

CRFM Fishery Report - 2014



VOLUME 1, Suppl. 1-

National Reports

**Report of Tenth Annual CRFM Scientific Meeting -
Kingstown, St. Vincent and the Grenadines
10-17 June 2014**

CRFM Secretariat
Belize

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FOREWORD

The Tenth Annual CRFM Scientific Meeting took place during 10 to 17 June 2014 in Kingstown, St. Vincent and the Grenadines. During this Meeting, the reconstituted Pelagic Fisheries Working Group (PWG), Reef and Slope Fisheries Working Group (RSWG), Continental Shelf Fisheries Working Group (CSWG) and Data, Methods and Training Working Group (DMTWG) met. CRFM Member States represented at this meeting included Anguilla, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, The Bahamas, Trinidad and Tobago and the Turks and Caicos Islands. The meeting also benefitted from technical support of Professor John Hoenig, Consultant based at the Virginia Institute of Marine Science as well as the assistance of Ms. Nancie Cummings, Fisheries Expert, US National Marine Fisheries Service and Professor Hazel Oxenford from the Centre for Resource Management and Environmental Studies, UWI, Cave Hill campus; and Dr. Paul Medley, International Fisheries Consultant from the UK, facilitated through electronic means.

Each Working Group reviewed the respective new Terms of Reference and provided recommendations to inform amendments in future. Changes in the meeting format focused on basic statistical training, conduct of simple fisheries or species analyses, development of biennial work plans with assigned responsibilities and timelines and mandatory submission of all powerpoint presentations, cleaned data sets and annotated spreadsheets for future reference.

The PWG conducted species/fisheries analyses for the scad fishery in Dominica, the dolphinfish fishery in St. Lucia, the large pelagic fishery in St. Vincent and the Grenadines, the pelagic fishery in St. Kitts and Nevis and the non-artisanal longline fishery in Trinidad and Tobago and provided recommendations for fisheries management, statistics and research to the extent possible. Data collection, quality control, data preparation for analysis and analytical methods were general areas highlighted for attention during the inter-sessional period. Specific priority areas include: improving the quality of regional data for the blackfin tuna in support of the CRFM's contribution to the 2015 stock assessment to be conducted by the International Commission for the Conservation of Atlantic Tunas; improving data collection systems to facilitate implementation of the Sub-regional Fisheries Management Plan for the Eastern Caribbean Flyingfish endorsed by the CRFM Ministerial Council on 23 May 2014 and development of a data collection and information system for fisheries that use fish aggregating devices.

The RSWG developed specific weight conversion factors for the Queen Conch in The Bahamas and Belize to fulfil trade requirements under the Convention on International Trade in Endangered Species of Wild Fauna and Flora and intends to conduct further analyses in the inter-sessional period. It also reviewed and endorsed the 2013 assessment of the Pedro Bank (Jamaica) Queen Conch fishery and the respective, estimated total allowable catch and provided scientific inputs to a proposed draft regional declaration for management, conservation and sustainable use of the spiny lobster. The RSWG also conducted species/fisheries analyses for the reef fishery in Anguilla, the mutton snapper fishery in Belize and the Queen Conch fishery in the Turks and Caicos Islands and provided recommendations for fisheries management, statistics and research to the extent possible. Data collection on the lionfish to facilitate analysis at the 2015 Scientific Meeting was considered high priority.

The CSWG, in support of Guyana's attempts to boost trade through 'sustainable fishery certification' by the Marine Stewardship Council, through e-meeting reviewed and endorsed the Harvest Control Rules developed for management of the Guyana seabob fishery. The Group considered specific measures to improve data collection and monitoring of the fishery as well as addressing issues of by-catch in trawl gear.

A two-day training workshop in statistical and basic analysis using the R- software was convened under the DMTWG. As part of its biennial work plan the DMTWG also committed to updating existing, or

developing new, national sampling plans, to improve the quality of data available for fisheries analyses and stock assessments in the coming years; training of data collectors and identifying the ten most important commercial target fisheries stocks in the region for regular assessment, analysis and monitoring. In addition, the DMTWG is to assume responsibility for pre-screening and approval of data sets for analysis at the annual scientific meetings with the respective protocol to be developed during the inter-sessional period. The DMTWG provided recommendations for further R-training, formal recognition of the R-statistical software as a tool for fisheries data analysis by the CRFM and use of available ICT tools to share information on best practices in the use of statistical software for fisheries analyses.

The Report of the Tenth Annual CRFM Scientific Meeting is published in one volume instead of the usual two volumes published for such meetings. This volume (Volume 1) contains the report of the plenary sessions and the full reports of the CRFM Data Methods and Training Working Group, the Pelagic Fisheries Working Group, the Reef and Slope Fisheries Working Group and the Continental Shelf Fisheries Working Group for 2014. Nine national reports were submitted and these are published as Supplement 1 to Volume 1. The report of the combined meeting of the previous Small Coastal Pelagic Fisheries Resource Working Group and the CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean which was convened via GoToMeeting between March and April 2014 is published as Supplement 2 to Volume 1. Volume 2 usually contains part A (Overview), and the fishery management advisory summaries of individual fishery reports comprising part B of each Working Group report. However, only basic fisheries analyses were conducted in 2014, and hence there was insufficient material to warrant publication of a separate Volume 2.

The covers for this volume were designed and prepared by Mr. Shaun Young, while the photographs were provided by the CRFM Secretariat. These contributions are gratefully acknowledged.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACP	African, Caribbean and Pacific states
AMMP	Anguilla Marine Monitoring Programme
BRD	By-catch Reduction Device
CARICOM	Caribbean Community
CARIFICO	Caribbean Fisheries Co-Management project
CARIFORUM	Caribbean Forum of ACP states
CARIFIS	Caribbean Fisheries Information System
CATS	Caribbean Aqua Terrestrial Solutions
CDP	Community Development Projects
CEO	Chief Executive Officer
CERMES	Centre for Resource Management and Environmental Studies
CFO	Chief Fisheries Officer
CFP	Common Fisheries Policy
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNFO	Caribbean Network of Fisherfolk Organisations
CPDE	Catch Per Day Effort
CRFM	Caribbean Regional Fisheries Mechanism
CSWG	Continental Shelf Fisheries Working Group
CTA	Technical Centre for Agricultural and Rural Cooperation
DFMR	Department of Fishing and Marine Resources
DTMWG	Data, Training and Methods Working Group
EAf	Ecosystem Approach to Fisheries
ECROP	Eastern Caribbean Regional Oceans Policy
EEZ	Exclusive Economic Zone
EFZ	Exclusive Fishing Zone
EU	European Union
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organisation of the United Nations
FMP	Fisheries Management Plan
GATOSP	Guyana Association of Trawlers Owners and Seafood Processors
GDP	Gross Domestic Product
GIS	Geographic Information System
GRP	Glass Reinforced Plastic
GSA	Guyana School of Agriculture
HCR	Harvest Control Rule
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICT	Information Communication Technology
IUU	Illegal, Unregulated and Unreported fishing
I-VMS	Inshore Vessel Monitoring System
JICA	Japan International Cooperation Agency
LBS	Land-based Sources
LCDF	Low Carbon Development Fund
LMP	Lobster Management Plan
MALHE	Ministry of Agriculture, Lands, Housing and the Environment
MCS	Monitoring, Control and Surveillance
MMA	Managed Marine Area
MPA	Marine Protected Area

MSC	Marine Stewardship Council
MSP	Marine Spatial Planning
MSY	Maximum Sustainable Yield
MT	Metric Tonne
NKFM	New Kingstown Fish Market
NGO	Non Governmental Organisation
OECS	Organisation of Eastern Caribbean States
PSEPA	Point Sable Environmental Protection Area
PWG	Pelagic Fisheries Working Group
RSWG	Reef and Slope Fisheries Working Group
SCMCA	South Coast Marine Conservation Area
SCP	Small Coastal Pelagic
SFCA	Special Fishery Conservation Area
SNAPPER	St. Kitts and Nevis Aquaculture Pilot Project and Environmental Research
SVG	St. Vincent and the Grenadines
TCI	Turks and Caicos Islands
TED	Turtle Excluder Device
TURF	Territorial Use Rights in Fisheries
UK	United Kingdom
UKOTCF	United Kingdom Overseas Territories Conservation Forum
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Project
US	United States
UWI	University of the West Indies
VMS	Vessel Monitoring System
WECAFC	Western Central Atlantic Fishery Commission

NATIONAL REPORT OF ANGUILLA

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INTRODUCTION

Anguilla is the most northerly of the Leeward Islands, geographically positioned at 18.22° N, 63.07° W. The island's land mass measures 35 square miles, 16 miles long and 3 miles wide; and has a geological make up of predominantly coral and limestone. The highest elevation on the island rises to 213ft, while the rest of the island and its surrounding cays remain relatively flat. The main economic driver on the island is tourism, but fishing as a small industry also generates direct revenue for more than 200 of the 14,000 residents of Anguilla and preliminary analysis suggest fishing contributed roughly 2.26% towards the GDP in 2012. (Government of Anguilla, Statistics Department).

A. FISHERY AND FLEET DESCRIPTION

The fishing industry of Anguilla is still very much undeveloped, in the sense that there is no large scale or commercial fishing industry; technology, boats and equipment used are mundane. Fishing is mostly artisanal, with 118 licensed seasonal fishers and 72 licensed vessels, for the 2014 licensing period. There are four, ~14m trawlers on the island. Besides those, the majority of the boats are primarily wood and fibreglass, open hull vessels, powered by outboard engines, with the exception of the four trawlers which are powered by inboard engines. Their sizes range from 5 – 15m, most of which are constructed locally. The fishing methods employed include: purse seines, hand-line fishing, Antillean or Z designed fish and lobster traps, spearguns, vertical longlines, FADS, and trolling rods, to capture target species. These species include scads, mixed reef fish (individual species not available), sharks, etc. and the latter methods are used to capture important commercial species such as snappers, tuna, wahoo, mahi mahi, Caribbean spiny lobster and spotted spiny lobster. The Queen conch (*Strombus gigas*) is also an important commercial species, which is harvested by skin diving or SCUBA. Local restaurants provide the main markets for fish, lobster, and conch while very little are exported to St. Martin. Within the fishing industry, the Caribbean Spiny lobster (*Panulirus argus*) is the main economic driver.

Anguilla's exclusive fishing zone (EFZ) is 85,500km²; 2,000km² is submerged shelf. This submerged shelf supports the islands fishery, and provides the abundance of shellfish products landed locally. The EFZ goes 200nm north into the Atlantic; with this abundance of fishing area, the local fishers only exploit up to 35-40 miles.

B. STATISTICS AND SAMPLING

Fish stock data are analysed based on observed landings and an annual census. Fisheries officers are posted at three of the key landing sites between 10:00 a.m. and 6:00 p.m. when most of the landing activity is expected to occur. For varying reasons, landings occurring outside of this timeframe are not collected. Fisheries officers are asked to sample each returning vessel and to complete the questionnaire, which seeks to capture departure and arrival time, time spent fishing, area fished, details of fishing

method, species landed, discards, bait, fuel, oil, and market destination of landed product. The fisheries officers have been able to sample, or at the very least, observe daily landings of most returning vessels but reporting and sharing of data are not mandatory. In recent years fishers have become increasingly disgruntled and uncooperative with Department of Fisheries and Marine Resources (DFMR), in fact many fishers have either stopped or limited their responses to data collectors; this has led to a decrease in the quantity and quality of data collected during site visits. This is a major concern to the Department of Fisheries and Marine Resources as on-site interviews serve as the primary source of fisheries statistics. Data collected are currently stored and analysed, to the extent possible, in MS Excel.

Annual catch and effort census

The annual census is done primarily by telephone and some personal interviews. The census is limited by availability of updated contact information from the current vessel licensing database; nonetheless Department of Fisheries and Marine Resources is usually able collect data from the majority of the vessel owners. The census captures the number of weeks fished per year, days fished per week, estimated average catch per fishing trip and unit price; the census also includes questions such as cost of repairs and maintenance to vessel, fuel and oil cost, cost to maintain fishing gear, bait, ice, scuba tank refills, and loans. The census provides an opportunity to collect some information on unobserved landings, especially from fishers who fish outside the DFMR’s regular on-site questionnaire timeframe. However, it is strongly dependent on the memory and truthfulness of the fishers.

Data gathering and analysis of both systems are very limited and the level of IUU fishing is not yet fully addressed. The data that is available from both data collection methods are combined and used to estimate the total landing by species group and cost of fishing. This information is shared with the Anguilla Statistics Department and fed into their national accounts data collection systems.

Table 1 and Figures 1-3, display some of the information that can be garnered from the collected fish catch data.

Table1: Estimated total tons of fish caught each year from 2008-2013. Fish includes reef fish, pelagics and snappers. Lobsters include the Caribbean Spiny lobster and the Caribbean Spiny Spotted lobster, locally referred to as Cray fish.

Year	Fish	Lobster	Conch
2008	387	230	9
2009	330	100	29
2010	579.07	127	40
2011	455	127	64
2012	494	143	64
2013	170	1	5

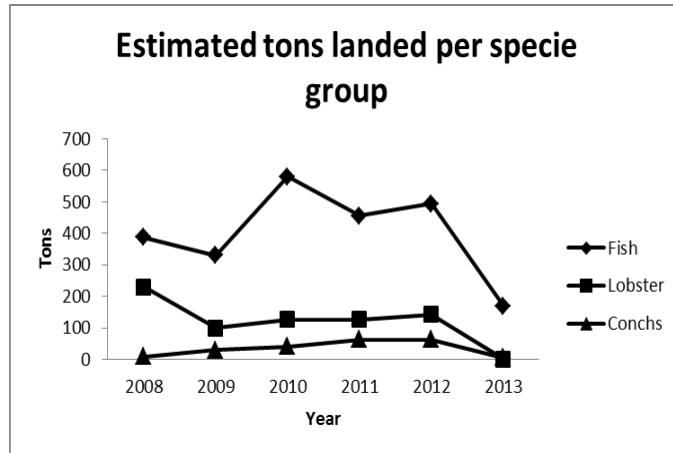


Figure 1. Estimated total tons landed per species group from 2008-2013 (Fish includes reef fish, pelagics and snappers. Lobsters include the Caribbean Spiny lobster and the Caribbean Spiny Spotted lobster locally referred to as Cray fish)

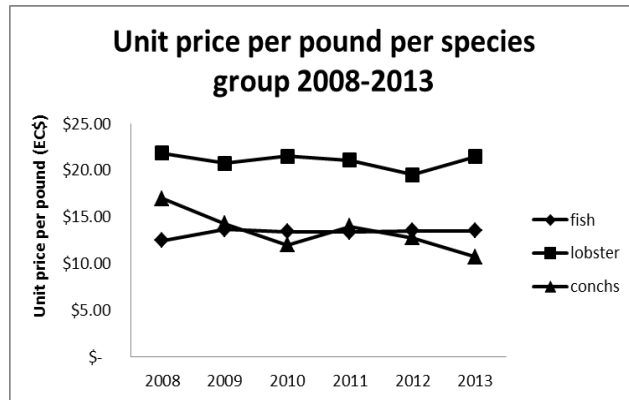


Figure 2: Slight fluctuations in the unit price of fish, lobster and conch per year (2008-2013)

Cost of inputs 2008-2013 (EC\$)

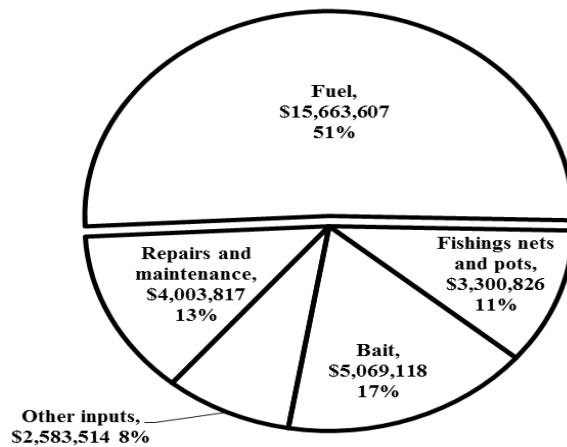


Figure 3: Total estimated cost of inputs in the fishing industry per year 2008-2013.

C. POLICY AND LEGISLATION

Regarding roles and responsibilities, the lead agency responsible for marine capture fisheries management is the Department of Fisheries and Marine Resources. This responsibility is shared with the Attorney General's Chambers and Judicial Office. The Marine Branch of the Royal Anguilla Police Force also assumes responsibility as an enforcement authority for marine fisheries related issues. The current legislation does not provide specific guidance to shape fisheries management plans, e.g. specific guidance on management tools and approaches, a formal process and fixed timeframe for implementation. Furthermore, no management measures and regulations for individual fisheries are specified, and the legislation does not stipulate that management decisions based on information derived from: biological analyses or stock assessments, economic analyses, social impact analyses, ecosystem analyses/assessments, monitoring, and enforcement activities. The roles and responsibilities for the consultation and decision-making components of the framework are also not formally defined. For enforcement purposes, prosecutions, whether involving local or foreign fishing activities are currently handled by the Magistrate Court System, where vessels and catch can be seized by the court. Specific provisions for illegal fishing by foreign vessels include seizures and fines.

Specific legislation for marine capture fisheries management exists at the national level and has been put in place under the Fisheries Protection Act of 1986 and the Fisheries Protection Regulations of 1988. Such legislation serves to provide both a legal and administrative framework for the management of marine capture fisheries in Anguilla, and is focused primarily on the national system. However, the legislation does not provide a definition of the term 'fisheries management', nor does it list objectives for the management of marine capture fisheries. It does not grant the fisheries management authority the legal power to meet the priorities and obligations of international agreements/conventions (global), regional agreements, or other multi-lateral arrangements. This situation may be related to Anguilla's status as a British Overseas Territory. Several pieces of non-fishery legislation exist and are known to impact fisheries management in Anguilla. Among these, the major ones include the Trade in Endangered Species Act/CITES, the Biodiversity and Heritage Conservation Act, and the Air and Sea Ports Act.

D. RESEARCH AND RESOURCE ASSESSMENT

The Department of Fisheries and Marine Resources has the sole responsibility for fisheries research and serves as an advisory body to the Government of Anguilla. DFMR began a lionfish eradication campaign in 2009. After the first lionfish sighting in 2010, this campaign became more intense and lionfish surveys became a part of DFMR weekly schedule. Lionfish are captured; their stomach contents, gills, sex and size are analyzed to note significant trends and for statistical purposes. In 2007, the Department of Fisheries and Marine Resources began the Anguilla Marine Monitoring Programme (AMMP) as a pilot study. This is still the only research programme that assesses near-shore fish populations and the health of seagrass and coral reefs around the island. Presently there are fifteen monitoring sites; five seagrass beds and ten coral reef sites. The monitoring protocols are based on the Atlantic and Gulf Rapid Reef Assessment methodologies. Data collected include but are not limited to: percentage cover of seagrass, algae, hard coral and fish density.

E. LEGISLATION AND MANAGEMENT REGULATIONS

Opportunities and plans for future growth

- To utilize the exclusive fishing zone and stimulate sustainable economic growth and reduce environmental vulnerability, through opening up the fishery and establishing fisheries partnership agreements and granting licenses
- Develop a commercial fishing sector locally
- Provide markets and processing and storage facilities
- Train local fishers to use modern equipment
- With prospects of improving the fishing industry hopefully funds can be secured to increase the level of research being conducted at the department
- Establish a rotational system of closed marine parks
- Successfully mark the boundaries of all marine parks
- Conduct research to realize the true benefits and functionality of marine parks
- Strengthen the institutional capacity of the Department of Fisheries and Marine Resources
- Collect data from key local and regional fish vendors (e.g. species, unit price, name of fisher)
- Conduct preliminary Queen conch studies

Fisheries management and conservation activities

The general national fisheries management objective is to ensure the sustainable utilization of the fishery resources for the maximum economic and recreational benefit of the people living in Anguilla. In doing so, measures are taken to ensure that the lobster fishery, in particular, does not become industrialized and that it is open only to residents of Anguilla. The only fishery that is open to persons outside of Anguilla (on a limited basis) is the large pelagic fishery. Currently, only sport fishing boats operating out of St. Maarten/St. Martin are licensed to operate in the large pelagic fishery. Other conservation measures include the prohibition of:

- The use of gillnets;
- The taking of sea turtles;
- The use of fish traps with a wire mesh size of less than 1.5 inches;
- The taking of lobsters with a carapace length of less than 95 mm or egg-bearing and moulting lobsters;
- The taking of conch with a shell length of less than 18 cm;
- The use of explosives, lime, bleach, or any other noxious substances when fishing; and
- The taking of marine products using SCUBA or spear gun unless the person is a resident of Anguilla.

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NATIONAL REPORT OF GRENADA

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OVERVIEW

The Grenada fishing industry is characterized as a multi-gear and multi-species capture fishery¹. Fishing gears range from different types of hook-and-line gear, nets and traps to free and scuba diving. Species harvested include large pelagics, small coastal pelagics, demersals and shellfish. Small quantities of edible sea moss are harvested in the wild as well as cultured by individual small farmers.

The registry of the Fisheries Division reports a total of 2729 fishers and approximately 700 boats². There are currently 36 operating landing sites which are categorized as follows:

- **Primary landing sites** – where there are land-based fisheries infrastructure, staff and data collection – 9
- **Secondary landing sites** – where there are no facilities (beaches) - 23
- **Tertiary landing site** – where fish processors and exporters operate - 4

According to the Draft Fisheries Management Plan (2008), Grenada has an Exclusive Economic Zone of 7700Km² of which 1300Km² represents the continental shelf area.

Finally all levels of fishing activity are represented in the Grenada fisheries. Namely these are:

- Occasional fisheries (engaged in for personal satisfaction or sport by locals)
- Subsistence
- Artisanal
- Commercial
- Recreational (whether this is a form of commercial fishing is undecided)

A. FLEET DESCRIPTION

The commercial fishing fleet consists of 5 main types of vessels as follows:

- 1) **Surface longline vessels** – of which there are 3 categories
- 2) **Open wooden and fibreglass pirogues** – Most of these vessels are engaged in trolling and demersal fishing (including dive boats engaged in the lobster and conch fishery and those used for towing seine boats). They are all day boats.
- 3) **Double enders** – used for carrying and deploying beach seines in the small coastal pelagics fishery
- 4) **Fishing sloops (some employing only sail)** – there are a few of these and they are engaged in the demersal fishery especially to supply the export trade to the French islands.
- 5) **Trading vessels** – These are not strictly fishing vessels (although they could be utilized for such) but are mainly engaged in the trade with the French islands.

Of the above, types 1, 2 and 3 make up the bulk of the long line fishing fleet. Table 1 summarizes the main categories of vessels.

¹ *Aquaculture in the form of sea moss mariculture occurs on a small scale*

² *This information is currently being updated since the Data Unit reports that the data is not current. In addition the register of recreational boats is incomplete.*

Table 1. Shows the main categories of boats comprising the commercial fishing fleet and operational information. (Please note that the information in the last column is currently being revised and that the table does not show information on the recreational fleet) (Source: Fisheries Division, Grenada)

VESSEL CATEGORY	LENGTH	DESCRIPTION	NUMBER
Type I Long liner	4.5m - 7.0m	Small indigenous longliner. Wooden open pirogue. Operate < 4 miles. Outboard motor offshore. Day boat. Light palang (approx. 50 hooks)	210
Type II Longliner	7.3m – 8.8m	Longliner. Fibreglas pirogue with small cabin for shelter. Outboard motor Overnighter. Icebox. (>200 hooks)	120
Type III Long liner	9.7m – 16.6	Large fully equipped longliner. Full cabin. Distance up to 100 miles offshore. Inboard diesel. (>400 hooks)	75
Trolling	5.7m – 7.7m	Open wooden pirogue. Outboard motor. Day fisher. This type also used as dive boats, towing double- enders and bottom long lining	250
Beach seine	6.1m – 7.6m	Wooden double-enders used in the deployment of beach seines.	15

Although of a lesser category, boats involved in artisanal and subsistence fishing cannot be ignored because they have an impact on stocks especially when they exist in significant numbers as they do in Grenada. Each fishing district has an unspecified number³ of small oar powered (or very small outboard motors) boats engaged in hand-lining, trolling, pot fishing, spear fishing, gillnet fishing and using turtle nets – all for subsistence or recreational fishing. These boats neither land their catches at primary landing sites nor report their catches. This category, however, is becoming increasingly important in determining the level of IUU fishing locally and should be added to the remainder of the fleet when such surveys are conducted.

Another important category is that of the recreational fishing boats. There is some debate as to whether such boats should be labelled as commercial fishers since they are engaged in the taking out of visitors for deep sea sport fishing for money.⁴ This category of fishing has been recognized as significant by CRFM and Grenada has started the process of registering and licensing them although they do not as yet appear in Table 1. The national work plan focuses on the completion of documentation of this category by the end of 2014.

It is important to mention the relationship that exists between the longline fleet and the small coastal pelagic fishery. The former has become largely dependent on the latter for its source of bait (especially live scads) and it often happens that the entire beach seine catches go to the longline fleet as bait. This creates a conflict between the longline captains (both foreign and local) and the public wishing to access the same scads as a cheap source of food fish as was traditionally the case. The Fisheries Division has had to institute special management measures to attempt to resolve this conflict. At the same time the Fisheries Division is cognizant of the importance of this fishery to national food security and poverty alleviation and intends to have this fishery scientifically analyzed during the 2015-16 period.

³ Because they are not involved in commercial fishing they escape the licensing and registration system and they neither seek nor are awarded concessions. Their exact numbers are unknown but should not be difficult to determine if there is a desire to do so.

⁴ In fact during the tourist season this activity is oftentimes more lucrative than straight commercial fishing. In addition such boats are generally more expensive and more luxuriously appointed.

Over the past two years the use of Fish Aggregating Devices (FADs) within the pelagic fishery has increased. Prior to this occurrence, FADs were used on a sporadic basis with minimum scientific monitoring of their effectiveness or impacts. The CARIFICO⁵ project (supported by JICA) was launched in 2013. The primary aim of this project is to utilize FADs as a tool with which to strengthen fishers' organisation and to engender greater co-management by the fishing community in fishery management decisions. In April of 2014, five FADs were deployed off the continental shelf on the east coast of Grenada. Already participating fishers have been organized as "FAD Groups" to manage the maintenance and use of these FADs. Also, data collection for the purpose of monitoring the performance of these FADs has already commenced.

B. STATISTICS AND SAMPLING

This important part of a robust MCS regime continues to be a weak area. The data collection programme focuses only on primary and tertiary landing sites where landings are recorded daily by market clerks (or data clerks in the case of the tertiary landing sites), who are not trained as data collectors. Consequently the data, which are recorded in a trip-interview form, would sometimes show errors, gaps and other inconsistencies. This situation has prevented Grenada from generating time series of minimum data that can be used for assessment purposes at scientific meetings. The fact that Grenada does not possess a **Data Collection and Management Plan** does not help and consequently some serious gaps occur in the data collection, reporting, recording and storage process. Among these gaps are:

- a) The non-coverage of secondary landing sites. Because no data collection occurs at these sites it is difficult to estimate total catches with regard to important demersal fish species, conch and lobsters.
- b) Longline boats are not presently required to carry logbooks. There is very little coverage of the longline fishery in terms of effort and catches since processors (where a substantial portion of the catch is landed) record and report only fish purchased from each boat and not necessarily the total catch of the boat.⁶ (Pers. Com. Hermione Bruno, data clerk, 2014).
- c) The Daily Log (a trip interview form used to record landings, catch and effort, prices and other information) is not completed in a uniformed manner by data clerks state-wide. As a result there is much variation in the manner in which fishing effort is recorded.
- d) Catch and effort data, although collected, are not consistently in-putted into the electronic database.
- e) There is only one trained data collector who is restricted to one fish landing site.
- f) Currently no biological data is collected although this is already a requirement of the conch fishery in keeping with the regional management initiative (MRAG 2013).

Grenada labours under severe resource limitations and would have to consider various innovative options to rectify the number of challenges it faces with regard to its data system. The development of a Data Collection and Management Plan that is informed by the current resource limitations while being cognizant of the minimum data requirements (although the demands for additional data is increasing) might be an appropriate first step.

At the primary and tertiary landing sites it is expected that a census of landings is captured for all species landed. At the primary sites a trip interview form (called a Daily Log) is used and allows for the capturing of the following information:

- Boat number and area fished

⁵ CARIFICO – Caribbean Fishery Co-management Project

⁶ It is important to note that when such boats sell to vendors in the markets the weight landed is recorded. In that case there is no duplication of landings but again only the captain knows the total catch.

- Name of captain and number of crew
- Catches landed by weight by species
- Effort (hours fished)
- Gear by type and number
- Wholesale price (i.e. price received by the fisher)

Records from tertiary landing sites show only the names of the boat owners (ostensibly the person to whom payments are made), species of fish purchased and the unit price.

C. NATIONAL FISHERIES POLICY AND MANAGEMENT OBJECTIVES

In 2012 Grenada developed a **Draft Fisheries and Aquaculture Policy and Action** (SOFRECO 2012). This activity was part of a regional project funded under ACP FISH II programme and was undertaken by the consulting firm SOFRECO. The policy covered 5 thematic areas of the industry for development. These were:

- 1) enhancing the status and capability of fishers,
- 2) sustainable stewardship and conservation of aquatic resources,
- 3) realizing the development potential inherent within the fisheries sector,
- 4) maintaining the sector's role in sustaining livelihoods of the poor, and
- 5) generating a positive interaction with Grenada's wider economic community.

The accompanying Action Plan provides guidance on the prioritization of specific activities to be undertaken in the short, medium and long terms. The policy is a comprehensive document and is the product of wide consultation both at the technical level and the industry. This policy is currently before Cabinet awaiting approval.

Grenada Draft Fisheries Management Plan (2008) for each fishery type remains in draft form. The established procedure⁷, although initiated, was never followed through to completion. The length (in terms of time) for the process to complete its cycle is dependent on the capacity of the Division. Not all fisheries require the same levels of consultations. It is important to note, however, that Grenada has identified Small Coastal Pelagics (SCP) and Conch as the top priority species for 2015-2016. Specifically with respect to the former, Grenada wishes to strengthen the **Territorial Use Rights in Fisheries (TURF) system** as it pertains to SCP and to resolve the current multi-use conflicts for scads. For conch, the goal is to address management issues such as the evaluation of current Harvest Control Rules (HCR), working to enhance conversion factors and better regulation of gear.

D. RESEARCH

Most of the research activities have been centred on Marine Protected Areas. These are focused around routine reef assessments and the impacts of land-based sources of pollution (LBS). Research and activities to conserve and protect mainly nesting leatherback turtles (*Demochelys coriacea*) within Levera National Park, is an on-going initiative of the Fisheries Division. These activities include guided turtle watching tours, tagging of nesting females, collection of carapace length parameters and nesting success. Two non-governmental organisations are involved in partnership with the Fisheries Division to undertake these activities.

⁷ This procedure starts with 1. Internal review by technical staff, 2. Island wide consultations with the fishing community, 3. Review and consultations with regional experts, 4. Re-drafting and second round of consultations with the fishing community, 5. Final Draft for comments, 6. Submission of final documents to Cabinet.

E. LEGISLATION

Laws and regulations currently in force that affect the industry are as follows:

- *Fisheries Act No. 15 of 1986*
- *Grenada Fisheries (Amendment) Act, 1999, PART VI* (regulating storage, processing, etc of fishery products) *and PART III* (Marine Protected Areas)
- *Fisheries (Amendment) Regulations, SRO 24, 1996* (Conservation measures)
- *Fisheries (Amendment) Regulations, SRO 2, 2001* (Conservation regulations)
- *Fisheries (Fishing Vessel Safety)Regulations, SRO 3, 1990*
- *Fish and Fishery Products Regulations, SRO 17, 1999*
- *Fisheries (Marine Protected Area) Regulations, SRO 78, 2001*
- *Fisheries (Levera Beach Closed Area) Regulations, SRO 15, 2010*

Monitoring, Control and Surveillance

As noted under Section B, monitoring of fishing activities remain weak. There is also a need for the Division to include the monitoring of the recreational fisheries within its ambit. Probably a good way to initiate this activity would be to re-commence the active monitoring of the local billfish tournament. Control measures have not been evaluated therefore their effectiveness remains uncertain. Lack of resources prevents an effective surveillance programme. However, the Fisheries Division has made an internal appointment of an MCS officer⁸. As is common in such agencies, there continues to be a perception that MCS concerns only enforcement.

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⁸ This person has been mainly engaged in monitoring levels of compliance to regulations.

NATIONAL REPORT OF GUYANA

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A. DESCRIPTION OF THE NATIONAL INDUSTRY

The fisheries sub-sector is divided into three components as indicated in Table 1.

Table 1: Components of the fisheries sub-sector in Guyana.

Marine Fishery	Aquaculture	Inland Fishery
<ul style="list-style-type: none"> - Industrial fishery (Seabob and Prawns) - Semi-industrial fishery (Red Snapper) - Artisanal fishery - Shark fishery* 	<ul style="list-style-type: none"> - Brackish-water Culture - Fresh-water Culture 	<ul style="list-style-type: none"> - Subsistence Fishery - Ornamental Fishery

**The shark fishery is not defined by the Fisheries Department as a separate fishery, socio-economically speaking, but is included here as a separate fishery because the recent CITES listing of some shark species imposes management obligations which the Fisheries Department will have to meet.*

Annual production of the fisheries sub-sector for 2011 to 2013 is provided in Table 2 and exports for the same period are given in Table 3.

Table 2: Fisheries Sub-sector Production for the period 2011-2013

	Annual Production (mt)		
	2013	2012	2011
Prawns (whole weight)	654	512	368
Prawns (tail weight)	409	320	231
Seabob industrial (whole weight)	23,023	24,362	19,433
Seabob artisanal (whole weight)	377	521	196
Whitebelly (whole weight)	685	603	830
Total Shrimp (whole weight)	25,148	26,318	21,058
Finfish (industrial)	2,440	1,950	1,890
Finfish (artisanal)	21,288	24,192	20,889
Red Snapper	1,109	952	758
Total Finfish	24,837	27,094	23,537
Overall Production	49,985	53,412	44,595

Source: Department of Fisheries

Table 3: Annual Export for the period 2011-2013

Items	2013		2012		2011	
	Mt	Value G\$	mt	Value G\$	mt	Value G\$
Prawns	560	1,628,309,748	280	488,877,378	294	527,473,285
Seabob/Whitebelly	11,091	7,933,964,922	12,509	6,082,969,915	9,114	4,480,899,264
Frozen fish	9,167	4,497,894,529	8,786	4,163,318,252	7,560	3,407,472,658
Dried Shrimp	7	9,077,245	16	11,465,602	2	2,138,768
Salted/Smoked Fish	280	159,315,919	192	136,078,226	339	242,184,524
Glue/Fins	215	648,563,231	164	465,730,708	224	689,100,654
Crabs/ crabmeat/shells	21	1,893,939	22	12,387,595	15	8,268,478
Ornamental	37	8,357,045	2	790,380	.1	5,447,141
Fish eggs	25	1,164,468	39	13,524,116	32	3,940,869
Squid	0	0	-	-	.10	81,600
Total	21,403	14,888,541,046	22,010	11,375,142,172	17,581	9,367,007,241

Source: Department of Fisheries

The Industrial fishery (Seabob and Prawns) consists of one hundred and eighteen (118) trawlers, eight (8) large fish/shrimp processing plants and numerous wharves and dry docking facilities. Thirty (30) trawlers are licensed to catch penaeid shrimp while eighty-eight (88) are licensed to catch seabob. These trawlers measure about 21 metres in length and use double outrigger shrimp trawl nets and operate in waters 14 to 91 meters in depth over the seabed of mud, gravel or sand.

Ice and freezing facilities servicing this fishery are owned and operated by participants within and outside the fishery sub-sector.

Vessels licensed to catch penaeid shrimp are exploiting mainly *Farfantepenaeus brasiliensis*, *F. subtilis* and *F. notialis* with finfish and small amounts of squid (*Loligo* spp.) and lobster (*Panulirus* spp.) as by-catch. Vessels licensed to exploit seabob (*Xiphopenaeus kroyeri*) also catch various finfish species (*Macrondon ancyllodon*, *Micropogonias furnieri*, *Nebris microps*, *Arius* spp., *Cynoscion* spp.), with small quantities of penaeid shrimp as by-catch. Turtle Excluder Devices (TEDs) remain mandatory for the entire shrimp trawl fleet.

In the semi industrial fishery (Red Snapper), thirty four (34) of the fifty eight (58) registered Red Snapper vessels were licensed representing a 59% achievement (Ministry of Agriculture, 2012). Additionally, forty (40) Venezuelan longline vessels were licensed to operate on a quarterly basis for the following companies;

- Guyana Seafoods Export – 7
- Laparkan - 33

The Inshore Artisanal Fishery consists of 1234 vessels ranging from 6 – 18 meters propelled by sail, outboard or inboard engines (Fisheries Department, 2011). The characteristics of the artisanal fishing fleet are provided in Table 4. A boat count is scheduled to be executed later in this year. All boats are manufactured locally. The fishing gears in use include Chinese seine/fyke nets, gillnets, cadell lines “demersal longlines” and pin seine. The Inshore Artisanal Fishery is mainly demersal. The species targeted/caught include: Gillbacker, Bangamary, Sea Trout, Grey Snapper and Red Snapper and to a lesser extent [bycatch] Red Snapper, Seabob and Whitebelly shrimp.

Table 4: Characteristics of the Artisanal Fishing Fleet of Guyana

No. of Vessels		Method of Propulsion	Length of Vessels (m/ft)	Gear Type	Trip length	Catch Composition	Crew Size	Preservation method	Principal Fishing Area
Frame Survey	2011 Vessel Count Exercise								
558	64	Inboard diesel Lister, Perkins 210 hp	12-15/40-50	Gillnet polyethylene (inboard)	12-18 days	Grey snapper, sea-trout, gillbacker, tarpon, Spanish-mackerel, croaker, snook, shark spp.	4-6	Ice	Area between 10 and 20 fathoms.
	296	Outboard engine 48 hp	8-11/35	Gillnet polyethylene (cabin-cruiser)	6-12 days	Grey snapper, sea trout, pagee, tarpon, croaker, gillbacker, Spanish mackerel.	4-6	Ice	Area between 10 and 20 fathoms
	448	Outboard engine 25 hp	30m	Gillnet nylon	1-2 day	Bangamary, sea-trout, butterfish.	4-6	Ice	Area between 10 and 15 fathoms
253	307	Sail, outboard engine 6 - 9 hp	6.40-12.19 m (21-40ft.)	Chinese seine	6 - 12h	Whitebelly, seabob, immature fish, bangamary, butterfish, catfish	2-4	Fresh	Estuaries, river mouths and banks on the coast.
79	87	Outboard engine 6 - 9 hp	6 - 9/15 -30	Cadell	12h	Catfishes, sharks spp.	2-4	Fresh	Areas between 5 and 10 fathoms.
46	32	Sail, outboard engine	6 - 9/15 -30	Pin Seine	12h	Mullet, snook, queriman, catfish, croaker, bangamary.	2	Fresh	Intertidal zones

Source: Department of Fisheries

The Inland Subsistence Fishery involves catching of fish in rivers, lakes, canals and flood plains by subsistence and part-time fishers for their own consumption or for sale.

There is a small, but active, inland fishery for ornamental fish. Live fish are caught in the rivers by collectors and sold to exporters of ornamental fish. The Guyana Wildlife Authority is responsible for aquarium fish.

B. STATISTICS, SAMPLING, RESEARCH AND RESOURCE ASSESSMENT

The Fisheries Department gathers its data via a strategized random sampling programme which entails the scheduling and execution of visits to varying landing sites and wharves by staff on a monthly basic. In addition to the aforementioned data collection measure the department also utilizes data submitted by major stakeholders e.g. processing plants and vessel logs.

The department is expected to undertake a survey in 2014 to determine the number of persons and active vessels involved in fishing activities in the sector.

No inter-sessional Shrimp and Groundfish Working Group meeting between (Guyana and Suriname) was held this year. It is expected that at the Tenth CRFM Scientific Meeting, a review of the harvest control rule (HCR) to pronounce whether it is precautionary or not will be conducted.

C. POLICY AND LEGISLATION

Current Legislations

The fisheries sector is being monitored and guided by fisheries specific laws. A few of these are as follows:

- Fisheries Act 2002 which provides for the promotion, management, and development of fisheries and related matters
- Fishery products regulations (updated in June, 2013)
- Fisheries (Vessel Monitoring System) regulations 2013 (to be finalised)

Efforts to achieve Marine Stewardship Council Certification

The seabob industry, represented by the Guyana Association of Trawler Owners and Seafood Processors (GATOSP), is currently in the process of seeking Marine Stewardship Council (MSC) Certification. Benefits from MSC certification include improved marketability of products from the industry and increased traceability of seabob vessels. The Department is assisting the industry in this endeavour. The activities below are part of this effort:

- Vessel Monitoring System Units on Trawlers.
 - For 2013, twenty (20) VMS units were installed on seabob trawlers. One hundred and ten (110) VMS units are yet to be installed.
- By-catch reduction devices (BRDs) have been installed on most trawler vessels. This activity is near completion.
- The following regulations were drafted (yet to be finalised):
 - Vessel Monitoring System Regulation
 - General Fisheries Regulations
 - Fisheries Product Regulations

National Policy on Inland Fisheries and Aquaculture for Guyana

In 2012, Guyana received technical assistance from FAO to develop the following; ‘National Policy on Inland Fisheries and Aquaculture’ and ‘Strategic Plan for Inland Fisheries and Aquaculture Development in Guyana’. These have been finalised and implemented in 2013, to be functional for the period of 2013-2018 (Ministry of Agriculture, 2012).

Consultative Workshop

The Department, with CRFM, CTA and Caribbean National Fisherfolk Organisation (CNFO), successfully hosted a consultative workshop: *Consultation on the Implementation and Mainstreaming of Regional Fisheries Policies into Small-Scale Fisheries Governance Arrangements in the Caribbean*.

Fisheries Management Plan

The Fisheries Management Plan has been updated (2013-2018). The updated FMP was funded by EU-ACP Fish II Project. This Plan should enable the Fisheries Department to manage and regulate the utilization of the fisheries resources in a sustainable manner, while maintaining economic benefits to stakeholders and the nation as a whole.

The major goals for marine fisheries management are:

- To optimise the development of the fishery sector through effective management in order to create employment and stable sources of income for the fishers and the communities involved in fisheries and related activities;
- To optimise the amount of fish protein available for domestic consumption and export consistent with sound resource management practices;
- To maximise the value of limited fisheries resources through cost effective harvesting, value-added processing and diversification of markets;
- To promote the image of fishing as an occupation that is socially desirable and financially rewarding;
- To maintain or restore populations of marine species at levels that can produce the optimum sustainable yield as qualified by relevant environmental and economic factors, taking into consideration relationships among species; and
- To preserve rare or fragile ecosystems, as well as habitats and other ecologically sensitive areas, especially estuaries, mangroves, sea grass beds⁹ and other spawning and nursery areas. (Ministry of Agriculture *et al.*, 2013).

D. DEVELOPMENT ACTIVITIES

Visit by Hon. Minister of Food Production, Trinidad and Tobago.

Hon. Minister of Food Production, Trinidad and Tobago visited the Satyadeow Sawh Aquaculture Station during which the following were done:

- Arrangements for exchange visits by technical teams to foster relationship and technology transfer.

⁹ As previously noted, it is considered unlikely that there is much, if any, sea grass in Guyana’s EEZ, but until comprehensive surveys can be carried out, the Fisheries Department is following the precautionary approach.

- Arrangements for the procurement of three thousand *Hassar* spp. (freshwater catfish) from Guyana to Trinidad.
- Request by Guyana for assistance in these areas: development of local feed for improved aquaculture production; and shark species identification.

UNDP – LCDF

Staff attended a United Nations Development Project (UNDP) Low Carbon Development Fund (LCDF) meeting at the Princess Hotel. The purpose of this meeting was to address the disbursement of grant funds under the LCDF to Amerindian communities for the establishment of selected community development projects e.g. rehabilitation and development of fish ponds in selected communities.

Visits to Kamwatta and Three Brothers, Region #1, as well as in Annai, Region #9, were conducted by extension officers attached to the Fisheries Department with the purpose of evaluating the technical intervention that is required for aquaculture based community development projects (CDP), which are supported by UNDP and funded through the Low Carbon Development Fund. Information regarding culture of *Hassar*, pond design and maintenance, and aquaculture best practices were shared with about eighty (80) individuals.

Other Meetings/Workshops/Seminars

- Workshop on Aquaculture Management for Entrepreneurs: this was held in collaboration with the Faculty of Agriculture & Forestry, University of Guyana and with Partners of the Americas-Farmer to Farmer program.
- A collaborative Seminar was held at the Unu Creek Fishermen Association on 22 June 2013 on Quality Assurance for shrimp producers. The seminar was conducted by Dr. James and Dr. Dhanraj of the Veterinary Public Health Unit.
- There was a meeting at the Guyana School of Agriculture (GSA) auditorium with the Minister of Agriculture, Hon. Dr. Leslie Ramsammy and aquaculture farmers, with the purpose of gathering information relating to the issues affecting aquaculture farmers.

Research

Permission was sought and subsequently granted by the Ministry for a PhD student to conduct a five (5) year study in Guyana waters on Seabob (*Xiphopenaeus kroyeri*). The research is scheduled to commence during the fourth quarter of 2014. A brief description of the aforementioned study is as follows:

NAME OF CANDIDATE: Adam Arne

TITLE: In search of sustainable measures for the Atlantic seabob fishery (*Xiphopenaeus kroyeri*) along the Guyanese coast.

AIM: The main aim of this doctoral study is to provide the scientific basis for such sustainable measures in close cooperation with the local government and the industrial and artisanal fishing industry, as to guarantee the sustainable management of the seabob fishery in Guyana.

OBJECTIVES:

- To increase our knowledge of the marine habitats of the Guyanese coastal ecosystem
- To study the life cycle of seabob *Xiphopenaeus kroyeri*
- To examine whether the Guyanese and Suriname seabob stocks are genetically different.

OUTPUT:

- A sound delineation of a commercial seabob fishing zone, and especially the inner line border, to secure the survival of the artisanal fishery and to protect the vulnerable coastal ecosystem.
- Knowledge on recruitment periods, migration patterns and the role of different coastal habitats for *Xiphopenaeus kroyeri*, resulting in well-defined (closed) fishing periods.
- Scientific advice on sustainable measures at the population level that can be implemented in the fishery management plans of the two neighbouring countries.

E. FISHERIES MANAGEMENT AND CONSERVATION ACTIVITIES

The Department of Fisheries, Ministry of Health - Veterinary Public Health Unit and the Guyana Association of Trawler Operators and Seafood Processors (GATOSP) meet regularly to discuss the way forward on Illegal, Unreported and Unregulated (IUU) fishing and Marine Stewardship Council (MSC) certification. With regards to the latter, it is now mandatory for all vessels to be equipped with both VMSs and BRDs. Also, there is an annual six weeks 'closed season' which restricts trawling primarily during the September- October period.

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NATIONAL REPORT OF JAMAICA

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A. FISHERY AND FLEET DESCRIPTIONS

The Jamaican fishery consists of two (2) fleets: an artisanal fleet and an industrial fleet. The artisanal fleet number 6,394 registered boats as of 02 June 2014 operated by some 21,629 registered fishers as at September 2013. Artisanal vessels range in size from 4 to 9 metres in length and are usually propelled by either outboard motors ranging between 15 to 70 hp or by wooden oars. The main fish group targeted is reef and slope fish both in inshore areas and on offshore banks, which are then marketed locally. Depending on the target species and propulsion used, fishing gear may vary from fish pots and diving methods for reef fish, various types of net for near-shore and ground species, to longlines and handlines for deep slope and pelagic species.

The industrial fleet consists of approximately 87 larger decked vessels measuring over 25 metres in length overall and powered by inboard engines of up to 500 hp. These vessels are in operation for up to 9 months per year depending on their target fishery. Industrial vessels are licensed to operate in offshore areas only where they fish for spiny lobster, conch, and to a lesser extent, finfish. Vessels targeting spiny lobster are licensed to use Florida type lobster traps only, conch vessels utilize smaller dories or canoes employing diving methods including the use of hookah/compressor and SCUBA, while finfish is caught using mainly traps and lines. The industrial fishery target the export market particularly conch and lobster to the United States and the European Union (EU). Finfish on the other hand are usually sold locally.

B. STATISTICS AND SAMPLING

Jamaica is divided into two statistical areas, the north coast as area 1 and the south coast as area 2. During 1995, a survey was conducted in both areas at about 90% of the known landing sites to determine the number of vessels at each site and classify them by gear type, fishing ground and target fishery. As a result the beaches on the north coast were divided into six categories based on beach size (i.e. number of boats) and gear type while the south coast has three categories based on beach size. The categories are used as sampling strata and it is assumed that, within a stratum the gears, vessels and fishing grounds are homogeneous throughout the area. This means fishermen at all beaches within a category have access to fisheries of similar productivity. Once all the beaches were classified into strata, one or more beaches were selected to be sampled in each stratum (See Figure 1).

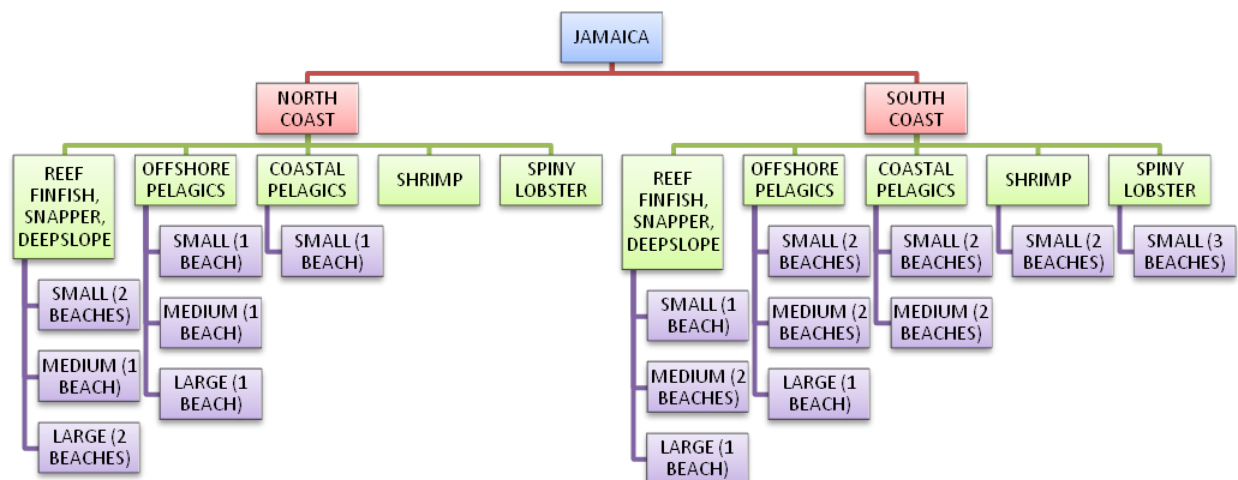


Figure 1: Overview of the sampling plan for the artisanal fishery of Jamaica

Each sample beach is visited two days per month and the data collected from vessels landing that day. The data includes vessel identification, fishing effort (amount of gear, number of crew, hours fished), fishing ground, species landed by weight and price. Other data collected include total number of vessels that went to sea that day, the number of fishing days for the month and descriptive comments on the weather and beach conditions.

Biological data such as weight, length, sex and maturity of select species are also collected monthly. These species include the Atlantic thread herring, Caribbean spiny lobster, shrimp, dolphinfish, skipjack tuna and conch. In conjunction with the catch and effort data, the biological data is used for stock assessment and for detecting trends etc., which are necessary for proper decision making.

Production Estimates

Annual production for both marine and aquaculture in Jamaica for the period 2001 to 2012 are as reported in the last year's report (CRFM, 2013). Due to unforeseen circumstances total production for 2013 was being reanalyzed at the time of writing of this report and was therefore unavailable. However individual production for Queen Conch and Tilapia production for 2014 was 500 MT and 785.9 MT respectively.

C. NATIONAL FISHERIES POLICY AND MANAGEMENT OBJECTIVES

The Draft National Fisheries Policy (2008) provides a framework for the formulation of management strategies/plans designed to address the important issues, challenges and opportunities which affect the industry, including: international and regional obligations, trade expansion, economic efficiency, industry structure and governance, and food safety and quality. The main goals of the National Fisheries Policy are to:

- (1) Improve contribution to economic growth and reduction of poverty
- (2) Improve contribution to sustainable livelihood of Jamaicans through employment in fisheries and responsible fisheries management
- (3) Improve fisheries contribution to National Food Security

The immediate objectives of the National Fisheries Policy are to:

- (1) Ensure sustainable development of the fisheries sector
- (2) Promote efficiency of the fishing and aquaculture industry

- (3) Promote economic and social development within fisheries sector
- (4) Improve systems and procedures for the management of the fishing and aquaculture industry
- (5) Develop both existing and new/under-utilized fisheries through sound research, technical co-operation and capacity building
- (6) Promote partnerships with stakeholders in the management and development of capture fisheries and aquaculture, and ensure transparency and accountability in the governance of fisheries resources.
- (7) Comply with international standards and best practices for capture fisheries and aquaculture development and management in keeping with Jamaica's commitments under various agreements and conventions.

The management objectives and brief background for each fishery were reported in the 2013 National Fisheries Report – Jamaica, prepared for submission to the Caribbean Regional Fisheries Mechanism (CRFM) Ninth Scientific Meeting (CRFM, 2013).

D. RESEARCH

The Fisheries Division and its partners, including private and public bodies both local and international, conduct a number of research and development projects/programmes from time to time geared at addressing various management issues. These studies are conducted in line with the draft national policy direction as previously outlined. A summary of current/on-going research projects/programmes as well as those being planned are outlined below.

Lobster Management Programme (LMP)

Current/On-going

The LMP focuses on data collection and analyses of aspects of the three main lifecycle stages of the Spiny Lobster (the adult stage, juvenile stage and the pueruli/post larval stage) to determine, among other things, a method of recruitment forecasting and quantifying the size (numbers) of each group. Preliminary analyses are on-going and in-depth analysis is expected to be completed during the 6 month period September 2014 to March 2015 at the United Nations University Fisheries Training Programme in Iceland.

Future research

The Fisheries Division is in the process of finalizing the methodology and source of funding for a fishery-independent assessment of Jamaica's lobster stock.

Fishery Habitat Enhancement

Current/On-going

The project looks at conducting habitat assessments in order to determine priority areas where intervention can be made using artificial enhancement or other intervention, including artificial reefs and coral gardening.

Assessment of Fish Production

Current/On-going

The Division, through its sampling plan, collects catch and effort and biological data to be used for stock assessment and management and for detecting fish production trends. The fisheries targeted include - reef

and pelagic resource, lobster and conch, coastal pelagic resource, shrimp and groundfish. The programme however faces a number of challenges related to the size and location of each fishery versus the available human resources.

Special Fishery Conservation Areas (SFCA)

Current/On-going

The Fisheries Division currently manages 14 Special Fishery Conservation Areas (SFCA) (fish sanctuaries) across the island. Each site was selected based on criteria including; ecological potential, socio-economic importance, buy-in of primary stakeholders, and general fishery importance. The management of the SFCA's is a collaborative effort between government and local community organisations, particularly fisher organisations and non-governmental organisations (NGOs).

Baseline and monitoring studies are underway across the SFCA's in order to develop a means for measuring the progress of each SFCA as well as to develop the Division's database for the declaration of new ones.

Queen Conch

Current/On-going

Preliminary data collection and background work is on-going to update Jamaica's conch conversion factor used to convert processed weight to nominal weight. Research has been hampered by resource issues and the distance of the Pedro Bank to the mainland.

The programme of annual fishing season assessment and total allowable catch is also still on-going and the latest for 2013 is in draft and is expected to under-go peer review at CRFM Tenth Scientific Meeting, June 10-17, 2014 in Kingstown, St. Vincent & the Grenadines.

Future

Sample design and preliminary logistics planning has started for the 2014 abundance survey. Final preparations and conduct of the survey are expected to be completed within the calendar year while the final assessment report is expected at the middle of 2015.

Aquaculture

Current/On-going

Investigations are also being done on growth and survival of the mangrove oyster *Crassostrea rhizophorea*. Plans are afoot to improve and increase the marketability of oyster through product development initiatives along with the country's main product research institute as well as the introduction of other species.

Future

There are also planned investigations to look at growth of Tilapia and other food fish under various conditions and to conduct feed trials to determine, among other things, feed conversion ratios.

E. LEGISLATION AND MANAGEMENT REGULATIONS

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) was ratified by Jamaica on 21 March 1983. Subsequently, Jamaica has pursued a consistent policy of updating its laws to ensure full compliance with the provisions of UNCLOS.

The pieces of legislation relevant to the maritime zones and areas of Jamaica are the Maritime Areas Act 1996 and the Exclusive Economic Zone Act 1991. The Maritime Areas Act is an important piece of legislation that has significantly increased Jamaica's jurisdiction over maritime space. The Exclusive Economic Zone Act 1991 established Jamaica's 200 nautical miles EEZ. The enactment of this piece of legislation establishes a maritime regime (about 274,000 km²) that is approximately 25 times the size of the landmass of mainland Jamaica.

The main pieces of legislation presently governing fisheries activities in Jamaica are the Fishing Industry Act 1975, the Fishing Industry Regulations 1976 and the Morant and Pedro Cays Act 1907, administered by the Fisheries Division of the Ministry of Agriculture and Fisheries, and the Aquaculture, Inland, Marine Products and By Products (inspection, licensing and export) Act 1999 administered by the Veterinary Division. The Morant and Pedro Cays Act 1907 and the Fishing Industry Act 1975 provide for establishment of registration and licensing systems for fishers and fishing vessels. The new fisheries Bill referred to earlier will incorporate all the major stipulations of each as well as widen and strengthen the current arrangements.

As part of the modernization of the public sector the Fisheries Division is currently undergoing transformation into an executive agency. This will result in a semi-autonomous agency with greatly improved efficiency. As part of the modernization process a Chief Executive Officer (CEO) is in place to drive the transformation into an executive agency which is an on-going process. The deadline for completion of this transformation has been revised a few times due to a number of setbacks, including a lack of budgetary support and delays in the passing of the new fisheries Bill.

Several other statutes contain provisions relevant to fisheries. These are the Exclusive Economic Zone Act 1991, Maritime Areas Act 1996, Natural Resources Conservation Authority Act 1991, Beach Control Act 1956, and the Wildlife Protection Act 1945.

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NATIONAL REPORT OF MONTSERRAT

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Montserrat

INTRODUCTION

Fisheries and its associated activities continue to contribute and play a significant role in the socio-economic development of Montserrat in terms of improved livelihoods, food security and nutrition, *inter alia*. Fishing as an economic activity does not only generate income for fishers and their households, but also creates employment for a significant proportion of the island's population.

A. FISHERY AND FLEET DESCRIPTIONS

Fisheries activities in Montserrat are artisanal and can be described as small-scale intensive fishing utilising 32 small size boats which are neither licensed nor registered. This male dominated industry comprises of approximately 101 non-registered and licensed full-time, part-time, occasional and recreational fishers (Table 1).

Table 1: Number of boats and fishers in the fishery

Boats in Fishery				Fishers in the Fishery			
Number	Size	Type	Construction	Full Time	Part Time	Occasional	Sports
8	3 – 5m	Open Pirogue	Wood & fibreglass				
2	3 – 5m	Open Pirogue	Fibreglass				
19	6– 10m	Open Pirogue		24	50	19	8
3	5 - 10m	Sports Fishing	Fibreglass	TOTAL			
Total No. of boats operating 32				Total No. of Fishers 101			

Fishers within this open access, multi-species and multi-gear fishery, target inshore and offshore reef fish, coastal pelagic, and ocean pelagic fish (Table 2). These fishery resources are usually used for subsistence or local small market consumption. With regards to the number of trips landing a single species, red hind and queen triggerfish are the most abundant species and occur mainly in the demersal fishery. However, needlefish/gar (*Belonidae*) continues to be the most important and dominant single species within the fishery in terms of quantity landed.

Table 2: Estimated local fish production per fishery 2010 - 2013

Year	Demersal	Coastal Pelagic	Ocean Pelagic	Conch	Shark
	LBS	LBS	LBS	LBS	LBS
2013	61948	24086	1315	0	121
2012	54705	25587	833	11	341
2011	54806	17507	1405	0	184
2010	34045	15898	2690	0	520

Ninety percent of the fishing activity is concentrated within the 3 miles territorial sea of national jurisdiction. The other 10% is concentrated on offshore reef fish outside waters of national jurisdiction up to 25 miles including some quantity of needlefish (gar) which are caught nearby Redonda.

Although there has been a steady increase in local fish production within the three fisheries over the past four years (Table 2), it is still insufficient to fulfil the local market demand. As a result, imports of fish and fish products continue to increase in order to satisfy the local market demand (Table 3).

Table 3: Estimated local fish production & imported fish and fish products 2010 - 2013

Year	Est. Local Fish Production		Est. Imported Fish & Fish Products	
	LBS	XCD\$	LBS	XCD\$
2013	87,470	825,257.00	161,392	1,059,419.08
2012	81,477	763,447.00	142,442	985,353.00
2011	73,902	705,896.00	112,788	918,833.38
2010	54,153	502,514.00	108,771	881,440.87

The increase in recorded fish production can be attributed to:

1. New entry into the fishery by young fishers over the past four years. A recruitment campaign was undertaken by the Fisheries Division, taking into consideration that approximately 70% of the fishers are over the age of 50.
2. Improved data collection system. Over the past four years the Fisheries Division has been collaborating with the fishers to share fishery data during non-working hours, weekends and holidays.
3. Fishers are combining their fishing effort thereby sharing the expenses and maximizing the profits.

Despite the increased landings, fishers are still faced with several challenges, which fisheries managers and planners must address in order to ensure that the fisheries continue to ensure food security and nutrition and improve livelihoods. These include:

1. Lack of market facilities for fishers to sell their day's catch;
2. Inadequate storage facilities to store large quantities of harvested fish;
3. Conflicts between fishers and the port authority over use of the Little Bay port;
4. Lack of safe harbours to secure fishing vessels during storms and rough seas.

A summary description of fisheries in Montserrat is provided in Table 4.

Table 4: Summary description of Montserrat fishery 2013

No. of Vessels	Horse-Power	Fishery Type	Gear Type	Trip hours	Main Fish Species caught	Depth Metres	Price	No of Crew	Landing Site
							XCD		
3	40 - 85	Coastal pelagic	Beach Seine only	1 - 6	Gar, Ballyhoo Jacks(Various); Bonito; Mackerel;	1 - 30	\$7.00 \$10.00	3 - 5	Little Bay
4+1*	15 - 48	Reef	Pots only	1 - 5	Red Hind; Triggerfish, Long jaw squirrel Fish, Blue Tang, Doctor Fish, Coney; Parrot Fish; Grunt	5 - 150	\$10.00	2 - 3	Little Bay
5	15 - 90	Reef	Gillnets	1 - 6	Parrot Fish, Jacks (big eye scads & Crevalle; shark (various)	1 - 30	\$10.00 \$5.00		Little Bay
17	12 - 40	Reef & Ocean Pelagic	Bottom, troll, surface long Line	1 - 4	Snappers (Various) Wahoo; Mahi-Mahi; Barracudas; Tuna; King Fish	50 - 700	\$10.00	2 - 3	Little, Bunkum; Isle Bay
15	40 - 200	Deep slope reef fish & Ocean Pelagic	Bottom, troll, surface long Line & Pots	1 - 4	Snappers (Various) Wahoo; Mahi-Mahi; Barracudas; Tuna; King Fish; Red Hind; Triggerfish, Long jaw squirrel Fish, Blue Tang, Doctor Fish, Coney; Parrot Fish; Grunt	5 - 700	\$10.00	2 - 3	Little, Bunkum; Isle Bay
3	100 - 300	Pelagic	Troll Line only	1 - 4	Wahoo; Mahi-Mahi; Barracudas; Tuna; King Fish	90 - 700	\$10.00	2 - 3	Little Bay
1	2 x 40hp	Reef; Coastal Pelagic; Beach Seine;	Bottom, troll, pots, gill nets, beach seine		Needlefish (Gar), Ballyhoo, Bonito; Jacks(Various); Snappers (Various) Wahoo; Mahi-Mahi; Barracudas; tuna; King Fish; Red Hind; Triggerfish, Long jaw squirrel Fish, Blue Tang, Doctor Fish, Coney; Parrot Fish; Grunt;	1 - 700	\$7.00 - \$10.00	2 - 5	Little Bay
1		Full Time Fish Processor							
4		Part Time Fish Processors							

B. STATISTICS AND SAMPLING

Fish is landed at three sites on the island, Isle Bay, Bunkum Bay and Little Bay. Approximately 98% of the catch and effort data is collected by Data Collectors at Little Bay which continues to be the main landing site. Daily catch and effort data are collected by two data collectors Monday to Friday 8:00 – 4:00 p.m. during working hours. This accounts for approximately 75% of the total volume of fish landed locally.

In an attempt to capture 95% of the total volume of fish landed locally, the Fisheries Division has been collaborating with the fishers to share data not captured by the data collectors after working hours, weekends and holidays. To achieve this, fishers have been provided with stationery to record and submit their catch and effort data to the data collectors. This method of data sharing has been successful, as in 2013 fishers provided an additional 7,175lbs of recorded landings to the data collectors during their regular interviews.

Unfortunately, CARIFIS, the main database for entering data, stopped working in the first quarter of 2013. As a result the data collectors were unable to make entries into the database. However, an Excel spread sheet workbook has been developed to electronically record the data. No biological data are been collected, as the data collectors lack the skills in acquiring this data.

To improve Montserrat's fisheries data management and information collection systems, the Division is presently seeking financial assistance through various institutional agencies to facilitate:

- a. Collaborating with fishers in the collection and recording of fish data;
- b. Refresher training for data collectors to improve the data collection and recording systems;
- c. Development of a Digital Fisheries Database Management System;
- d. Online basic Marine Biology Certificate training course for the Fisheries staff.

C. NATIONAL FISHERIES POLICY AND MANAGEMENT OBJECTIVES

Although the sustainable management and use of fisheries resources require the appropriate policy guidance, Montserrat still does not have a National Fisheries Policy. However, the Fisheries Division is in the process of developing a National Oceans Policy which would address fisheries management issues. Notwithstanding, management objectives for the fisheries include:

- a. To increase sustainable fish production, enhance food security and nutrition as well as income generation;
- b. To improve the future governance, management and use of the fisheries resources with the development of appropriate legal framework;
- c. To improve Montserrat's fisheries data management and information collection and data sharing systems;
- d. To improve human capacity development amongst fisheries staff and fishers to manage and harness the fisheries resources sustainably in the future;
- e. To promote the adoption of best practices that will enhance quality, hygiene and sanitation and value addition for fish and fish products;
- f. To develop and install appropriate fishing technologies for the various fisheries with special focus on harnessing the offshore resources so as to ease the pressure on the inshore reef systems.

D. RESEARCH

Coral Cay, a conservation organisation, has been conducting some marine surveys around the north and west coast of Montserrat. The purpose of this project is to collect information on targeted fish families including lionfish so as to acquire more comprehensive scientific information on the biodiversity of the marine environment at the sampling sites. The findings are currently been analysed.

Succorfish, a UK based company, in collaboration with the Ministry of Agriculture, Lands, Housing and the Environment (MALHE) through its Fisheries Division is executing a six month Inshore Vessel Monitoring System (I-VMS) pilot project. I-VMS have been installed on two open 22 – 25 feet local fishing vessels for this pilot project. I-VMS will provide fishery management authorities in Montserrat with a technologically advanced instrument for improving the future management of the fisheries through accurate and timely information about the location and activity of regulated fishing vessels operating in its national waters *inter-alia*.

The Fisheries Division in collaboration with the United Kingdom Overseas Territories Conservation Forum (UKOTCF) is currently seeking funding for a project proposal called “Sustainable Use of Marine Resources in Montserrat Waters”. Funding available, the overall expected outcome of the project will be to:

- a. Increase knowledge of Montserrat’s marine ecosystems to inform future fisheries management plan and need for appropriate legislations and regulations;
- b. Increase quantity of fisheries data and understanding of local fishing practices;
- c. Sustainable management of the fishery to enhance food security and nutrition and improve livelihoods.

E. LEGISLATION AND MANAGEMENT REGULATIONS

The Revised Fisheries Act 2002 is the legal instrument which makes provision for the promotion, management, development and conservation of the fisheries resources and its associated ecosystems services. Although the Act makes provision for a fisheries regulation, to date the regulation to support the act is still in draft stage.

Since the enactment of the Fisheries Act 2002, several institutional and environmental changes have occurred globally in the sustainable management and utilization of the fisheries resources which the 2002 Fisheries Act does not address. As a result, the Fisheries Division is undertaking a comprehensive review of the outdated legislation, with the view of revising and updating it.

Based on the Eastern Caribbean Regional Oceans Policy (ECROP), the Fisheries Division is currently drafting its National Ocean Policy. The National Oceans Policy, once approved, will set the foundation for revising, updating and developing the legal framework for the future management, development, promotion and conservation of the fisheries resources.

F. CONTINUOUS HUMAN PROFESSIONAL DEVELOPMENT

The Fisheries Division, in collaboration Caribbean Development Bank, provided training for ten local persons in the processing of Needlefish/Gar (Belonidae). The training involved developing the skills of young persons in adding economic value to the product through cleaning, filleting, packaging and marketing.

The Government of Montserrat has enhanced its future capabilities in the management and governance of its marine resources under national jurisdiction. The Chief Fisheries Officer (CFO) successfully completed the 2012 – 2013 MSc Coastal and Marine Resources Management at the University of Portsmouth United Kingdom. The CFO has improved and developed his skills, knowledge and understanding in:

- a. the need to appreciate and value the principles and concepts of coastal and marine resources management and the ability to apply techniques to improve the management, governance, development and responsible use of the marine resources;
- b. the physical coastal processes affecting the coastal and marine areas and making the appropriate decision and recommendations to mitigate against the various natural and manmade risk posed by these processes;
- c. the formulation, development and implementation of policies related to sustainable management of the coastal and marine resources and its associated ecosystems services;
- d. Oceans Governance and Marine Spatial Planning (MSP).

NATIONAL REPORT OF ST. KITTS AND NEVIS

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A. DESCRIPTION OF NATIONAL FISHING INDUSTRY

There are five major fisheries that are managed by the Department. These are: Queen Conch (*Strombus gigas*), Caribbean Spiny Lobster (*Panulirus argus*), small coastal pelagic, large or ocean pelagic and reef/bank and slope fisheries. The annual contribution of fisheries to national Gross Domestic Product (GDP) and annual production for the period 2010 to 2013 are provided in Table 1 while the annual number of boats and fishers for 2000 to 2013 is provided in Table 2.

Table 1: Characteristics of the fisheries subsector of St Kitts and Nevis

Industry Characteristics				
	2010	2011	2012	2013
Fisheries Contribution to GDP %	0.45	0.61	0.60	0.56
Total fish production (in tons)	307	358	346	307

* Fisheries Contribution to GDP % and Total fish production (in tons) statistics is not available at this time.

Table 2: Registered boats and fishers in St Kitts and Nevis (2000 to 2013)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Boats	287	287	303			361	385	396	414	439	452	460	474	247
Fishers	338	373	450	477	490	501	542	600	634	679	699	728	793	756

On St. Kitts there are five major sites, which account for nearly 70% of the total of vessels in the Federation. Some of these sites are characterized by their major or unique fishing activity. For example, most conchs are landed at East Basseterre, the location of the Basseterre Fisheries Complex. Old Road is known for coastal pelagics, like jacks, ballyhoo and gars, while Dieppe Bay is famous for lobster landings and boats from Nevis that bring their catch to St. Kitts do so by using the West Basseterre landing site. The largest landing area in Nevis is adjacent to the Fisheries Complex in Charlestown. This facility provides gear and equipment, ice and walk-in freezers, outboard motor repairs, fish processing, and stalls for marketing the fish.

B. STATISTICS, RESEARCH AND RESOURCE ASSESSMENT

The Department of Marine Resources has the same method of data collection and analysis which is based on the CARICOM region data system CARIFIS. In St. Kitts and Nevis data collection is done on a systematic census schedule. Information from all vessels landing at the selected site is captured and stored in an excel file due to the difficulties experienced using CARIFIS. Monthly reports on estimates of landings are produced.

The Department of Marine Resources has attached an officer, Mr. Samuel Heyliger to the St. Kitts and Nevis Aquaculture Pilot Project and Environmental Research (SNAPPER) program operated by Dr. Barrington Brown and have made positive strides in the production of tilapia. SNAPPER has accomplished thus far the culturing of the tilapia in brackish water to growth and reproduction in 100% Atlantic salt water. The Ross University of Veterinary Medicine is assisting with the development of SNAPPER in providing some pathological analyses support to the project. The next step in the development of this research project is on a commercial scale.

Research has been conducted on the potential of Shell Fish Aquaculture in St. Kitts and Nevis. The activity is basically a joint venture with St. Kitts Fisheries Department and Ross University School of Veterinary Medicine.

C. POLICY AND LEGISLATION

The Fisheries Act (1984) and the Fisheries regulations (1995) revised 2002: The Fisheries Act (1984) covers the establishment of a fisheries advisory committee, fisheries access agreements, local and foreign fishing licensing, fish processing establishments, fisheries research, fisheries enforcement and the registration of fishing vessels. Also, the Act specifies conservation measures such as prohibiting the use of any explosive, poison or other noxious substance for the purpose of fishing.

With the assistance of CERMES, CRFM and the OECS, the Department of Marine Resources in May 2011 completed a small grants project “*Preparing for fisheries governance in St. Kitts and Nevis based on EAF*” that aimed at scoping the future of the fisheries for the next 10 years using the Ecosystems Approach to Fisheries (EAF). An update of the fisheries laws and subsidiary legislation was regulated among the entry points that were established for the successful implementation of that EAF. Informal discussions have been held regarding the Common Fisheries Policy (CFP) in the update process of the fisheries laws and subsidiary legislation.

D. DEVELOPMENT ACTIVITIES

The Department of Marine Resources sees the vision of EAF for the Federation as one to promote an industry capable of meeting the present demands for marine resources and to be able to sustain equilibrium between economic and environmental concerns for the foreseeable future, while minimizing food security uncertainties and enhancing environmental benefits in St. Kitts and Nevis.

This new vision sees greater emphasis being placed on habitat management and protection rather than actual activities to increase landings. The premise is if the primary source of production is protected and enhanced, this will increase secondary production thus increasing landings. Similarly, all other stakeholders should be given sufficient opportunity to contribute to the new ecosystem management process.

The new focus will see the establishment of marine parks and reserves, fishing priority area, artificial reefs, permanent moorings, vessel monitoring systems, revamped licensing system and a stronger commitment to fisheries law enforcement.

E. FISHERIES MANAGEMENT AND CONSERVATION ACTIVITIES

Large (Ocean) Pelagic Fishery

Objective: Promote the positive aspects of the traditional nature of this fishery and encourage new entrants.

Catches of pelagics are seasonal and often target the dolphinfish (*Coryphaena hippurus*) and tunas (Scombridae). Larger pelagics are harvested by commercial and sport fishermen mainly by trolling. The commercial fishery is conducted by about 25 fishers using fifteen vessels, outfitted with trolling hooks and lines. Most vessels have a crew of 2 - 3 persons including the captain. Trolling lines are normally 80 – 100 lbs test with a single hook. Artificial lures are sometimes used especially for the tuna and mackerel. Fishers prefer to use ballyhoo or flyingfish as bait to catch dolphinfish. Some fishers have been using Fish Aggregating Devices (FADs) in conjunction with long lines to catch yellowfin tunas.

Small (Coastal) Pelagic Fishery

Objective: Promote the positive aspects of the traditional nature of this fishery and encourage new entrants.

Fish are mostly caught by seine nets. Seining is often carried out close to beaches. Beach seining where nets are hauled onto the beach is discouraged as large numbers of juvenile fish are often taken and discarded. Gill nets (fixed or drifting) are used sometimes for catching jacks. Cast nets are also used along the beach to catch fry. Fish are sold fresh at the landing sites by fishermen or by vendors. Market demand may limit catches at certain times. In shore pelagics are also used as bait in long line, trolling and trap fisheries. Five vessels using seine nets are involved in the fishery and approximately 30 persons are employed in this fishery on a regular basis.

Reef Fishery

Objective: Promote stock recovery.

The species targeted by this fishery are those demersals that live within the ecosystem of coral reefs and are taken with traps, hand lines, gill nets and spear guns and are fished at various depths throughout the extensive shelf area. The quality of the catch ranges from miscellaneous reef fish (more commonly taken in shallow areas) to snappers and groupers (more commonly taken in deeper areas). The high local demand for reef fish of any size causes the fishery to be susceptible to overfishing.

Lobster Fishery

Objective: Promote stock recovery.

The lobster is part of the reef fishery, but has been separated by management due to its importance to the economy and very long life cycle. Lobsters are taken in the same traps that catch reef fish and to a lesser extent by divers. Lobsters are usually caught in small numbers and stored in holding cages until they are sold. Most of the catch is exported but sales to local restaurants and hotels are increasing.

Conch Fishery

Objective: Promote stock recovery.

This fishery is carried out by SCUBA and free divers usually over sea grass beds and coral rubble, with some fishers operating without permits and others being uncertified divers. The majority of the fishing is undertaken from small wooden open boats with an average length of 5 m with motors ranging from 25 to 40 HP. Each boat fishes with approximately three persons. Conch populations are considered to be heavily exploited within the Federation especially on the leeward side of the islands. However, conch are beginning to reappear in near shore areas in response to the concentration of fishing effort in deeper waters and the slowdown in exports to EU markets. This is the major exported marine product for St. Kitts and Nevis. There is a licensing system in place for conch fishers and exporters.

NATIONAL REPORT OF ST. LUCIA

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BACKGROUND

Saint Lucia's small economy has historically depended and continues to depend heavily on its limited natural resources for tourism, agriculture and fisheries. The fishing industry in Saint Lucia comprises both wild-caught and farmed marine species. Wild-caught fisheries include demersal, coastal pelagic and offshore pelagic fish. Whereas farmed marine species include sea moss/seaweed, tilapia and freshwater prawns. In 2013, the total annual production for commercial wild-caught fisheries was 1,639 metric tons at an ex-vessel value of EC \$25.85 million. There was a decrease of 4.07% in annual production and an increase of 2.25% in ex-vessel value, when compared to 2012. Production figures for seamoss revealed that in 2013, approximately 5,753 lbs of dry seamoss was produced with a total value of EC\$115,060.00.

A. FISHERY AND FLEET DESCRIPTIONS

Commercial fishing¹⁰ is artisanal in nature using mainly open reinforced fibreglass pirogues with a modal length of 7.62m (25ft). These vessels are operated typically by outboard engines mainly of 75hp. Fishing vessels are typically manned by a three (3) member crew, one of which would captain the vessel. A fishing trip is usually restricted to one day when vessels depart on a fishing trip, on average, about 05:00hrs returning in the afternoon. The number of fishing trips is usually the measure of effort used in national fisheries statistics although information on time spent at sea, fuel used and number of gear is collected as part of the sampling procedure.

More than one fish species or family is typically targeted by fishers. As such, fishers alternate their use of different types of gear ranging from trolling lines, fish pots or diverse types of nets¹¹ such as flyingfish nets and cast nets based on the availability of fish type. Gear setting and retrieval are non-mechanised and gear restrictions are governed by Section 41 of the Fisheries Regulations Cap. 7.15 of the Revised Laws of Saint Lucia, 2008¹².

Migratory offshore pelagic fishes are one of the most important fisheries in Saint Lucia which has resulted in a high season extending from December to May and low season during June to November corresponding to the volume of catches and availability of offshore migratory pelagic species. The use of gear also mirrors this pattern. The most common gear used in the industry are trolling lines and handlines but their usage declines during June to December where there is an increase in the use of fish pots to target demersal species (Government of St. Lucia, 2012).

¹⁰ Commercial fishing is the activity of catching wild fish and other seafood for profit through sales and is not for sporting or recreational purposes.

¹¹ The use of Trammel nets for fishing purposes requires permission from the Chief Fisheries Officer.

¹² Mesh size restrictions: Cast Net >25.4mm, Beach seine >31.75mm, Bottom gillnet >76.2mm, flying fish gillnet >19.05mm.

Based on the information collected through the fisheries census, on average, fishers go out fishing more frequently per week during the high fishing season (December – May) than the low fishing season (June – November). In the high fishing season, fishers venture out on average 5 days per week and a maximum of 7 days but during the low season the fishers go out on average 4 days per week and a maximum of 5 days. Seventy-eight (78) percent of fishers go out between 5 to 7 days per week.

There are 2,613 people registered with the Department of Fisheries as fishers operating as crew, captains, and owners of fishing vessels (boat-owners) (Department of Fisheries, 2013). However, the census on the fisheries sector for the period 2011 identified less than half of the registered fishers as active in the industry (Government of St. Lucia, 2013). Similarly, while there are 719 fishing vessels that are registered with the Department of Fisheries only one-half of these vessels are licensed annually and 402 were captured in the fisheries census (Government of St. Lucia, 2012). There are ten (10) major fishing landing sites at which fishing vessels operate. These are located island wide near the coastline and are associated with the coastal communities where data is being collected, these communities include: Gros Islet, Castries, Anse la Raye, Canaries, Soufriere, Choiseul, Laborie, Vieux Fort, Micoud and Dennery.

B. STATISTICS AND SAMPLING

The Department's current data collection system for wild-caught fisheries is based on a stratified random sampling system of three major spatial strata: landing sites based on the number of vessels operating, the fishery types and the volume of fish landed at the site (W.B. Joseph, unpublished b). Of the 22 landing sites island-wide from which the fishers operate, catch and effort data are collected from ten on a permanent basis. At each of the sites being sampled, data is collected for every other returning fishing vessel, over a fifteen day period, which is randomly selected on a monthly basis. The data collected from each sampled vessel are as follows: time departed and returned, fuel used, gear (primary and secondary), number of gear, and sets used, soak time of nets and pots, range of depth, mesh size of nets and pots, species common name and its bulk weight and price per lb. More recently, data on the number of sharks, tuna, wahoo and yellowfin tuna (<20lbs and <60lbs) are being collected.

Data on fishers and vessels engaged in the commercial wild-caught fishery is collected through the registering and licensing process; these include: formal education, family status, no. of children and dependents, and gear operated on the vessel.

C. NATIONAL FISHERIES POLICY AND MANAGEMENT OBJECTIVES

The draft plan to manage the fisheries of Saint Lucia (Government of St. Lucia, 2006) and the draft National Fisheries Plan (Government of St. Lucia, 2013), developed through a consultative process with resource users, guide the work program of the Department of Fisheries and outlines specific management plans for major fisheries of Saint Lucia. It enunciates that the Government is committed to the conservation and sustainable use of fisheries and associated related resources for the long-term benefit of its people. In addition, the plan vouches to ensure that the management decisions undertaken by resource users and managers will be guided by the best scientific evidence available, taking into account traditional knowledge of the resources and their habitats, as well as relevant environmental, economic and social factors to ensure their effective conservation and management. The plan to manage the fisheries of Saint Lucia articulates specific management objectives for each fishery.

D. RESEARCH

Ongoing Research

Processing

Prior to 2013, the two main species of seamoss grown in Saint Lucia were *Gracilaria* spp. and *Eucheuma isiforme*. However, a new faster growing species from the genus *Eucheuma*, with greater gel content, and a new cultivation method was introduced to Saint Lucia and have led to greater interest and potential for the development of the seamoss industry on the island.

Governance and Market enhancement

The Department continues to promote the development of the seamoss industry in Saint Lucia through a number of initiatives including the provision of training and other aspects of business and organisational support within the seamoss industry to stimulate long-term economic viability and self sufficiency of these enterprises. These include: development and establishment of appropriate organisations and institutions to sustainably develop and manage the sector; training in product development and value-adding; development and implementation of a marketing strategy and action plan to increase demand and sale of seamoss locally, regionally and internationally.

Fishing Technology

Through the Caribbean Fisheries Co-management Project (CARIFICO) suitable fisheries co-management approaches for fish aggregating device (FAD) fisheries will be developed and implemented.

Planned Research

Marine Reserves

Under the four (4) year Eastern Caribbean Marine Managed Areas Network project, which is funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), a wide range of research is expected to be conducted through small grant processes with the aim of establishing an Eastern Caribbean marine management areas network that more than doubles the area of effectively managed marine areas (MMAs) in the region and provide for improved livelihood opportunities. Within the next 18 months the project is expected to fund the activities that may lead to strengthening of the Point Sable Environmental Protection Area (PSEPA), which contains two mangrove wetlands marine reserves and one coral reef marine reserve. The following are expected outputs:

- GIS map and vector /raster shape files completed to show the uses and conflicts, the extent of the natural resources, pollution hotspots and type of pollutants in the intervention area.
- Report on the sources, levels of pollution and recommendations for mitigation produced and endorsed by relevant authorities.
- Report on the potential relationships between pollution, conflict and natural resources.

Additionally, under the OECS Sustainable Financing and Management of Eastern Caribbean Marine Ecosystems Project a demonstration project will be established within the Soufriere Marine Management Area and sustainable financing mechanisms for funding conservations projects nationally are being researched.

Fish Processing and Market enhancement

The Department of Fisheries will be implementing a project to increase the economic value of fisheries through improved handling and processing techniques and to generate further employment in fish processing by identifying and capitalising on market opportunities.

E. LEGISLATION AND MANAGEMENT REGULATIONS

The primary legislations governing management of the island's marine resources are the Fisheries Act and Fisheries Regulations CAP 7.14 of the revised laws of Saint Lucia (2008); they are based on the Organisation of Eastern Caribbean States (OECS) harmonized legislation. The Fisheries Regulations specify conservation measures such as gear restrictions, fishing method restrictions, close seasons and creation of marine reserves. The policy of the Government of Saint Lucia for the fishing sector focuses on development and management of the fishing industry through the promotion of sustainability of the sector through self-sufficiency by increased production from capture fisheries and the aquaculture sector. Another major objective outlined within the fisheries policy is the social and economic advancement of fishers and their families.

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NATIONAL REPORT OF ST. VINCENT AND THE GRENADINES

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A. FISHERY AND FLEET DESCRIPTIONS

The local fishing industry of St. Vincent and the Grenadines is small scale and artisanal, using traditional gear, methods and vessels. The fishing vessels are open and powered by outboard engines. These vessels exploit both oceanic and inshore pelagics as well as the shelf and deep slope demersals. Descriptions of the various fisheries in St. Vincent and the Grenadines are provided in Table 1 and characteristics of the range of fishing vessels are provided in Table 2. Fishermen are daily operators, who go out to sea in the early morning and return to land in the late afternoon or evening.

St. Vincent and the Grenadines also have a highseas fishing fleet which are foreign owned vessels registered in St. Vincent and the Grenadines. The highseas fishing fleet is of an industrial nature, harvesting tuna and tuna-like species. There are thirty-two (32) such vessels fishing in the Atlantic. The characteristics of this fleet are provided in Table 3.

Table 1: Description of fishery in SVG. Source: Fisheries Division Data Unit 2007 -2011

GROUP	DESCRIPTION
Offshore Pelagics	These are fast swimming migratory fish that inhabit the deep sea. Species include tuna, billfish, dolphin, kingfish. These species contribute approximately 20.5% of the total estimate of fish landed over the five year period (0.4 million pounds annually), realizing annual value of 3.2 million EC dollars.
Inshore Pelagics	These are near shore fish found in mid water or surface water in sheltered bays. They are generally smaller than offshore pelagics, e.g jacks, robin, dodger. On average these species contribute approximately 45% of the landings to the local market (0.83 million pounds annually), realizing an annual value of 2.9 million dollars.
Demersals	These are fish dwelling at the sea bottom, e.g rock hind, blem (queen snapper), groupers, parrotfish. These species contribute approximately 18% (0.34 million pounds annually) to the local market, realizing an annual value of 2.9 million dollars.
Shellfish	Shellfish are marine species usually living at the sea bottom and protected by a shell. e.g lobster, conch. Average annual contribution to landings is 3.5% (0.064 million pounds) with an average value of 0.7 million dollars. However, shell fish contribute an estimated 24% to average annual exports.
Sharks	Sharks are fast swimming migratory fish that inhabit the deep sea and have a cartilaginous skeletal structure. Sharks are not particularly targeted in the fishery, however, by catch could be significant especially in the longline fishery. Estimate annual landing for shark is less than 18,000 pounds contributing about 1% of landings to the local market.
Turtles	Turtles are reptiles that spend the majority of their lives at sea; however, the females come on land to lay their eggs. Marine sea turtles are taken mostly opportunistically by fishers. Estimated annual landings are 20,000 pounds. Poaching and catches out of season would probably contribute to this figure being higher.
Whales & Porpoises	These marine mammals are migratory, or pelagic in the case of porpoises. They give suckle to their young e.g. humpback whales and blackfish. There is a traditional significance with respect to the harvesting of marine mammals in St. Vincent and the Grenadines. Humpback whales are targeted in Bequia while the pilot whale and other porpoises are targeted in Barrouallie and by some Kingstown Fishers.

Table 2: Description of the local fishing fleet, Source: Fisheries Division, CARIFIS 2011

Vessel Types	Description	No. of Vessels
Flat Transoms (Bow & Sterns)	These are commonly called bow and stern or dories. They are open boats of 3 – 6 m (11- 27ft) in length. They are constructed from wood or marine plywood which in many cases are covered by epoxy or fibreglass, which provides a waterproof covering. They are often powered by one or two outboard gasoline engines ranging from 14 – 115 horsepower. Oars maybe the only form of propulsion on rare occasions. These vessels are used mainly in the lobster and conch fishery in the Grenadines.	230
Pirogues	These are open boats with a pointed bow and flat transom, however, the bow is much higher that of the flat transom boats and they tend to be slightly larger, ranging from 7 – 10 m (19 – 30 ft) in length. They are constructed from fibreglass and powered by one or two outboard gasoline engines ranging from 40 -85 horsepower. These vessels are predominantly used in the trolling and demersal fisheries.	390
Double enders	Double enders or “two bows” are open wooden boats ranging from 3 – 9 m (10 – 29 ft) in length. Both ends of the boat are shaped like the bow of a boat. In most cases the only means of propulsion are oars, but occasionally, they may be powered by a small outboard gasoline engine specially rigged at one end of the boat. These engines range from 6 – 48 horsepower. These vessels are used mainly in the beach seine fishery.	69
Multipurpose	In SVG these vessels range from 34.7 ft – 48.5 ft in length. The main type of longliner is a Yanmar type made of glass reinforced plastic (GRP) powered by inboard diesel engines ranging from 90 – 190 hp. They are multi-purpose in nature and designed to operate up to 150 nautical miles from the islands with a 3 to 5 day stay at sea. These vessels are used primarily for tuna longline fishing, but may be utilized for trolling, bottom longline fishing, pot fishing and angling.	30
Others	These includes, canoes, rowboats etc.	18

**The CPUE for most of the vessels and fishery type is calculated using the gear, the number of trips per year and the sample weight in lbs per year.*

Table 3: Summary of the St. Vincent High Seas fleets. (Source: Fisheries Division)

Type of data & information	
Numbers of vessels	32 (2011)
Number of vessels > 24 m LOA	14 (2011)
General fishing areas	Two main areas: i) Between 5-20° N and 30-60°W (ii) Between 20-30° S and 30-45°W
species landed 2000-2010	Yellowfin tuna, Albacore, Big Eye tuna, Skipjacks, Sail fish, Kingfish, Dolphin fish (Mahi mahi), Spear Fish, Sword fish.
Average annual catches (MT) of major tuna species 2000- 2010	3,404
Key landing/ trans-shipment locations	Port of Spain and Chaguaramas (Trinidad and Tobago)

B. STATISTICS AND SAMPLING

Key statistics of relevance to the fisheries sub-sector in St Vincent and the Grenadines are provided in Table 4.

Table 4 QUICK FACTS TABLE	
Per Capita Consumption	16.7 lbs annually (Average fish landings 2007-2011*).
Socio-Economic	1.7 % contribution to GDP 2,500 full and Part time fishermen 500 vendors, traders, gutters, etc. 750 registered fishing vessels (CARIFIS Jul 2011) Average cost of fishing vessel with gear: \$15,000.00 Estimated investment in the fisher: \$10 million
Fish Landings and Export	Approximately 1.8 million lbs of fish landed annually (2007-2011*) Approximately 0.2 million lbs of fish exported annually (2007-2011*)
Physical Characteristics	Land area—345 square kilometres EEZ—27,500 square kilometres Shelf area—7,800 square kilometres

*Source: Fisheries Data Unit

The level of infrastructural development at the various landing sites throughout the state has improved significantly over the last two decades. In 1992 the New Kingstown Fish Market (NKFM) was the only landing site with marketing facilities such as, vending stalls, ice machines, chillers, etc. Today, similar

facilities exist in Paget Farm, Bequia; Britannia Bay, Mustique; Friendship, Canouan; Clifton, Union Island; Calliaqua, Barrouallie, Chateaubelair and Owia, St. Vincent.

The landing sites are zoned and categorized (stratified). There are seven zones and thirty six (36) landing sites. Categorically, a site is designated as either primary, secondary or tertiary. The assignment into any one of these categories is based on three main variables, i.e., the number of fishing boats that regularly land fish at the site; the amount of fish landed; and the level of infrastructural development. There are two (2) primary sites (Kingstown and Barrouallie); fourteen (14) secondary and twenty (20) tertiary sites. In addition to these on-shore landing sites, several trading vessels take fish directly from the fishermen and they are also classified as landing sites.

The catch and effort data follows a stratified sampling methodology. In this approach the sampling frame (which is all the identified fish landing sites within the country) is first partitioned into groups or strata, and the sampling is then performed separately within each stratum. This method combines the conceptual simplicity of simple random sampling with potentially significant gains in reliability.

The sampling units (landing sites) are stratified prior to sampling into three groups (primary, secondary and tertiary) based on the variables mentioned above. The technique of simple random sampling is then used to select the days of the month each landing site is sampled. Sampling is not carried out on Saturdays, Sundays and major holidays, nevertheless, every day is considered as a potential fishing day. This simplifies data analysis and does not seem to be a great source of error since fishermen fish whenever they can regardless of what day it is.

An estimate of the amount of fish landed in the country is obtained by summing the totals of all the estimates for the individual landing sites. Landings are estimated using the “Day Effort at a landing site”. Catch Per Day Effort (CPDE) is determined for each of the species, and it is used for estimating the landings. Catch per gear and vessel type is also estimated.

The foreign high seas tuna fishing vessels flagged by St. Vincent and the Grenadines and operating within the ICCAT Convention Area, generally land and trans-ship their catches at two major trans-shipment ports in Trinidad and Tobago. While there is ongoing collaboration and good communication with ship owners for obtaining fishery statistics, St. Vincent and the Grenadines sees the need to establish an independent port sampling programme to verify landings and trans-shipping activities at these ports. For this purpose, St. Vincent and the Grenadines have submitted a proposal to ICCAT for funding to establish a 12-month sampling programme at Trinidad and Tobago’s trans-shipment ports.

C. NATIONAL FISHERIES POLICY AND MANAGEMENT OBJECTIVES

The overall policy for the fisheries sector is the sustainable use of all fisheries resources to maximize benefits to all Vincentians in the present and future. The strategies and policies concerning fisheries management and development will be under continuous review with the involvement of all stakeholders. Management regimes will serve to enhance the opportunities for fisheries to play a greater role in national food supply, thereby helping to alleviate under-nutrition and contribute to national food security. Emphasis will continue to be placed on the protection of the marine environment, in an effort to maintain and enhance its carrying capacity. Fisheries development goals and strategies will ensure the betterment of the socio-economic conditions of all stakeholders/beneficiaries within the Vincentian population. Fisheries development and management will take full account of the present and potential contributions from marine fisheries. Essential factors of production such as fishing boats, gear and technology, skilled personnel and research capability will be considered.

Fisheries Management Objectives

- Develop and increase the potential of living marine resources to meet human nutritional needs, as well as social, economic and development goals of the sector.
- Ensure that the fishing industry is integrated into the policy and decision-making process concerning fisheries and coastal zone management.
- Take into account traditional knowledge and interests of local communities, small-scale artisanal fisheries and indigenous people in development and management programmes.
- Maintain or restore populations of marine species at levels that can produce the maximum sustainable yield as qualified by relevant environmental and economic factors, taking into consideration relationships among species.
- Promote the development and use of selective fishing gear and practices that minimize waste in the catch of target species and minimize by-catch of non-target species.
- Ensure effective monitoring and enforcement with respect to fishing activities.
- Protect and restore endangered marine species.
- Preserve rare or fragile ecosystems, as well as habitats and other ecologically sensitive areas, especially coral reef ecosystems, estuaries, mangroves, sea grass beds and other spawning and nursery areas.
- Promote scientific research with respect to fisheries resources.
- Cooperate with other nations in the management of shared or highly migratory stocks.

Management Objectives by Fishery

The management objectives for each fishery type in St. Vincent and the Grenadines are listed in Table 5.

Table 5: Fishery Types and Management Objectives

FISHERY	TARGET SPECIES	OBJECTIVES
Shallow Reef Fishes	Hinds, parrotfishes, squirrelfishes, grunts, surgeonfishes, triggerfishes	To promote stock recovery by <ul style="list-style-type: none"> • encouraging fishers to fish further off-shore • continue to enforce the fisheries laws as it relates to destructive fishing practices • not increasing the current effort of harvest
Deep Slope Fishes	Snapper, groupers	Maximize catches within the limits of the potential yield
Coastal Pelagics	Jacks, herrings, silversides, anchovies, ballyhoo, robins, small tunas	Encourage co-management of the fishery Maintain artisanal nature of the fishery
Large Pelagics	Tunas, billfishes, dolphinfish, wahoo, sharks, swordfish, whales, porpoises	Cooperate with member of ICCAT particularly Caribbean states to assess, protect and conserve the large pelagic resources Promote development of the commercial and sport fisheries.
Lobster	Spiny lobster	Rebuild stocks in depleted areas by continuing to observe <ul style="list-style-type: none"> • the Closed season. • Conservation areas • Size limits • Restrictions on moulting • Berried lobsters

		<ul style="list-style-type: none"> • Certain harvesting practices (“Scrubbing”)
Conch	Queen conch	Rebuild stocks in depleted areas by continuing to observe <ul style="list-style-type: none"> • Minimum size limit • Closed areas

D. RESEARCH

The National Sea Turtle Conservation Programme aims to conserve the present nesting and foraging populations of the sea turtle in SVG. Patrols are done mainly on the eastern side of the island due to the forceful wave action of the Atlantic Ocean which aids Leatherback turtles in their approach to the beach.

Under the Caribbean Fisheries Co-management Project (CARIFICO), St. Vincent and the Grenadines Fisheries Division has been able to continue in the development of the FAD fishery, something that SVG does not have a long history in. CARIFICO is a joint collaboration between the Caribbean Regional Fisheries Mechanism (CRFM) OECS member states, namely Grenada, St. Vincent and the Grenadines, St. Lucia, Dominica, Antigua and Barbuda as well as St. Kitts and Nevis. Implementation of the project commenced on 01 May 2013 and it has a duration of five years. The project intends to develop and implement suitable fisheries co-management approaches in six OECS countries (including St. Vincent and the Grenadines) and appropriately share achievements and lessons learnt with other CRFM member states (CARIFICO, 2013). A baseline survey of FAD fisheries on the west coast of St. Vincent was conducted and steps were made in improving the system of identification for fishermen. Some consultations were also held with fishers to build consensus about co-management and explore possible supportive measures by the government authority.

In keeping with the goals and objectives of the SVG National Parks and Protected Areas System Plan 2010-2014, and supported by the Caribbean Aqua Terrestrial Solutions (CATS) Project, The SVG Fisheries Division, supported by the National Parks, Rivers and Beaches Authority have started activities towards the designation of the South Coast Marine Conservation Area (SCMCA) as St. Vincent’s next marine park. Among such activities were a baseline assessment and mapping of coastal and marine resources within the SCMCA, assessment of additional and alternative livelihoods (also within the SCMCA) and an evaluation of national legal and organisational frameworks for MPA management within St. Vincent and the Grenadines. The project commenced in October of 2013 and is expected to run until December 2015.

An ACP Fish II project on ‘Training in underwater visual survey methods for evaluating the status of Queen Conch stocks’ was conducted in August of 2013 to build the capacity of fisheries officers in the target group in using underwater visual survey methods for the management of *Strombus gigas*, queen conch within our Caribbean region. The implementation of the project involved Fisheries Officers undergoing training in the use of underwater visual survey techniques and a conch survey in the waters surrounding Union Island in the southern Grenadines. By bringing Fisheries experts from across the region together in one place, the idea was to build on the experiences and methodologies used in the other islands and share best practices in the use of visual survey techniques under the tutelage of key consultants. Ultimately it is also expected that this activity will support the eventual objective of harmonizing visual survey techniques and assessments for queen conch in the region. Trainees on the workshop represented the following CARIFORUM member states: Antigua and Barbuda, The Bahamas, Belize, Dominican Republic, Grenada, Haiti, Jamaica, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines.

E. LEGISLATION AND MANAGEMENT REGULATIONS

The Fisheries of St. Vincent and the Grenadines has the following legislation to assist with the management and development of the sector.

- The Maritime Areas Act (1983) – Act No. 15 of 1983, declares and establishes the marine area of St. Vincent and the Grenadines. This enables the State to define the following areas (1) Internal waters (2) Archipelagic waters (3) Territorial sea. (4) Contiguous Zone (5) Exclusive Economic Zone (EEZ) (6) Continental Shelf (7) Territorial Extent and (8) Safety Zones.
- The Fisheries Act (1986) and Regulation (1987), which form part of the OECS harmonized legislation, covers Fisheries access agreements, local and foreign fishing licensing, fish processing establishments, fisheries research, fisheries enforcement and the registration of fishing vessels. The legislation also specifies conservation measures such as prohibiting the use of any explosive, poison and other noxious substance for the purpose of killing, stunning, disabling, or catching fish; closed seasons, gear restriction, creation of marine reserves. The legislation gives the Minister responsible for fisheries, the authority to create new regulations for the management of fisheries when necessary.
- Fish Processing Regulations of 2001 drafted in response to international pressure for monitoring and controlling the quality of fish and fish products leaving and entering SVG. The legislation makes provisions for the control of marketing, handling, transporting and storage of fish and the operation of fish processing establishments.
- The High Seas Fishing Act of 2001, which provides the legal basis for the regulations of St. Vincent and the Grenadines registered vessels fishing on the High Seas. The act provides for constant monitoring of these fishing vessels in an effort to produce accurate information, which under provisions of the act is mandatory in order to be compliant to the International Convention for the Conservation of Atlantic Tunas (ICCAT).
- Other Fisheries Related Legislation – Town and Country Planning Act (1992) – Coastal Zone Management, Forestry Act (1945) – Mangrove Protection, Mustique Conservation Act (1989)- Management of the conservation areas on and around Mustique.

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NATIONAL REPORT OF TURKS AND CAICOS ISLANDS

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INTRODUCTION

The Turks and Caicos Islands (TCI) continues to collect fisheries data in an effort to be able to assess the various fisheries and provide recommendations to the management authorities for how best to manage the fisheries. The TCI collects data on landings, effort and export of both the Spiny lobster and the Queen Conch, although current studies of a pelagic fishery is ongoing to assist in providing essential data for the diversification of the TCI Fishery and effectively the offshore pelagic resources.

A. FISHERY AND FLEET DESCRIPTIONS

The Turks and Caicos Islands base commercial fishing on the shallow water banks, primarily the Caicos Bank and the Turks Bank. The Mouchoir Bank is considered within the territorial waters of the TCI, but has been used very sparingly by the local fishers for the purpose of capture of finfish. The vessels most often utilized in the TCI are small retrofitted V-hull boats ranging in length from 15-20 ft with 85-115 hp out board engines as well as larger vessels ranging from 30-50 ft, rigged with electronic reels and/or traps.

Commercial fishermen from the TCI often work more than one fishery at a time. Using only free diving methods with no underwater breathing apparatus, fishers are found diving in depths ranging from 3 meters to 30 meters. The normal day for a fisher entails leaving the dock between 7:00 and 8:00 a.m. and returning by 4:00 or 5:00 pm, which is considered 1 boat-day. There have been slight changes on the spiny lobster open and closed seasons as a result of trends in data collected, which include extending the end of the closed season from July 31, to August 14. It has now been decided that the season for Spiny lobster will open August 15 and close March 31, as gazetted.

During the open season of lobster, fishermen largely capture spiny lobster and land them whole. In the past few years, fishers have tended to work the Spiny Lobster fishery throughout the season and at the end turn to the queen conch fishery. At the completion of both the Spiny Lobster and Queen Conch fisheries, fishers again re-prioritize capture and actively work the finfish fishery for the local market.

When referring to catch and effort, effort is measured by the number of days at sea and catch is measured in pounds. The larger individual boats carry between 5-12 men on the vessel each day. Smaller vessels carry between 1-3 people on board.

B. STATISTICS AND SAMPLING

- Catch and effort data for spiny lobster, queen conch, reef fish and pelagics are being collected at the landing docks and processing facilities. Fish are measured by standard length, fork length and total length and reported with species name. A weight is collected if time allows. Spiny lobster also has individual biological information collected. Captains are then interviewed for the number of days at sea, number of crew, location, etc.
- Export data for all marine products are monitored.

- There is a 2-year study which began in October 2013 to look at the feasibility of the pelagic resources in TCI waters to support a commercial fishery. An observer was recruited specifically for the research project. This data is stored and will be shared with international monitoring organisations such as ICCAT and the FAO.
- Catch data from confiscated international vessels poaching in the waters of the Turks and Caicos Islands are also monitored. These vessels usually fish on the Mouchoir Bank, but at times do venture all the way towards remote areas of the Caicos Bank. The data collected on poaching activities is targeted for use in monitoring levels, types and nature of IUU fishing occurring in Turks and Caicos Waters.
- The Department is also actively monitoring the number of persons, number and sizes of vessels, sizes of engines, and gear types being used in each fishery through the licensing system so as to determine “effective effort” exerted on the respective fisheries.
- Continue to improve the collection of domestic seafood purchases by local restaurants. Compliance has increased, but some entities still need to be encouraged.
- The Department of Environment and Maritime Affairs is in the process of completing a Queen Conch Visual Survey to assist in obtaining current biomass of stock.
- Current lobster casita/condo project being implemented, using modified reef balls as artificial shelters to improve productivity as well as reduce pressure from the natural reef systems.

C. NATIONAL FISHERIES POLICY AND MANAGEMENT OBJECTIVES

Policy Summary

Although protection of fisheries resources is implicit in the overall development strategy of the TCI, the importance of the fisheries sector in present and future development and the fragility of the resource base warrant the establishment of a specific policy for the industry.

Efforts are ongoing to make amendments to the Current Fisheries Regulations, as new developments have proven that there are slight loopholes within the regulations that may allow for abuse of the essential fisheries resources of the TCI.

Recommendations include but are not limited to:

- Having special licenses for fishers seeking to use more than 20 traps, the visible labelling of traps as well as the areas and depth in which traps can be used.
- Lionfish, *Pterois* spp.
 - Special licenses and gear for persons engaged in capture of the species
- Nassau Grouper
 - A minimum/maximum size for Nassau Grouper,
 - A closed season to allow effective spawning.
- Bonfish *Albula vulpes*
 - A minimum harvest size for bonfish,
 - A ban on the use of gill net for capture of bonfish
 - An increase in mesh size for cotton nets used for capturing bonfish
- Pelagic longline
 - To place a ban on the use of longlining as a method of capture for commercial purposes.
- Sea Cucumbers
 - Impose a ban on commercial fishing for sea cucumbers.

Public consultations have been carried out, and document being prepared to submit to legislature. Until legislation or policy has been changed it remains as previously documented in National Reports (Lockhart, 2012).

The Fisheries Policy aims to ensure the sustainable use of the various marine resources and ecosystems of the TCI. The Government seeks to improve cooperation and collaboration with all stakeholders of the fishing industry for the improved welfare of the people of the TCI.

Management Objectives

- Ensure that the catch in any one-year does not exceed the Maximum Sustainable Yield for all fisheries in which MSY information is available.
- Restore and maintain populations of marine species to sustainable levels.
- Conserve local populations of endangered species and ensure sustainable harvesting and trade.
- Promote and enhance scientific research capabilities in order to obtain relevant information on the fisheries resources such as carrying capacity, stock status, etc.
- Enhance income generation by a factor of 15% by improving and creating market opportunities for fish and fish products at the national, regional and international levels.
- Ensure that the benefits from the exploitation of the fisheries resources are optimised by Turks and Caicos Islanders.
- Promote diversification in resource exploitation of the TCI fisheries.
- Streamline, monitor and regulate the importation of marine products.
- Establish mechanisms to reduce overcapitalisation in the fishing industry.
- Develop and seek opportunities for resource users to obtain financial assistance /credit from credit agencies.
- Achieve environmental and developmental awareness of marine resources in all sectors of society from primary school through adulthood.
- Ensure that post harvest handling, processing and distribution of fish and fishery products is carried out in a manner that maintains quality and nutritional value.
- Develop and implement food processing and handling guidelines/regulations for quality assurance.
- Improve the manpower and resources of the Fisheries Division to ensure effective monitoring, control and surveillance of fishing activities.
- Promote and maintain a “Zero Tolerance” in enforcement of the legislations.
- Develop and implement strategies to deter and combat Illegal, Unreported and Unregulated (IUU) fishing in the waters of the Turks and Caicos Islands
- Improve stakeholder participation in the management of the marine resources.
- Achieve inter- and intra-agency collaboration on the matters that may affect the fisheries resources and associated habitats.
- Improve relationship with other Overseas Territories in the management of the marine resources and the environment.
- Improve TCI’s collaboration and participation in regional and international initiatives in the management of the fisheries resources.
- Promote talks to delineate and conclude maritime boundaries discourse between the TCI and the Dominican Republic as well as The Bahamas.
- Develop and implement mariculture/aquaculture guidelines and regulations.
- Promote and encourage mariculture/aquaculture of indigenous species of invertebrates and fish as a means of diversifying income and diet.

D. RESEARCH

Monitoring Activities

There has been a great reduction in staff, recent changes to the civil service and merging of the Department of Environment and Coastal Resources with Maritime, which has made it impossible to increase any monitoring activities of the TCI at this time. However, the new Department has been able to continue the original data collection scheme of the fisheries.

E. LEGISLATION AND MANAGEMENT REGULATIONS

- Fisheries Protection Ordinance. Cap. 104: This is the main legislation which provides the legal basis and regulations for managing the fishery resources of the Turks and Caicos Islands. (Strongest Legislation based for monitoring, enforcement and surveillance).

Other Fisheries Related Legislation

- Fishery Limit. Cap. 105: Defines the Territorial Waters and Economic Exclusion Zones (EEZ) of the Turks and Caicos Islands.
- National Park Ordinance. Cap. 80: Provides the legal basis for the establishment and management of marine protected areas such as National Parks, Marine Reserves, and Sanctuaries.
- Coastal Protection Ordinance: This legislation combines several pieces of legislations, such as the national parks ordinance, fisheries protection ordinance and others to provide protection for the coastal zone.
- Endangered Species Bill: This legislation is currently in draft form. On completion, it will provide the legal basis for protection of endangered species in the Turks and Caicos Islands. (Will provide the backing for monitoring of exports such as CITES).
- Wild Birds Protection Ordinance. Cap. 84: Allows for the management of ancillary species in order to protect biodiversity.
- Mineral (Exploration and Exploitation) Ordinance. Cap. 79: Provides for the protection of the marine habitat from direct mining impacts or from indirect terrestrial mining activities.

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