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WESTERN CENTRAL ATLANTIC FISHERY COMMISSION

Report of the

WECAFC-FIRMS DATA WORKSHOP

Christ Church, Barbados, 19–21 January 2016

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PREPARATION OF THIS DOCUMENT

This is the final version of the report of the WECAFC–FIRMS Data Workshop held in Christ Church, Barbados, from 19 to 21 January 2016.

The material in the appendixes is reproduced as submitted.

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Report of the WECAFC–FIRMS Data workshop, Christ Church, Barbados, 19–21 January 2016.

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ABSTRACT

A regional workshop was held in Barbados from 19 to 21 January 2016 and attended by 13 countries (mostly Caribbean island States), 2 overseas territories of the European Union (Member Organization), and 4 regional organizations. This workshop was a cornerstone of the action on “Strengthening national data collection and regional data sharing through the Fishery Inventory Resource Monitoring System (FIRMS) to support priority regional fishery management plans in the WECAFC area”, funded by EU DG MARE.

The workshop intended to be innovative, addressing the entire data-value-adding chain from national data collection, through data sharing and analysis at the regional level, up to the dissemination of assessment results to the broader public through FIRMS reports. The chosen approach placed the question of statistical data collection (the “what”) and regional data sharing (the “how”) in the context of the final use (the “why”). A primary anticipated product of the workshop and recommended follow-up activities was the development of a pilot regional database (RDB) to support management and stock assessment of WECAFC marine resources. The workshop reviewed the existing situation regarding current practices, issues and gaps in data collection, processing and dissemination at the national level.

Through prioritization sessions, recommendations were made for developing the RDB. The participants endorsed practical follow-up actions and road-map building steps (where possible supported by existing frameworks and collaborations), with proper identification of responsibilities, resources and time frames. As part of these, recommendations were formulated to consider terms of reference related to statistics, data and information technologies across existing WECAFC-CRFM-OSPESCA species working groups. The workshop also recognized the need for an ad hoc transversal working group.

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ABBREVIATIONS AND ACRONYMS

ACS	Association of Caribbean States
ASFIS	Aquatic Sciences and Fisheries Information System
CARIFORUM	Caribbean Forum of African, Caribbean and Pacific States
CARICOM	Caribbean Community and Common Market
CFP	Common Fisheries Policy (EU)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPUE	catch per unit of effort
CONFEPESCA	Confederation of Artisanal Fishers of Central America
CRFM	Caribbean Regional Fisheries Mechanism
CWP	Coordinated Working Party
DCF	Data Collection Framework (EU)
DG MARE	Directorate-General for Maritime Affairs and Fisheries
EEZ	exclusive economic zone
EAF	ecosystem approach to fisheries
EU	European Union (Member Organization)
FAD	fish aggregating device
FAO	Food and Agriculture Organization of the UN
FAO FIPS	Fisheries and Aquaculture Policy and Economics Division - Statistics and Information Branch
FAO SLC	FAO Subregional Office for the Caribbean
FIRMS	Fisheries and Resources Monitoring System
FisMIS	fisheries management information system (Bahamas)
FMP	fisheries management plan
ICCAT	International Commission for the Conservation of Atlantic Tunas
IT	information technologies
IUU	illegal, unreported and unregulated (fishing)
JRC	Joint Research Centre
MARPLESCA	Plan de Manejo Regional de la Pesquería de la Langosta Espinosa del Caribe
MCS	management, control and surveillance
MEY	maximum economic yield
MoU	memorandum of understanding
MSY	maximum sustainable yield
NMAP	National Managed Access Programme (Belize)
NOAA	National Oceanic and Atmospheric Administration (United States of America)
OECAP	Organization of Entrepreneurs of Aquaculture and Fishing
OECS	Organisation of Eastern Caribbean States
OLDEPESCA	Latin American Organization for Fisheries Development
OSPESCA	Organización del Sector Pesquero y Acuícola del Istmo Centroamericano
RDB	regional database
SICA	System of Central American Integration
SSF	small-scale fishery
TCP	technical cooperation programme
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNCLOS	United Nations Convention on the Law of the Sea
WECAFC	Western Central Atlantic Fishery Commission
WECAFC-LAC	Western Central Atlantic Fishery Commission – Lesser Antilles Committee

EXECUTIVE SUMMARY

A regional workshop was held in Barbados on 19–21 January 2016 and was attended by 13 countries (mostly Caribbean island States), 2 overseas territories of the European Union (Member Organization) (EU), and 4 regional organizations. This workshop was a cornerstone of the action on “Strengthening national data collection and regional data sharing through FIRMS to support priority regional fishery management plans in the WECAFC area”. The workshop was funded by the EU’s Directorate-General for Maritime Affairs and Fisheries (EU-DG MARE). This initiative started in May 2015 as a collaborative process among three regional organizations (Western Central Atlantic Fishery Commission [WECAFC], Caribbean Regional Fisheries Mechanism [CRFM] and Organización del Sector Pesquero y Acuícola del Istmo Centroamericano [OSPESCA]) and their member States towards supporting three priority fishery management plans (flying fish, queen conch, spiny lobster) with the data needed to assess stocks and implement adaptive management strategies.

The workshop intended to be innovative, addressing the entire data value adding chain from national data collection, through data sharing and analysis at the regional level, to the dissemination of assessment results to the broader public through reports from the Fisheries and Resources Monitoring System (FIRMS). The approach chosen placed the question of statistical data collection (the “what”) and regional data sharing (the “how”) in respect of the final use (the “why”). Anticipated outputs of the workshop included the strengthening of selected national statistical systems, the development of a pilot regional database (RDB) to support management and stock assessment of WECAFC marine resources, published FIRMS inventories, and terms of references for working groups to address transversal data issues.

The workshop reviewed the existing situation regarding current practices, issues and gaps in data collection, processing and dissemination at the national level. The workshop found that while catch data for the considered species were generally available but under-reported, effort and biological data were the most lacking. Moreover, systems were generally in place for the monitoring of industrial fisheries, but greater progress could be achieved with comprehensive vessels/fishers frame surveys (achievable through law enforcement) and reporting timeliness. For artisanal fisheries, some collection schemes were in place; however, most of these systems lacked completeness and integration. The workshop made the following recommendations for improving these systems: better enforcement of data collection through policies and legislation; use of new technologies such as electronic tablets; strengthened collaboration with national statistics offices (in particular to build capacity for improved application of statistical sampling methodologies and for proper linkages with socio-economic data available through nation and agriculture censuses); involvement of fishers in data collection; advocacy directed to fishers/stakeholders and government policy-makers on the benefits of the data collection; and development of centralized integrated fisheries information systems (successor to the Caribbean Fisheries Information System [CARIFIS] software).

Through prioritization sessions, recommendations were made for developing RDB to support stock assessment and fishery management plans. The priority for the minimum data that should be available in a regional database is harmonized catch/landings data with relevant time–space resolution and shared on timely basis, this in order to be able to support adaptive management with harvest controls rules and/or trigger points. The RDB should also include, for the three species, effort, time series of catch per unit of effort, and biological data. Fishing capacity (fleets and fishers frame data) at agreed aggregated levels should be available as raising factors and minimum socio-economic data. The importance of agreed definitions and harmonized concepts was emphasized, as was the need to apply international or regional standard classifications. In order to properly inform managers and policy-makers, as well as stakeholders and the general public, the RDB should, through the dissemination of FIRMS inventories on stocks and fisheries, include stock structure and composition, and scientifically based/quantified status and trends.

Required stock status indicators and reference points were identified both for adaptive management and traditional approaches based on maximum sustainable yield.

Practical follow-up actions, building on existing frameworks, collaboration with proper identification of responsibilities resources and time frames, were endorsed by the participants. As part of these, recommendations were formulated to consider terms of reference related to statistics, data and information technologies across existing WECAFC–CRFM–OSPESCA species working groups, and the workshop endorsed the need for an ad hoc transversal working group.

ITEM 1. OPENING

1. The data workshop of the Western Central Atlantic Fishery Commission Fisheries (WECAFC) and the Fisheries and Resources Monitoring System (FIRMS) was held at UN House in Christ Church, Barbados, from 19 to 21 January 2016.
2. Raymon Van Anrooy (WECAFC Secretary) opened the meeting and welcomed participants. Antonio Cervantes, from the Directorate-General for Maritime Affairs and Fisheries (DG MARE) representing the European Union (Member Organization) (EU) donor supporting the project, also welcomed the group and provided a brief overview of EU activities (Appendix 4). Marc Taconet, in both his roles as Chief of the Statistics and Information Branch at Fisheries and Aquaculture Department of FAO and as the FIRMS Secretary, also greeted participants. In his speech (Appendix 5), he highlighted the innovative aspects of the workshop in addressing the entire data value-adding chain from national data collection, through data sharing and analysis at the regional level, up to the dissemination of assessment results to the broader public.
3. The meeting was attended by 30 participants, with 17 participants representing 15 WECAFC member States, and 13 regional or international representatives from WECAFC, Caribbean Regional Fisheries Mechanism (CRFM), Organización del Sector Pesquero y Acuícola del Istmo Centroamericano (OSPESCA), EU, FAO and the Japan International Cooperation Agency (JICA). The list of participants is available in Appendix 3, and the workshop prospectus in Appendix 2.

ITEM 2. CHAIRPERSON AND RAPORTEURS

4. Participants were asked to introduce themselves, after which the meeting endorsed the selected chairperson for day one of the meeting, Manuel Perez (Coordinator, WECAFC Caribbean Billfish Project). Pieter van Baren (Caribbean Netherlands representative) was selected to chair the second day, and Sebastien Riviere (Dominica representative) was selected to chair the last day of the meeting.
5. Rapporteurs were chosen prior to the meeting and listed in the provisional agenda.

ITEM 3. ADOPTION OF THE AGENDA

6. Nancie Cummings (National Oceanic and Atmospheric Administration [NOAA]) provided the workshop participants with background information on the WECAFC–FIRMS data workshop and previous milestones that had led to the organization of the workshop, and anticipated products. The workshop terms of reference were described in detail, focusing on the need to share good practices:
 - Provide findings on current data collection and data sharing procedures in the region through the review of existing fishery management plans (FMPs) and through discussions and presentations by regional experts for three priority resource groups (conch, lobster, flying fish).
 - Propose a strategy for improving data collection systems in the region in support of WECAFC FMPs towards capacity to disseminate stocks and fisheries status reporting through FIRMS.
 - Propose a strategy for improving human capacity in data collection, and identify priority and achievable targets.
 - Propose a strategy for increasing data harmonization and sharing in the region towards the establishment of a scientific regional database (RDB) and dissemination in support of WECAFC FMPs.

- Discuss relevant terms of reference for expert working groups and/or propose activities for collaboration with existing groups in the region

7. The five expected products of the workshop were:

- Identification of needs, gaps and deficiencies in regional data collection, sharing and capacity.
- Consensus on minimum elements and best practices for data collection, data sharing, data harmonization, and requirements of information technologies (IT) for a regional database.
- Definitions of basis for an action plan and road map for building capacity and strengthening national data collection and working groups in support of fisheries management.
- Finalization and publishing of FIRMS inventories (with Spanish translations).
- Foundations for prototype of regional database and consensus.

8. After this introduction and quick discussion, which highlighted the need for Spanish translation once inventories are finalized, the agenda was adopted with no amendment as presented in Appendix 1.

ITEM 4.a. CRFM OVERVIEW OF THE SUBREGION

9. June Masters (CRFM) introduced the CRFM organization and its member countries and territories. These included: Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Turks and Caicos Islands. The combined land area of all CRFM members was estimated to be 433 549 km² and the area of their combined exclusive economic zones (EEZs) 2 046 948 km². The fishing fleets of the region were described as mostly artisanal with about 90 percent of vessels being less than 11.9 m in length. The main fisheries statistics of the region in terms of information on fish catch, socio-economic information and trade statistics were presented.

10. The meeting questioned how and when this type of data was presented to the fisheries managers of the region, and more generally how the data were being used to improve fisheries in the region. The presenter noted that the information was delivered to the Caribbean Fisheries Forum, which consists of the directors of fisheries of the CRFM region, and published on the CRFM website. Participants were also encouraged to provide information to the directors on how they would like to use the information to improve the fisheries of their respective countries.

ITEM 4.b. OSPESCA OVERVIEW OF THE SUBREGION

11. Reinaldo Morales (OSPESCA) gave an overview of OSPESCA, a specialized institution of the System of Central American Integration (SICA) whose objective is to promote a sustainable and coordinated development of fisheries and aquaculture. OSPESCA, as part of the framework process of SICA, contributes to define, approve and implement regional policies, strategies, programmes and projects of fisheries and aquaculture.

OSPESCA is integrated by the council of ministers responsible for fisheries and aquaculture activities, the executive committee (vice ministers) and the technical commission (directors of the sectorial authorities of SICA's eight member countries: Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama).

In order to have technical support for the decision-making process, working groups have been set up, coordinated by specialists in specific areas, such as the Group of Policies of Fisheries and Aquaculture, Group of Harmonization of Fisheries Regulations, Group of Fisheries, Group of Aquaculture, and Group of Climate Variability on Fisheries and Aquaculture. OSPESCA counts on consulting organizations such as the Confederation of Artisanal Fishers of Central America (CONFEPESCA), the Organization of Entrepreneurs of Aquaculture and Fishing (OECAP), and several agreements with universities of the region.

Since July 2015, there is a new “Policy of Integration of Fisheries and Aquaculture, 2015-2025” whose objectives are to: ensure the sustainable use of aquatic resources and aquaculture; strengthen coordination and harmonization inside SICA; and contribute to food security and improve the population’s quality of life. To these ends, nine strategic components have been formulated focusing on institutional strengthening, management, sustainability, climate change, security, trade and international relations.

In the policy framework, a governance model has been developed to enable the countries of the region to establish binding common regulations. To date, there are nine regional regulations.

The policy, in its management component, takes into account important actions related to statistical information, such as the formulation of a regional research plan, a regional database, the promotion of harmonized methodologies for a programme of statistical information, the use of modern technologies, and the implementation of homologated forms. Also covered are the fields of climate change and of information bases to support inter- and extra-regional trade.

In addition, these actions have been complemented with others related to fisheries prospections, regional surveys, gathering of information on small-scale fishing with the participation of fishers’ leaders and the use of harmonized forms to gather information at points of landings.

Furthermore, there are regional management plans such as the “Management Regional Plan for the Fishery of the Caribbean Spiny Lobster (*Panulirus argus*)”, which includes regulations and common actions such as the gathering of biological and fishing information through the same forms implemented in all the countries of the region for the monitoring and evaluation of this important fishery.

12. Participants were interested in the weather monitoring tools, which are useful for interpreting weather impacts on catch fluctuation versus overfishing by fishers, and help to provide evidence-based fact for policy-making. OSPESCA nations were encouraged to contribute to the OSPESCA Forum, and CRFM could benefit from this experience, in particular in the context of the memorandum of understanding (MoU).

As an example of harmonization process that could lead to the adoption of this weather monitoring tools, the OPESCA representative highlighted that all OSPESCA countries have implemented the harmonized methodologies for a programme of statistical information.

ITEM 4.c. FISHERIES MANAGEMENT PLANS

13. Nancie Cummings gave a presentation summarizing a review of the draft FMP and objectives for flying fish and information on current management objectives for lobster and conch. This is a very dense region with numerous EEZ boundaries, some of which remain under discussion. Information on the international, regional and national agreements currently in place in the region was presented. These agreements include the 1982 United Nations Convention on the Law of the Sea (UNCLOS), the 1995 FAO Code of Conduct for Responsible Fisheries, and the 2005 Rome Declaration on Illegal, Unreported and Unregulated (IUU) Fishing, recognizing the impacts of IUU fishing on small-scale fisheries (SSFs), and calling for improved national and regional monitoring, control and surveillance (MCS) of unauthorized and illegal fishing, and implementation of severe punitive measures.

Needs, gaps, deficiencies and constraints, and management and governance issues for each pilot group (flying fish, lobster, conch) concluded the presentation. Recurring and species specific data gaps, deficiencies, constraints and issues across the board were identified, as noted below.

Issues common to all species

- Catches considered under-reported and uncertain.
- Need for harmonization in data collection, data sharing, and licensing and vessel registries.
- Need for standardization of data collections regionally, including standards and references.

- Uncertainties in stock status.
- Lack of harmonized methodologies to monitor different types of data/information (biology, exploitation) – need for geospatial information.
- Governance issues.
- Importance of MCS for control of IUU fishing.
- Inadequate monitoring, surveillance and enforcement.
- Need for research prioritization of basic biological data (growth, mortality, maturation, fecundity, larval recruitment indices, environmental drivers).
- Need for collaborative management, data and information exchange.

Issues specific to flying fish

- Effort units not well documented.
- Optimum capacity (effort) not quantified.
- Uncertainty in catch trigger level used for monitoring.
- Biological information not routinely collected (need to track recruitment).

Issues specific to spiny lobster

- Need for national and regional FMP.
- Need for the RDB – uncertainty in biological parameters (growth rate – longevity) – many measures in place.
- Lack of regional standardized abundance indices (particularly juveniles).
- Uncertainty in mortality on juveniles / undersized lobster (e.g. as used for bait).
- Lack of information on effects of environmental drivers on recruitment including but not limited to red tide.

Issues specific to queen conch

- Need for standardized surveys to develop estimates of conch densities.
- Need to develop survey methods to survey deeper habitats.
- Need for enhancement of regional/subregional initiatives to increase political support and cooperation regionally.

14. A discussion revolved around the management rules established for flying fish on the trigger points. While a trigger point of 500 tonnes was established, the catches of flying fish seem to be low in Saint Lucia, and in 2007 Barbados landings reached about 400 tonnes (trigger point being almost reached by one country). It was questioned whether or not there was a method for distributing amounts of catches to member States so that the trigger point would not be breached. It was pointed out that the trigger point could change if the original trigger point was reached. It was also pointed out that when the upper limit was achieved, other activities might be triggered as well. However, it was recognized that there was no provision made for activities to be triggered when catches fell to some lower limit.

It was also pointed out that accumulation of *Sargassum* (brown seaweed) in the region seemed to be hindering catches. *Sargassum* is probably affecting fish production in two ways: (i) affecting the method of catching fish – as in the case of flying fish capture, where the fish are now attracted to the *Sargassum* and not the fish aggregating device (FAD) placed by the fisher; and (ii) visibility has decreased due to the accumulation of *Sargassum* and it has become difficult to locate fish. Participants queried whether or not research was being done in this area, and the presenter noted that, where possible, this type of research should be put forward to research institutions in the region.

ITEM 5. QUESTIONNAIRE RESULTS

15. Nancie Cummings presented a summary of responses from the pre-workshop questionnaire (Appendixes 6 and 7) submitted by workshop participants. Ten countries responded to the survey, which included 17 questions. Question items included in the survey included: area of expertise (data manager, data collector, fishery manager, data collection design, quality control, data entry); focus species (flying fish, lobster, conch); identification of primary gaps in data collection; reasons for lack of data entry; data computerization; data sharing; and issues affecting stakeholder's resistance to support data collection. Responses from the ten respondents identified key issues of concern on data needs, deficiencies and gaps in the WECAFC region.

Issues noted from the survey responses were:

- importance of governance and policy issues in data collection;
- importance of communication with fishers to explain the needs/goals and provide feedback on the statistical system to improve fishers' buy-in;
- importance of confidentiality issues / fear of data use to impose new taxes.

Further information is provided in the individual country presentations and the questionnaire responses.

ITEM 6. FIRMS INVENTORY

16. Aureliano Gentile (FAO) delivered a presentation introducing FIRMS and its reporting methodology. The presentation started with a brief introduction on the FIRMS partnerships ongoing since 2004 and composed of 14 intergovernmental partner organizations to date. Target audiences and potential benefits include: (i) regional fishery bodies (to increase visibility beyond their area of competence, to provide a dissemination capacity when no other dissemination mechanism exists, to foster information exchange in context where data sharing is not practised, to be functional to needs of FMPs, and to provide regional dashboard of indicators for the state of environment; (ii) national agencies of governments dealing with fisheries reporting; (iii) officers working on global analyses on state of fishery resources; (iv) international non-governmental organizations involved in marine seafood traceability and certification and promoting sustainable fisheries; and (v) general public accessing fishery data in more immediate and easy ways.

After 10 years of FIRMS development, inventories for 1 082 stocks and 322 fisheries have been published. On the status of WECAFC contributions to FIRMS, there are 269 marine resource records in the inventory, with 44 reports published as fact sheets, and 250 fishery records in the inventory. However, all such information is based on 2004 or earlier, hence the need for updates.

As per the fifteenth session of WECAFC (March 2014), endorsement about the current arrangements on responsibilities, it was recalled that WECAFC ensures overall coordination and holds overall publishing responsibility. WECAFC is responsible for the content of the marine resources inventory while countries are responsible for the content of the fisheries inventory. WECAFC has the corporate responsibility for the overall consistency of the fisheries inventory, overview of strategic and policy aspects.

The CRFM and OSPESCA fulfil an operational role to facilitate country contributions, hold ownership over subregional inventories, and contribute to mobilizing funding support.

Concerning governance, WECAFC nominated a FIRMS focal point for the WECAFC region and the CRFM and OSPESCA identified focal points for the subregions.

For maintenance, marine resource reports can be published based upon published WECAFC working group reports. Countries may update the content of their fishery inventory on a routine basis.

The importance of the harmonization process is key in the FIRMS marine resources and fisheries inventories methodology. Several outputs (products) are built out of this unique harmonized source (e.g. Excel file): fact sheets, maps, search interfaces, and publications.

Several examples were presented to illustrate the FIRMS process and multiplicity of output products.

17. Some participants were interested in technical details regarding the publishing of the fact sheets. The presenter explained that XML files are generated from the Excel input file with a Word/Excel-to-XML converter tool designed for FIRMS, and then uploaded to the FIRMS database for dissemination. Standards and classifications are also maintained and evolve depending on partners' requirements. Information disseminated through FIRMS can be re-utilized by regional and subregional bodies (WECAFC, CRFM, OSPESCA) and other national websites.

ITEM 7. INVENTORIES PRESENTATIONS AND PRELIMINARY PRIORITIZATIONS

18. Twelve countries provided presentations included in Appendix 8 to this report, according to a presentation template circulated among the participants during the pre-workshop activities, requesting the following information:

- profile of fisheries and marine resources for the country;
- brief overview for the focus fisheries;
- issues, challenges and lessons learned;
- type of data available for the focus fisheries: queen conch, flying fish, lobster, others;
- sources and quality of information;
- potential indicators in support of FMPs.

The presentations generated lively discussions on the above issues, and the main points are reported below.

19. Country presentations

20. Bahamas – by Edison Deleveaux

The presenter informed the workshop that while fisheries regulations in the Bahamas mandated that processing/exporting facilities provide reports indicating their purchases of marine products/resources to the Department of Marine Resources on a monthly basis, individual fishers were not required by law to submit information on their fishing activities. Statistical information is gleaned from the reports generated by the processing/exporting facilities and as a result of sample-based surveys (landing site surveys). He further explained that the draft Fisheries Act of The Bahamas would require commercial fishers to submit landing data, through logbooks for large vessels (mothership).

Mr Deleveaux indicated that FAO was assisting The Bahamas through a technical cooperation programme TCP to develop and implement a new fisheries management information system (FisMIS). The system will facilitate the use of telephone surveys as a source for obtaining statistical information/data. Currently, the data collection and storage system is intensive and is based on the usage of MS Excel and Access. Due diligence is utilized to prevent double counting through manual screening of landing site reports and monthly purchases reports.

Nassau grouper, a highly prized food fish, was said to be overfished throughout the region except in certain jurisdictions, the Bahamas being one. The Bahamas is trying to minimize overfishing of the species by: (i) prohibiting fishing for Nassau grouper during its aggregation period through enacting a closed season; and 2) prohibiting the commercial export of the resource.

With regard to conch, it was stated that a quota system was in place governing the export of the resource; however, there was no limitation (quota) for local consumption of conch.

Mr Deleveaux informed the workshop that the recent addition of new staffing in many of the Family Islands, with adequate training and resources, would assist his department's mandate of ensuring sustainable harvesting of the country's marine resources. It was his opinion that the new staffing, in conjunction with the new fisheries legislation, when enacted, and the use of the newly acquired FisMIS, boded well for the efforts of his department.

21. Dominica – by Sebastien Riviere

A question was raised as to whether or not the fisheries cooperatives in Dominica collected fisheries data. The presenter informed the group that in Dominica fisheries data were collected by the Fisheries Division and not by the fisheries cooperatives. Eleven data collectors collect data at strategic landing sites around the country, and census data were collected at the Marigot Fisheries Complex. However, he noted that it would be advantageous to engage the cooperatives as they constituted legal entities working closely with fishers. He also confirmed that FADs were generally anchored 5–40 miles offshore, and that the general method of fishing was with the use of lines. Stakeholders have expressed their fear of tax implications if they should become involved in and contribute to data collection activities. He noted that outreach targeting schools and young persons could be important in overcoming this issue. The Belize representative informed the group that Belize had faced a similar challenge and developed educational programmes and strong outreach activities as part of a co-management approach to tackle the issue. The main activities involved zoning of fishing areas, managing fisher access and assigning responsibilities to fishers. For example, fishers allowed to use a particular zone also had the responsibility of returning logbooks with data to the Fisheries Division. He noted that of the two methods used, (i) outreach/public awareness, and (ii) zoning and assigning responsibilities to fishers for reporting via logbook, the second method was more effective in bringing the fishers on board and on the same page with the Fisheries Division. He invited participant view a video about the initiative on the Web.

22. Grenada – by Cherene Bowen

The presenter informed the group that landing data and biological data were collected at the fish market sites by the fisheries market staff of the Fisheries Division.

23. Saint Lucia – by Patricia Hubert-Medar

A project request has been made to a donor agency that would assist with the purchasing of electronic devices (tablets) to allow for real-time data capture. Tablets will be given to data collectors. It is hoped that the quality of data entered through the tablets will be controlled through built-in mechanisms and for office staff to review.

It was noted that the Statistics Departments in Saint Lucia was already using tablets and that there might be opportunities to share best practices between that department and the Fisheries Department.

24. Jamaica – by Anginette Murray

In response to a statement made by the EU representative on the importance of denoting at what level assessments were done, the Jamaica representative clarified that, for Jamaica, it was clearly stated that the stock assessment unit (and associated stock status) was the national EEZ. The EU representative further commented that in general, in filling out the inventories, it was important to define at what level the assessment was done as this would help to determine management needs both nationally and regionally.

25. Saint Vincent and the Grenadines – by Cheryl Jardine

In response to a request to elaborate on high seas vessels of Saint Vincent and the Grenadines landing their catch in Trinidad and Tobago, the Saint Vincent and the Grenadines Representative clarified that the high seas vessels fished in the convention area of the International Commission for the Conservation of Atlantic Tunas (ICCAT) and landed the fish in Trinidad and Tobago before export to the United States of America. However, it was the responsibility of the flag States (Saint Vincent and the Grenadines) to collect the fisheries data from these vessels. She also clarified that fishing licences were required by law in Saint Vincent and the Grenadines, but that the law was not strongly enforced.

26. Saint Kitts and Nevis – by Nikita Browne

There were no questions following the presentation by the Saint Kitts and Nevis representative

27. Belize – by Ramon Carcamo

In response to a question on how fishers responded to the National Managed Access Programme (NMAP) initiative, the Belize representative informed the meeting that the fishers welcomed the new zoning plans instituted by the programme. He commented that communication and training (including at school level) was very important in supporting the implementation of the four-year NMAP at two sites. He noted that the programme had empowered the fishers. He also indicated that fisheries officers were empowered to make arrest where necessary. He noted that collaboration was a better tool for compliance and that the NMAP was assisting in moving towards management involving communities so that fines would become less necessary over time. However, inspectors were armed and had the power of arrest for situations where this was needed.

28. Trinidad and Tobago (Tobago) – by Ruth Redmond

The Trinidad and Tobago representative explained to the meeting that “Tobago” was one of two in a twin-island State of Trinidad and Tobago, with its own house of parliament (its own laws) but was still a part of the Trinidad and Tobago state (with superseding laws). She further explained that the fisheries of Tobago were managed by Tobago.

29. Turks and Caicos Islands – by Alexander McLeod

In response to a query on the availability of a conch stock assessment report, the Turks and Caicos Islands representative informed the group that a report was not available as yet. However, there was a plan to conduct a post Hurricane Ike assessment. He also informed the meeting that the quota for conch was 820 000 lbs (372 000 kg) but there were questions concerning local consumption– whether or not it was adequately addressed (i.e. included) in the quota.

30. Mexico -- by Miguel Ángel Huerta Bello

This presentation focused only on the Caribbean part of Mexico’s fisheries.

31. Summary of country presentations questions/answers

The comprehensive Country Presentations are available in Appendix 8.

Various management issues were discussed in the context of data collection, e.g. double counting, logbooks, sampling. The role of cooperatives was discussed and agreed as good resources for collecting data in addition to national fisheries department staff. Many presentations noted that fishers were

suspicious that collection of fisheries data could be used to monitor their income. It was pointed out that outreach and education, and fishers' buy-in was imperative.

Saint Lucia reported that it was conducting a pilot project to allow data collectors to use tablets to collect data using a built-in mechanism, with office staff checking all data. Many countries have regulations and plans in the works but not yet implemented, e.g. fishing licences, stock assessments.

ITEM 8. FISHERIES MANAGEMENT PLANS AND INVENTORY REVIEW

32. From a draft document based on the FMP and inventory summaries, group breakout discussions elaborated a list of data gaps, deficiencies and constraints at both the regional and national levels to support and enable data collection as follows:

- catches under-reported;
- IUU not well documented;
- effort data not collected routinely;
- biological information not collected routinely;
- prioritization of research regionally needed to enhance potential for ensuring sustainable stocks;
- harmonization of licensing and vessel registry needed;
- studies to develop improved standardized survey designs and protocols (conch, lobster adults and juveniles and recruitment for lobster);
- subregional management plans may be necessary to identify biological uncertainty across region (conch and lobster);
- studies to reduce biological uncertainty subregionally (maximum size, age, productivity, connectivity – conch and lobster);
- promote standardized data collection across region and development of regional database protocols for sharing;
- promote regional participatory and collaborative management harmonization activities;
- initiatives to engage more stakeholders in data collection and in management;
- ability to implement national and regional regulations for compliance and monitoring;
- documenting socio-economic contributions:
 - contribution to exports,
 - employment generation,
 - size of industrial and artisanal fleet,
 - market – products pricing and target markets.

33. Difficulty in prioritizing activities given the complexity of the region and the large number of overarching management goals was acknowledged by the group. It was recommended that the first step towards identifying priorities should be to categorize the above items as data gaps, deficiencies or constraints. The results of the prioritization can be found in section 57 as outcomes of item 18 activities.

ITEM 9.a. BEST PRACTICES FOR DATA COLLECTION: A GLOBAL VIEW

34. Yann Laurent (FAO) presented an overview of scientific data collection and some best practices that could be recommended for the region.

It was proposed that scientific data be divided in two groups, exploitation data and biological data (see presentation in item 10) to meet the objective of feeding analysis on stock assessment (stock status) and providing sufficient detailed information to define the acceptable level of fishing/harvesting. Socio-economic data were excluded from the presentation.

From this definition, data collection methods were presented at both the national and regional level, highlighting the importance of high quality data for data analysis across the years and across the region. The difference was noted between data collection in industrial fisheries and in SSFs, and options were presented

for where financial and human resources are scarce (sample-based surveys). For each of the data collection groups, links to documents on best practices or recommended methodologies were provided.

35. With regard to “onboard observers”, Barbados raised the issue of their capacity to remain independent. Raymon Van Anrooy shared the example of camera use to address lack of space available for observers on board vessels. With regard to an expressed need for a standard regional logbook format, the CRFM indicated that a “FAD fisher log book” had been developed for Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines, and that it could be easily adapted for other countries. Yann Laurent raised the issue of logbooks for small-scale (artisanal) fisheries and the difficulty of enforcing such reporting for a one-person fishing activity. It was noted that literacy issues were to be taken into consideration.

ITEM 9.b. BEST PRACTICES FOR DATA COLLECTION: THE EU FRAMEWORK

36. Antonio Cervantes (DG MARE) delivered a presentation describing the data collection framework of the EU. Decision-making to manage fisheries resources should be based on sound scientific advice. It is necessary that scientific analysis be carried out through multidisciplinary research that takes into account biological aspects and the interactions with the environment, fishing gear technology, characteristics of the fleets, socio-economic factors and aspects linked to the control of fisheries.

In the 1990s, the European Commission launched successive calls for studies to improve the methodology to collect basic data for a number of fisheries. This resulted in cooperative work among its member States and established the basis for harmonizing data collection activities at EU level in order to ensure consistency and to optimise their cost-effectiveness by creating a stable multiannual framework: the EU Data Collection Framework (DCF).

The national programmes, which are co-financed by the EU, are implemented under the direct responsibility of its member States according to commonly agreed standards. Under the DCF, the member States collect data concerning the fisheries sector (e.g. catch data, length composition of landings, biological and economic variables, and environmental indicators).

A further step to improve data accessibility is being currently implemented by promotion of RDBs. The ultimate objective is to move from a “data push” to a “data pull” system.

The DCF evolves in parallel with the EU Common Fisheries Policy (CFP) in order to respond to new challenges such as the improved application of the ecosystem approach to fisheries (EAF), the effects of the landing obligation and the reinforcement of the regional dimension. From a structural point of view, the DCF works to avoid duplications with other obligations under the CFP and to improve data quality and availability.

37. The DG MARE representative clarified that the data collected in the DCF included biological data, socio-economic data, and transversal or control data (capacity, effort, landings).

The CRFM representative asked about the time needed to set up the framework. The meeting was informed that the constraint on developing the system was not due to law or political issues, but rather that funding and goodwill were key to success. With these two elements combined, the framework was put together in five years. The DG MARE representative highlighted that, in the Caribbean, the importance of artisanal fisheries would make a similar process more complex. Yann Laurent indicated that tools, standards and conventions in EU were available (see Joint Research Centre (JRC) website (<https://ec.europa.eu/jrc/>), website, the Fisheries Language for Universal eXchange (FLUX) toolbox, and the standards of the United Nations Centre for Trade Facilitation and Electronic Business [UN/CEFACT]).

The DG MARE representative also indicated that, in the context of surveys at sea, much work had been done. In the Mediterranean, a single protocol has been adopted following the same methodology on acoustic and scientific sample surveying applied by the vast majority of countries, including North African countries.

The OSPESCA representative concurred with the DG MARE representative, highlighting that the OSPESCA region had had a similar experience, and that harmonization of methodology and data collection forms was a key issue, as data collection increased in quality with adequate forms with which to collect the data. The DG MARE representative added that DG MARE had dedicated groups on methodology, which conducted workshops focused on common stocks. He added that limited funds could impede these types of activities.

ITEM 10. DATA COLLECTION – MINIMUM REQUIREMENTS FOR THE CARIBBEAN REGION

38. Yann Laurent delivered a presentation on data collection minimum requirements for scientific data in the region.

Scientific data includes all data needed to provide scientific recommendations on fisheries management/exploitation to policy-makers. They including relevant statistics to enable stock assessment. Therefore, scientific data should include:

Exploitation data:

- capacity: the total fleet by type of fishing unit;
- effort: number of days/hours fished by fishing unit;
- landings: quantity of landed fish by fishing unit;
- abundance data (CPUE).

Biological data:

- length and age distribution: number of fish caught by size and age;
- biology data: stock structure and composition, growth rate, natural mortality rate, reproduction data, predation mortality rate;
- bycatch/discard: quantity of non-targeted fished and discarded fish (and its mortality).

Stock status indicators

- maximum sustainable yield (MSY);
- maximum economic yield (MEY).

Scientific data are defined using standard and harmonized concepts and definitions. These standard concepts use lists of standard classification: species (Aquatic Sciences and Fisheries Information System [ASFIS] classification), vessel type (from the Coordinated Working Party [CWP]), etc. The use of standard and harmonized classifications provides stability and quality to data to enable consistent comparison of consistent data across the years.

Harmonized/national data should note the international standards and norm. There is always a concern of what standards to adopt; international standards or national standards and classification. A general recommendation is to strive to adopt international standards, also at the national level where applicable. In practice, for a number of classifications, national offices often keep national standards as these answer country needs for data (focus on food security or export or tourism or others), but it is highly recommended to establish and maintain linkage (mapping) between these national standards and the international classification.

Regional standards should also be considered. Each set of standard is important as regional/international standards do not address all national concerns (example of vessel-type international classification with no specific category for SSFs / artisanal fleets as it is very complicated to define at international level what is artisanal or industrial).

The need for in-house expertise is highlighted as national data collection scheme should be reviewed on a regular basis. Collaboration with national statistics offices could address the lack of in-house statisticians in fisheries line offices to propose and validate methodologies and its updates.

Finally, the weight of evidence¹ approach was presented, a new method for stock assessment based on local expertise and knowledge.

39. The Jamaica representative enquired what the best approach was to reviewing the sampling methodology and systems. The ensuing discussion revealed that a sampling methodology and systems review could be undertaken every five to ten years if fishery independent surveys were being conducted regularly, or every two years if sudden or observed changes in the fishery or operations were noted.

The need to access statistical skills was discussed. Participants did not agree on whether statistician specialists or fisheries biologists with experience in statistical methodology would have the best profile for reviewing data collection schemes. The recommended approach was for fishery specialists to collaborate with the national statistics offices to benefit from their statistical expertise on developing censuses and surveys and for analysing data.

Indicators versus reference points were discussed on the initiative of Belize, and it was felt that broad reference points could be determined under a minimum data requirements approach.

Saint Lucia sought clarification on minimum biological data needed. Nancie Cummings explained that it depended on factors such as the type of stock assessment model to be used, and on how rigorous the results needed to be (more rigorous models require size and age characterization of the catch). Ultimately, the minimum biological data required depended on the species and the expressed goals of the perceived analysis of the collected data. It is therefore important to plan biological data collection according to clearly articulated needs (the goals of the perceived analysis).

ITEM 11. BEST PRACTICES TO ADDRESS DEFICIENCIES, GAPS AND CAPACITY NEEDS

40. The plenary discussion was facilitated by Nancie Cummings. For the RDB scientific data, the following classes were identified regarding needs for information to be included, rules to consider and norms, standards, and references to be implemented in the RDB:

What and why: scientific Data collection for regional database

- Why: informing management, quantifying status and trends through inventories, informing stock assessment through data collection.
- What: includes all data needed to provide scientific recommendations on fisheries management/exploitation to policy-makers.
- Use: includes relevant statistics to conduct stock assessments and provide information on status and trends.

Rules

- Need for standard and classifications:
 - local vs international;
 - best/good practices.
- Fisheries scientific data – agreed definition.

Kinds of data (exploitation, biological, indicators)

- Exploitation data:

¹ www.iotc.org/documents/weight-evidence-workshop-description-and-announcement

- source: catches, landings and effort at national level, from the national fisheries monitoring systems: logbook/e-logbook, sample based survey, frame survey, landing survey;
 - capacity: the total fleet by type of fishing unit and characteristics of (length, tonnage, horsepower);
 - effort: number of days/hours fished by fishing unit, number of hooks used, number of sets;
 - landings: quantity of landed fish by fishing unit by area and time unit (quarter, year);
 - abundance data (CPUE) by area and time unit (quarter, year);
 - size data of catch (individual lengths by type of fishing unit) by area and time unit (quarter, year).
- Biological data:
 - sources: observers on board, scientific fishery campaign, scientific research on fish biology, national/regional/international research institute;
 - length and age distribution: number of fish caught by size and age;
 - biology data: stock structure and composition, growth rate, maturation rate, natural mortality rate, predation mortality rate;
 - bycatch/discards: quantity of non targeted fished and discarded fish (and its mortality).
- Stock status indicators > reference points, for adaptive management and traditional MSY-based:
 - catch > catch trigger;
 - effort > effort trigger
 - CPUE > CPUE trigger;
 - mean size > mean size trigger;
 - MSY: maximum sustainable yield;
 - MEY: maximum economic yield;
 - BMSY: biomass level that produces the MSY;
 - FMSY: fishing mortality that produces the MSY.
- Importance of norms and standards (reference data):
 - harmonized concepts and definitions;
 - list of classifications for indicator dimensions, such as species, areas, fishing unit, gear/vessel type;
 - can have a national, regional or international scope;
 - use/application of reference data;
 - allows for consistent comparison across time and area and between countries.
- Examples of reference data:
 - species – name of species (i.e. ASFIS);
 - vessel type – name and description (i.e. International Standard Statistical Classification of Fishery Vessels);
 - vessel power and size;
 - gear type – name and description (i.e. International Standard Statistical Classification of Fishing Gear);
 - stocks – species name and geographical area (i.e. FIRMS naming convention);
 - fishing zones – high seas/EEZ, territorial sea, grid maps, e.g. 1 M × 1 M , 2.5 M × 2.5 (e.g. FAO Major fishing areas for statistical purposes, STATLANT subareas, ISO3 country code, large marine ecosystem, etc.).

The group highlighted the need for cost-efficient fisheries monitoring and the need to have access to the scarce fisheries statistician skills/resources to provide input on adaptive, repeatable and testable sampling with sound statistical foundation. A realistic and pragmatic sampling design should include spatial and temporal components and prioritization is required among all components (exploitation, biological, stock status indicators).

The group acknowledged the importance of economic data but agreed that focusing on exploitation and biological data would be the initial priority.

41. Initiated by Belize, a discussion was held on the need to adopt more pragmatic approaches to stock assessments, considering data-poor approaches to feed stock status such as application of the weight of evidence approach. This method examines multiple empirical status indicators (CPUE, mean size, trends in effort, distribution in space), incorporates information on the resource attributes (e.g. productivity, trophic status and fishery), integrates risk assessment (e.g. Productivity-Susceptibility Analysis [PSA]) and through a review of all the evidence reaches a conclusion regarding stock status. These priority indicators should be formulated by experts and discussed at regional species working group workshops and/or scientific meetings. The group recognized the interest of such approaches (including the newly developed DLMtool suite of data-limited methods) and the need for further discussion, in particular to establish the list of standards (e.g. reference data, methodology, forms), and the way to reach these standards.

ITEM 12. REGIONAL DATABASE PLATFORM – EXISTING FRAMEWORKS

42. Yann Laurent presented requirements for an RDB. These requirements are twofold: fisheries functional (what); and the technical (how).

Functional requirements depend exclusively on the RDB objectives. Here, support to FMPs seems to be the main target. Therefore, the RDB will aim at containing data and the minimum set of indicators as described above. The core of the RDB will contain data on catch, effort, abundance and length distribution to support monitoring.

Standards and classifications have to be managed in the system (master data management components), including definition of fisheries (as done in the preparation of the workshop with the FIRMS inventory). The system will centralize data from different sources, process them and offer different types of outputs (online dissemination tool, services to exchange data to other systems, etc.).

The technical requirements should cover the development of the system (which tools, proprietary solution vs open-source ones) and the hosting (local vs cloud). In this context, an open-source solution with cloud hosting is recommended by the expert if it complies with policies. Public e-infrastructure such as iMarine (offering the file sharing repository used to prepare this workshop; www.i-marine.eu) can be a cost-efficient solution addressing some policy issues.

To ensure use and sustainability in the long term, the RDB project should not neglect maintenance of the system.

43. A discussion was initiated by the Saint Lucia representative as to whether or not raw data in the form of “raw fisheries survey data” should or should not be housed in the regional database. Yann Laurent pointed out that, given confidentiality concerns with this type of data, ultimately it would be better not to have this type of data stored in the regional database. Antonio Cervantes enquired what the purpose of the RDB was and raised questions as to the target users of the RDB (who will access the database). He also asked that the meeting decide the purposes for the RDB; for example, would the RDB be used for scientific purposes and/or monitoring/management purposes? Antonio Cervantes explained that he believed that it was a good idea to include raw data in the regional database, as it may help to solve the problem of different sampling systems and foster a single regional approach. He pointed out that he did not see a danger in having raw data entered into the RDB (apart from confidentiality issues).

The Saint Vincent and the Grenadines representative pointed out that with the advent of a new regional database there was a strong possibility that the national database personnel would now need to enter data twice, perhaps using different formats, once into the national system, and a second time into the regional system. Yann Laurent acknowledged this concern and pointed out that IT solutions were available that could address the issue. He pointed out that these issues could be included in the discussion on how to build the RDB so that answers could be sourced for the different concerns and issues that might arise with the RDB. Marc Taconet and Raymon Van Anrooy added that possible solutions could be “cloud solutions”, or other web-based solutions, which should be investigated to come up with a workable solution.

ITEM 13. PROPOSALS FOR MINIMUM REQUIREMENTS AND BEST PRACTICES ON THE REGIONAL DATABASE PILOT

44. Yann Laurent presented a proposal (Appendix 9).

A discussion ensued on the following three points:

- Is a database needed?
- What are the minimum data to meet the objectives agreed under Item 11 (Best practices on data collection) for exploitation, biological and status indicator data?
- What will the functionalities be?

Following the group discussion (described below), there was consensus on the need for an RDB, which will take the form of a pilot through the iMarine e-infrastructure with the aim of achieving the minimum data requirements agreed under Item 11 (Best practices on data collection).

45. Participants discussed the opportunity to allow the database to address data sharing and reporting needs beyond the strict needs of the FMPs. The meeting was reminded that data were submitted from national entities, so harmonization exercises should be done once regardless of all the species in order to keep things standard in a cost-efficient way.

Participants were reminded that the RDB would start with reporting on the three pilot species (flying fish, lobster and conch) for which fisheries management plans were in place. One main example of the use of the database was for scientific and monitoring purposes in support of FMPs. The Excel-based FIRMS is a way to monitor the effectiveness of FMPs. In addition, the Excel inventories are tools to identify minimum data requirements and to define what the RDB should contain. Participants were concerned about adding an additional reporting requirement and extra work, but it was felt that, as part of the pilot, reporting issues could be investigated and addressed.

46. Additional issues raised by the group during these discussions were as follows:

- Regarding the frame survey for collecting socio-economic data; recognizing that funds are a critical factor and not easily available this may not be very easy to achieve. However, if funding can be secured, this could be done in a shorter time frame.
- Regional software could also serve the national interest. There is some funding available in FAO to begin its development.
- Training issues are distributed along the statistical processing chain (from data collection to statistics processing). However, the group recommended that some emphasis on the need for training should be included as a separate element. Already a key point from day 1, but should be added to the final prioritization matrix.
- Marc Taconet noted from the information he acquired on flying fish stocks structure, three stocks (East Caribbean, northern Brazil, the Caribbean Netherlands) while lobster and queen conch are

assessed at the national level. Hence, at the FIRMS reporting level there would be a unique resource to be reported for each country.

ITEM 14. WORKING GROUPS IN THE REGION

47. June Masters provided a summary of working groups in the region. There are nine regional and international organisations with responsibility for fisheries in the region. These are the Latin American Organization for Fisheries Development (OLDEPESCA), OSPESCA, the Organisation of Eastern Caribbean States (OECS), the Caribbean Forum of African, Caribbean and Pacific States (CARIFORUM), the Caribbean Community and Common Market (CARICOM), the CRFM, the Association of Caribbean States (ACS), ICCAT, WECAFC and the Western Central Atlantic Fishery Commission – Lesser Antilles Committee (WECAFC–LAC).

Organizations with working groups in the region that might be of interest to the current workshop were also identified and included: OSPESCA, CRFM, WECAFC and ICCAT.

The numbers and categories of working groups in the region that might be of interest to the workshop were:

- Pelagics (large and small) / recreational / sport: OSPESCA (2); CRFM (1), WECAFC (3) and ICCAT (8).
- Reef and slope / deep-slope fishery: OSPESCA (1); CRFM (1); WECAFC (2).
- Shrimp and groundfish species: OSPESCA (1); CRFM (1); WECAFC (1).
- Conch fishery: OSPESCA (1), CRFM – addressed by reef and slope working group; WECAFC (1).
- Data/statistics/methods: OSPESCA – a focal point and one working group; CRFM (1); ICCAT (2).
- Training/communications: OSPESCA – two focal points; CRFM (1).
- Aquaculture: OSPESCA (1); CRFM (1).
- Policy/harmonization: OSPESCA (2); CRFM – addressed at forum level.
- Monitoring/surveillance: OSPESCA, one focal point; WECAFC (1), ICCAT (2).
- FAD fisheries: WECAFC (1).

ITEM 15. DATA SETS AND ELEMENTS TO BE SHARED AT REGIONAL LEVEL

48. June Masters delivered a presentation recalling the objectives of the three regional management plans. The Sub-Regional Fisheries Management Plan (FMP) for Flying Fish in the Eastern Caribbean; the Caribbean Spiny Lobster Regional Fishery Management Plan, alias the “MARPLESCA” Plan; and the CFMC/WECAFC/OSPESCA/CRFM/CITES Regional Queen Conch Fisheries Management and Conservation Plan. Datasets and data elements to be collected at the national level according to accepted research and survey protocols and submitted/shared to a harmonized subregional database in support of each regional management plan were provided to the group, as available in Appendix 10.

49. The issue of training was raised by the Saint Lucia representative: “We are often told what is required but never how to get what we need.” Several answers pointed the participants to different online resources, including the FAO Fisheries Circular FIPS/C1091 “International training course in fisheries statistics and data collection”, printed copies of which were made available to the participants, and which is also available online at www.fao.org/3/a-i3639e.pdf. The minimum required duration of a statistics training course was discussed among participants but no clear conclusion was reached. The group acknowledged the importance of organizing practical training sessions on existing data and concrete cases.

ITEM 16. TERMS OF REFERENCE FOR THE WORKING GROUPS

50. Yann Laurent introduced the terms of reference of three proposed working groups (Appendix 11):
- WG1 – data collection, data sharing and harmonization within the region;
 - WG2 – data collection, data sharing and harmonization with other regional fisheries management organizations and international organizations;
 - WG3 – IT system.

51. These terms of reference should be seen as a catalogue of activities to be performed at the regional level rather than a strict need to create ad hoc working groups. Hence, to the extent possible these activities should be mapped to the existing working groups previously presented by the CRFM.

- WG1 aims to discuss the needs for data collection, sharing and harmonization at WECAFC level. Common indicators, common classification are to be agreed upon. Exchange mechanism and frequency, and the format for such exchanges, will be discussed in order to feed the need to create and monitor FMPs and conduct regional and subregional assessments.
- WG2 aims to address the issue of multireporting formats within the region, to identify and discuss multiple reportings requested of countries by regional organizations and to propose solutions to avoid duplication of efforts.
- WG3 is foreseen as an RDB steering committee with three distinct roles during three phases of RDB implementation: (i) define needs and requirements; (ii) monitor implementation until deployment and use by all stakeholders involved; and (iii) enable and monitor RDB maintenance once deployed.

52. It was decided that the terms of reference for working groups should be merged/incorporated with those of existing groups (species working groups, WECAFC/OSPESCA/CRFM agreements) in the short term. The group will follow up on these working group activities to assess the success of this merging proposal and might revisit this strategy on a medium term. To that end, the terms of reference will be redrafted according to such arrangement and circulated for final approval. Marc Taconet highlighted that data policy should also be considered in the redrafting.

ITEM 17 BREAK-OUT GROUPS – PRIORITIZATION EXERCISE

53. The participants convened into three break-out groups to further discuss prioritization regarding FMPs and inventory review, and best practices on data collection, sharing and harmonization. The discussions were summarized with additional points raised and synthesized. They focused on the prioritization needed regarding:

- minimum data needs for the RDB;
- best practices on data collection and methods;
- consensus on RDB requirements;
- consensus on datasets to share in the region and in the database;
- consensus on working groups.

54. Yann Laurent facilitated the finalization of the outcomes of the break-out groups. The final prioritizations for minimum data requirements, best practices and data sharing are presented in Table 1.

Table 1
Workshop final consensus summary

Category	Instrumental to FMPs	Easily achievable	Levels of intervention	Data handling vs enabling framework
Dissemination system to promote sharing (and return to those who supply data) among stakeholders as well as to the general public	3	3	National Regional	Enabling framework
Catch – available but inaccurate with uncertainties, need to be shared harmonized with time and space, and timely for supporting HCRs adaptive management	3	3	Regional – data sharing	Data
Frame information – vessels, fishers, etc. for more accurate raising factors	3	2	National	Data
Effort, CPUE, length frequency of catch – better coverage, through cost-efficient and sustained sampling schemes (need to align with list of indicators priorities)	3	2	National	Data
Standard integrated fisheries information system at national level (e.g. CARIFIS-like national database)	3	2	National	Data
Sensitize fishers to needs for data collection	3	2	National	Enabling framework
Sensitize policy-makers to needs for data collection, including with providing US\$ / jobs value to fisheries	3	2	National	Enabling framework
Transversal capacity development across the above topics	3	2	National Regional	Enabling framework
Biological information – gaps in data	3	2	National Regional	data
Biological information – sharing existing knowledge	3	2	Regional	Data
Regional software framework for national-level information system	3	2	Regional	Data
Adapt policies, legislation for enforcing registration of vessels and fishers and	3	1	National	Enabling framework

Category	Instrumental to FMPs	Easily achievable	Levels of intervention	Data handling vs enabling framework
strengthening reporting compliance and monitoring				
Frame information – agriculture census and surveys including fishery module, for essential socio-economic data (agriculture census to be changed to household survey)	2	2	National	Enabling framework
Frame information – fisheries frame survey for comprehensive socio-economic data	2	1	National	Data

Notes: Scores reflect the key used to score each item:

1) Instrumental to FMP objectives (0 = nil, 1 = low, 2 = medium, 3 = high).

2) Easily achievable (0 = nil, 1 = low, 2 = medium, 3 = high) (3 would match concept of “low-hanging fruit”).

ITEM 18 CONSENSUS SUMMARY

55. Nancie Cummings provided an overall summary of the workshop sessions across the five primary components addressed:

- minimum data needs for the RDB;
- best practices on data collection and methods;
- consensus on RDB requirements;
- consensus on datasets to share in the region and in the database;
- consensus on working groups.

56. The participants endorsed the primary considerations and recommendations presented in the following summary.

Part 1. Consensus summary from Item 11 on best practices to address deficiencies, gaps and capacity needs (summarizing inputs from Items 4c, 5, 7 and 8)

57. Key items to be included in the RDB relating to exploitation data, biological data and to management processes were identified:

- Exploitation data (capacity, catches, effort, landings, abundance [CPUE]) by national fisheries monitoring systems through logbook/e-logbook, sample based survey.
- Biological data (observers on board, scientific fishery campaign, scientific research on fish biology).

58. These items (data and/or processes), which address current data gaps, deficiencies and needs to meet the management objectives, are listed according to priority level from top to bottom in Table 1.

Part 2. Consensus summary derived from break-out group discussions on best practices for data collection (inputs from Item 9)

59. The group recommended prioritizing data collection activities in two different categories: exploitation data, and biological data. Indicators for each category were identified and organized by priority level as follows for the three pilots: H = high, M = medium, and L = low.

Exploitation data (capacity, catches, effort, landings, abundance [CPUE]) by national fisheries monitoring systems through logbook/e-logbook, sample based survey:

Sources: catches, landings, effort at national level:

- capacity: the total fleet by type of fishing unit [H];
- effort: number of days / hours fished by fishing unit [H];
- landings: quantity of landed fish by fishing unit by area by time [H];
- abundance data (CPUE) by area by time [H];

Participants further agreed on the following best practices regarding units for effort, fishing unit, time and area.

Effort unit: day and hour fished.

Fishing unit: each relevant FMP should recommend the list of fishing units.

Time: quarter and year.

Area: need for higher resolution at national level.

Biological data (observers on board, scientific fishery campaign, scientific research on fish biology):

Sources: observers on board, scientific fishery campaign, scientific research on fish biology, national/regional/international

- fishery/stock assessment units: inventory and boundaries of assessment units as agreed under FMPs, and assessment results [H];
- length and age distribution: number of fish caught by size and age [M to H] (length is more feasible);
- biology data: stock structure and composition, growth rate, maturation rate, natural mortality rate, predation mortality rate, length–weight relationship [L];
- bycatch/discard: quantity of non-targeted fish and discarded fish (and its mortality) [L] (all caught is utilized).

60. The above prioritization exercise is a summary result across the three species. For more specific prioritization at species level, the rule should be to refer to the respective endorsed FMPs.

Part 3: Consensus summary regarding proposals for minimum requirements and best practices on the three regional database pilots (inputs from Item 13)

61. Overall objectives of the RDB agreed by the workshop were:

- To support the management and the monitoring of regional management plans for fishery resources of high importance in the WECAFC region.
- The RDB functions to collect and/or collate data from different national and possibly regional sources, and to harmonize this information for aggregation and comparison for fisheries monitoring and policy-making support.

62. The group identified two sets of indicators to be included in the RDB:
- exploitation category (capacity, catches, effort, landings, abundance [CPUE]);
 - biological category (length and age distribution, biological data to characterize processes, and bycatch/discard inputs).

Part 4: Consensus summary regarding the identification of data sets and elements to be shared at regional level (inputs from Item 15)

63. It was noted that most items identified to support FMPs in the CRFM region were in close agreement with the findings identified in the review of the FMPs (agenda Item 4c) and in close alignment with key data issues identified in the participants' presentations. Issues in multireporting requested from countries were raised by the group. The group also noted that data should be collected at the national level according to accepted research and survey protocols, and where necessary submitted/shared to a harmonized subregional database in support of each regional management plan in defined harmonized formats.

64. The following datasets and/or elements were recommended for consideration across all species:
- catch/landings and fishing effort;
 - abundance – stock size, CPUE;
 - biological data – species composition of catches, numbers in catch, individual size, length, weight, age (for growth studies).

65. Specific datasets per species for each of the three pilots were also recommended, and synthesized as per Table 2.

Table 2
Datasets per species for each of the three pilots

FMP Data	Flying fish in the Eastern Caribbean	Caribbean spiny lobster, alias “MARPLESCA”	Queen conch
Catch and fishing effort	X (national data collection systems to be expanded to systematically include flying fish caught for bait)	X (catch and effort data derived from the industrial and artisanal fishing fleets. Industrial monthly data by commercial lobster categories derived from the processing plants. Monthly or annual catch on the number of individuals caught by group sizes)	X
Abundance	X (stock size)		X (density per hectare)
Socio-economic data	X (Employment level, income level, return on investment, credit access, % of population that consume flying fish)	X (gathering, handling and interpretation of socio-economic information)	X
Biological data	X (Species composition of catches, numbers in catch, individual size, length, weight)	X (including growth parameters: M, K, L_{∞} t0; Morphometric relationships in length–weight to obtain the equation and conversion factors)	X
Habitats maps			X
Fleet and fisher registration/	X (national vessel registration and licensing systems require)	X (national vessel registration and licensing systems require harmonization and improvement)	X (for artisanal and industrial fisheries)

FMP Data	Flying fish in the Eastern Caribbean	Caribbean spiny lobster, alias “MARPLESCA”	Queen conch
licensing systems	harmonization and improvement; number of vessels, fishers and licences/permits)	Fleet size and characteristics, gears and equipment used by fishers and licences/permits, number and categories of fishers)	
Ecosystem health	X (Water quality parameters – perhaps from another agency; data on marine debris/ pollution occurrence)		
Gear types and use protocols			X
Enforcement			X
Access to markets and trading	X (price, value or market price of flying fish)	X	X (MARPLESCA plan considers establishment of information sets, access to markets and trading actions so that only products extracted following the established national and regional laws can be sold)
Satellite tracking system/ vessel monitoring system		X	X (sharing of the satellite tracking system installed at the national fisheries offices will be encouraged so that the fisheries offices, naval forces and maritime authorities can share information in a timely manner)

Part 5: Consensus summary on data / IT systems working groups (inputs from Item 16)

66. The recommendation to merge the terms of reference of working groups with existing regional working groups was endorsed by the workshop. Part of the presented terms of reference should be considered under species-specific WECAFC working groups (such as items on data collection) and under WECAFC/OSPESCA/CRFM agreements including the need for ad hoc transversal working group (such as items on regional indicators sharing and exchange, including policies and all IT-related activities).

ITEM 19. RECOMMENDATIONS

67. The discussions continued with the formulation of the next steps for moving forwards with implementation of the RDB with the underlying best practices recommended by the country representatives (as summarized in Item 18 above) and with a focus on assigning leadership, as presented in Table 3.

Table 3

Detailed follow-up actions for RDB implementation, with underlying best practices

	Time frame (short, medium, long)	Resource (available Yes+ name it; No+ explain/recommend)	Lead	Who involved/ willing (name of individual or department)
Inventories				
Finalize inventories of fisheries relevant to management plan	short (end of May 2016)	Yes – WECAFC–FIRMS FAO project	FIRMS Secretariat	Countries
Finalize inventories of stocks relevant to management plan	short (end of May 2016)	Yes – WECAFC–FIRMS FAO project	FIRMS Secretariat	Countries
Update marine resource fact sheets based on WECAFC reports (regional level)	medium	Yes – WECAFC–FIRMS FAO project + WECAFC– FIRMS arrangement	FIRMS Secretariat	WECAFC– FIRMS focal point + OSPESCA + CRFM
National capacity building in data collection				
<ul style="list-style-type: none"> • Training session in statistics (i.e. in existing training centres) 	medium	No – Recommend (link to country programmes framework, and country components of the climate change project)	J. Masters, M. Taconet, R. Van Anrooy CRFM to make formal request	WECAFC countries (Jamaica, Saint Lucia, Bahamas, Barbados, Tobago, Saint Vincent and the Grenadines, Saint Kitts and Nevis)
<ul style="list-style-type: none"> • Formulate national projects for strengthening data collection systems and data sharing; including [ArtFish+tablets+SmartForms] implementation of Bahamas-like FisMIS 	short	Yes – WECAFC–FIRMS to assist country project concept notes	M. Taconet, R. Van Anrooy	Saint Lucia has a draft for tablets; Jamaica has a draft on data information system; Belize; Barbados; Grenada; Saint Vincent and the Grenadines; Saint Kitts and Nevis
<ul style="list-style-type: none"> • Enabling policy legislative framework 	medium – long term	No – Recommend for uptake by projects	CRFM OSPESCA	CRFM Forum – national

	Time frame (short, medium, long)	Resource (available Yes+ name it; No+ explain/recommend)	Lead	Who involved/ willing (name of individual or department)
		including policy components		fisheries divisions
<ul style="list-style-type: none"> Implement selected projects 		No (CLME+? Other projects?) – Recommend		
<ul style="list-style-type: none"> Raising awareness among stakeholders, sharing existing guidelines and materials 	short short	Yes – Belize communication kit Yes – FIRMS	R. Carcamo FIRMS Secretariat	
<ul style="list-style-type: none"> Raising awareness through new projects 	short	No – Recommend to actively search for donors (i.e. Network of Wider Caribbean Marine Protected Areas Managers [CAMPAM] www.gcfi.org , NGOs, e.g. The Nature Conservancy)	CRFM, OSPESCA	Fisheries divisions
Regional software framework for national deployment				
<ul style="list-style-type: none"> In support to port State measures (vessel registries, licensing, logbook, etc.) 	medium	Yes – FAO JPN/228 project	Y. Laurent	Trinidad and Tobago
<ul style="list-style-type: none"> In support to overall statistical systems including SSF data collection 	long	No – ArtFish only; recommend project to extend	to FAO	
RDB pilot (iMarine virtual research environments)				
Enabling transversal components	short – medium	Yes – WECAFC–FIRMS + BlueBRIDGE	Y. Laurent	
<ul style="list-style-type: none"> Data on catch, capacity, landings, abundance, etc. 	short	Yes – WECAFC–FIRMS + CRFM+OSPESCA?	Y. Laurent	Data managers of the country; species working groups leads
<ul style="list-style-type: none"> Data on length frequency of the catch, biological processes, growth maturations, weight–lengths, bycatch, etc. (e.g. populated with FishBase, SealifeBase, country scientific experiments, port sampling) 	medium	Yes – WECAFC–FIRMS	N. Cummings	Species working groups leads; data managers of the country

	Time frame (short, medium, long)	Resource (available Yes+ name it; No+ explain/recommend)	Lead	Who involved/ willing (name of individual or department)
o Marine protected areas + seafloor + habitats	medium	Yes – CLME+ BlueBRIDGE	FAO coordinates	
o Capacity building for use		Yes – CLME+ BlueBRIDGE	Y. Laurent	
Lobster	medium		Coordinator W G OSPESCA	Species working groups leads; data managers of the country
• Lobster exploitation				
• Lobster biological				
Flying fish			Coordinator WG CRFM	
• Flying fish exploitation				
• Flying fish biological				
Queen conch			Coordinator WG WECAFC	
• Conch exploitation				
• Conch biological				
Assignment of terms of reference (ToRs) to existing working groups				
• Re-drafting ToRs presented	short	WECAFC–FIRMS project	Y. Laurent, and regional input (CRFM, OSPESCA, etc. focal/subfocal points?)	
• Review of standard logbook format – propose regional format	short	WECAFC–FIRMS project	J. Masters, A. Murray	
• Other data collection formats (e.g. abundance surveys, biological process, habitat studies, maps)	short–medium	WECAFC–FIRMS project	A. Murray, J. Masters	
Background papers summarizing the progress made along the project to be submitted by 1 May to WECAFC 16	short	WECAFC–FIRMS project	N. Cummings	

68. Following suggestion by OSPESCA, the group agreed to expand the coverage of the envisaged activities to all WECAFC countries. Other existing projects will be approached for such expansion.

ITEM 20 CLOSING OF THE WORKSHOP

69. The chairperson, Sebastien Riviere, thanked the participants for their active contribution to the workshop, and concluded that the workshop had achieved its objectives. He indicated that the workshop outputs would be finalized over the following months with an effort to formulate project concept notes, to strengthen selected national fisheries data collection and information systems, to harmonize logbooks and related data and information collection in the region, to pilot development of an RDB, to publish fisheries inventories relevant to the lobster, queen conch and flying fish FMP, and to enable the FIRMS website with the Spanish language in order to disseminate important fish stock inventories and fisheries information in Spanish. Extension of this activity to the OSPESCA subregion will also be considered. Further progress will be reported to the sixteenth session of WECAFC.

70. The meeting was closed, and a draft of the report was agreed to be circulated within the following few weeks. The participants expressed their thanks to the workshop chairs, the meeting host, the WECAFC and FIRMS Secretariats, and the task force team.

Appendix 1

Meeting agenda

Agenda item	Lead
1. Opening and Welcome	<i>R. Van Anrooy, A. Cervantes, M. Taconet</i>
2. Participants introduction	<i>Participants</i>
3. Introduction to the workshop – TORs and expected products – adoption of the agenda	<i>N. Cummings</i>
4. Regional overviews 4.a. CRFM overview of the sub-region 4.b. OSPESCA overview of the sub-region 4.c. Synthesis on the review of the Fisheries Management Plans (FMPs)	<i>4.a: J. Masters 4.b: R. Morales 4.c: N. Cummings, N. Chin.</i>
5. Presentation of Pre-Workshop Questionnaire Results on data gaps and deficiencies in the region	<i>J. Masters and N. Cummings.</i>
6. FIRMS inventory - Introduction	<i>M. Taconet and A. Gentile.</i>
7. Inventories presentations by participants and preliminary prioritizations on data, gaps and capacity needs	<i>[Facilitated by N. Chin, N. Cummings]</i>
8. Group Plenary discussion of FMP and inventory review	<i>[Facilitated by N. Chin, Aureliano]</i>
9. Overview on best practices for data collection 9.a. A global view 9.b. The EU Data Collection Framework	<i>11.a: Y. Laurent 11.b: A. Cervantes</i>
10. Data collection - minimum data requirement for the Caribbean region for stocks and fishery status and trend	<i>Y. Laurent, N. Cummings, J. Masters</i>
11. Group Plenary discussion on best practices to address the identified deficiencies, gaps and capacity needs in national contexts	<i>[Facilitated by N. Cummings]</i>
12. Requirements for a Regional Database platform for data sharing and dissemination for the region. Introduction to existing frameworks.	<i>Y. Laurent</i>
13. Draft proposals for minimum requirements and best practices on the three regional database pilots	<i>[Facilitated by Y. Laurent]</i>
14. Present available Working groups in the region	<i>J. Masters</i>
15. Identify data sets and data elements to be shared at regional level by the countries	<i>J. Masters</i>
16. Discussion - TORs for the three envisaged data / IT systems working groups	<i>[Facilitated by Y. Laurent]</i>
17. Break-out groups – Prioritization exercise	<i>[Facilitated by Y. Laurent]</i>
18. Consensus on inventory, gaps and deficiencies, minimal data needs, best practices, data sharing and harmonization	<i>[Facilitated by N. Cummings]</i>
19. Recommendations on way forward	<i>[Facilitated by N. Chin]</i>
20. Closing of the workshop	<i>Marc Taconet</i>

The annotated agenda is available here:

ftp://ftp.fao.org/FI/DOCUMENT/wecafc/Wecaf_Firms16/1e.pdf

Appendix 2
Workshop prospectus

ftp.fao.org/FI/DOCUMENT/wecafc/Wecaf_Firms16/2e.pdf

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Appendix 4

Antonio Cervantes (EU) opening remarks

Dear colleagues,

The EU, as a key driving force in the context of the different international fisheries fora, bases its positions on the best available scientific advice so as to ensure that fishery resources are managed in a sustainable way, fully in respect of the General Principles of UNFSA and other international fisheries legal instruments.

Better science as a basis for sound fisheries management decisions is therefore a fundamental priority for the EU and one of the key priorities enshrined in the EU legislation on the Common Fisheries Policy. To this end the EU is firmly committed to actively support and contribute to the development of scientific advice through a series of initiatives, including, among other things, capacity development actions, data collection, tagging programmes and awareness programmes or scientific workshops.

In this context WECAFC is not an exception for us. In recent years it has been recurrently stressed the need to improve data collection and reduce the data collection deficiencies as well as to create a balance throughout the geographical regions included in the WECAFC area of competence. In addition, improved statistics and reporting is a cornerstone in the ongoing reflection of the strategic re-orientation of WECAFC. Without the necessary information, we won't be able to take proper and effective management measures.

We know that better science comes at a cost. For that reason, the idea of holding a dedicated Workshop to improve the data collection and statistics for WECAFC members has immediately drawn the EU attention. In line with our international commitments, we have provided considerable financial support to contribute to its organisation.

The diversity of fisheries and actors, the complexity of the ecosystem and the vast extension of the WECAFC area of competence, together with the social and economic implications of the fishing activities make our current and future task particularly challenging.

We strongly believe that this Workshop will be the right starting point for the establishment of a sound and harmonised cost-effective system for the collection of data in the region, in order to improve the monitoring of the status of the fish stocks and of fishing activities in WECAFC.

We look forward to promising outcomes from this experience and we wish you a fruitful work during the coming days.

Thank you

Appendix 5

Marc Taconet's opening speech

Let me first present myself, I am Marc Taconet, Chief of the Statistics and Information Branch at Fisheries and Aquaculture Department of FAO, based in Rome. I am very happy to be among you this morning and very honored to contribute to this welcome address.

I will first speak in my capacity of Chief Statistics and Information.

There I am responsible for the global fishery statistics program which provides the factual foundations for informing policy and decision making in fisheries. It is a key component of the implementation of the FAO Code of Conduct for Responsible Fisheries, which States adopted some 20 years ago and which, together with other complementary international instruments, provides the scientific and humanitarian principles that constitute the cornerstone for our world's fisheries management.

These FAO Fishery Statistics are compiled out of the data reported by Member Countries. Its quality is as good as / or as imperfect as what Countries report. We are well aware of mis-reporting situations by countries, generally under-reporting, but sometimes also over-reporting and we have mechanisms to address major inconsistencies. In any case, Countries are ultimately responsible for their reporting.

The main driver for FAO Global statistics is about encouraging Countries in collecting and compiling quality fishery statistics, because they need these to support sound policy making and fisheries management at national and regional levels. Where there is national commitment for responsible fisheries, and where assistance is requested, FAO also assists its Member Countries to build capacity in improving their data collection systems, policies, legislation and surveillance systems.

In this capacity building process, RFBs such as WECAFC, CRFM, and OSPESCA have a key role to play in working closely with Member Countries to ensure that the data needed are available for informed decision making, in support to the regional objectives set by their Members.

At FAO HQs, our specific capacity is to forge and make available global norms, methods, tools and frameworks, making sure that these can be tailored to support regional or national needs: you will hear about these during the workshop [this publication is an example of guidelines].

Around the table, we have also colleagues who represent the donors. The WECAFC-FIRMS project is supported by EU DG-MARE. NOAA also contributed by releasing expert time in the person of Nancy Cummings. We are hopeful that similar workshops will be organized under other related projects funded by GEF. And we were happy to see JICA's interest in attending. Indeed the role of donors as enablers is critical, and I wish to warmly thank for their support.

Yes concerted collaboration of all actors is key.

And here I come with my hat of Secretary of the FIRMS Partnership. FIRMS is all about developing collaborations and partnerships for improving information sharing, with the ultimate goal to facilitate the access to up to date reports on the state of fishery resources, and status of fisheries. FIRMS builds on a network of colleagues working as Partners. It is primarily with this collaboration spirit that we are here. When FIRMS Membership was approved by WECAFC, it was with the understanding to utilize the FIRMS foundations in ways that support the achievement of the regional objectives, and WECAFC decided to focus on priority Fishery Management Plans.

Towards this objective, this WECAFC-FIRMS Data workshop intends to be innovative: it addresses 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. We want to be results based and place the question of statistical data collection (the WHAT) in respect of its targeted use (the WHY). This is ambitious – but we believe that thanks to good coordination and collaboration, we can actually deliver by bringing the best ingredients together. Thanks to the regional Strategic Action Plan (SAP) which provides an overall umbrella and organizes concerted actions at all levels, many synergies are already in place. On the statistics and information component, we have in the region projects which support improvement of national fisheries statistical systems, we have this and few other projects at regional level, and we have also few global projects which can intervene on a co-funding basis.

I can testify that this workshop has been prepared with a lot of professionalism but also enthusiasm by the team of colleagues here present, who will facilitate the discussions. In the task force were represented the different thematic skills and institutions [FAO HQs, FAO regional office, WECAFC, CRFM, OSPESCA, FIRMS]. I trust that you, national representatives, decided to come here with the same enthusiasm, and I cannot understate that your active participation and support will be the major ingredient to success.

While I trust that we can count on you, let me express my confidence that the promising collaboration landscape which I depicted should lead to impact in the region, eventually demonstrating that commitments to responsible management will lead to sustained fishery resources and wealthier livelihoods.

I hope that you will enjoy this workshop and look forward to fruitful results

Appendix 6

Pre-workshop questionnaire provided to each of the workshop participants

ftp://ftp.fao.org/FI/DOCUMENT/wecafc/Wecaf_Firms16/Questionnaire_20e.pdf

Appendix 7
Summary of the participants responses to the pre-workshop questionnaire

ftp://ftp.fao.org/FI/DOCUMENT/wecafc/Wecaf_Firms16/14e.pdf

Appendix 8
Country presentations

ftp://ftp.fao.org/FI/DOCUMENT/wecafc/Wecaf_Firms16/Default.html
(all files under Agenda item 7)

Appendix 9
WECAFC–FIRMS – regional database requirements

ftp://ftp.fao.org/FI/DOCUMENT/wecafc/Wecaf_Firms16/19e.pdf

Appendix 10

List of datasets and data elements to be shared at regional level

a) Summary of Data sets and data elements to be shared by country in support of the Sub-Regional FMP for Flyingfish in the Eastern Caribbean.

Data should be collected at national level according to accepted research and survey protocols and submitted to a harmonized sub-regional database.

Data sets or elements to be considered:

- Catch and fishing effort
- Abundance
- Biological data
- Socio economic data
- Data from fleet and fisher registration/licensing systems
- Data on ecosystem health
- Data on marine debris/pollution occurrence

b) Summary of Data sets and data elements to be shared by country in support of the “MARPLESCA” FMP.

Data collected at national level according to accepted research and survey protocols and submitted to a harmonized sub-regional database.

- Socio economic data
- Data from fleet and fisher licensing systems
- Catch and fishing effort data
- Biological data including growth parameters
- access to markets and trading
- Sharing of information of the satellite tracking system

c) Summary of Data sets and data elements to be shared by country in support of CFMC/WECAFC/OSPESCA/CRFM/CITES Regional Queen Conch Fisheries Management and Conservation Plan.

Data collected according to accepted research and survey protocols and where necessary submitted in defined harmonized formats

- Catch and fishing effort
- Socio Economic Data
- Abundance
- Habitat Maps
- Biological data
- Data from fleet and fisher licensing systems for artisanal and industrial fisheries
- Information on gears and protocol for use
- Data on enforcement
- Integrated VMS system and data exchange

Appendix 11
Working groups terms of reference

Appendix 11.1: Working Group ToRs for Data collection, data sharing and harmonization

ftp://ftp.fao.org/FI/DOCUMENT/weca/c/Wecaf_Firms16/16e.pdf

Appendix 11.2: Working Group ToRs for enhancing data sharing/harmonization across regional and international fishery bodies

ftp://ftp.fao.org/FI/DOCUMENT/weca/c/Wecaf_Firms16/17e.pdf

Appendix 11.3: Working Group ToRs for IT system

ftp://ftp.fao.org/FI/DOCUMENT/weca/c/Wecaf_Firms16/18e.pdf

Appendix 12

Presentation of Bahamas FisMIS (side event)

Following interest expressed during previous discussions on logbooks, a side event (originally not part of the agenda) was set up and Mr. Yann Laurent delivered a live demo of the FisMIS application developed under output 2 of the TCP/BHA/3501 project, “An established and functioning Fisheries Management Information System (FMIS) for The Bahamas”, (now renamed FisMIS).

Questions/Answers

The presentation triggered a discussion on the possibility to create a common regional logbook format. A comparison between CRFM FAD logbook and the Bahamas logbook acknowledged that the differences were important as the CRFM FAD logbook was formulated to target data collection from the FAD fishery. It was agreed that CRFM would circulate to the participants the original generic logbook from which the FAD version was derived, for review by the group. Additional discussion on data collection best practices occurred:

- Peter Van Baren recalled some of the issues highlighted by participants as hindrances to data collection. These were: leakages (under-reporting), registration and licence, literacy of fishers, no resources to put observers on board vessels and fishers refusal to share data for fear of being taxed.
- He asked participants to share solutions/best practices with which to tackle these problems.
- The Belize Representative shared with the group that Belizean fishers were being educated/made aware of the benefits to providing their data to the Fisheries Division. This was being facilitated by the project; Managed Access Programme through the provision of flyers, posters, television interviews, workshops, various social events (workshops, lobster fest, conch fest etc.). These tool were being used to bombard the fishers with information. The programme also targets students. The Belize Representative informed the group that the initiative was transforming the fishers of Belize towards working in a co-management environment with the government of Belize to manage the fisheries.
- The Jamaican Representative shared with the group the strategies used in Jamaica to encourage fishers to provide data. She indicated that the fishers were gender biased towards data collectors; preferring females to males, and the Fisheries Division respected the wishes of the fishers. She also emphasized the importance of providing feedback to the fishers and taking a collaborative approach to the management of fisheries.
- The EU representative stated that collaboration was time consuming process, however when developed was an effective tool. He also shared with the group that direct involvement of the fisher in the data collection process could also help in overcoming the reluctance to provide data. He shared his successful experiences of joint activity with fishers. For example, making fishers part of scientific research or having scientist and fishers work together, even though the two approaches might be different usually allowed for better appreciation by the participants of the different approaches.

Peter Van Baren pointed out best practices that he had noted during the various discussions of the workshop: These were:

- In addressing the problem of finding resources to accommodate observers on-board commercial fishing vessels; a camera could be used to record the onboard activities. Yann Laurent however pointed out that the camera technology was suited to industrial type vessels and is not suited for artisanal vessels.
- In addressing the issue of underreporting: onboard inspection could be done and then a comparison between the information from the inspection and the logbook information. This would give an indication of the level of under-reporting.

Appendix 13
WECAFC–FIRMS data workshop group photograph



This document is the final version of the report of the WECAFC–FIRMS Data Workshop that was held in Barbados from 19 to 21 January 2016 and attended by 13 countries (mostly Caribbean island States), 2 overseas territories of the European Union (Member Organization), and 4 regional organizations. This workshop was a cornerstone of the action on “Strengthening national data collection and regional data sharing through the Fishery Inventory Resource Monitoring System (FIRMS) to support priority regional fishery management plans in the WECAFC area”, funded by EU-DG MARE. A primary anticipated product of the workshop and recommended follow-up activities was the development of a pilot regional database (RDB) to support management and stock assessment of WECAFC marine resources. The workshop reviewed the existing situation regarding current practices, issues and gaps in data collection, processing and dissemination at the national level. Through prioritization sessions, recommendations were made for developing the RDB.

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