

## From the Desk of The Executive Director of the Caribbean Regional Fisheries Mechanism (CRFM) Secretariat

Two or more countries share the marine fishery resources of importance to CARICOM Member States. They have long recognized and articulated that the sustainable use of shared living marine resources requires cooperation at all levels – sub-regional, regional and international. However, despite the recognition of the need for collaborative management, the process has been slow because of the geopolitical complexity of the region.

Capture fisheries will not be able to produce enough fish to meet the growing demand because many of them are now at or beyond their sustainable limits. Significant expansion in fish supply for regional consumption and export will therefore have to come from aquaculture production. Aquaculture has been identified as a priority area for development by CARICOM Member States through the Council for Trade and Economic Development (COTED) as well as by the national governments through their fisheries development and management plans and policy papers.

March 26<sup>th</sup>, 2003 marked a milestone in the development of regional approaches to management and development of the fisheries of the Caribbean with the official launch of the Caribbean Regional Fisheries Mechanism (CRFM). At the Thirteenth meeting of Conference of Heads of Government, Belize City, Belize (February 4<sup>th</sup> – 5<sup>th</sup>, 2002) the legal text of the instrument setting up the Caribbean Regional Fisheries Mechanism (CRFM) was signed which led to the official launching of the Mechanism on March 26<sup>th</sup>, 2003. With a Strategic Plan (2003 – 2010) and a Medium Term Plan (2004 – 2007) capturing the collective vision of member states, nine major programmes, supported by fifteen projects highlighting the priority areas to be addressed, were approved at the first meeting of the Caribbean Fisheries Forum (Board of Directors), and became the mandate for action by the CRFM Secretariat.



*Mr. Hugh Saul, Executive Director of the CRFM*

Today we launch the CRFM Newsletter as our window to the region and the world. Our objective is to use this medium as a knowledge-sharing mechanism.

We hope to interpret the technical and scientific needs of our stakeholders and partners and seek to address them by providing the best available scientific and technical data and information to meet their needs.

The CRFM is a cooperative arrangement in the service of CARICOM Member States. This Newsletter should be seen in a similar light. We would therefore expect fisheries scientists and technicians in Member States, in regional organizations and institutions or the global fraternity/sorority of fisheries operatives to contribute to this newsletter.

I take this opportunity to congratulate the staff members who have pledged to ensure a high quality publication, and I invite researchers and other staff of the many Departments of Fisheries in the region to contribute to this newsletter.

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# MANAGEMENT & POLICY

## Caribbean Queen Conch Crisis

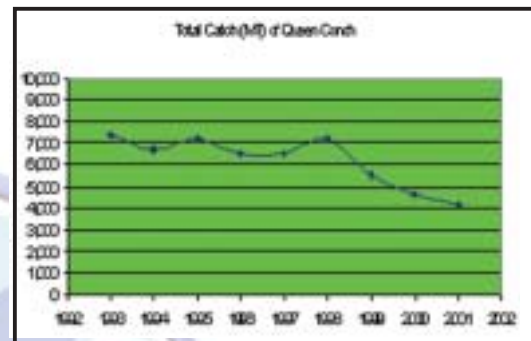
Mr. Milton Haughton



The Queen conch (*Strombus gigas*), one of the most important fisheries in the Caribbean is in crisis. The Convention on International Trade in Endangered Species (CITES) was set up to ensure that trade is not detrimental to the population of wild plants and animals like the Queen Conch. A recent report on the Queen Conch commissioned by CITES in 2003, concluded that, “*Over the past decades, intensive fishing has led to population depletions, stock collapses and Cuba, Florida (US), Mexico, the Virgin Islands (US), Venezuela) and the populations of several countries are considered depleted due to over exploitation. ...there are only a few unexploited populations or areas within the species’ range (i.e. deep water stocks, stocks in protected areas, etc.). Several stocks show clear signs of over exploitation, for example large landings of juveniles or fishing efforts shifting to the deeper areas of the stock*” (CITES Significant Trade Review, 2003).

The Queen Conch is important as a source of food in many coastal communities. It is a source of income and employment for thousands of fishermen and their families. It is a highly traded product and therefore an important source of foreign currency earning in many countries. Over the past 30 years the catch of conch has increased substantially, largely driven by international export as well as increasing demands from population growth and increasing tourist arrivals in the Caribbean region. The Queen Conch is commercially exploited in at least 22 Caribbean countries. Each year fishermen catch between 6,000 to 10,200 MT of conch meat. The rapid expansion of exports and

ing the Queen Conch. These recommendations, which are meant to protect and conserve the resource and ensure sustainable use, will have significant ramifications for the Caribbean countries. The recommendations include among others, a moratorium on commercial harvest and suspension of exports from Honduras, Dominican Republic and Haiti. CITES Animals Committee recommendation made in 2000 had already resulted in the prohibition of exports from four

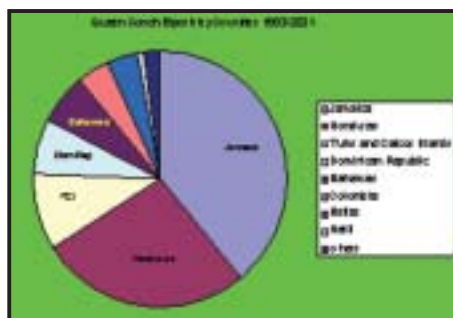


Caribbean Production Data, 1992-2002

CARICOM Countries, Antigua and Barbuda, Barbados, Dominica and Trinidad and Tobago. These suspensions are still in effect, since the countries affected have not been able to provide satisfactory answers to CITES to confirm that the fisheries are managed in a sustainable manner and trade would not be detrimental to the conch stocks in those countries. (It should be noted that Dominica and Barbados are not known to have any significant fisheries or queen conch export).

Some of the other requirements of CITES include: i) identification of areas to be designated for commercial fishing, ii) the conduct of density studies in these areas, iii) analysis of trends in available landing data, iv) establishment of conversion formulae relating the live weight to various stages of processed meat weight v) setting of catch and export quotas vi) implementation of data collection program and licensing system for fishers, vii) design and implementation of long-term population monitoring program for commercial fishing areas, viii) development of a regional management regime, ix) enhanced enforcement of regulations and enhanced research related to management of the queen conch.

These requirements are quite onerous and difficult for the countries to undertake by themselves due to their small and fragile economies and limited financial, human and organizational resources. Against this background, the countries must cooperate and work together with each other and with donor countries and organizations to address the problems and make sure that this important Caribbean resource is rehabilitated, managed and used in a sustainable manner for the continued benefit of the Caribbean people.



species (Appendix II), the trade in which is carefully regulated to make sure it is not detrimental to the wild populations. Since then CITES has progressively stepped up pressure on the conch producing countries to adopt resource management and trade measures to protect and conserve the stocks and ensure sustainable utilization and trade in the species.

The 19<sup>th</sup> Meeting of the CITES Animals Committee which was held in Geneva, 18-21 August 2003, on the basis of the Report of the Significant Trade Review, made several short-term and long-term recommendations regard-



# The Beginnings of Fisheries Resource Co-Management in the CARICOM Region

by David N. Brown, PhD

Faced with serious over-fishing and habitat degradation in the inshore fisheries of the region, the governments responded in the 1980s by rejecting centralized management, which ushered in open access conditions and establishing institutional arrangements that created an enabling environment in which fisheries co-management could thrive. These included the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP) and the Natural Resources Management Unit of the Organization of Eastern Caribbean States (OECS NRMU) both dedicated to the promotion of the sustainable development and management of the fisheries resources of the region. All countries established National Fisheries Advisory Committees (FACs) for the formulation of advisories to governments by stakeholder groups on fisheries governance, developed Fisheries Management Plans (FMPs) that mapped out the direction of fisheries governance in each country, recommended relevant fisheries regulations, and granted powers to ministers responsible for fisheries to declare areas with competent fishers organizations as Local Fisheries Management Authorities (LFMA), with responsibility to manage the local fisheries.

However, progress towards the establishment of co-management institutions have been slow even though it has led to the establishment of some pilot projects, such as Caribbean Coastal Area Management Foundation (CCAM) in Jamaica, Soufriere Marine Management Area (SMMA) in St. Lucia and Soufriere-Scott's Head Marine Reserve (SSMR) in Dominica. Various impediments and constraints engender significant differences in the rate of progress and the forms of co-management arrangements in different societies.

The region has never lost sight of the fact that, 'Co-management of the resources is ... the ultimate goal for the effective involvement and participation of the resource users in the sustainable development and management of the fisheries resources'<sup>1</sup>. It has recently created a new regional institution – the Caribbean Regional Fisheries Mechanism (CRFM). The latter has taken over seamlessly from the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP)<sup>2</sup> by its legal establishment in March 2003. Part of its mandate is;

... to ensure that the national fisher folk organizations are further strengthened, and their capacities enhanced to become co-managers of the fisheries resources. Technical support should be provided for the development of national fisher folk organizations ... to ensure that organized resource users in all the participating countries are effectively and democratically represented on the National Fisheries Advisory Committees.

The concept of co-management became familiar to resource users and policy makers in the 1990s. It became part of the lexicon of Fisheries Field Officers doing exten-

sion work on the fishing beaches and in the fishing communities, through the Community Involvement and Public Education sub-project. To fishers, the meaning has largely derived from its contrast with centralized management and possible management by fishers alone. Consistently, the fishers and other stakeholders in the fishing communities in the region, in study after study, have opted for Co-management as their preferred model for the management of the region's fisheries resources, overwhelmingly rejecting central management and sole management by the fishers' organizations and communities, [Mahon & Drayton (1990); P. Espeut (1992); Espeut (1994); Brown & Pomeroy (1999)].

The fishers' organizations were ill prepared for taking on the responsibilities of playing the role of co-managers of the fisheries, (Pomeroy, 1998; Chakalall et al., 1998). CFRAMP, through the Community Involvement and Education sub-project, has had capacity building as the core of its strategy. Institutional Strengthening Workshops and Capacity Building Seminars have periodically been organized for Fisheries Field (Extension) Officers and leading members of the fisher folk organizations in the participating states. A more positive attitude towards co-management is developing among fisheries administrators. Extension officers have, to a large extent, overcome their lack of desire to go out in the field to interact with fishers, helping in finding solutions to the problems facing the latter and organizing community meetings, training programs and public awareness programs for fishers, students and other stakeholders in the fishing communities. Consequently, there has been a general improvement in resource users' awareness of, and responses to conservation and management initiatives. There have been encouraging responses to the consultative and decision-making processes, and most organizations have become more stable and assertive, with new organizations emerging (Mc Conney et. al., 1998).

There are clear signs that in spite of several obstacles, the fishers' organizations are realizing their potential to effect changes in management policy, and are moving towards taking up the responsibilities involved in the role of institutional strengthening and further capacity building, to ensure their preparedness for the tasks that lie ahead. Among the regional fishers' organizations, the Belize Fishermen Cooperative Association stands out as a regional classic case of a dynamic partnership between a resource user organization and government functionaries in a form of open-ended co-management arrangement, not based on any formal agreement or legal stipulations, but recognized by all the parties involved.

<sup>1</sup> CFRAMP (Nov. 2000): Proposal for the Establishment of the Caribbean Regional Fisheries Mechanism (CRFM), Report of the Working Group. Revision 2, May 2000:12

<sup>2</sup> The CRFM is the final output of CFRAMP

## The CRFM Develops Draft FMP for The Bahamas

*Mr. Michael Salton*



*Map showing the approximate location of The Bahamas*

A National Consultation on the development of a Fisheries Management Plan (FMP) for the Marine Fisheries of The Bahamas was held in Nassau on the 6-7 November 2003. The purpose was to discuss and improve the draft FMP for The Bahamas prepared by the CRFM. The target participants of this collaborative effort by The Bahamas Department of Fisheries and the CRFM Secretariat, included stakeholders in the fisheries sector such as senior officers from ministries responsible for fisheries, foreign affairs, tourism, education, quality control, enforcement, as well as small-scale and industrial fisheries operators and relevant fishers. The CRFM Team comprised Mr. Milton Haughton (Deputy Executive Director), Mr. Terrence Phillips (Programme Manager, Fisheries Management and Development) and Mr. Michael Salton (Biologist). The CRFM Team used the participatory approach to obtain stakeholder input in improving the draft plan and in preparing a plan of action to address the issues raised by CITES regarding the management of the Queen Conch in The Bahamas.

During the two-day event, the participants took part in *Participatory Problem Analyses* to identify the problems affecting the marine fisheries of The Bahamas. Problems were identified in the areas of sports fishing (attributed to the activities of some foreign vessels), research, government administration, fishing technology and enforcement. On completion of the exercise, the general consensus was that the above mentioned problems all contribute to the deteriorating condition of fisheries resources, which in turn can have a negative effect on the fisheries and undermine the sustainability of the fishing sector and the livelihood of fishers in The Bahamas. Mr. Haughton gave a presentation on the Queen Conch situation regarding CITES issues in The Bahamas and stressed the need for The Bahamas to communicate the figures regarding the stock to CITES, as a matter of priority/urgency.

On the second day, the participants were divided into four working groups to discuss and refine written sections of the draft FMP. The working groups consisted of persons with interest and/or experience in the management of the relevant fisheries that were being exam-

ined e.g. lobster fishery, conch fishery, sport fishery etc. The findings of each working group were presented and discussed during the consultation. A proposed follow up action plan was then developed to facilitate the finalization and implementation of the FMP in late 2004.

## ICCAT 2003 – Belize & St. Vincent and the Grenadines Get Trade Sanctions Lifted and Guyana

*by Dr. Susan Singh-Renton*

The 1990s saw a marked decline in several stocks of major Atlantic tuna and billfish species regulated by the International Commission for Conservation of Atlantic Tunas (ICCAT). Despite this, the number of fishing vessels continued to increase, together with the introduction of new and improved fishing technologies. The problem was exacerbated when many fishing vessel owners moved their operations from countries that were Members of ICCAT and which were attempting to enforce ICCAT catch and effort restrictions, to countries that were unfamiliar with the ICCAT management measures. Many fishing vessels seeking to avoid ICCAT management compliance tended to re-flag with countries having open ship registries, including two CARICOM countries, Belize and St. Vincent and the Grenadines. However, the continued operations of the re-flagged vessels reflected in trade data, and ICCAT imposed tuna trade sanctions on the countries concerned: countries could not import bluefin tuna, swordfish and bigeye tuna from Belize; likewise, countries could not import bigeye tuna from St. Vincent and the Grenadines.

After two years of close collaborative effort between the CFU/CRFM and the governments involved; an effort which included the formulation and enforcement of High Seas Fishing Acts and licensing regulations, the establishment of vessel monitoring systems and improved statistical monitoring systems, both Belize and St. Vincent and the Grenadines were able to successfully defend the progress of their efforts and convince the 2003 ICCAT Commission Meeting to lift their trade sanctions. The removal of the sanctions came into effect on 1 January 2004.

Early in 2003, fishing industry representatives in Guyana met to discuss opportunities for the development of fisheries targeting tuna and tuna-like species. Following up on this, CRFM staff, working together with Mrs. Christine Chan A Shing of the Trinidad and Tobago Fisheries Division, provided training to help improve statistical coverage of Guyana's shark fisheries. The CRFM also encouraged Guyana to apply for ICCAT Co-operating Party status in 2003. CRFM led the verbal defence of this application during the 2003 ICCAT Meeting, and Guyana successfully obtained Co-operating Party status. Several other States, such as the Netherlands Antilles, Belize, Cuba, Egypt, and Guatemala, had also applied for ICCAT Co-operating Party status, but were not successful. In respect of Belize's application, the Commission considered it premature to grant Cooperating Party status in 2003.

# Creating Social Institutions For Fisheries Co-Management

David N. Brown, Ph. D.

There is a tendency for some planners, technicians and operatives to use popular concepts in their fields of specialization in such lax manner that, over time, these concepts lose their essential meanings. One such important concept that has become popular through the operations of the erstwhile CARICOM Fisheries Resource Assessment and Management Program (CFRAMP) is "Co-Management." Both CFRAMP and its successor regional organization, the CARIBBEAN Regional Fisheries Mechanism (CRFM), have identified the development of co-management systems as the ultimate goal of fisheries management.

A simplified definition of co-management as a process and a system by which fisheries officials and fisher folk organizations share power and responsibility in the day-to-day management of the fisheries resources, though a useful guide, needs to go further by specifying the critical variables involved. Confusion is created when such an important concept is uncritically applied to any meeting or activity involving resource managers and resource users, no matter how cursory and fleeting such interactions and encounters might be. An indispensable element of the concept is sustainability. The process of developing co-management systems entails putting mechanisms in place for their sustenance over the long haul. It involves the long term planning for, and realization of outputs that firmly enhance sustainable resource management.

The critical vehicle for sustaining co-management arrangements over the long term is through the crafting of social institutions, essential for firmly anchoring the system. The concept of institutions is being used in this short presentation in the very wide sense of entailing, not only the formation, maintenance and strengthening of formal resource user organizations, but also the creation of other formal organizations for enhancing the involvement of all major stakeholders in the decision making process, both at the micro and the macro levels. That calls for rigorous stakeholder identification and analysis. It also encompasses the whole gamut of social interactions and patterned social and working relationships. Besides acting as the vehicle through which the processes of information exchange are facilitated between the partners in a co-management arrangement, they also provide stability.

The patterned relationships within these institutions include clearly defined functional procedures, individual and group roles, role expectations, rules of conduct woven around conventions, mores and norms, systems of sanctions (rewards and punishments) and procedures for enforcement of rules and regulations developed over time. These not only allow

for predictable relationships and behaviour, but also include the development of in-built mechanisms for the realization of institutional change. Hence, such institutions created for the promotion of the co-management of the fisheries resources, both at the community and the national levels, must allow for both stability and change. Institutions created for enhancing progress, must make allowance for promoting change. They must be adaptable to change, else they become atrophied over time, as has been happening to many of the fishers' cooperatives in the region.

At the top of the critical institutional ingredients for promoting the cooperative management of the resources is the formation, maintenance and strengthening of fisher folk organizations. It is impossible for fisheries field officials to work for the promotion of co-management with targeted fisher folk and other stakeholders on an individual basis. Besides the formidable logistical problems this would entail, it would be quite impossible to reach consensus on matters of crucial importance. In this regard, the historical record of fisher folk organizations in this region leaves much to be desired, although an encouraging number of well-organized and vibrant fishers' organizations are emerging in the region.

The promotion of the co-management of the fisheries resources is of critical importance for sustainable management. The democratic element will be infused into the process and the empowerment of would-be beneficiary groups will be realized. It will also assist in garnering the involvement and support of other stakeholders for measures geared towards the sustainable management of regional fisheries resources. However, the process would be incomplete and ephemeral unless supported by resilient institutional arrangements that would provide both stability and the vehicle for realizing positive change.

With the establishment and strengthening of fisher folk organizations at the community and national levels, the Fisheries Advisory Committees, the Fisheries Management Plans backed by legal regulations and means of enforcement, one could argue that the region has gone a long way in this regard. With the proposed formation of National Advocacy/Dialogue Groups and the formation of a network of national fisher folk organizations in the short run, leading to the formation of a Regional Federation of Fisher folk Organizations in the long run, the region would be making tremendous headway in the process. The only provisos would be that governments demonstrate the Political Will to support these initiatives, and that these institutions operate effectively and efficiently to promote genuine co-management of the resources.

***Mobilization and organization of fishers must be intensified in CRFM Member States. We must continue to build the capabilities of the organized resource users. Fishers, through their organizations, must be empowered to partake in resource co-management.***



# Subsidies and Caribbean Fisheries

by Mr. Milton Haughton

For several years fisheries subsidies have been the focus of intense discussion at the WTO and other international meetings, because some countries feel very strongly that excessive subsidy is causing depletion of fish stocks through overcapacity and overfishing, and threatening the social, economic and environmental sustainability of world fisheries. It is also felt that subsidies are causing trade distortions with resulting negative social and economic consequences for some countries. Not surprisingly therefore, much of the debate and discussion has been on understanding the problems caused by subsidies, identifying



*Mooring area crowded with fishing boats in Belize*

which ones are good and which ones are harmful, clarifying how they work to create these problems, and finally how to reform or discipline subsidies to eliminate the harmful impacts which they are said to cause.

When we consider the subject of fisheries subsidy in the Caribbean, perhaps the single most important issue that immediately jumps out at us is the lack of data, information and documentation regarding the nature, extent and impact of subsidies on the fisheries of the region. The issue has only recently been placed on the national and regional agenda for debate and discussion arising from the 4<sup>th</sup> WTO Ministerial Conference in Doha, Qatar in November 2001, and meetings on the subject organized by UNEP and FAO. It is not possible at this time to determine the magnitude of subsidies and whether or not they are having negative environmental, economic and social impact on the fisheries in the region. We however need to improve our understanding of the subject in order to effectively participate in the WTO negotiations, to ensure that our interests are protected and rules that are favourable to our development goals are put in place.

Within the region most commercially important fish species are either fully developed or over-exploited. These include conch, lobsters, shrimp, shallow shelf reef-fishes and some of the large pelagic species. There are, however, some species that are under-utilized and are not making

optimum contribution to the socio-economic development of the countries. These include some regional offshore pelagic fishes, squids, deep-slope fishes and some coastal pelagic species. Since the 1980s aquaculture has been making a small but increasingly significant contribution to the economies of the countries of the region. Several attempts at developing aquaculture to make up for the shortfalls in the production of capture fisheries have been unsuccessful for various reasons. These include insufficient financial planning and financial support, inadequate government extension services, as well as undeveloped culture techniques. Although aquaculture is a sub-sector with substantial potential for further expansion, at this time it is still in an embryonic stage of development in the Caribbean region.

Fisheries Management in the CARICOM countries, particularly the legal, regulatory and institutional aspects, tend to be weak and need to be improved substantially to ensure sustainable fisheries. The lack of effective management is regarded as the main reason for Illegal, Unreported and Unregulated (IUU) fishing, over-fishing and degradation of essential habitats and ecosystems. The capacity for effective fisheries management varies significantly between the different countries of the Wider Caribbean region. There are significant institutional and human capacities in some countries, while in others fisheries are unmanaged. Strengthening management is therefore considered to be one of the major challenges to achieving sustainable fisheries in the Caribbean. Against this background, it is doubtful that elimination or reform of subsidies will have any beneficial impact on the state of the fish stocks.

If we use a broad definition of subsidy to include all government interventions – or lack of interventions – that affect the fisheries industry and that has an economic value as proposed by FAO, then several CARICOM countries are providing some sort of subsidy to their fisheries. They provide direct or indirect subsidies to the fisheries sector in the form of incentives aimed at stimulating growth and development of fisheries and aquaculture primarily by reducing the cost of inputs. These have typically included the provision of subsidized fuel, duty concessions on the purchase of fishing gear and equipment, including fishing boats and engines, and the provision of subsidized loans to fishermen through special credit schemes.

Government subsidies to the fisheries sector have been substantially reduced over the past two decades and are generally considered to be negligible in the Caribbean. This is largely due to the structural adjustment policies adopted by the governments and the fact that most governments just do not have the financial resources to provide significant support to the fisheries sector. For these reasons, the

*(Continued overleaf)*

(Continued from page 6)

## Subsidies and Caribbean Fisheries

general impression is that the presence of harmful subsidies is not a big issue in the region.

CARIFORUM countries are net importers of fish products. The main products imported are dry-salted fish and canned fishes such as sardines, mackerels and tuna that are important sources of affordable protein for socio-economically disadvantaged groups. Some of these products are subsidized by the exporting countries and as a consequence, are more affordable to large numbers of poor consumers.

Negotiation on fisheries subsidies must consider the special situation of the small developing states of the Caribbean, and their need for special and differential treatment arising from their vulnerability and inherent economic disadvantages due to their smallness and limited economic base. While this need has been recognized internationally, not much has been done in practical terms to improve un-

derstanding of the situation and develop strategies to deal with the issue associated with SIDS. More needs be done to provide Caribbean States with technical assistance to improve capacity in natural resource conservation and management, including improved understanding of the impact of trade related policies and subsidies on the fisheries.

Caribbean societies will remain dependent on their fisheries resources for food security and economic development. Long-term sustainable benefits will only be possible if there is improved management, based on improved knowledge and understanding of the resource systems, and the trade and economic factors influencing the state of the resources, including the nature, extent and impact of subsidies. We must improve cooperation with interested parties to better understand the environmental, economic and social impacts of subsidies and strengthen our capacity to participate in the negotiations aimed at improving WTO disciplines on harmful subsidies in the fisheries sector.

## A Proposed Common Fisheries Regime for the Caribbean Community (CARICOM)

*Mr. Peter Murray (OECS - ESDU)*

The CARICOM Heads of Government at their Fourteenth Inter-session Meeting, held in Trinidad and Tobago from February 14 – 15 2003, noted and endorsed a proposal submitted by the Government of Barbados on the imperative of elaborating a Common Fisheries Regime (CFR). The Heads of Government had mandated the CARICOM Secretariat to carry out the necessary research with a view to proposing for the consideration of the 24<sup>th</sup> Meeting of the Conference, a framework for the exploitation and conservation of fisheries resources in the region, based on stipulated guidelines. At the First Meeting of the Caribbean Regional Mechanism Forum, held in Belize City, Belize (March 27<sup>th</sup>, 2003) it was agreed to establish a Working Group to develop a draft position on the issue and to facilitate reporting to the Heads of Government through the Ministerial Council and Community Council by June 30<sup>th</sup>, 2003. It was decided that the Working Group comprises (at least) the Executive Committee of the Forum (Belize, Jamaica, Barbados, St. Lucia, Trinidad and Tobago), the CARICOM Secretariat, the CRFM Secretariat, the OECS ESDU, UWI, and Member States Guyana and/or Suriname. It was further decided that skills such as Legal and Foreign Affairs be included in the Working Group and be provided by CARISEC and/or Member States.

The first meeting of the Working Group on a Common Fisheries Regime was held at the Normandie Hotel, St. Anne's, Port of Spain, Trinidad from 5 - 6 June 2003. The objectives and expected outputs of this meeting were the development of a draft outline of a framework for developing a Common Fisheries Regime (CFR) inclusive of the broad issues to be considered, challenges that might preclude its implementation, and the process and probable time schedule required for its implementation. During the meeting, the CRFM presented findings on existing Common Fisheries Regimes/

Policies Worldwide, and Technical and other issues related to the development of such Regimes.

The Working Group discussed issues and possible areas of focus relevant to the development of a CFR. The meeting took the approach of developing an "indicative" Vision, Goal(s), Objectives, and Issues for further elaboration. These are expected to provide the basis for further research, in keeping with the directive of the Conference of Heads of Government.

In this regard, the Working Group suggested a number of important issues for consideration and research. These included (1) Membership and Scope, (2) Legal Issues, (3) Socio-economic Issues, (4) Recreational Considerations, (5) Linkages, (6) Trade Related, (7) Biological and Technical Issues, and (8) Support Measures. The meeting also considered the need to provide guidance on the process for the way forward: (1) Phased Implementation; (2) Working Group Meetings; (3) Stakeholder Participation and Consultation; (4) National and Regional Workshops; (5) Consultancies on Specific Issues; (6) Identification and Sourcing of Financial and Technical Resources; (7) Political Commitment; and (8) Governing Institutions.

The concept of the CARICOM CFR is reminiscent of the draft CARICOM Agreement on Cooperation in the development and management of the Living Resources of the Exclusive Economic Zone (a.k.a CARICOM IGA) of 1992 that was first proposed by Barbados. The CFR proposal suggests that "there should be a common maritime authority to manage the resources ...", and also, "that operation in the fishery zone would be done under license". This is reminiscent of the concept of common zones for fishing, as proposed in the draft OECS Common Fisheries Zones Agreement (CFZA) of 1996, except that it would extend to the EEZs of all CARICOM Member States.



# PROFILES

*In view of the heightened interest in and focus on aquaculture in the region at present, we believe it is important to reflect at this time, on the efforts of individuals and business ventures in aquaculture so far. In this issue, we present a profile of Mr. Mauro E. Gongora, who is an Inland Aquaculture Development Officer employed with the Fisheries Department in Belize. We also present a profile of Fresh Catch Belize Limited, which is a tilapia farm project based in Belize.*

## MR. MAURO E. GONGORA



Mr. Mauro E. Gongora is a Belizean national working with the Belize Fisheries Department, the proud recipient of a CFU/CRFM scholarship through which he pursued his postgraduate studies. Following are the questions of our profile questionnaire and Mr. Gongora's responses.

**Q** – *What made you decide to pursue a career in your chosen field?*

**A** - I am from Sarteneja Village, a small coastal fishing community in the Corozal District of Belize. The male working population of Sarteneja are fishermen who depend almost exclusively on lobster and conch fishing for their livelihoods. Lobster and conch resources in Belize have declined rapidly in the last 10-20 years. Continued exertion of high fishing pressure will eventually result in severe depletion of natural stocks. The development of small-scale aquaculture in this community would greatly contribute to the improvement of the livelihoods of the population and to its future development. I felt that I could make a worthwhile contribution in this type of development within my community. Aquaculture is the activity I first worked on in Belize and I realized from the very early stages of my career that aquaculture has great potential of becoming a major contributor to the national economy of Belize.

**Q** – *What specific training have you received in aquaculture?*

**A** - In 2001, I successfully completed a B.Sc. degree, majoring in Aquaculture & Fisheries Biology, at the Chetumal Institute of Technology at Quintana Roo in Mexico. In 2003, I obtained a M.Sc. degree in Aquaculture from the University of Stirling in Scotland.

**Q** – *Where are you now in terms of development of your career?*

**A** - I am currently employed as the Inland Aquaculture Development Officer at the Belize Fisheries Department.

My primary responsibility is therefore the promotion of inland aquaculture development. My duties also include providing technical support to technicians of the government-owned fish farm that produces freshwater fish seed stocks of local cichlids including bay snook, (*Petenia splendida*), crana (*Cichlasoma urophthalmus*) and the exotic red hybrid tilapia (*Oreochromis* spp.). My job also requires me to respond to queries from members of the public interested in fish farming, to conduct field assessments of potential aquaculture sites, and to provide technical advice and support to existing small-scale fish farmers in Belize.

**Q** – *How do you plan to make a difference in your field of expertise?*

**A** - Aquaculture in Belize is best defined as pond farming of the Pacific white shrimp, *Litopenaeus vannamei*. Shrimp farms in Belize are almost totally owned by foreigners and profits are generally repatriated. The benefits of shrimp farming have not trickled down to the Belizean masses. Shrimp farmers have strongly rejected introduction of official legislation to regulate the sector. I see an urgent need for suitable aquaculture legislation and will therefore work very closely with relevant stakeholders to assist in the development of appropriate legislation to ensure a sustainable and environmentally friendly shrimp-farming sector. Small-scale farming of freshwater finfish species such as Tilapia can contribute significantly to the socio-economic development of Belize. I will continue to promote fish farming in Belize and particularly in Northern Belize that has been severely affected by depressed world sugar prices and the anticipated loss of preferential markets in the European Union.

**Q** – *What has been the most important lesson you have learnt in your profession?*

**A** - One's dream becomes a reality when one works and studies very hard and never loses the focus of one's personal objectives and endeavors.

**Q** – *Do you have any words of encouragement to others who may be interested in pursuing a similar career path?*

**A** - I encourage both the young and the old to pursue their dreams and to remember that we can make a difference by working together for the benefit of our countries. I am extremely grateful to the CRFM for the scholarship granted to me for my post-graduate studies.

## Fresh Catch Belize Limited



*Fresh Catch Belize Limited is an aquaculture project being implemented in Belize. Following are our profile questions and the responses kindly provided by the Company's Manager, Mr. Emile Mena.*

**Mr. Emile Mena**

*(Continued overleaf)*

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(Continued from page 11)

## Fresh Catch Belize Limited

**Q** - What is the nature of your business?

**A** - Fresh Catch Belize Limited is a Tilapia farm project located in Democracia Village of the Belize District, Belize. It was established on 6 March 2001, and is privately owned and managed. The farm currently employs a total of 36 persons of which 32 are field staff.

**Q** - How do you acquire your raw products and what are the steps followed to complete production and deliver to your markets?

**A** - Fresh Catch Belize Ltd. has been designed, bearing in mind the sensitive nature of the River Sibun Watershed, and of the Belize environment in general. Special attention has been given to the design of the water system and to minimizing any negative environmental impact. The system is based on re-circulation of water between earthen ponds and two large 8.0 ha reservoirs, which function as a 'green lung'. This is a proven water management system, practiced elsewhere on a large scale. This means that the organic wastes, in the form of fish faeces, decomposed feed and ammonia, are treated by the natural heterotrophic decomposition, nitrification, and de-nitrification processes occurring within the water system. The nitrogenous compounds are assimilated by algae, in enhancing the food chain that comprises part of the nutritional requirements of the herbivorous tilapia.

The project is designed and operated as an ecologically balanced system, with minimum requirements for water. The latter is required only for filling, and for compensation against seepage and evaporation. Efforts are ongoing to make the farm independent and self-sufficient, with a complete production line, inclusive of brood stock, spawning ponds, nursery and 'Grow out Ponds', and finally a

HACCP approved processing plant, with attached treatment plant.

**Q** - What is the present level of production and where are your markets?

**A** - Current farm production is around 1,300 tons per year, with about 80% of this production exported to the USA.

**Q** - What are the Company's future plans?

**A** - The Company is aiming to increase production levels to about 4,000 tons per year. The project area is about 160 ha, and will be developed in 3 stages, each producing 1,300 ton per year, giving an overall total close to 4,000 tons. It is expected that the project will employ more than 120 people when the farm has realized its full potential.

**Q** - Is your Company involved in any aquaculture research, or do you have any plans to do so in the near future?

**A** - Fresh Catch Belize Limited plans to work along with its feed suppliers to improve the quality of feed, and to ensure the good health of the fish during the life cycle, in an effort to improve growth rates.

**Q** - What is your advice to others interested in pursuing a similar venture?

**A** - It is important that Tilapia farming and other aquaculture ventures be treated as commercial ventures. Proper biological, engineering, and feasibility studies should be conducted prior to embarking on the project. The project should then be developed and run professionally.

**Q** - What important lessons have you learnt as the Manager of Fresh Catch Belize Limited?

**A** - Studies and construction should be done in a timely manner. The construction should be done in the dry season when efficiency is easily achieved.

## CRFM QUICK FACTS

1. The Caribbean Regional Fisheries Mechanism (CRFM) is a permanent institutional arrangement to deepen regional integration in the management of marine and aquaculture resources.
2. Its guiding principles revolve, among other things, around institutional strengthening, capacity building, data generation and management, resource assessment and management, promotion of public awareness and community participation in management and institutional networking.
3. The Organs of the CRFM are the Ministerial Council of Ministers responsible for fisheries affairs, the Caribbean Fisheries Forum of representatives of the Member States, and the Secretariat or Technical Unit headquartered in Belize with a sub-office in St. Vincent & the Grenadines.
4. The Vision is to promote sustainable use of fisheries and aquaculture resources in and among Member States by the development, management and conservation of these resources in collaboration with stakeholders to the benefit of the people of the Caribbean region.
5. Its Mission is to promote and facilitate the responsible utilization of the Region's fisheries and aquatic resources for the economic and social benefits of the current and future population of the region.
6. Full membership is open to all CARICOM countries, with Associate membership open to CARIFORUM countries, Non-CARICOM Caribbean States and Caribbean Dependent Territories that obtain special empowerment from their metropolitan powers to join.

# RESEARCH & TECHNOLOGY

## Improving National Databases: The Development of the Caribbean Fisheries Information System (CARIFIS)

In 2001, Dr. Paul Medley, was contracted as the Consultant to assist with upgrading the Trip Interview Programme (TIP) and License and Registration System (LRS) applications (which hitherto were the national programmes used) with assistance from a Working Group made up of representatives of the Member States, OECS-ESDU and the CFU. The First Workshop of Regional Experts to review and upgrade TIP and LRS software programmes was held in St. Vincent and the Grenadines during the period July 25 to 27, 2001. The Workshop reviewed, discussed, and confirmed the database needs, agreed on the technical specifications of the revised programme, and prepared recommendations and blue prints for the upgraded software.

The alpha version of the software was then completed and circulated to Member States and members of the Expert Working Group for testing prior to the second workshop, which was held in Jamaica from November 6 to 9, 2001. At this Workshop, the test results on the alpha version were discussed and recommendations for further development and modifications were made.



*Main screen of the CARIFIS software*

In 2002, a Workshop was convened in St. Vincent and the Grenadines, from the 24 to 27 September, in order to finalize the software programmes. The Workshop was attended by a sub- group of the Expert Working Group that reviewed, debugged, and tested the latest beta version of the upgraded programmes, with a view to distributing a workable version to all Member States for trial during the

last quarter of the 2002/2003 fiscal year

Final modifications to the software were agreed upon and a Plan of Action developed to distribute the programme and provide training to the end-users in the countries.

Training in the use of the CARIFIS Programme was conducted by the Resource Persons who were previously trained at the December 2002 CARIFIS workshop. The Workshop participants, including Data Entry Operators, Data Managers, Fisheries Officers and Chief Fisheries Officers, were drawn from 19 CARICOM/ CARIFORUM countries.

A 'Training of Trainers' Workshop was organized and convened in St. Vincent and the Grenadines from December 2 to 7, 2002. The purpose of this Workshop was to train Resource Persons who would be responsible for training end users of the CARIFIS database program in the countries. In 2003, the CARICOM Fisheries Unit, in collaboration with the FAO, organized and convened a Regional Fisheries Statistics and Data Management Workshop, from March 10 to 22, 2003, in Barbados. The Workshop provided training in Sample Based Fisheries Survey Methods, use of the new CARIFIS Database Program, and training in the collection and analysis of social and economic data. Following the Barbados Workshop, CARIFIS has been further refined and version 1.2 has now been delivered to the CARIFORUM/CARICOM Member States in time for the agreed formal start-up date of January 31, 2004 for the introduction of CARIFIS.

In the interim, debugging of the new software, with recommendations for its modification were completed by the Consultant, and a CARIFIS training CD was finalized by the CRFM Secretariat and forwarded to the various fisheries administrations.

Participants were expected to test the CARIFIS version 1.2 using actual national data and to report back to the CRFM Secretariat about errors and other problems encountered, for solutions to be found.

Further activities planned for the year 2004 include the importation of the TIP and LRS databases to the CARIFIS programme, including the training of personnel in the Member States for that purpose. A CRFM Data Manager would be recruited and CARIFIS Working Group formed for the task of maintaining the CARIFIS programme over its short to medium term development. A few regional programmers, preferably drawn from the public sector, might be asked to render assistance with the maintenance of CARIFIS, should the need arise.



## Small Coastal Pelagic Feasibility Study

by Ms. Sherry Constantine

Notwithstanding the fact that small coastal pelagic species are the “bread and butter” fisheries of most CARICOM states, contributing to over 50% of annual landings in some countries, little is known about their migration, biology and ecology. This paucity of information has made it virtually impossible to develop comprehensive management measures to protect these vital resources.

The Caribbean Regional Fisheries Mechanism (CRFM) Secretariat, in collaboration with the St. Vincent and the Grenadines Fisheries Division (DOF), the University of the West Indies, Centre for Resource Management and Environmental Studies (CERMES), and the Institute of



*Photograph of a jack and a robin (Source Fishbase)*

Marine Affairs (IMA) will embark on a pilot study of jacks and robins in the small coastal community of Clare Valley. Clare Valley is located on the western side of St. Vincent and is home to a number of seine fishers.

The pilot study is a precursor to a proposed region-wide research effort targeting small coastal pelagics, with jacks and robins as the prime focus. It has been designed in a way that would facilitate the determination of the scientific procedures to be employed in the larger scale study. It is intended to facilitate the identification of errors in experimental procedures and conditions, and thus help ensure that the desired outputs would be obtained during the second phase of the project.

For the duration of the pilot study, fisheries scientists from the CRFM and the DOF will engage the expertise and assistance of seine fishers from Clare Valley in the construction of fish holding cages, tagging of fish with spaghetti and disc tags, injecting of fish with *oxytetracycline* antibiotic, and the observation of fish held in captivity. In addition the scientists, by removing the gonads and stomachs of jacks and robins, will be able to investigate their reproductive cycles and prey preferences. Tissue samples will be sent to CERMES to facilitate investigation of DNA content. Likewise, samples of various hard parts will be sent to IMA to facilitate investigations of *oxytetracycline* deposition, and age and growth analyses.

It is hoped that the data collected from this study will assist with the refining of the experimental procedures that will be employed during the region wide research effort, to study: stock movements, distribution and migration, the validation of growth rates, unit stock identification, the reproductive biology and the feeding ecology of commercially important small coastal pelagic species.

CRFM News, January 2004

## International Workshop on Technology and Management of Aquaculture

by Mr. Terrence Phillips

The Programme Manager, Fisheries Management and Development, Terrence Philips, participated in the Workshop on Technology and Management of Aquaculture, from August 26 to September 12, 2003, in Keelung, Taiwan, ROC. The workshop was sponsored by the International Cooperation and Development Fund (ICDF) and the National Oceanic University (NTOU) of Taiwan (ROC). With the assistance of the Embassy of the Republic of China (ROC) in Belize, the Programme Manager was awarded an ICDF Fellowship as part of the ROC technical assistance to the CRFM.

The Workshop was targeted at government officials, researchers and personnel engaged in the aquaculture industry and other related fields. In attendance, were participants from Panama, Oman, Costa Rica, Honduras, Saudi Arabia, Swaziland, Indonesia, Thailand, Vietnam, Fiji, Malawi, The Gambia, Nicaragua, Dominican Republic, Haiti, Palau, Guatemala, Argentina, Belize, Brazil, Peru, Jordan, Bahrain, Bolivia, Nigeria and Mexico. Topics covered ranged from classroom theoretical work and laboratory work to field activities.

The lectures and discussions were geared to provide an orientation to aquaculture development, including policy formulation and implementation, management, research, disease identification and treatment, feed development, extension, processing, quality control and product development. Of note, is the approach of the ROC to ensure that aquaculture is fully integrated into their fisheries management and development planning process, as well as the efforts being made to link aquaculture with the tourism sector.

The field visits, which lasted about one week, involved trips to aquaculture farms for abalone, shrimp, hard clam, tilapia, king grouper and ornamental fish culture farms. Culture systems ranged from extensive and semi-intensive to intensive. Also, visits were made to the Tai-Roun Feed Manufacture Company, Tilapia Fillet Manufacture Company and a Freshwater Aquaculture Research Center. Also participants were taken to the Taipei Sea World, Taroko National Park, National Palace Museum and the Taipei County Yingge Ceramics Museum.

Towards the end of the Workshop, participants made country presentations with time being allocated for questions and answers. The Programme Manager gave an overview of aquaculture development in the CARICOM Region, highlighting the project profile from the CRFM Medium Term Plan, entitled, “Development and Promotion of Aquaculture and Mariculture in the Caribbean”.

At the end of the Workshop, the ICDF held an Evaluation Session during which participants gave their assessment of the Workshop in terms of organization, coordination and content.

# Upcoming CRFM Events (2004)

Activities	Proposed Dates	Proposed Locations
1. Lead Agencies Meeting	January 22 <sup>nd</sup> – 23 <sup>rd</sup>	Trinidad & Tobago
2. SIDs Workshop	January 26 <sup>th</sup> – 30 <sup>th</sup>	The Bahamas
3. T & T Shrimp & Ground Fish Assessment Workshop	January 26 <sup>th</sup> – 30 <sup>th</sup>	Trinidad & Tobago
4. IDRC SPG Review Meeting	February 6 <sup>th</sup> – 7 <sup>th</sup>	Peru
5. Belize Conch Data Analysis Workshop	February 9 <sup>th</sup> – 13 <sup>th</sup>	Belize
6. Dominican Republic FMP Workshop	February 19 <sup>th</sup> – 20 <sup>th</sup>	Dominican Republic
7. Common Fisheries Policy Meeting	February 23 <sup>rd</sup> – 25 <sup>th</sup>	Guyana
8. Special Regional Conch Meeting	March 11 <sup>th</sup> – 12 <sup>th</sup>	To be determined
9. TCI FMP Workshop	March 15 <sup>th</sup> – 16 <sup>th</sup>	Turks & Caicos Islands
10. WW 2 BW Conference	March 22 <sup>nd</sup> – 26 <sup>th</sup>	Miami
11. Haiti FMP Workshop	April 1 <sup>st</sup> – 2 <sup>nd</sup>	Haiti
12. Extension Training for Field Officers	April 12 <sup>th</sup> – 14 <sup>th</sup>	Haiti
13. National Fisheries Workshop	April 15 <sup>th</sup> – 16 <sup>th</sup>	Haiti
14. Senior Management Meeting	April 19 <sup>th</sup> – 20 <sup>th</sup>	St. Vincent & the Grenadines
15. Meeting of the Executive Committee of the Forum	April 21 <sup>st</sup>	St. Vincent & the Grenadines
16. Annual Forum Meeting	April 22 <sup>nd</sup> – 23 <sup>rd</sup>	St. Vincent & the Grenadines
17. FAO Flying Fish Working Group	April	To be determined



## FISH HUMOUR

Why are fish so gullible?  
They fall for things hook, line and sinker.  
How do you communicate with a fish?  
You drop it a line.



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