities for FDS WG for 2018-2020 for key RDB focus groups (Conch, Lobster, Flying fish, Groundfish and shrimp)
- d. Recommendations on future initiatives of the RDB phase II activities and other initiatives as deemed applicable to WECAFC data and statistics needs

Support to Stock Assessment

The continued need to provide capacity building support to the region was noted at the 7th SAG (**WECAFC/SAG/VII/2015/7**) emphasizing the functionality of the EU Horizon 2020 framework BlueBRIDGE project to strengthen regional capacity in multiple ways.

FAO's Fisheries and Aquaculture Department remains engaged in the iMarine platform, a data infrastructure in support to Ecosystem Approach to Fisheries (EAF) (EAF) and conservation of living marine resources. The BlueBRIDGE project funded under the EU Horizon2020 strengthens the capacities of iMarine, which will benefit WECAFC and its regional partners by offering a platform able to support capacity building for stock assessment.

BlueBRIDGE is working to produce and deliver Virtual Research Environments⁴ (VREs) for Regional databases in support to stock assessment and fisheries management, as well as capacity building to support the uptake of such facilities by user. During 2017, through the Partnership, achievements were made in multiple areas through synergistic collaborations within the WECAFC-FIRMS partnership and WECAFC region:

- Review of and report on the potential for use within a VRE environment of a frequently used data limited stock assessment model (CMSY model) resulting in significant improvement in performance of the current CMSY model
- Preliminary interface developed for importing data into the VRE
- Algorithms developed for enhancing the reproducibility of stock assessment results within the VRE environment

Short term plans include:

- Review additional data limited models (e.g., length, yield per recruit) with aim to produce functioning models within the VRE environment
- Produce functioning import templates for migrating minimum data into VRE by national data managers
- Deliver test training sessions using the above VREs

FIRMS is also involved in the component “Global record of stocks and fisheries” (GRSF) which will federate knowledge on status/trends of stocks and fisheries across three major global sources of information: the Fisheries and Resources Monitoring System (FIRMS), RAM Legacy Stock Assessment Database and FishSource. By delivering unique stocks and fisheries Identifiers across these sources, the GRFS will be in a position to deliver a set of e-services on a critical mass of information on stocks and fishery status, and is expected to be of major interest to a variety of researchers involved in traceability of fishery products, and to stakeholders involved in “regional or global state of stocks indicators”. The GRSF will be developed within the life-time of the project (30 months) and co-developed within the Blue Bridge partners and contributors with open-source solutions. The data base will contain public data and the partners will define the dissemination policies to be implemented by the iMarine e-infrastructure.

More information on BlueBRIDGE at <http://www.bluebridge-vres.eu/>

⁴ Virtual Research Environments are cloud-based workspaces offering data services for a dedicated user community

THE FIT4CC PROJECT - EU (DEVCO) PROJECT ON THE DEVELOPMENT OF A STATISTICS AND DATA SUPPORT SYSTEM FOR CARIFORUM STATES

The project entitled, *Fisheries information technology innovations for resource management and climate change adaptation in the Caribbean (FIT4CC)*, is a data support project for CARIFORUM States that has been developed by FAO-WECAFC in collaboration with the CRFM Secretariat with input from the FIRMS Partnership in the Caribbean. The total value is Euro 10,000,000. The intention is to seek funding for the project under the 11th EDF Caribbean Regional Indicative Program 2014-2020. A summary of the project is available in Appendix 2.

The overall objective of the FIT4CC Action is to increase resilience and reduce vulnerability to climate change impacts in the Caribbean fisheries sector, through increased decision-support knowledge generated through inclusive, modern and sustained fisheries information systems in the Caribbean fisheries sector. Better informed fisheries information systems will lead to improvements in the sustainable management of shared fisheries resources and help enable introduction of adaptation measures.

A significant increase of the basic fisheries information knowledge-base requires the establishment of a comprehensive data and statistics supply chain, through three specific objectives:

- (1) To strengthen CARIFORUM countries' (mostly small island developing states -SIDS) capacities in producing science based evidence for sound management decision making in both fishery and aquaculture sub-sectors, through inclusive, innovative, and cost-effective/sustained fisheries and resources management information systems.
- (2) To promote regional collaboration, data and information sharing among Caribbean countries and their integration in a regional governance context equipped with data and statistics to support implementation of Regional Fishery Management Plans, fisheries and stocks status/trends monitoring, for combating IUU fishing, and for promoting aquaculture development.
- (3) To facilitate the integration of climate change information into fishery management decision-making processes, which in turn will support climate change adaptation in the CARIFORUM countries Fisheries.

The FIT4CC Project is reaching the end of the Identification phase. The Identification fiche may be downloaded and a summary presentation is available at this link⁵. The Identification fiche was reviewed and received support from the WECAFC-FIRMS Task Force in March 2017, the WECAFC Billfish workshop (June 2017) and the CRFM Ministerial Council (October 2017), and is scheduled for the Sectoral Technical Task Force Meeting of CARIFORUM early November, for support on the Technical Content. An overwhelming support to the technical content of FIT4CC by CARIFORUM Countries is necessary to facilitate a positive decision for funding consideration under the 11th EDF Regional Indicative Programme 2014-2020.

⁵ <https://goo.gl/EP9Ucr>

A regional framework for SDG 14.4.1 “proportion of fish stocks within biological sustainable levels”

Background on the SDG process

In September 2015, the 193 Member States of the United Nations adopted the 2030 Agenda for Sustainable Development – including 17 Sustainable Development Goals (SDGs) and 169 targets. Background information on the overall SDG framework is available in the UNSD webpages. A few relevant highlights are hereby provided:

- a. The UN SDG initiative has been driven by countries, and countries have the leadership and ownership in their implementation and reporting;
- b. Indicators are the foundation of the accountability structure whereby countries measure the progress they are making towards achieving objectives;
- c. A global reporting structure is in place for indicators ensuring that data are comparable and aggregated at sub-regional, regional and global levels. Here International agencies are designated custodian⁶ for selected indicators relevant to their mandate, i.e. act as facilitator to assist countries with their reporting and to foster strong and coherent institutional and policy environments. FAO is custodian agency of 21 SDG indicators central to food and agriculture.

Goal 14 “Life under water” is to conserve and sustainably use the oceans, seas and marine resources for sustainable development. Under this Goal, the FAO is custodian of four (4) indicators including [14.4.1 State of stock](#), [14.6.1 Combat IUU](#), [14.7.1 societal benefits of sustainable fisheries](#), and 14.b.1 [Access right for Small Scale Fisheries](#).

- a. 14.4.1 Proportion of fish stocks within biologically sustainable levels: <http://www.fao.org/sustainable-development-goals/indicators/14.4.1/en/>
- b. 14.6.1 Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing: <http://www.fao.org/sustainable-development-goals/indicators/14.6.1/en/>
- c. 14.7.1 Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries: <http://www.fao.org/sustainable-development-goals/indicators/14.7.1/en/>
- d. 14.b.1 Progress by countries in adopting and implementing a legal / regulatory / policy / institutional framework which recognizes and protects access rights for small-scale fisheries: <http://www.fao.org/sustainable-development-goals/indicators/14.b.1/en/>

Although all four indicators are relevant to WECAFC-SAG discussions and to critically important fisheries matters in the region this document specifically addresses indicator 14.4.1 “Proportion of fish stocks within biological sustainable levels” for the reason that Regional Fishery Bodies will likely play an important role in rolling-out the methodology which would eventually enable countries to inform this indicator.

Status regarding SDG14.4.1

Currently FAO regularly reports as part of its biennial SOFIA (‘The State of World Fisheries and Aquaculture’) report the state of fish stocks at global level, based on a time series beginning in 1973. The SOFIA methodology for global monitoring is established and the indicator was classified as Tier1 indicator for SDGs. However, the current methodology is applied at a regional level and is not easily applicable to country level assessment, particularly to many

developing countries, because (i) stock assessment is highly technical and many countries lack the required skills, and (ii) many countries lack sufficient data to support stock assessment. Continued effort is still required to adapt the indicator in its present form to make it usable by countries and comparable at global scale.

Regarding individual stocks which can be potentially reported under SDG14.4.1 as national indicator, the scope is as follows:

- a. National Stocks: countries undertake their own stock assessment; where countries lack such capacity, FAO can help build such capacity or the country, if it wishes, can ask other organizations for assistance.
- b. Regional/shared/straddling Stocks are under RFMO/RFBs mandate and should be excluded from countries assessment inside EEZs.
- c. Regional/shared/straddling Stocks out of RFMO/RFB mandate: FAO could develop a framework proposing various options regarding attribution rules. COFI could be consulted for endorsement of one of the options.

Countries adopting the indicator will be requested to report to the UN on the indicator as a simple percentage value (e.g. “60% of national stocks are within biological sustainable levels”) possibly with additional information such as the percentage of stocks for which the situation is unknown. However, countries would also be requested to provide access to the underlying evidence of the status on a stock by stock basis.

FAO’s action as custodian of SDG indicator 14.4.1

As a custodian of SDG14.4.1, FAO has to facilitate the process, provide technical support to, and build capacity in member countries towards the reporting of stock status. FAO is also responsible for collecting data from national sources, including to ensure that data are comparable and aggregated at sub-regional, regional and global levels, and providing the storyline for the annual global SDG progress report.

Towards establishing such framework, FI is developing a capacity building plan that will help country to:

- a. Understand what SDG 14.4.1 is measuring
- b. Know how SDG 14.4.1 is estimated
- c. What data and skills are required to estimate SDG 14.4.1
- d. What quick and dirty methods are available, their advantages and disadvantages
- e. What data sources, tools and infrastructures are available to support assessment
- f. Understand the reporting framework rules and monitoring capacity

FAO’s general capacity building plan includes the identification of a selected set of stock assessment methods applicable in Data Limited situations (DLM), the guidelines on the monitoring framework, the development of an e-training curriculum, the convening of a global expert workshop in November 2017 where these methods will be peer reviewed for endorsement by regional experts, and where these experts will be trained as trainers.

COFI33 (July 2018) will be a key milestone for countries to reach agreement and provide guidance to FAO, with key decisions to be taken on:

- a. The overall reporting methodology
- b. The methods to be used, what species should be included, how data should be collected, who should do the assessment, and the reporting framework for SDG14.4.1
- c. The role of RFBs in facilitating the capacity building process, and consistency in an inventory based approach should this option be selected.

Role for FIRMS

FIRMS which capacity is augmented by the Global Record of Stocks and Fisheries (GRSF – developed under the BlueBRIDGE project) can provide a key monitoring instrument to help FAO fulfil its SDG14.4.1 custodianship role.

FIRMS decided at its 10th Steering Committee meeting (FSC10, June 2017, Copenhagen) that the Partnership should offer its monitoring services to support a standards' based inventory mechanism for SDG14.4.1: an inventory of stocks based on FIRMS standards and following agreed SDG14.1.1 guidelines would enable a systematic, transparent, traceable and consistent aggregation of stock status from national through regional to global level. The role of FIRMS RFB Partners will be key in ensuring consistency of this inventory across national and regional scales.

The Global Record of Stocks and Fisheries (GRSF) is a collaboration instrument for the monitoring of fish stocks and fisheries status. In its first release foreseen in 2018, the design of GRSF has been forged with the goal to publish global Unique Identifiers for single stock and fishery records validated as result of a collation process from three global database sources: FIRMS, RAM Legacy Stock Assessment Database, and FishSource. In the GRSF, information on stocks is organized and stored according to specific standards, which allow comparability between unique records and ensure consistency of the database. Single records correspond to individual stocks and include stock identification information (i.e. species and assessment/distribution area) plus, among others, catch values, biomass and fishing mortality indicators (when available).

With the FSC10 decision to take ownership of GRSF, FIRMS is acquiring the platform to create by-country stocks inventories including the relevant information and Metadata for SDG indicator 14.4.1. These will constitute the base to compute the by-country indicator value according to agreed rules, for validation by the country itself before submission to UN SDG Secretariat. The national inventories would also contribute to stock status monitoring at regional and global level.

Clearly FIRMS can also play a catalytic role at regional level in building other required capacities for SDG14.4.1. Reference is made to the several on-going activities reported in this document which are expected to improve data collection at national level, data sharing at regional level, and to support training on stock assessment.

Summarizing:

- a. Various capacity building actions are on-going under the WECAFC-FIRMS project, instrumental to SDG14.4.1
- b. A monitoring framework for SDG14.4.1 can be set up by building upon an enhanced FIRMS data dissemination framework for use by countries to enable/facilitate their dissemination of individual stock status. Importantly, this requires consistency among stocks disseminated at national level and stocks disseminated at regional level through FIRMS.
- c. The involvement of FIRMS RFB Partners such as WECAFC, CRFM and OSPESCA would be key to ensure the consistency of national versus regional stocks, to foster improved data collection and sharing, and to offer a framework for training in stock assessment.
- d. Such mechanism would strengthen SOFIA's global indicator on the state of stocks by building more systematically on both regional and national level stocks.

Actions requested from the SAG

WECAFC-FIRMS and Fishery Data and Statistics Working Group

1. The SAG is requested to comment on relevant aspects of the WECAFC-FIRMS Partnership development and related projects described above.
2. The SAG is encouraged to suggest to FIRMS and WECAFC Secretariats to contact specific experts in the region to contribute to or collaborate with the ongoing FIRMS activities.
3. The SAG is requested to comment on the relevance of the FDS WG and to provide input on priority discussion topics for the Working Group
4. The SAG, through its members and partners, is invited to **support mobilization** of national participation in the upcoming FDS WG and its preparatory stages, in particular to advise on the **review process of DCRF and Logbook guidelines** prior to convening the Working Group, to support the provision of national inventories of fisheries and response on the survey questionnaires on data collection systems and data gaps, and the provision of national datasets to the RDB pilot.

FIT4CC

1. The SAG is invited to acknowledge the status of formulation of FIT4CC, including review stages and support received to date.
2. The SAG is requested to:
 - o Review and Endorse the Project Identification fiche.
 - o **Formulate relevant recommendations for the Commission**, noting that the project document is still being developed.

SDG 14.4.1 framework

The assessment and reporting framework should be discussed and agreed by all countries at COFI 2018. In anticipation of this event and in order to prepare a decision, it is important that RFBs help countries to develop their position.

WECAFC-SAG is requested:

1. To provide guidance regarding the **feasibility in the WECAFC region of an inventory based approach for SDG14.4.1** and consistency in particular at the interface between regional and national stocks.
2. To advise on the **roles** which FAO, WECAFC, CRFM, OSPESCA, FIRMS and other stakeholders can respectively play in facilitating the SDG14.4.1 process.
3. In accordance with the above, to formulate an **overall advisory statement** encompassing the above considerations,
 - a. for WECAFC-CRFM-OSPESCA's considerations,
 - b. for use during the development process of the SDG14.4.1 reporting framework, and
 - c. to contribute shaping countries' opinions in view of COFI-33's decision making on the options for SDG14.4.1.

Appendix 1: FIRMS inventories completed for the WECAFC region.

a. Bahamas:

Bahamas Lobster fishery <http://firms.fao.org/firms/fishery/970/en>

Bahamas Nassau Grouper fishery <http://firms.fao.org/firms/fishery/971/en>

Bahamas Queen Conch fishery <http://firms.fao.org/firms/fishery/969/en>

b. Trinidad and Tobago:

Trinidad and Tobago Dolphinfish fishery - Tobago <http://firms.fao.org/firms/fishery/974/en>

Trinidad and Tobago Gillnet and line flyingfish and associated pelagic fishery – Tobago <http://firms.fao.org/firms/fishery/973/en>

c. Saint Kitts and Nevis:

Saint Kitts and Nevis Oceanic pelagic fishery <http://firms.fao.org/firms/fishery/982/en>

Saint Kitts and Nevis Queen conch fishery <http://firms.fao.org/firms/fishery/981/en>

Saint Kitts and Nevis Spiny lobster fishery <http://firms.fao.org/firms/fishery/983/en>

d. Turks and Caicos:

Turks and Caicos Islands Lobster fishery <http://firms.fao.org/firms/fishery/986/en>

Turks and Caicos Islands Queen Conch fishery <http://firms.fao.org/firms/fishery/985/en>

e. Saint Lucia:

Saint Lucia Flyingfish fishery <http://firms.fao.org/firms/fishery/906/en>

Saint Lucia Lobster fishery <http://firms.fao.org/firms/fishery/907/en>

Saint Lucia Queen conch fishery <http://firms.fao.org/firms/fishery/975/en>

Saint Lucia Large pelagic fishery <http://firms.fao.org/firms/fishery/976/en>

Saint Lucia Shark fishery <http://firms.fao.org/firms/fishery/977/en>

Saint Lucia Whelk fishery <http://firms.fao.org/firms/fishery/978/en>

Saint Lucia Sea urchin fishery <http://firms.fao.org/firms/fishery/979/en>

f. Saint Vincent and the Grenadines:

Saint Vincent and the Grenadines Large pelagics fishery <http://firms.fao.org/firms/fishery/994/en>

Saint Vincent and the Grenadines Lobster fishery <http://firms.fao.org/firms/fishery/993/en>

[Saint Vincent and the Grenadines Queen conch fishery http://firms.fao.org/firms/fishery/992/en](http://firms.fao.org/firms/fishery/992/en)

Appendix 2

<p style="text-align: center;">FIT4CC project summary WECAFC - Scientific Advisory Group</p>
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Title: FISHERIES INFORMATION TECHNOLOGY INNOVATIONS FOR RESSOURCE MANAGEMENT AND CLIMATE CHANGE ADAPTATION IN THE CARIBBEAN

FIT4CC is a proposed 10.000.000 EUR regional project aiming at increasing resilience and reducing vulnerability to climate change impacts, thanks to increased decision-support knowledge generated through inclusive, modern and sustained fisheries information systems in the Caribbean fisheries sector. In a regional context of shared marine resource, the Caribbean region is facing different challenges such as downward trends in Fisheries data and information availability, limited statistical information and technical capacity, as well as obsolete legal and policy frameworks, which hamper national policy-making and fishery management. Furthermore, there is a continued illegal, unreported and unregulated (IUU) fishing, overfishing and overexploited situation which leads to unsustainable practices. On the top of that, there are severe consequences on fisheries sector due to increased climate change and climate variability e.g. devastating hurricanes as Irma and Jose. However, there is interest from fishers to team-up with public sector to collect data and increase information availability for co-management purposes.

In this context, the project would be a response to these challenges in both fishery and aquaculture, and would allow to meet the Sustainable Development Goals No. 2 (Promoting sustainable fisheries through informed management decisions, acquisition of adequate data and information, and development of modern systems in both the fishery and aquaculture sub-sectors), 13 (Supporting climate change adaptation in the Caribbean Fisheries sector) and No. 14 (Addressing food security and nutrition by rebuilding fisheries and restoring stocks), as well as COP21 and AICHI targets. Moreover, EU DEVCO supports the project and could finance up to 80% of the project under the 11th EDF. The project would benefit fishers, who want to improve business, investment and market opportunities. But also to fisheries managers, decision makers and to other fisheries stakeholders. The project would be also complementary with other ongoing projects and activities, such as CLME+, CC4FISH, WECAFC-FIRMS, iMarine and WECAFC working groups.

The overall objective is: **Increasing resilience and reducing vulnerability to climate change impacts, thanks to increased decision-support knowledge, through inclusive, modern and sustained fisheries information systems and the three specific objectives are:**

- 1- To strengthen CARIFORUM countries' capacities in producing science-based evidence for sound management decision making in both fishery and aquaculture sub-sectors.
- 2- To promote regional collaboration data and information sharing among Caribbean countries and their integration in a regional governance context.
- 3- To facilitate the integration of Climate Change information into fishery management decision-making processes.

The expected results are the following:

At national level:

Result 1: Improved and more integrated fisheries management information systems in place, in at least 10 selected countries, implementing sound statistical data collection through innovative and efficient methods (mobile phones, tablets, and involved fishers);

Result 2: Higher quality national aquaculture statistics are available to make informed decisions for sector development and management. It will increase its contribution to socio-economic development and food security, through implementation of a mix of simple data collection mechanisms, networking and application of innovative IT technologies;

Result 3: Strengthened institutional capacity of fisheries statistical services at national level in at least 10 selected countries, through improved policy, legal and institutional frameworks for fisheries;

At regional level:

Result 4: An operational regional training environment. Capacity building framework implementation in statistics and stock assessment, including curriculum(s), toolkits, courses and institutional arrangements for training delivery and scholarships;

Result 5: An education-outreach-communication framework aiming at involving the private sector (commercial and recreational fishers and other stakeholders) in co-managed data collection activities (including guidelines, best practices, a toolkit and library of information assets);

Result 6: A long-term maintainable modern Caribbean Fisheries Information System software framework (CARIFIS2) for data collection, storage, processing and dissemination, tailored and deployed for all WECAFC Member Countries;

Result 7: An operational Regional Database (RDB) hosted by WECAFC, addressing the needs of various geographic scopes and objectives (e.g. CRFM), including a Regional Vessel Record, IUU vessel list, Catch /Effort/ Abundance statistics for fisheries (provided by CARIFIS 2) and stock status monitoring, and biological data for stock assessment;

Result 8: A regional data governance framework underpinned by regionally endorsed Data policies and capacity to promote a standard, harmonized and cost-efficient approach to regional statistics production and to operate data flows in support of Fishery Management Plans and joint WECAFC-CRFM-OSPESCA working groups;

Cross-cutting results, and Climate Change:

Result 9: Current value chain of selected fishery products analyzed, and historical time series on fish landings (volumes, values, species/biodiversity, fish sizes, including data from recreational fisheries), fish and value chain of fisheries products trade since 1970 in the CARIFORUM region reconstructed, to set baselines and enable monitoring of climate change impacts on fish, trend analysis and facilitate introduction of climate change adaptation measures.

Result 10: Established functional linkages between data and information sources on climate change, fisheries and their marine environment in at least 7 countries through Decision Support Systems (DSS), in order to facilitate fisheries management decision making processes;

Result 11: Advisory data services for fisheries stakeholders, providing water temperature, water currents, sargassum occurrence, weather information and forecasts through innovative Apps, mapping software and linked databases.

The project would be implemented by the FAO headquarters, more specifically by the Statistics and Information Branch of the Fisheries and Aquaculture Department (FIAS), where the management unit should be located. Headquarters hosts the FIRMS Secretariat, which is facilitating the data and information work of many RFBs and RFMOs world-wide. FAO will provide direct Technical Assistance support in statistics, stock assessment, data management, information systems, legal and policy aspects. The executing agencies would be CRFM and national Departments of Fisheries.

The SAG committee is expected to give guidance and advice to the project document, bearing in mind that we are at the Identification stage.