FISHERY COUNTRY PROFILE	Food and Agriculture Organization of the United Nations	FID/CP/GRN
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GRENADA

III. Fishery sector structure

1. Overall fishery sector

Grenada, a tri-island State which consists of mainland Grenada, Carriacou and Petite Martinique, harvests mainly a multi-specie marine capture fishery that is conducted under open access conditions. The fishery is artisanal and small-scale in nature, and in recent years the sector has been developing form subsistence to commercial operations in order to increase earnings and employment, contribute to food security and assist in reducing poverty. A major area of growth has been in the oceanic pelagic fishery that involves targeting of yellowfin tuna mainly for exports. Previously, this fishery was targeted by day-boats up to 30 feet, using outboard gas motors, and carried no ice. But within the past ten years there has been significant improvement in technology resulting in the use of larger ice-boats up to fifty feet, and outfitted with diesel inboard motors providing the capacity to undertake multi-day fishing trips.

Fisheries Governance is entrusted to a Fisheries Division (Fisheries Management Unit) as lead agency which is responsible for management and development within the sector. The Division comes under the Ministry of Agriculture, Lands, Forestry, Fisheries, Energy and Public Utilities, and authority for execution of management functions is derived from legislation enacted since 1986 and 1987, with subsequent amendments as appropriate. In order to fulfil its mandate the Division carries out the following functions: Extension Services, Fishing Technology, Data Management, Marine Protected Areas Management, Resource Assessment and Management, among others. Government facilitates management and development of the sector by maintaining onshore support infrastructure facilities for marketing of fish, such as, cold storage, ice making, marine safety communication and provision of general service to fishing communities. The Fisheries Division also maintains close collaboration with Coast Guard, Customs, Ports Authority and other relevant agencies for enforcement of law and regulations, while fishermen's organisations are engaged in ongoing consultations on fisheries management issues.

Eight fish market centres are strategically located around the islands to deliver various services, but fish is also landed at thirty-seven other landing sites. These are categorised as primary (with market and port facilities, secondary (beaches/bays without infrastructure), and tertiary (Processing Plants).

Marketing of fish is solely a private undertaking, and self-employed fish vendors operate within the onshore facilities provided by government. Additionally, there are fish processing establishments operated by private partnerships, companies and fisherman's co-operatives, primarily engaged in marketing of fresh fish for export.

2. Marine Sub-Sector

The fishing sub-sector is predominantly small-scale commercial. As a result of opportunities in the oceanic pelagic fishery, the policy within the past ten to fifteen years has been to expand production from this fishery by facilitating the upgrade of capacity of the fleet. Accordingly, there is an increasing number and size of vessels ranging between 32 – 55 feet [9.8 – 16.8 metres] fishing up to seven days per trip. The other category of vessels is between 16 - 30 feet [4.9 – 9.1 metres] which are day-boats. The remainder of the fleet consists of a few vessels less than 16 feet [4.9 metres] and primarily operate on a subsistence basis.

Total annual average production from this sector for the past five years (2001 – 2005) was 2,223 tonnes.

i. Catch Profile

Oceanic pelagic fishery

This has been the fastest growing fishery for the past fifteen years and accounts for 71% of total annual fish catch. Species caught are yellow fin tuna, billfishes, dolphin fish etc. Yellow fin tuna, which is mainly targeted for export comprises 28% of total annual fish catch. This fishery is harvested by seventy (70) multi-day vessels and two hundred and seventy (270) open day-boats using surface longline on the west coast of the Island. Other species such as wahoo, small tunas, dolphin fish, king mackerel etc. are targeted by one hundred and forty (140) day-boats, 18-24 feet [5.2 – 7.3 metres] using troll lines primarily along the east coast.

Demersal fin-fish fishery

The island shelf of Grenada and its dependencies provide a favourable habitat for a consistent harvest of various deep slope species of groupers, hinds, snappers and a range of tropical shallow coral reef fin-fish which is predominantly harvested by one hundred and thirty (130) open vessels under 18 feet (5.5 metres) using handline, bottom longline, and pots. This fishery contributes 22% of total annual fish catch with harvesting carried out primarily to the north, south, south-east and north-east coasts of

mainland Grenada and the Grenada Grenadines – Carriacou and Petite Martinique. Other vessels in the oceanic pelagic fishery also harvest this fishery opportunistically especially during periods of decreased abundance of the oceanic pelagic species.

The coastal pelagic fishery

An essentially important food fishery which supports several coastal and rural communities also provides bait for other fisheries – oceanic pelagic and demersal. Species such as bigeye scads, rainbow runners, round scads and other carangids, and small tunas, are harvested in shallow bays principally along the leeward coastline. The fishery contributes 6% to total annual fish catch and is harvested by fifty (50) open vessels with a size range of 24 – 28 feet [7.3 – 8.5 metres].

Crustacean's fishery

A high value fishery, which consists of Caribbean spiny lobster (Panulirus argus), Queen conch (Strombus gigas) and sea turtles, and contributes 3% of total fish catch are targeted by one hundred (100) open vessels with a size range of 16 – 24 feet [4.9 – 7.3 metres]. Fishing grounds are located on the north, north-east, south and south-east coasts.

Other unrelated species such as Seamoss (Gracilaria Spp), are mainly found to the south and south-east of the mainland and are harvested by similar vessels.

ii. Landing sites

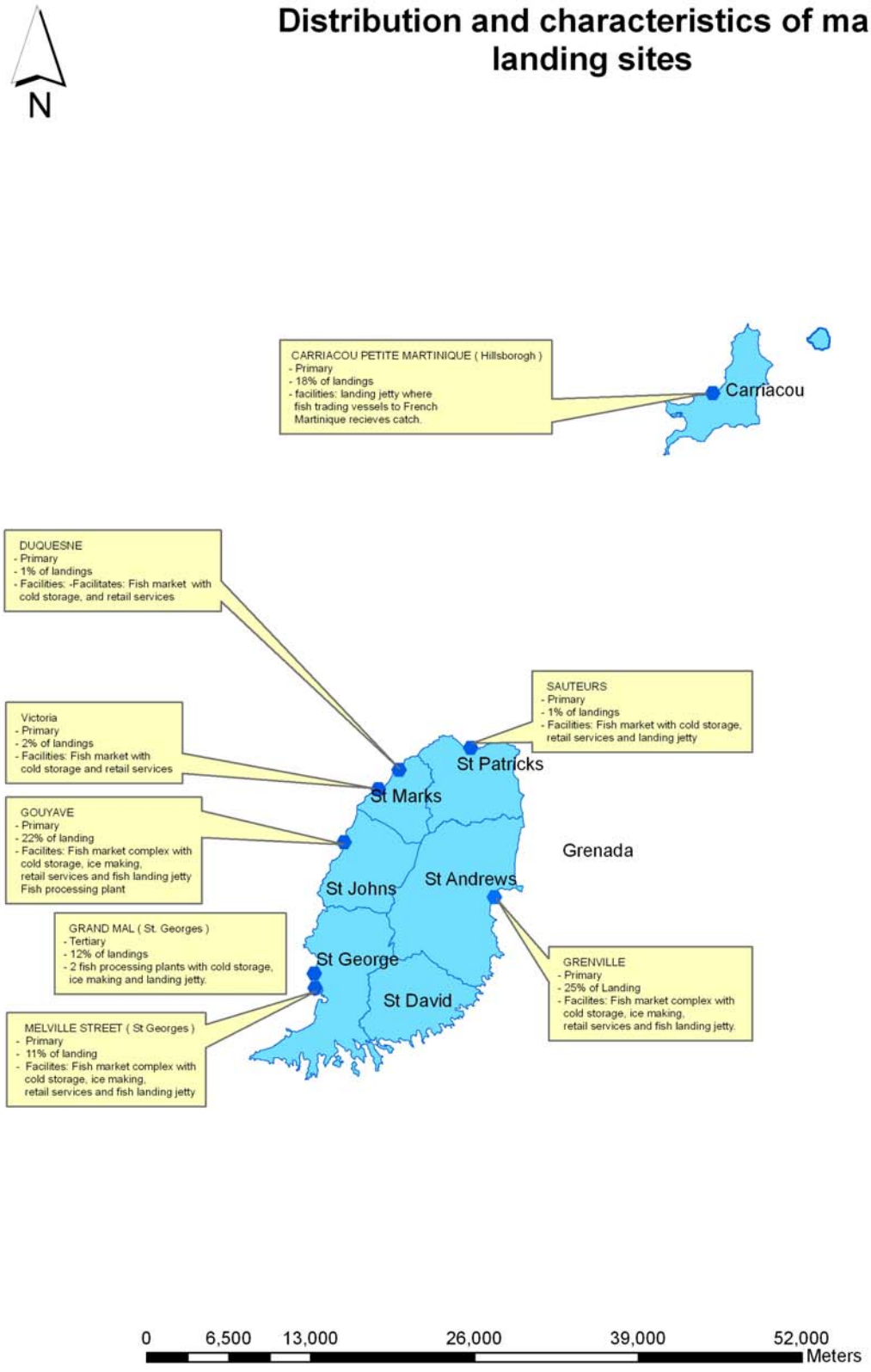
There are forty-five (45) fish landing sites around the islands. Seven, are primary landing sites with fish market and port facilities (Grenville, Melville Street, Gouyave, Victoria, Duquesne, Sauteurs and Hillsborough in Carriacou); thirty-seven, are secondary landing sites (beaches/bays without infrastructure) and one tertiary landing site at Grand Mal where two of the four fish processing plants are located.

Primary landing sites are strategically located so as to provide a variety of functions – fish marketing, storage, ice making, berthing of vessels and also act as a focal point to facilitate fisheries management in gathering fisheries data and conducting surveys.

The main landing sites categorised by percentage of landing are Grenville (25%), Gouyave (22%), Carriacou and Petite Martinique (18%), Grand Mal (12%), Melville Street (11%), other secondary sites (8%), Victoria (2%), Duquesne and Sauteurs (1% each).

The figure below shows the distribution and characteristics of main landing sites.

Distribution and characteristics of main landing sites



charters which is part of the local tourism product while others are engaged in this fishery for the purpose of personal recreation.

Some vessels conduct a catch and release activity while others retain their catch. However, catch data is not available from this fishery since the catch is not channelled through the normal market system.

An annual sport fishing competition known as the Spice-isle Billfish Tournament is held for three days during January which attracts a minimum of thirty foreign vessels in addition to the local fleet. In recent years the rules of the competition dictates that it operates exclusively a catch and release tournament, therefore data is not obtained from this activity.

As there are an increasing number of vessels involved in this fishery, the policy is to arrange for the registration and licensing of vessels in order to regulate their operation.

5. Aquaculture sub-sector

The aquaculture programme which was introduced in the 1990s to produce tilapia and fresh water prawns has been discontinued for the past seven years. Several factors such as limited physical land space, competition with land for agriculture and other uses, lack of economies of scale and inability to compete on price with traditional capture fishery were some of the factors responsible for suspension of the programme.

However, whether in the form of freshwater culture or mariculture this activity remains an option for investment and development if proven to be a viable alternative or complement to capture fishery.

IV. Post harvest use

1. Fish utilization

All fish is mainly utilized fresh on ice or frozen for human consumption, and a miniscule quantity (< 1 %) is dried and/or salted to satisfy demand for a local niche market and foreign-based nationals returning on vacation primarily during August and December.

Within the past forty-five years, fish centres, provided and administered by Government have become part of the normal service to the community. These centres are outfitted with cold storage and ice machines, and fin-fish is retailed by self-employed fish vendors solely for domestic consumption.

A vibrant fish processing industry integrated with fish landings from the longline fleet has established itself. Currently, four (4) processing plants equipped with cold storage and ice making facilities cater almost exclusively for exports of fresh fish on ice.

In the Grenadines (Carriacou and Petite Martinique) eight transport vessels also engage in export of fresh fish on ice to nearby regional markets, primarily French Martinique.

The growing importance of fish export to Grenada requires the need to satisfy international quality and standards for its fish and infrastructure facilities where fish products are handled. In the mid 1990s a programme of work commenced to improve the infrastructure, quality control measures, inspection and legislation to fulfil international requirements for the export market. In 2005 Grenada was finally accredited to list one on the Hazard Analysis Critical Control Point (HACCP) register of exporting countries.

2. Fish markets

During the past five years (2002-2006) Grenada exported an annual average of 25% (539 tonnes) of fresh fish on ice. Major markets include the USA which accounted for 65% of annual exports with the main species being Yellow fin tuna (99%); 30% of exports mainly demersal species goes to French Martinique; and 5% are exported to the rest of the Caribbean Region.

Local markets for fish consumption consist of households, hotels, supermarkets and restaurants, while exports are supplied through foreign wholesale agents.

V. Fishery sector performance

1. Economic role of fisheries in the national economy

The contribution of fisheries to the national economy has been increasing with an average annual contribution of US$25.1 million from 2002 to 2006 which is equivalent to 2.5%. The industry experienced an average annual growth rate of 14.4% over the same period, except for 2004 when there was a decrease of 16.2%, mostly attributable to the passage of hurricane Ivan which struck the Island in September of the same year.

2. Demand

The demand for fish depends on local as well as foreign income, consumer taste and preferences, size of the market, prices of substitutes such as chicken and meat etc. During the period 2001 to 2005, annual average import of fish and fish preparations totalled 962 tonnes. Conversely the annual average of fish export for the same period was 544 tonnes. Both imports and exports of fish and fish products has been increasing over the years, but the percentage increase in imports is greater than exports, indicating that the increase in imports can be attributable to increase demand due to increase in population/income and consumer taste and preferences for health reasons.

3. Supply

The supply of fish depends on factors such as cost of inputs, the abundance of catchable stock/yield, the price of fish, available technology, etc. The supply of fish averaged 2,629 tonnes per year, from 2001 to 2005, with an average per caput consumption of 26 kg/year. With the increasing demand for fresh fish and fish preparations, the gap in supply would have to be met by increasing output from local production and/or imports.

4. Trade

From 2001 to 2005 the value of fish exported was US$3.7 million per year, while annual average imports was US$2.5 million for the same period which meant that Grenada experienced a positive net trade balance in fish of US$1.15 million. Despite the fact that Grenada imports almost twice the quantity of fish and fish products when compared to exports, there is a positive trade balance indicating that the unit value of exports is greater than for imports, which suggest that there is greater value in the export of selected fish products.

5. Food security

Fisheries contribute significantly to food security and it will continue to do so in the future since the marine space is about fifty times the size of the land, and offers immense opportunities for exploitation of its living resources. Government is also providing development assistance to the industry in order to cause the retail price of fish to be more affordable to the domestic consumer.

6. Employment

The fishing industry continues to play a critical role in providing sustainable employment opportunities for the workforce, especially the youthful population. Currently, there are 2,400 fishermen employed and another 400 persons employed in the secondary sector such as marketing, transport, boat building etc.

7. Rural development

The benefits derived from the fishing industry have contributed to the maintenance of several coastal and rural communities in providing sustainable livelihoods and food security. The sustainable management and utilization of these resources will ensure that these populations are provided for in the future.

VI. Fishery sector development

1. Constraints

Some of the major constraints faced by the fisheries sector are as follows:

- Inadequate access to credit by fishermen from the commercial financial sector to invest in larger boats using appropriate technology;

- Lack of resources to engage in research/exploratory fishing for new species;

- High cost of property insurance for individual fishing vessels, gears and equipment due to the high risk nature of the industry;

- Lack of resources to engage in market research for unutilized and underutilized species;

- Intrusion of foreign fishing vessels in Grenada waters thus endangering our fish stocks, and the lack of adequate resources to combat these illegal activities; and

- Increasing input cost such as fuel which is exogenous to the industry.

2. Development prospects/strategies

Despite existing constraints within the industry, the following areas represent prospects/strategies for development:

- Expansion of fishing effort in the oceanic pelagic fishery to increase supply for export and domestic consumption;

- Engage in human resource development of fishers by administering training in appropriate fishing technology, safety at sea, business and financial management, and to encourage participation in social security;

- Promote and facilitate the securing of group insurance for the industry in an effort to reduce high premium/input costs.

- Seek access to markets for underutilized and unutilized species;

- Encourage increased harvesting of underutilized and unutilized species for export and domestic consumption;

- Strengthen conservation programmes for critical species and habitats;

- Capacity building within the Fisheries Management Unit.

3. Research

While there is no national institution engaged in basic research, ad hoc applied research is conducted in collaboration with the Caribbean Regional Fisheries Mechanism (CRFM), St. George's University, University of the West Indies and FAO. The Division currently undertakes research in collaboration with CRFM, in abundance and distribution assessments of coastal and oceanic pelagic species, and crustacean – lobster and conch.

Grenada also participates in the Lesser Antilles Pelagic Ecosystem Project implemented by FAO, a four-year project which terminates end of 2007. This is an FAO Trust Fund Project – "Scientific basis for Ecosystem-based Management in the Lesser Antilles including Interactions with Marine Mammals and Other Top Predators".

4. Education

There is an ongoing programme of education targeting fishers (fishermen, fish vendors, processing plant workers etc.) in areas of fishing technology, safety at sea, navigation, quality control and plant sanitation, which is geared towards enhancing skills and competence within the sector.

5. Foreign aid

Availability of adequate shore-based infrastructure is of critical importance to the development of the fishing industry. In 2008, Government plans to undertake a two-year project which entails construction of a new fish market complex and port facilities at Gouyave on the west coast. The main objective of the project is to improve fish marketing, handling and port facilities in the community in conformity to internationally acceptable standards. On completion it is expected that there would be an improvement in the quality and sanitation standards for fish and fish products, enhancement in safety of berthing facilities for fishing vessels for landing of catch and receiving supplies, increase in fish catch and improvement in the economic and social status of the community.

VII. Fishery sector institutions

The authority charged with management of living marine resources in Grenada is the Fisheries Division which is headed by a Chief Fisheries Officer. This Division is within the Ministry of Agriculture, Lands, Forestry, Fisheries, Energy and Public Utilities.

The Division has fourteen technical staff, namely the Chief Fisheries Officer, a Quality Control Officer, a Fisheries Biologist, an Assistant Biologist, five District Extension Officers, a Coordinator for the Marine Protected Areas Programme, a Data Officer, a Fishing Technologist and two Refrigeration Technicians. Support staff includes a Secretary and a Clerical Assistant.

There is also twenty-seven staff based at seven District Fishery Centres around the islands.

Governance agencies/major stakeholders include Grenada Coast Guard and district police, Customs Department, Physical Planning Unit/Land Development Control Authority, Grenada Board of Tourism, Environmental Health Division of the Ministry of Health, Ministry of Finance (Planning and Development), Ministry of Foreign Affairs, Grenada Ports Authority, Forestry Division, Grenada Bureau of Standards, Produce Chemist Laboratory.

Non-governmental agencies include user group stakeholders such as Grenada Hotel and Tourism Association, Grenada Divers Association, Fishers Cooperatives and Associations, and Eco-tourism providers such as dive operators.

The Fisheries Division is linked to the Caribbean Regional Fisheries Mechanism (CRFM) via the internet.

Organisational structure of fisheries management in Grenada

Cabinet of Ministers

Minister of Fisheries

Permanent Secretary

Chief Fisheries Officer

Units within the Fisheries Division:

- Planning, Coordination and Management
- District Extension Services
- District Fish Market Centres
- Fishing Technology
- Fisheries Biology
- Marine Protected Areas
- Refrigeration

VIII. General legal frameworks

One of the most important international agreements influencing fisheries management is the United Nations Convention on the Law of the Sea (UNCLOS) of 1982 (and its protocols). The UNCLOS process generated two pieces of legislation in 1988: the Territorial Waters Act, and the Marine Boundaries Act, later consolidated and updated into the Grenada Territorial Sea and Marine boundaries Act #25 of 1989. Earlier in 1986, the parent legislation, the Grenada Fisheries Act #15 was passed and regulations SRO #9, 1987, became part of the Organization of Eastern Caribbean States (OECS) Harmonized Laws.

In general the Fisheries Act and Regulations provides for the following:

- Formulation and review of fisheries development and management plans;
- A co-management facility through a Fishery Advisory Committee;
- Regional cooperation in fisheries and fisheries access agreement;
- Local and foreign fishing operations;
- Illegal fishing activities;
- Control of fish processing and marketing operations;
- Local management area and management measures;
- Fisheries research and control of gear and methods for fishing;
- Grants rule making powers to the Minister responsible for Fisheries.

Other fisheries legislation includes:

- Fisheries (Fishing vessels Safety) Regulations SRO #3, 1990;
- Fisheries (Amendment) Regulations SRO #24 1996;
- Fisheries (Amendment) Act #1, 1999;
- Fish and Fishery Products Regulations SRO #17, 1999;
- Fisheries (Amendment) Regulations SRO #2, 2001;
- Fisheries (Marine Protected Areas) Regulations SRO #78, 2001

iv. Main resources

Main resources of marine capture fishery based on stocks consist of:

- Oceanic Pelagic – Consists of Yellow fin tuna, Black fin tuna, Skipjack tuna, Bullet tuna, Frigate tuna, Wahoo, Mackerels, Billfishes, Sword fish, Dolphin fish, Barracuda etc.

- Coastal Pelagic – Consists of Big-eye scads (Selar crumenophthalmus), Round scads (Decapterus punctatus), Rainbow runner (Elagatis bipinnulatus) etc.

- Shallow coral reef fishery – Consists of Snappers (Lutjanidae), Groupers (Serranidae), Grunts (Haemulidae), Doctorfish (Acanthuridae), Hind (Serranidae) etc.

- Deep slope shelf edge fishery – Consists of Snappers (Lutjanidae), including silk and black fin (buccanella), queen snapper (etelis spp) and other deep water rock species.

- Caribbean spiny lobster (Panulirus argus).

- Queen conch (Strombus gigas).

- Turtles – Consists of Hawksbill (Eretmochelys imbricata), Green (Chelonia mydas)

- Sea moss (Gracilaria spp.)

- White Sea eggs/Sea urchin (Tripneustes ventricosus).

v. Management applied to main fisheries

General strategic objectives for fisheries management and development are as follows:

- Sustain and increase yields from fisheries resources for the purpose of satisfying and enhancing human food consumption and in general contributing to the socio-economic options available to the Grenada community.

- Provide for recognition of the fishing industry as a key factor of production within an integrated national economy

- Highlight Traditional Fisheries-based Knowledge as a contributor to both fishing community and national development.

- Apply the concept of maximum sustainable yield in the management of specific stocks and habitat and use as reference point in conservation and management programmes.

- Highlight and promote the approach of gear selectivity as a point of reference for managing the application of appropriate technology in targeting species and stocks within the fisheries.

- Ensure that fisheries waters, fish stocks, habitat and sea space are protected from misuse by either local or foreign fishers.

- Ensure that various fisheries sector services providers are controlled and facilitated for the socio-economic development of the Grenada community as a whole.

- Ensure that all fish trade and all fish production utilization activities are consistent with United Nations Food and Agriculture Organization Code of Conduct for responsible fisheries and with international agreements such as CITES.

- Promote the Eco-systems Approach to management of stocks and habitat in the fishery waters of Grenada.

- Apply the Co-management Approach to all fisheries management and development programmes.

- Establish and maintain a data and information system so as to facilitate management and development within the sector.

- Promote an integrated, appropriately- scaled and cost effective physical fisheries infrastructure and also provide for human resource development within the sector.

- Ensure the security of the fishing fleet by facilitating safety at sea, ship to shore communications support and with demarcation of marine boundaries defining the fishing zone.

- Establish and maintain human resource capabilities for conducting or facilitating needs-research with respect to fisheries management and development.

- Cooperate with other nation states in the management of shared, straddling and highly migratory fish stocks.

Management objectives, strategies and institutional arrangements for major fisheries

Oceanic pelagic fishery

Objective – this fishery uses selective gear and therefore the policy would be to initiate and make use of existing options for expansion of effort to increase production, thereby contributing to enhancing economic returns from the industry.

Strategies - promote and create avenues for increased access to investment from the commercial financial sector while government also makes available a limited soft credit facility for supplementary purposes; apply appropriate technology by employing larger longlining vessels [9.8 – 16.8 metres] which are more efficient for targeting offshore pelagics.

Institutional arrangements – support regional approach at management of this stock which is shared, straddling and sometimes highly migratory; promote and engage in regional/sub-regional mechanisms for decision-making and action, and commit to follow management guidelines provided through regional stock assessments generated by agencies such as ICCAT, UN FAO and the Caribbean Regional Fisheries Mechanism (CRFM); a licensing and registration system is in effect for the purpose of providing for fishing effort controls among other arrangements; the fishery is also in its initial stage of development and because of the abundance of resources and selectivity of gear applied, there are no input,

output, economic or technical measures in effect as yet, however management approach is to ensure the sustainability of the resource.

Demersal fin-fish fishery

Objective – reduce effort on the stock especially the shallow coral reef fishery which is believed to be harvested close to maximum sustainable yield thereby relieving fishing pressure to provide for sustainable utilization of this fishery.

Strategies – during the early 1990s surface longlining for oceanic pelagic was introduced to fishers engaged in the demersal fin-fish fishery as an alternative which proved to be very successful. It is also believed that opportunities exist for expanding effort to deep slope fisheries and other areas not currently targeted extensively but this will be pursued guardedly.

Institutional arrangements – as the stock is widely distributed at the sub-regional level the need for shared management between Grenada and neighbouring states of St. Vincent and the Grenadines is essential and is therefore being addressed; controls on the use of nets and meshes such as to outlaw the use of the trammel net have been introduced while promoting the use of more selective gears; licensing and registration within this fishery provides for further controls of effort; the co-management approach is currently been implemented as part of the Integrated Coastal Zone Management strategy; and the application of closed areas example, Marine Protected Areas are all used in an overall strategy for sustaining this most vulnerable stock.

The coastal pelagic fishery

Objective – maintenance of traditional beach seine fishing sites (hauls) as fishing priority areas for the fishery; facilitate the provision of low cost protein to coastal and rural communities, and the supply of bait to the off-shore fleet by ensuring the fishery is harvested on a sustainable basis.

Strategies – designate the traditional beach seine fishing sites as fishing priority areas; community control is promoted because of the nature of the fishery being gear and area specific; and a regulatory approach will be adopted for managing multiuse conflict in the beach seine fishing zone (s).

Institutional arrangements – licensing of nets applies, with restrictions on net mesh sizes;

The crustacean fishery

Objectives – promote the sustainable harvest for local (tourism market) use and where possible for export in order to obtain long-term economic benefits.

Strategies – the use of artificial habitat is being explored to increase yields; and mariculture of seamoss is being encouraged.

Institutional arrangements – existing regulations such as biological restriction on size, moulting and reproductive animals, gear and mesh size limitation are being enforced; a four-month closed season from May 01st to August 31st each year, are being rigorously implemented for all shell species; existence of Marine Protected Areas provide additional protection for breeding/spawning and feeding stocks; and a moratorium is currently enforced for sea urchin since 1996, for which the stock is showing signs of recovery.

vi. Fishermen communities

Fishermen communities are distributed along coastal areas in proximity to bays for mooring of boats and fishing ports for landing of catch. Traditionally, these communities have been the most economically and socially depressed, however in the past ten years fishermen have received extensive training in fishing technology, safety at sea, business and financial management among other skills which resulted in enhancing livelihoods within fisher communities. It is therefore the policy of fisheries management to continue with and expand on these programmes in the future.

The need to be represented and the requirement to be provided with various services resulted in the formation of fishermen Associations and Co-operatives throughout the tri-island state. Some of these organisations have been in existence for almost thirty years, and currently there are seven functioning groups providing a range of benefits to members.

3. Inland sub-sector

Inland fishery is restricted to harvesting of fresh water crawfish and a half dozen species of finfish within small streams, which is carried out solely on a subsistence basis. However, while contribution from this activity is very minuscule when compared to marine fishery, several rural families depend on this resource for the supply of valuable protein.

The fishing technology employed is mainly handline and spear gun, but vessels are not required to conduct this activity.

4. Recreational sub-sector

There is an active recreational fishery which is conducted along the west coast and to the north of mainland Grenada which targets species such as billfishes, wahoo and dolphin fish among other oceanic pelagics. Approximately forty vessels are involved in this fishery where troll lines is the predominant gear. Some of these vessels conduct private