CRFM NEWS

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Caribbean Fisheries Forum Holds 3rd Meeting in St. Christopher and Nevis

Main Remarks by the Hon. Cedric Liburd, Minister of Housing, Agriculture, Fisheries and Consumer Affairs

Let me join Mr. Joseph Simmonds, Senior Fisheries Officer in welcoming all of you to the Federation of St. Kitts - Nevis

I feel quite honored to have been invited to speak to such an illustrious group of experts who deal with a subject matter that is of paramount interest to the peoples of the Caribbean Region. Our marine environment contains resources of enormous potential benefit to all and these resources must be managed carefully so as to ensure that economic benefit exists side by side with sensitive environmental care. As a CARICOM Region we have a shared responsibility of ensuring the long term health of our marine environment. The CRFM is critical to this process and must continue to demonstrate leadership by implementing a coherent, strategic planning and management framework capable of dealing with the complex issues confronting the long term future of our marine environment.

Policy:

Putting *a Common Policy and Regime* into action requires partnerships between all spheres of government, the private sector, and the scientific and wider communities. This Policy has to be developed with considerable consultation and the sharing of ideas with governments, the community, conservation groups, industry and other resource-users, if the region is to guarantee the conservation and sustainable development of our vast natural assets. Following consultations many of the ideas can then be incorporated into the Policy.

The goal of a common policy ought to focus on Ecological Sustainable Development that improves the quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. May I suggest that the core objectives of any Strategy should include the enhancement of individual and community well being that follows a path of economic development and safeguards the welfare of future generations. It should also provide for equity within and between generations and protect biological diversity and maintain essential ecological processes and life-support systems. To achieve the goal of an ecologically sustainable marine management we therefore need to look at all of the living marine and other aquatic resources collectively rather than in isolation, and our management

decisions need to be informed by a sound understanding of natural systems and of the human interactions with them.

Global Oceans Policy:

The coming into force of the 1995 United Nations Fish Stocks Agreement, and the revisions that are being made to regional fisheries management agreements to incorporate its principles is an indicator of the maturing of a global oceans policy. Notwithstanding such developments overfishing and habitat destruction continue to threaten the long-term health of the world's fish stocks. States that license vessels to fish within their own exclusive economic zones or on the high seas must be held accountable when those vessels engage in illegal, unregulated, or unreported (IUU) fishing. However implementation of the Food and Agriculture Organization's international plans of action relating to fisheries will be a big step in the right direction.

Regional Oceans Policy:

From a regional perspective the work of Regional Fishery Management Organizations (RFMOs) are critical as

(Continued overleaf)

INSIDE

they promote the sustainability of fisheries through the use of increased knowledge of fish stocks and their interactions with the marine environment, through ecosystem management and precautionary approaches, and through creative means of enlisting Port States and importing nations in the effort to combat illegal, unregulated, unreported fishing.

Regional approaches are also critical in protecting the marine environment. UNEP's regional seas programs are active, to varying degrees, in increasing the capacity of coastal States to combat the major causes of environmental degradation. I am aware that the Caribbean Environment Programme recently joined with the United States, and with many other governments, international organizations, universities, financial institutions, non-governmental organizations, and corporations, to form the White Water to Blue Water Initiative.

The White Water to Blue Water Initiative which was launched at the World Summit on Sustainable Development, first focused on the Wider Caribbean region. It is my understanding that the White Water to Blue Water outcomes in the Caribbean may serve as a blueprint for future efforts in Africa, in the South Pacific, and elsewhere.

The Caribbean Regional Fisheries Mechanism (CRFM):

So the mission of the Caribbean Regional Fisheries Mechanism (CRFM) to promote and facilitate the responsible utilization of the region's fisheries and other aquatic resources for the economic and social benefit of the current and future population of the region is in keeping with global policy.

The fisheries sector is critical to the CARICOM region in terms of food production, employment, and a source of foreign exchange as it earns approximately US$150 million from exports each year. In several instances, fisheries exports contribute significantly to overall national economies. Here in St. Kitts we were able to document the fish landed in the year 2004, as 914,000 pounds which valued over $6 million.

There is a growing recognition of the need to establish accurate and up-to-date inventories of fishing vessels and capacity at the domestic, regional, and global levels. There is also a need to exchange information on illegally operating vessels. This need is specifically acknowledged in both the FAO Compliance Agreement and the draft FAO initiative on managing capacity in world fisheries. This Region is strongly encouraged to move forward as quickly as possible to establish comprehensive fishing vessel registers in order to support the initiatives when they come into force.

The market for fish is increasingly a global market. Exports of fishery commodities constitute some 40% of total catch by weight, suggesting that trade and trade policy have significant implications for fisheries conservation. Not surprisingly, some of the most prominent disputes involving trade and environment have involved marine products. Yet, there has been little systematic study of the linkages between trade and fisheries.

It is against this backdrop that the CRFM was established by the Heads of Government of CARICOM as a legal autonomous body in February 2002 to promote and establish cooperative arrangements among interested States for the efficient management of shared, straddling or highly migratory marine and other aquatic resources. The CRFM is therefore expected to continue providing technical advisory and consultative services to fisheries divisions of our Member States in the development, management and conservation of our marine and other aquatic resources.

We here in St Kitts - Nevis as part of our Diversification Non-Sugar Agriculture, are seeking to develop our fisheries Sector. We continue to improve this Sector by providing Fish Landing Facilities, Cold Storage Facilities, Training opportunities for Fishers and Fish Processors and encouraging investment in modem fishing boats. We are confident that these improvements will decrease the importation of fish products here in St. Kitts - Nevis.

Mr. Chairman your Agenda for this forum will deal with the legal, socio-economic and linkage issues so it is therefore my wish that the time that you have allotted and the ensuing debates will allow you to realize the objectives of your purpose for convening this very important "Third Meeting of the Caribbean Fisheries Forum".

I thank you.

MANAGEMENT & POLICY

VOTE OF THANKS

Delivered by Mr. Hugh Saul, Executive Director, CRFM Secretariat, at the
(at the Third Meeting of the Caribbean Fisheries Forum, St. Christopher and Nevis, April 20th – 21st, 2005)

Mr. Raymond Ryan, Chairman of the Caribbean Fisheries Forum, Hon. Cedric Roy Liburd, Minister of Housing, Agriculture, Fisheries, and Consumer Affairs, Mr. Ian Liburd, Permanent Secretary in the Ministry of Agriculture and Fisheries, Fisher folk Representatives, Invited Guests, Colleagues, Members of the Press Corps., Ladies and Gentlemen.

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Vote of Thanks (continued from page 2)

I believe that I am echoing the sentiments of my colleagues and representatives of Member States, when I say how happy we are to be in the beautiful island of St. Christopher, part of the Federation of St. Christopher and Nevis at this the Third Meeting of the Caribbean Fisheries Forum.

The history of St. Christopher has been one of struggle for workers rights within the cane sugar industry and those rights have always been articulated and championed by men of courage and vision. This morning as we listened to the feature address by the Honorable Minister, with his message of exhortation, advice and expectations we can conclude that there is clear political support here in St Christopher and Nevis for Fisheries Management and Development. With the demise of the cane sugar industry, new challenges and areas of opportunities await not only the Kittitian fisher-folk but CARICOM fishers in general, as they seek to work cooperatively not only with national experts but sub-regional and regional scientists in ensuring sustainable use of the region's fisheries resources. The CARICOM region must find alternatives to the sugar and banana industries. The fishing industry holds out some hope, but this can only happen if Member States give to the fishing industry the resources it needs – both financial and technical, to do the job.

We are grateful to the Government and people of St. Christopher and Nevis for agreeing to host this Meeting and by that commitment will provide Chairmanship and Leadership to the Mechanism in programme year 2005 / 06. The Chairman inwaiting, Mr. Joseph N. Simmonds, has already begun working with Management in setting the stage for his term in office. If we can judge by his enthusiasm over the past three months, the Forum in p.y. 2005 / 06 will be in good hands.

To Mr. Raymond Ryan, our outgoing Chairman of the Forum we say with a sense of pride and achievement that your Leadership over the past year, although at times very challenging, has been marked by Dedication, Determination, Commitment and a will to succeed, which in my view have resulted in building on the foundation laid by the first Chairperson, Ms. Beverly Wade. We now look to Mr. Simmonds your designated successor to further build on the strengthened foundation you have laid.

We say thank you to the Permanent Secretary who served as our Chairperson to this Opening Ceremony and for agreeing to provide through his Ministry, administrative, secretarial and logistics support to this Meeting.

To my friend the Chief Agricultural Officer, Dr. Jerome Thomas, for gracing us with his presence. To other invited guests we say thanks for giving of your time to be here this morning.

To the representatives of the fisher folk in St. Christopher and Nevis, I say a special welcome. Your presence here today should not be interpreted as symbolic, but rather as CRFM's commitment to the future. It is our intention to invite fishers representatives from the Host Member States as Observers to attend meetings of the Forum until a Regional Fisheries Organisation is established, at which time that organization will occupy its rightful place as Observer on the Caribbean Fisheries Forum. Fisher folk contribution is valuable to us, hence we look forward to your participation.

To the support Staff provided by the Ministry of Agriculture and Fisheries, a personal thanks in advance for the continued cooperation and help in ensuring a successful Meeting. Also to the members of the press corps for being here, and by that act ensuring that our message is carried beyond the walls of this room. To the present Executive Committee of the Forum, supported by the Director of Fisheries, Trinidad and Tobago, for their collective and individual commitment, dedication and advise in assisting management in its search for excellence. And to the Member States by way of the Forum members for their steadfastness in the face of many challenges posed by this young organization. To the OECS and CARICOM Secretariat representatives especially Peter A. Murray, Ronald M. Gordon and Oswald Barnes – men who by their unstinting support and professionalism have provided technical backstopping to the CRFM over the past year. To all those who have helped, but whose names have not been mentioned, I say thank you for your contributions.

Towards the Formation, Strengthening and Operation of a Caribbean Network of National Fisher folk Organizations

by David N. Brown, Ph. D, CRFM Secretariat.

One of the main goals of the CRFM is to promote the co-management of the fisheries resources of the region in order to enhance sustainable utilization of these resources. This calls for the empowerment of the resource user groups through building their capacity to undertake their role as partners with government in the collaborative management of the resources. As a continuation of the capacity building programmes targeting the fisher folk organizations, the CRFM conducted an organizational needs assessment of fisher folk organizations in the region.[1] The main purpose of the Study was to identify the strengths and weaknesses of the organizations and their needs, in order to generate strategies for addressing the constraints that hinder their development and find ways to strengthen them.

The main output of the project was a report entitled "Organizational Needs Assessment Study of Caribbean Fisher Folk Organizations", which was reviewed and commented on at the CTA / CRFM / CARDI Regional Workshop on the Findings of

Organized Fisher's Meeting

Organizational Needs Assessment of Caribbean Fisher Folk Organizations that was held in Belize from October 12 to 14, 2004. The Objectives of the Workshop were as follows: to intro-

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Towards the Formation (continued from Page 3)

duce the participatory element into research and project implementation; to provide participants with the opportunity to validate the findings of the Organizational Needs Assessment Study of Caribbean Fisher folk Organizations; to offer participants the chance to exchange ideas and information towards generating plans for further work in the institutional building and strengthening process; and to strengthen the possibilities for future networking among the national fisher folk organizations in the region.

At the close of the Workshop, the participants unanimously passed a resolution accepting the 5 recommendations made in the Needs Assessment Study, namely:

- The region should focus initially on the formation and strengthening of national umbrella fisher folk organizations in all the CRFM Member States.
- The development of networks should begin with the establishment of a 'Caribbean Network of National Fisher Folk Organizations' linked by an integrated electronic communication system.
- The region should facilitate the extension of the network to encompass other relevant national, regional and extra-regional organizations at a later stage, particularly for further capacity building and resource mobilization.
- Introduce feedback mechanisms, regular consultations and responsible representation of primary organizations by national organizations, through representatives of constituent groups on national and regional decision-making bodies, and for the primary organizations to hold their representatives on such bodies accountable, and subject to replacement for performing below expectation.
- National organizations are to provide leadership, defend and promote the interests of the primary organizations and influence national policies in favour of the organizations, and for the network to do same regarding regional policies.

A five-member pro tem Working Group, made up of Antigua & Barbuda, Belize, Jamaica, St. Vincent & the Grenadines and Trinidad & Tobago, was established to draw up a medium term action plan, including specific projects for implementation. The first meeting of the pro tem group was held in Georgetown, Guyana, 22nd & 23rd June, 2005.

At the core of these recommendations is the creation of the regional network linked by electronic information and communication technology. In practical terms it is meant to introduce the organizations to computer literacy so that they could make effective use of computers and share information through e-mailing, to build their capacities to influence fisheries development and management decision making and policies, engage in advocacy for the promotion and defense of their interests, and to meet their regional and extra-regional counterparts and better inform the region and the international community about their work through their website. Ultimately it should be possible for the network to regularly produce its own newsletter.

In more specific terms, the objectives of the plan is to facilitate the use of communication technology for socio-economic empowerment, facilitate the use and exchange of information for capacity building, build their ability to communicate with network partners electronically, build their capacity to access and exchange information for promoting effective participation in national and regional decision and policy making fora. In the long run, the outputs would include capable fisher folk organizations with the ability to advocate for the promotion of their interests, with greater capability to develop joint solutions to common problems, greater capacities to influence national and regional decision making in fisheries development and management, and sufficiently empowered socially and economically, and capable of sharing their experiences and knowledge with other organizations world-wide.

Footnote

1: The project proposal is funded by the Technical Centre for Agricultural and Rural Co-operation (CTA), EU-ACP, The Netherlands

Reduction of by catch and discards in the shrimp trawl fishery of Trinidad and Tobago

by Suzette Soomai
Fisheries Division, Ministry of Agriculture, Land and Marine Resources, Trinidad and Tobago

Globally, shrimp-trawling practices are considered unsustainable and there is growing international pressure to change current practices and reduce the impact of shrimp-trawling, particularly in tropical shallow-water ecosystems. The nature of shrimp trawling is such that trawl gear uses a relatively small mesh size in order to retain the very commercially important shrimp, hence finfish and other species are inevitably caught at the same time. The issue of the high levels of by catch and discards is of great concern since only a portion of the by catch is retained and landed whilst most of it is discarded at sea.

The reduction of by catch and discards of unwanted catch is now a policy for many countries, as well as for an increasing number of regional and sub-regional fisheries management organisations. In Trinidad and Tobago, the Government's policy directions for the management of the trawl fishery favour strategies which minimise the amount of by catch taken. To this end, Trinidad and Tobago is participating in a global Project EP/GLO/201/GEF "Reduction of Environmental Impact from Tropical Shrimp Trawling, through the Introduction of By-catch Reduction Technologies and Change of Management".

Project EP/GLO/201/GEF is supported by the Global Environmental Facility (GEF) under Operational

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Reduction of by catch and discards Continued from Page 4)

Programme 10 in the International Waters portfolio, which fosters global initiatives, or projects that focus on problems of high global priority. The Project is co-ordinated by the Food and Agriculture Organisation of the United Nations (FAO) and participating countries are included in four major geographical groupings: Latin America and the Caribbean, Far East, Asia, Africa. The project seeks to reduce the negative environmental aspects of bottom trawling through the removal of barriers to the introduction of environmentally friendly gear and fishing practices. These barriers often include the lack of information concerning the availability and effectiveness of such technologies and inadequate national legislation.

The preparatory phase of the Project EP/GLO/201/GEF began in 1999 where priority areas were identified for all participating countries. In Trinidad and Tobago priority areas for work were identified in collaboration with fishing industry representatives. The main phase of the project began in 2003 and will run for a five-year period until 2008. Activities being conducted by Trinidad and Tobago are focused on data collection, public awareness and consultation with the trawl industry. Data collection is ongoing throughout the life of the project and analyses include catch composition and the importance of landed by catch to the social and economic well-being of the associated fishing communities and the wider community. The project, therefore, aims to determine the impact of present shrimp-trawling on the environment and to determine the potential economic value of by-catch and discards.

The project provides for increased co-operation among countries in Latin America and the Caribbean in research on, and management of their shrimp and associated fish resources. In this region, several by-catch reduction devices (BRDs) have been developed by the National Institute of Fisheries, Mexico and proved to be efficient. With technical assistance from Mexico and the FAO, Trinidad and Tobago and Venezuela will collaborate on gear trials on commercial trawlers operating in the Gulf of Paria and Columbus Channel. Appropriate modifications to these trawl and by-catch reduction technologies will be made with regard to reducing the capture of juvenile fish as well as increased survival of escaped by catch.

Activities under Project EP/GLO/201/GEF will result in a better understanding of the interactions between shrimp-trawl fishing gear and the environment. Technical information obtained will be used in considering the feasibility of introduction of alternative fishing methods, BRDs and of management measures such as closed seasons and closure of fishing grounds. The Project will favour selection of any gear technology and fishing operations which reduces by-catch by 50% or more, while ensuring the economic feasibility of trawling. The scientific information gathered under the project will be used to develop management plans, legislation and monitoring measures.

The implementation and successful outcome of the Project is dependent on participation of the fishery industry in project activities through provision of information and discussions on problems and strategies for solutions. It is recognised that techniques that are not accepted by the industry will not be implemented. A committee comprising fisheries managers, researchers and trawl fishery representatives has been formed to consult on all important issues regarding project implementation.

Conch Consumption in the Turks and the Caicos Islands

Preparing Conch meat for sale and consumption

By Kathy Lockhart, Scientific Officer,
Department of Environment and Coastal Resources,
Turks and Caicos Islands

The management of marine fisheries to ensure the best use of the resources of the ocean has become the major problem facing fishery scientists and managers (Gulland, 1974) in the region over the years. Often traditional approaches do not transform regional fisheries into sustainable dynamic systems which ensure that future demands are met (Haughton, 1999). Rather, a combination of traditional and modern approaches is needed for sustainable fisheries development. A holistic approach can incorporate a variety of disciplines such as biology and socio-economics. It is also important to consider all available information concerning exploitation levels, such as commercial catch destined for export as well as for local consumption.

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Conch Consumption (continued from Page 5)

Strombus gigas (Queen Conch) is an economically important fishery species managed by an export quota system in the Turks and Caicos Islands (TCI), surpassed in economic value only by the Spiny Lobster (*Panulirus argus*). Queen conch is regarded as a source of good and cheap protein; as such it is highly coveted throughout the region, including the TCI dating back to the pre-Columbian times (Sadler, 1997; Clerveaux and Danylchuck, 2001; Theile, 2001).

The Total Allowable Catch (TAC) or quota system in the TCI is based on the maximum sustainable yield (MSY) estimation, less an allowance for domestic consumption. A lack of data on domestic consumption however, raises the concern that if underestimated, stocks managed using MSY may diminish from over harvesting. Many countries in the region are faced with a similar challenge, that is, the lack of complete time series data sets. Most fisheries data in the region only represent catch which are destined for export, generally landed at centralised locations. In contrast, catch utilised for local consumptions is often more difficult to track because of the numerous possible landing sites which may exist in any one country.

In 1999-2000 the TCI allocated 5% of the MSY for domestic consumption, however, there is anecdotal evidence that domestic consumption of conch is much higher. In 2003, of the total landed conch (1,657,876 lbs), 99% was exported, suggesting most domestic consumption does not pass through this system. So in the 2003-2004 fishing season, the allocation for local consumption was raised to 10% of the MSY, because of the increased concern of the need to take into account the growing local consumption.

In 1984, Olsen estimated a local seafood consumption index of 25.9 kgs person^{-1} year^{-1} for the Eastern Caribbean, including the TCI. He further estimated local consumption of queen conch at 312 t (Olsen 1985). In 1985, Olsen estimated local consumption of queen conch for all residents and visitors in the TCI to be at 35.4 kgs person^{-1} year^{-1}, which Medley and Ninnes (1998) suggest is referring to unclean meat. In 2001, a social and economic impact census was conducted to validate and quantify the estimates from Olsen (1985) data. Clerveaux (2003) estimated a conch consumption rate of 4.93 kgs/resident. Unlike Olsen a separate tourist consumption rate of 0.28 kgs/person was determined. However, the estimation of consumption is assumed to be underestimated, because of the small number of surveyed respondents.

In order to increase accuracy in estimating conch consumption within the TCI, an intercept survey was administered to the adult population between July and September 2004. Information collected included individual consumption of conch and other seafood as well as limited demographic information (age, gender, island of residence, nationality). The majority of respondents ate conch (72%). The majority of conch consumed does not go through the market, with 15% claiming personal capture, while 36% receive the conch as a gift from fishermen. The size of each service and its frequency were not taken into account. The initial results of the TCI local conch consumption survey suggested an annual consumption level well above the levels indicated in previous studies (Olsen 1985, Clerveaux 2003). The higher estimate could be due to a larger estimated serving size or higher frequency of consumption. These concerns, together with potential biases in the results, will be addressed through the use of a supplemental survey to be administered in conjunction with the larger survey to an additional sample of residents. With more conclusive figures, local consumption can be included in the calculations for MSY and utilized to determine the landings quota.

In conclusion, local consumption rates of different marine products are being considered in the management of the resources in the Turks and Caicos Islands. Effective management is therefore dependent on the ability to incorporate a range of information about the stocks concerned. Basic catch and effort information may not be sufficient to provide a complete understanding of the stock structure or what may be necessary for stock assessment and management, but other parameters such as local consumption may play a larger role than first envisaged.

Literature Cited

Anonymous. 1999. Report on the Queen Conch Stock Assessment and Management Workshop. Council and CARICOM Fisheries Resources Assessment and Management Programme. Belize Cite, Belize. 1-105 p.

Clerveaux, W. 2003. An Assessment of the Queen Conch (*Strombus gigas*) Stock Status of the Turks Bank and the Feasibility of Expanding the Fishery as an Export Industry for the Turks and Caicos Islands. M.S. Thesis. University of West Indies, Jamacia, West Indies. 96 p.

Clerveaux, W. and A. Danylchuk. 2001. Visual Assessment of Queen Conch (Strombus gigas) Stocks in the Turks and Caicos Islands. Proc. Gulf Carib. Fish. Inst. 54.

Gulland, J.A. 1974. The management of marine fisheries. Scientechnica (Publishers) Ltd. Bristol. 198pp.

Haughton, M. 1999. Managing Caribbean Fisheries. Caricom Fisheries Newsnet. 5(1) 1, 11pp.

Medley, P. and Ninnes, C. 1998. A Stock Assessment for the Conch (*Strombus gigas L.*) Fishery in the Turks and Caicos Islands. Bulletin of Marine Sciences 62(1): 153-160.

Olsen, D.A., Nellis, D. and Wood R. 1984. Ciguatera in the Easter Caribbean. Marine Fishery Review 46(1): 13-18.

Olsen, D.A. 1985. Fishery Resource Assessment of the Turks and Caicos Islands. Final Report on FAO Project TCI/83/002. FAO Rome: 94 p.

Sadler, H.E. 1997. *Turks Islands landfall, a history of the Turks and Caicos Islands.* United Cooperative Printers Ltd. Kingston. Jamaica. 300 pp.

Theil, S. 2001. Queen Conch fisheries and their management in the Caribbean. Technical report to the CITES Secretariat. TRAFFIC Europe, Brussels, Belgium.

The Institutional & Administrative Basis of Coastal Zone and Fisheries Management in Trinidad & Tobago

by Suzette Soomai
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The multi-sectoral uses of the coastal areas of Trinidad and Tobago, namely industrial, housing and tourism development, are progressing at a faster pace than efforts to manage the natural resources. These developments pose a threat to the marine environment and fisheries largely through habitat destruction and pollution from land-based sources. The Gulf of Paria coastal zone on the west coast of Trinidad is the most affected by developmental pressures because of its importance as a fishing ground and as a site for industrial activity, agriculture and shipping. Many studies have focused on the Gulf of Paria coastal zone and have defined the management issues facing the marine fisheries in the area. Apart from the multiple use of the coastal zone, the existing open access fisheries situation and the need for bilateral management of fisheries resources shared with Venezuela present special problems for management. Preliminary stock assessments completed for several commercial marine species have suggested that fisheries resources are being fully exploited. The situation is further compounded by the fact that fishing communities are among the most vulnerable and disadvantaged coastal communities.

The Fisheries Division of the Ministry of Agriculture Land and Marine Resources is charged with the responsibility of managing the sustainable development of the fisheries sector of Trinidad and Tobago. The Division is specifically responsible for assessment, management and conservation of the marine fisheries resources of Trinidad and Tobago and the provision of extension and specialised information services on the marine fisheries. A number of public and private sector agencies and committees at the national level, regional and international organisations, and foreign governments provide support for the fisheries sector and the Fisheries Division interacts with these agencies in implementing its programmes and meeting its responsibilities. The Tobago House of Assembly (THA) coordinates the management of the fishing industry in Tobago, although legislative authority for the fisheries sector lies with the Minister of Agriculture, Land and Marine Resources.

Since the 1960's, the Town and Country Planning Division of the Ministry of Finance and Planning has been the responsible agency for development planning, development control and coastal zone management in Trinidad and Tobago. The Town and Country Planning Division however does not include the disciplines which deal with the marine environment and this led to the establishment of multi-disciplinary agencies to deal with coastal zone management in Trinidad and Tobago. Today, the key agencies involved in environmental and coastal zone management including efforts in rehabilitation of the coastal environment are the Institute of Marine Affairs (IMA) and the Environmental Management Authority (EMA) which are both housed under the Ministry of Public Utilities and the Environment.

The Institute of Marine Affairs (IMA) is a statutory entity established in 1976 and the focus at that time was upon the development of a coastal zone management plan for the country and conducting supporting multi-disciplinary research. The IMA's mandate is regional and its ambit is both coastal and marine. Over the years the IMA has collected data and information which have been incorporated in the formulation of policies and plans for the development of the key economic sectors including recommendations to ensure sound environmental practices. The major programme areas are environmental research, fisheries and aquaculture, legal research and technical advisory and information services.

The Environmental Management Authority (EMA) is a statutory board established in 1995 and its mandate is to coordinate and oversee environmental management functions. The EMA has legislative authority for the control of pollution, waste management and related issues. The EMA administers environmental education programmes and also responds to emergency incidents in conjunction with other government agencies providing technical and investigative support. The EMA plays a role in coastal planning by issuing Certificates of Environmental Clearance (CEC) to new development projects that may impact the environment. The EMA is also responsible for the designation of environmentally sensitive areas or species. Decisions made by the EMA are subject to judicial review under the Environmental Commission.

In spite of the establishment of the IMA and the EMA, the institutional arrangements for resource management and coastal zone planning are still fragmented since these multi-disciplinary agencies, while being able to address the institutional problems and the lack of knowledge and expertise, cannot solve existing jurisdictional problems. This arises when several different government agencies have jurisdictional control over various aspects of the same coastal resource. This sectoral approach to the management of coastal activities seldom takes into consideration the inter-relatedness of the activities and this approach has not been effective in managing the coastal and marine environment. Inter-ministerial and inter-sectoral committees for adopting and implementing the policies relating to management of the marine and related environment

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The Institutional & Administrative Basis (continued from Page 7)

have been established but often do not ensure consistency and continuity. In fulfilling its statutory mandate, the EMA entered into Memoranda of Understanding (MOUs) with other agencies which traditionally dealt with aspects of environmental management. These MOUs are intended to facilitate a collaborative and coordinated approach to dealing with the country's environmental problems.

The National Physical Development Plan of the Town and Country Planning Division remains the overall plan for the coastal zone of Trinidad and Tobago. Currently, the state of coastal land administration and management in Trinidad and Tobago is such that government policies still favour the development of the energy and related sectors and little has been done to upgrade its management and administrative capabilities in the preservation of the environment. With regards to the fisheries sector and its influence on development decisions that impact the environment and ultimately the resources, some progress was made in 1995 through a Government of Trinidad and Tobago/UNDP/FAO Project INT/91/001 "Integrated Coastal Fisheries Management of the Gulf of Paria". Based on activities under the project, the fisheries sector has been included in the process of review of Environmental Impact Assessments (EIAs) for coastal development projects. The Town and Country Planning Division co-ordinates the review and approval of EIAs prepared by developers and this activity facilitates coastal planning and development. The National Physical Development Plan recognizes that an environmental policy is needed.

Review of the existing situation regarding the institutional and administrative basis of coastal zone and fisheries management in Trinidad & Tobago suggests the importance of consolidating all sectoral components of coastal zone planning under one umbrella and the establishment of an adequately funded and dedicated administrative unit to develop this area. There may also be the need to enact appropriate legislation to govern the coastal zone. Directed efforts must also be made to conduct interdisciplinary research to guide the management of coastal and fisheries resources and to ensure the well being of coastal communities.

Regional Multi-Disciplinary Workshop on the Common Fisheries Policy and Regime

by T. Phillips, Deputy Executive Director (Ag), CRFM

In keeping with the mandate initiated at the Fourteenth Inter-Sessional Meeting of the Conference of Heads of Government in Trinidad and Tobago, February 14th – 15th, 2003, to establish a Common Fisheries Policy and Regime (CFP&R) at the CARICOM level, the CRFM Secretariat, convened a Regional Multi-Disciplinary Workshop on the Common Fisheries Policy and Regime, in St. Kitts and Nevis, from April 18th – 19th, 2005. The Workshop was charged with receiving reports on the outputs from the consultative process undertaken in Member States; comments on the discussion papers dealing with the implementing mechanism for the CFP&R, and an overview of the regional fishery body, especially the type serving as a Regional Fishery Management Organization (RFMO) and the issues pertaining to the establishment of a regional fishery organization in the Caribbean; and refining the Draft Framework for the CFP&R. The Meeting was chaired by Mr. Raymond Ryan, Chief Fisheries Officer, St. Vincent and the Grenadines / Chairman of the Caribbean Fisheries Forum for the period 2005-06, and had in attendance fisheries, legal and / or coast guard representatives from Anguilla, Antigua and Barbuda, The Bahamas, Barbados, Belize, British Virgin Islands, Guyana, Jamaica, St. Lucia, St. Kitts and Nevis, Trinidad & Tobago, Turks and Caiços Islands, Organisation of Eastern Caribbean States – Environment and Sustainable Development Unit (OECS – ESDU), University of the West Indies Centre for Resource Management and Environmental Studies (UWI CERMES) and CRFM Secretariat.

Landed Pelagics (Trout), Guyana

At this Workshop, those Member States which had implemented national consultations or limited consultations

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with their respective political decision makers on the CFP&R, provided feedback. Among the issues identified were fishers' concern with access being granted to their countries' Territorial Seas, archipelagic waters or Exclusive Economic Zones; and in some Member States, fishers' and other stakeholders' resistance to the formation of a common fishery zone. However, it was recognized that national consultations were critical to the ongoing dialogue on the CFP&R and should be encouraged and facilitated in the remaining Member States within an adequate time frame.

Revisions were provided for and discussions held on the two discussion papers on the implementing mechanism for the CFP&R, and the establishment of a RFMO in the Caribbean. These discussions highlighted the need for consideration of the legal issues in any discussion on the CFP&R, with the Member States recommending that the Agreement Establishing the CRFM should be reviewed and the legal implications for the CRFM taking on the role of the implementing mechanism for the CFP&R and/or carrying out the role and functions of a RFMO identified and elaborated. As such, an *Ad Hoc* Legal Working Group comprising of Antigua and Barbuda, Barbados, British Virgin Islands, Guyana, Jamaica, Trinidad and Tobago and the Turks and Caiços Islands was formed to implement the recommendation and provide feedback by the end of June 2005. It was also agreed that a cost benefit analysis of the establishment and implementation of the CFP&R would be undertaken.

As in the Second and Third Workshops on the CFP&R held in 2004 in Guyana and St. Vincent and the Grenadines respectively, the Multi-Disciplinary Workshop continued to review and refine the Draft Framework for the Common Fisheries Policy and Regime, utilizing feedback from the national consultations.

In conclusion, the Multidisciplinary Workshop discussed and agreed on the following steps in terms of the way forward for the establishment and implementation of the CFP&R:

1) The *Ad Hoc* Working Group on Socioeconomic and Linkage Issues would undertake its activities in keeping with the Revised Terms of Reference and provide a report by June 30th, 2005.
2) The *Ad Hoc* Legal Working Group would undertake the tasks set out in the Terms of Reference and provide a report by June 30th, 2005.
3) The CRFM Secretariat would circulate the updated Draft Framework Document for the CFP&R, together with a summary of the comments from the Multidisciplinary Workshop to the Executive Committee of the Caribbean Fisheries Forum, with a request for feedback by April 27th, 2005.
4) A report for transmission to the 19th Meeting of the Council for Trade and Economic Development (COTED) would be prepared and submitted to the CARICOM Secretariat by April 29th, 2005.
5) The conducting of a cost/benefit analysis of the implementation of the CFP&R would be undertaken after the development and elaboration of the CFP&R have been well advanced.

RESEARCH & TECHNOLOGY

Ad Hoc CRFM Working Group on Methods Commences Its Work

by Dr. S. Singh-Renton,
Programme Manager, Research and Resource Assessment,
CRFM Secretariat

During its Third Meeting in April 2005, the Caribbean Fisheries Forum approved the establishment of an Ad Hoc CRFM Working Group on Methods, paving the way for the Working Group to hold its First Meeting at the University of the West Indies' Cave Hill Campus in Barbados during the week of 23-27 May 2005. The meeting, jointly sponsored by the CRFM and UWI's Centre for Resource Management and Environmental Studies (CERMES), brought together a wide range of assessment and other technical expertise from CRFM States and beyond, to address the issue of identifying and developing suitable methods for evaluating the status of fisheries within CRFM States and the wider Caribbean region.

Under the chairmanship of Ms. Lara Ferreira, from the Fisheries Division in Trinidad and Tobago, the First Meeting of the Working Group discussed the execution of its Terms of Reference as approved by the Forum and the questionnaire responses of eight countries, which had complied with the CRFM Secretariat's request for

(Continued overleaf)

Ad Hoc CRFM Working Group (continued from Page 9)

information from fisheries managers. The Working Group then reviewed and discussed the potential applications of various assessment methods to fisheries situations within CRFM countries. Methods testing also commenced with examination of three fishery datasets and preliminary analyses, and these tests are to be continued during the inter-sessional period.

The fisheries management information provided in country questionnaire responses, especially in relation to management objectives and priorities, was considered to be essential for guiding the activities of the Working Group. In fact, the Working Group spent considerable time in discussing the process that was needed to convert management objectives that were often expressed in broad terms into management objectives that were operational and which provided scientists with clear directions for data collection and analysis. The Working Group undertook to commence a case study that involved some role-playing by members of the Working Group, in order to develop the major elements required for the process of acquiring operational management objectives. This task will continue and be completed during the Second Meeting of the Working Group. In the meantime, several recommendations are being considered for giving life to the process identified.

The Working Group also examined the data situation in CRFM countries and made certain recommendations for improving the quality of data made available for assessment purposes. Related to this issues, recommendations included, *inter alia*, the need to highlight the socio-economic importance of fisheries, and the need to bridge the gap between present economic investments in data collection and the attainment of agreed management objectives.

Preliminary results of dataset reviews and methods tests during the First Meeting of the Working Group were very useful for revealing gaps and weaknesses in the country datasets being used. Such hurdles were not unexpected, and would have to be addressed as part of the methods testing process.

The Working Group has tentatively scheduled its Second Meeting to take place in May 2006.

The Lesser Antilles Pelagic Ecosystem Project (LAPE): Phase I by the Fisheries Department, St. Lucia

The Department of Fisheries, working with The Food and Agriculture Organization (FAO) of the United Nations and other Fisheries Divisions within the region, is presently conducting a project within the Lesser Antilles known as the "Scientific Basis for Ecosystem-based Management in the Lesser Antilles including Interactions with Marine Mammals and Other Top Predators"; the "Lesser Antilles Pelagic Ecosystem Project" or "LAPE Project".

Food webs explain relationships between animals in an ecosystem by showing what they feed on (see Fig. 1). Top predators like sharks, dolphin-fish and cetaceans (whales, dolphins and porpoises), lack natural enemies or predators. Since top predators feed on other animals, their population and diet affect the animals they feed on as well as other animals in the system. This becomes interesting to man when the top predators feed on commercially important animals. As such, this project aims to identify the exact nature of the marine animal relationships within the pelagic zone (deep sea) of the Lesser Antilles, in order to assist in the effective management of these resources.

To date, researchers have conducted a number of large and small cetacean sighting surveys. On these surveys, researchers took sea trips, following predetermined paths within a fixed survey area, to identify the types and amount of cetaceans. The large-scale survey stretched between

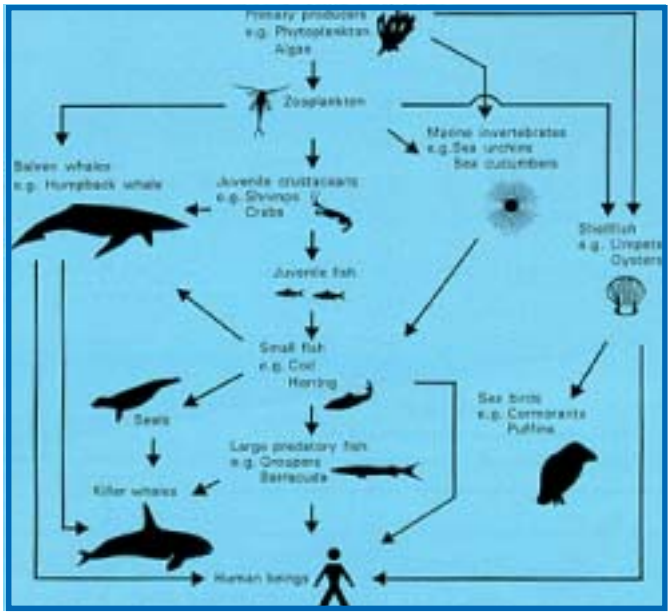

Fig.1 ***This figure shows a simplified example of an oceanic food web. Arrows from an animal point to the animal(s) that feeds on it. Predators hunt different types of prey and prey animals can serve as meals for more than one type of predator. From the web we can see how the population on any one species can be affected by an increase or decrease of another. For example, increased numbers of whales would lead to decreased numbers of cod, herring and groupers (their prey).***

(Continued overleaf)

Trinidad and Tobago and St. Kitts, with St. Lucian researchers participating in the leg from St. Lucia and St. Kitts. The small-scale survey remained in a 12 nautical mile region around St. Lucia (Fig. 2). Despite poor weather conditions at times, both surveys produced sightings of several different kinds of cetaceans, including humpback whales, sperm whales and many types of dolphins.

A diet study forms the next phase of the project. This involves the collection and examination of the stomach contents of cetaceans caught in St. Lucia and St. Vincent and the Grenadines, as well as those from other large pelagic fish. This exercise attempts to find out exactly which marine animals they feed on. In addition to the collection of stomachs, the diet study will also include the collection of biological data from cetaceans including the identification of species, sex, body length, and blubber (fat) thickness. In preparation for this stage of the project, the Department of Fisheries improved its laboratory facilities with equipment needed to carry out accurate and reliable scientific testing. Also, Mrs. Jeannine Rambally and the research assistant employed under the project, Mr. Cullen Myers, began to visit the relevant fish landing sites in December, to discuss the project with fisheries data collectors and provide training in proper collection of biological data.

The results of the overall study will be used to develop an information system made up of many different models of the Lesser Antilles pelagic sub-ecosystem. This information system can in turn be used to plan and measure the likely impacts of different ecosystem-based fishery management strategies. These strategies would take into account the interaction between ecosystem components as well as between various types of fisheries operating within sub-ecosystems. Eventually, the project seeks to develop a management plan for the responsible and sustainable use of fisheries resources, while providing the countries involved with the skills needed to continue such management long after the project's completion.

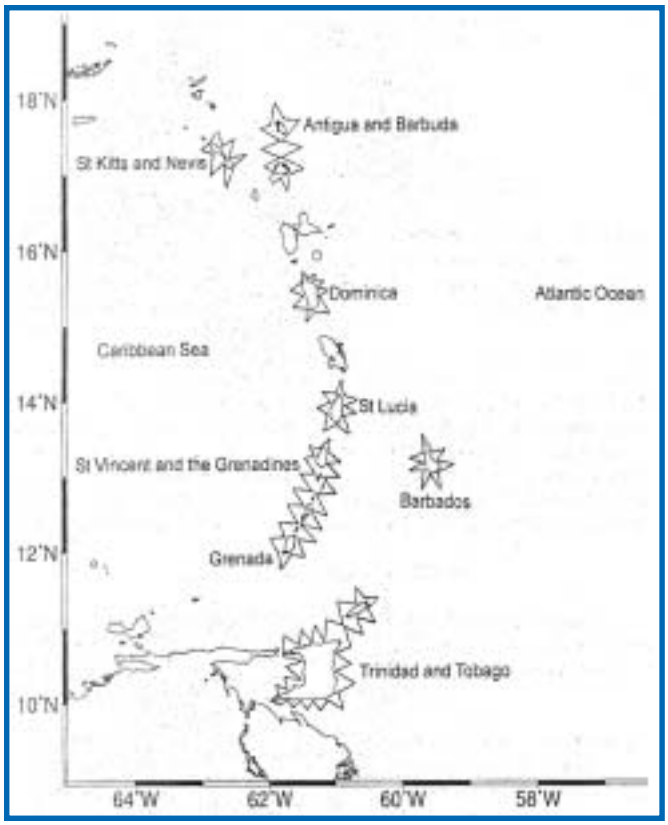

Fig. 2 ***Small Scale surveys are conducted within the inshore waters surrounding each island, along the zigzag tracks shown.***

The LAPE Project: Current Status

Fisheries Department, St. Lucia

The Lesser Antilles Pelagic Ecosystem (LAPE) project seeks to reveal the feeding relationships between pelagic top predators in the waters surrounding the Lesser Antilles. From this study, researchers hope to create ecosystem models to aid in the effective management of pelagic fishery resources. Project participants completed several preliminary activities, including training and information workshops, and sighting surveys, and the study recently commenced its diet study phase. In this phase, researchers will remove the stomachs of cetaceans (whales, dolphins and porpoises) and other large fish and examine the contents and find out the diet of these animals. To aid with this stage of the project, Japanese marine ecologist Hiroshi Ohizumi PhD, visited St. Lucia and provided training in stomach removal and content analysis.

Dr. Ohizumi has had over ten years of experience with cetacean stomach removal and content analysis, which he brought to a week long training workshop held at the Department of Fisheries from February 21st – 25th. St. Lucian project officers Mrs. Janine Rambally and Cullen Myers attended this exercise, along with department members from the data-collection and extension divisions. Two representatives from the Department of Fisheries of St. Vincent and the Grenadines also attended the workshop.

Dr. Ohizumi's training covered all aspects of cetacean stomach content analysis relevant to the project's goals and supported by available resources. The topics reviewed included the following:

Stomach chamber identification, separation dissection and contents removal

Cetacean stomachs consist of four chambers. Dr. Ohizumi trained in the identification of these chambers and their correct separation. He also instructed in accu-

(Continued overleaf)

The LAPE Project: Current Status (continued from page 11)

Selling fish in public

rate weighing procedures of the chambers. Dr. Ohizumi also instructed in the dissection of cetacean stomachs and proper techniques for complete removal and weighing of the contents.

Content sorting, separation and storage

Cetaceans feed on fish and squid and their stomachs may contain these preys in various stages of digestion[1]. Dr. Ohizumi instructed in the identification and separation of these contents according to size.

Content identification

The remnants of different prey species show distinctive characteristics[2]. Dr. Ohizumi trained in the qualitative identification of these distinguishing qualities and also suggested quantitative identification methods[3].

Cetacean necropsy[4]

During his stay, Dr. Ohizumi supervised the necropsy of a cetacean specimen (false killer whale). He showed participants correct procedures to take necessary, measurements, as well as sampling techniques for organs[5], teeth and tissue[6].

Data recording

Dr. Ohizumi advised participants on data relative to the scope of the study, as well as proper scientific format for labelling samples and recording biological data including their amount, quality and measurements.

Footnotes

[1] These prey species are identified by the presence of squid beaks (upper and/ or lower), and fish otoliths; otoliths are a bony structure found in fish heads that function in balance. Both these structures are especially resistant to digestion.

[2] Squid beaks of different species contain different shapes and structures that facilitate identification; fish otoliths are unique among species

[3] These invariably include measurements.

[4] Necropsy: the examination and dissection of a dead body (i.e. autopsy)

[5] Organs sampled include skin and reproductive organs. Samples are collected for future genetic analysis.

[6] Tissue samples include blubber (fat), muscle and mammary gland. Tissue samples are collected for future genetic analysis

The Community as Prime Target for the Study of Coastal Resources in the Caribbean – how long will it last?

by Dr. Joseph O. Palacio, Belize City, Belize

The Caribbean has a proud record on community participation that started during the period of slavery and indentureship, and blossomed more recently in the 1970s and 1980s. The climax of this approach to help community members take a leading role in their development came in the feminist movement (before it became known as the 'gender perspective') spearheaded by such leaders as Peggy Antrobus of the Women and Development Unit, a branch of the UWI School of Continuing Studies. While rural communities in St. Vincent and the Grenadines, Grenada, Jamaica, and other territories participated in these methods of mobilization, the main actors were women and men farmers and tradespersons. Coastal communities were rarely involved, much less fishers, who remain predominantly men in our region.

The International Development Research Council – Community Based Coastal Resource Management (IDRC-CBCRM) Program, which started in 1989, was one of the first to target the participation of coastal communities in their development for two reasons. The first was to ensure that coastal resource management would take place not as a top-down exercise but one where primary initiatives would be led by community members. The other was the commitment of IDRC to re-direct the emphasis in coastal resource management from being led by natural scientists, who had done most of the research, to one where both natural scientists and social scientists would partake, thereby setting a softer pathway for community members.

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The Community as Prime Target (continued from Page 12)

Notwithstanding its abiding littorality and rich tradition in the myriad uses of coastal resources, there was little study being done or having been done or could be done at the community level in the Caribbean. To a large extent the main reason is that in spite of the fact that fisher folk have been the main coastal resource users in the region, their social and economic importance was being eroded in favour of earners of foreign exchange such as in tourism, the real estate boom, and – in the case of Belize – shrimp aquaculture. In short, not only was the region losing the wisdom of its primary coastal dwellers, but also large parts of the coast were becoming part of the urban sprawl, where management – even if it existed - had to come from the centralized power base of governments.

In the rest of this article, I describe briefly my involvement in the IDRC-CBCRM Phases 1 & 2, as well as my subsequent observation of a shift away from the community focus to one dominated by studies assessing the social impact of development on coastal communities.

I became attracted to the IDRC-CBRM program, although I had no formal training in the biological sciences. My area of expertise is in Social Anthropology; and through my role as Resident Tutor of the UWI School of Continuing Studies in Belize, I had become concerned about the uneven pace of community development in coastal communities in southern Belize. While some were doing well economically from a combination of fishing and tourism, others were losing population from continued labour outmigration. Why is it that some communities could capitalize on their coastal endowment, while others could not? How were the people in either type of community defining coastal resource management? Finally, how much information could we elicit on coastal resource use, using oral history, interviews on current situations, archival documents, and participant observation? If people are to be managers of their coastal resources, what lessons can we learn from southern Belize with its diverse micro-environments, ethnic groups, and patterns of in-migration and outmigration?

From Phase 1 we learned about the history of resource use by fishers, spotlighting the transition in the 1950s from non-cash subsistence to cash dominated economy, and the gradual rise to predominance of tourism over fishing in the 1990s. This broad based ethnographic foundation led to a more micro-level focus in Phase 2 on Garifuna residents within the town of Dangriga. We were able to get specific information on their fishing as an insignificant part of their income generation, relative to neigbouring ethnic groups. Notwithstanding the lessened economic benefits they derive from fishing, they retain much traditional knowledge about fish habits and the use of broken reefs as fishing sites.

Fishing to the Garifuna has great significance in their spirituality as part of the centrality of the sea together with its resources within their cosmology. To them only a thin line separates the sacred from the popular use of the coastal resources. Our work started answering questions about the value system a people have toward coastal resources, the role of gender in its exploitation, the difficulty to cross from subsistence to cash use, and so on. We were now better able to identify how a community's perspective on community-based coastal resource management differs from the western ideal.

Having become more aware of the linkages between the community and coastal resources after my IDRC-CBCRM experience, I observe that there is continued interest by project funders in this conceptual duality. There is, however, a major difference. The interest is no longer on the holistic involvement of men, women, and children together with the spirits of their ancestors, which we had been able to re-discover, thanks to the IDRC-CBCRM. Rather, the interest now is to measure using specific instruments, the socio-economic impact of marine use by the community. The assumption is no longer open-ended such as villagers benefiting economically from being close to the sea. The assumption now goes along the following lines. They are coastal people and they are automatically beneficiaries of coastal resource use. The fallacy in this assumption is that the Caribbean is replete with communities of coastal dwellers, who, for various reasons, have turned their back to the coast as a source of livelihood. To convert them to become otherwise needs a complete restructuring process within the value system, the re-allocation of land tenure, the education system, marketing, and startup funding. Only after such fundamental changes have taken effect can one effectively monitor the socio-economic impact of coastal resource use on community members.

In the meantime, the kind of micro-level ethnographic studies that we were able to do with IDRC-CBCRM support need to continue. But in the Caribbean we are dependent on outside funders, who specify for us what we should be doing in research, especially in an area long neglected by the governments, such as the coast. The result is that, like the tide, we have to go along with what is available. The crucial role of the community as the focus of coastal development will remain an elusive topic.

FISH HUMOUR

Why are sardines the stupidest fish in the sea?
Because they climb into tins, close the lids and leave the keys outside.

The Role of Traditional Ecological Knowledge in Grenadian Fishing Activities

by James Finlay, Fisheries Socio-economist, Grenada.

Traditional Ecological Knowledge (TEK) and its applications (TEK) are commonly utilized in the full range of fishing activities in Grenada even as obvious demonstrations of Scientific and Technical Knowledge (STK) and its applications are also represented, especially in the more upscale fishing operations. This Community-based *hand me down* fisheries resources knowledge, as a version of TEK, is utilized by local fishers as they compete for access to, and use of fishing opportunity.

Demonstrations of TEK within the Grenada fisheries may be illustrated by four (4) important types:(i) fishing at traditional aggregating sites, *seche*; (ii) at dive fishing grounds; (iii) at rock fishing or demersal grounds, and (iv) at oceanic pelagic or palangre longlining grounds. The first involves *seche* fishing that targets pelagic and sometimes demersal bank-fish at named shallows or *seche* in the offshore ocean zone. Here fishers navigate to and maintain their position at *seche* sites, each within a small perimeter, using a 3-point coastal landmark navigation system. Using very small fishing vessels, once at the *seche*, fishers enhance the catchability of the hand line by sinking a baited hook with both a ball of chum and a firm bait. When the line is sunk to a desired depth, the chum is shook off spreading a stream that lures the fish toward the firm bait. Knowledge of the best fishing depth is kept secret from fellow fishers. This chum-enhanced line fishing is learned best through apprenticeship and experience. Fishers similarly locate and fish at named and traditional demersal fishing banks and keep their knowledge about location and conditions to themselves.

The second demonstration involves dive fishing whereby fishers acquire the most intimate knowledge of biophysical conditions within any fishing area, while utilizing knowledge of water quality, water temperature, tidal movements and salinity and while such conditions change with seasonal cycles; all conditions interpreted by fishers in the context of what favours or disfavours catchability of target stock. Fishers, for example, will predict how various species will respond to reduced salinity in ocean water: fishers will say *"fish take hole"* , or *"sea moss melt"*, (dissolve) or they observe that *"sweet water* (low saline water) *will slide over salt water on a distinct border" (area* of discontinuity).

The third demonstration involves rockfish or demersals where fishers track catchability of stock based on their own interpretation of biophysical conditions. Fishers interpret coupling effects of tide rise with currents (tide) with moon phases with water temperature with cross-shore migration of fish. Fishers also place rockfish behavior into an annual cycle of seasons such as *"lay-out"* (spent fish) June, July and August, *"meagre"* (hungry) feeding August to December, *"fattening"* December to March and *"rowe"* or *"fish take hole"* March to July, returning to the layout season. Again knowledge of seasonal behaviour of the fish is used to determine catchability for dive or trap fishing on demersal fishing the grounds.

Grenadian Fishing Boats

The fourth demonstration involves oceanic pelagic palangre longlining where fishers apply knowledge of tidal movements, water temperature and quality together with a number of traditional indicators to determine how and when to make a longline set and what period of soak-time to make. Nevertheless it is at this type of fishing, in current times, that STK (science-based fishing applications) are most commonly applied. For example, within this fishery, Global Positioning Systems (GPS) technology is also critical for navigating within the fishing zone, for sharing sea space among long liners and of course for tracking longlines on drift. Here STK is married with TEK in one of the important types.

In all cases cited above, fishers seem to treat TEK as virtual property to be shared, sometimes traded or even reserved (kept secret). Knowledge-sharing or trading is often shown to be transacted by fishers in any one of three main ways: firstly by the traditional top-down authoritarian apprenticeship system, secondly through an apprenticeship of mutual exchanges between learner and teacher and lastly by a facilitated or formal learning arrangement, where a knowledge provider trains a recipient, mediated by a significant other person or broker. In many instances community fishers demonstrate striking insularity with respect to fishers from outside their own local area or fishing type. For example to keep TEK secret the fisher may say:" I am not raising *seche* or bank fish for any big time fisherman." or "I am not selling my *fresh (chum)* to anybody".

Overall, TEK is controlled in its applications and expressions within the Grenada fishery but increasingly accommodation of STK and its applications within the various fisheries are becoming more and more common.

SCHOLARS' CORNER

BASELINE STUDY OF THE FISHING INDUSTRY ON THE WEST COAST OF HAITI

BY Wilner Romain, M.Sc. Thesis Abstract,
CERMES, UWI, Cave Hill ***(Fisheries Officer, Haiti)***

In order to achieve sustainable development and conservation of fishery resources of Haiti, a five-year programme of support to the Fishery Division of Haiti was undertaken by the CRFM Secretariat. However, in Haiti, no persons are assigned to collect data at landing sites. Catch, effort and biological data are currently not being collected on a regular basis or in a statistically sound manner, as there is no sampling plan due to lack of resources for the data collection programme. However, fishery management decision-making and planning must be informed by quantitative information on the structure of the sector and the status of the resources. The CRFM, with funding assistance from the EU, conducted a fisher interview survey at selected sites on the west coast of Haiti in an attempt to collect information to assist in the formulation of a comprehensive sampling programme, as well as to facilitate short-term decisions regarding fisheries development and management in this area of Haiti.

A three-stage process was used: a form was used to collect basic data on the populations of fishers and fishing units at each landing site (Part I- listing of all fishers operating from the beach) (Stage I); a questionnaire was used to collect social, economic, and technical data on 161 fishing units, i.e. 92% of the fishing units listed in Stage I (Stage II); a representative sample, 77% of fishing units, was selected from data collected during Stage I, and the fishers concerned were interviewed again in order to gather information on fishing trends (Stage III). The fishing units were distributed among 10 sites, ranging in number from 4 to 38 boats per site.

Findings of the study revealed that fishers on the west coast of Haiti faced many socioeconomic problems. Most respondents 52.2 % received no formal education. The vessels were predominantly "bot a vwal", a traditional boat with sail (without fishing aid), with 90.7% fishing small-scale gear: traps, lines, diving, and nets. The majority of respondents 86.2 % were owners and/or captains. Results of the analysis also demonstrated that fishers were concerned about changes in the fishing sector. Among others, the three major areas where changes appeared were number of fishers, species abundance, and size of fish.

Results of the analysis revealed that the main fish groups targeted were found to be: reef fishes (149 respondents or 92.5% of fishing units), small pelagic fish species (91 respondents or 56 % of fishing units), lobster (58 respondents or 36 % of fishing units), large pelagic fish species (58 respondents or 36 % of fishing units), and shrimp (1 respondent or 0.6% of the fishing units). The estimated average catch per week per fishing unit for finfish was 72.7 kg. Furthermore the current mean catch per trip for lobster was 3.06 kg while it was 14.54 kg for conch.

The survey revealed that fishers were able to make an income from fishing, which varied, depending on the type of gear used. Dive fishers made a mean net value added per week per fishing unit of HT $[1] 2572.3, while the corresponding value for net fishers was HT $ 1481.3. The mean net value added for trap fishers was estimated to be HT $ 1440.8, while the net value added for line fishers was HT $ 1210.8.

Based on the results of the study it is safe to assume that there is a need for improvement of socioeconomic conditions of fishers on the west coast of Haiti. This can be done through planning the development of small-scale fisheries accompanied with enforcement of fishing regulations.

(Footnotes) [1] The exchange rate was 7 HT $ for 1 US $

IMPLEMENTING VIABLE SMALL SCALE FISHERIES DEVELOPMENT PROJECTS IN THE CARIBBEAN: AN INVESTIGATION OF LESSONS LEARNED FROM WHITEHOUSE FISHING COMPLEX, JAMAICA, W.I

by Ian K. Jones, University of Hull (M.Sc.), U.K.

As the focus of national and international assistance is increasingly directed toward small-scale fisheries and as the production from small scale fisheries is devoted almost entirely to domestic consumption and represents about half of the world's supply of fish for consumption, special efforts should be made to increase the production and viability of small scale fishing communities and to give priority to this sector in fisheries development policies.

The issue of project viability concerns the survival of projects after completion. According to an expert group on evaluation, a development project is viable when it is able to deliver an appropriate level of benefits for an extended period of time, after major financial, managerial and technical assistance from an external donor is terminated.

The preliminary evaluation study of the Whitehouse project has highlighted several areas necessary for consideration by the Jamaican government and fisheries officials in the wider Caribbean community. There is a need to foster more meaningful participation, consultation and representation of stakeholders in the decision-making process; to deliver programmes aimed at institutional strengthening of the fisheries departments and improvement in the quality of field officers and extension staff; to train stakeholders including fisher-folk, and fishermen's cooperative organizations and develop their basic human resource potential in order to anticipate reasonable expectations from these groups in their participation in development projects; to develop strategies based on the safe-guarding and sustenance of disadvantaged groups, such as women acting as fish vendors or processors; and finally to develop robust sector plans and strategies based on overall sound and effective welfare policy objectives within the ambit of the countries' social, economic, institutional and human resources.

The use of a systems approach by the researcher has been a useful investigative tool in the context of development projects for the small-scale fisheries sector. The author wishes to underline, however, that the information provided by the data gathered in this research was inevitably limited by time and resource constraints and a more rigorous application of this approach would have to be substantiated by a larger sampled population across more projects. Non-systemic techniques for risk evaluation and management are already widely applied and well understood, but the use of systems approaches in this context is less widespread. It can be argued, however, that by using systems approaches it is possible to identify potential risks which would not otherwise be predicted. In addition, the application of systems thinking at the end of a project can enable lessons learned from the outcomes to be used to improve performance on future projects.

Again, the author fully recognizes that the data available to his study were few and that as a result the guidelines put forward in this study are preliminary in nature and not exhaustive in scope. However, they are a useful first step in promoting improvements in project performance in future if they stimulate reflection amongst fisheries professionals and other stakeholders involved.

CRFM Calendar of Events 2005 (June to December)

Activities	Proposed Dates
CRFM/FAO/MALMR Regional Workshop on the Collection of Demographic Information on Coastal Fishing Communities and its Use in Community Based Fisheries and Integrated Coastal Zone Management in the Caribbean	13-17 June Trinidad and Tobago
CTA/CRFM/CARDI First Meeting of the Pro-Tem Working Group on Institutional Strengthening of the Regional Fisher Fork Organizations	22-23 June, Guyana
Workshop of the Ad Hoc Legal Working Group on the Common Fisheries Policy and Regime	To be determined
Workshop of the Social, Economic and Linkages Working Group on the Common Fisheries Policy and Regime	July-August
CTA/CRFM/CARDI Regional Workshop on Formation and Strengthening of National Fisher Folk Organizations	July-August
National Consultation on the Revised Draft Fisheries Management Plan for Marine Fisheries of Belize	July-August, Belize
National Consultation on the Revised Draft Fisheries Management Plan for the Marine Fisheries of Antigua and Barbuda	August-September Antigua/Barbuda
National Consultation on the Revised Draft Fisheries Management Plan for the Marine Fisheries of Anguilla	August-September Anguilla
National Consultation on the Revised Draft Fisheries Management Plan for the Marine Fisheries of Guyana	September/October Guyana
National Consultation on the Revised Draft Fisheries Management Plan for the Marine Fisheries of St. Vincent and the Grenadines	September-October St. Vincent and the Grenadines
Regional Training Workshop on Querying and Reporting in CARIFIS	November
Second Annual CRFM Scientific Meeting	December, Belize
Meeting of the Executive Committee of the Caribbean Fisheries Forum	December, Belize

FISH HUMOUR

Why is a fish so easy to weigh?
Because it has its own scales.

Where do you find a crab with no legs?
Exactly where you left it

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