CARICOM FISHERIES UNIT
BELIZE

REPORT OF THE MULTIDICIPLINARY SURVEY

OF THE FISHERIES OF THE BAHAMAS

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1.0: INTRODUCTION

Since 1991-92 twelve English speaking CARICOM countries have been benefiting from a CIDA-CARICOM-funded project known as the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP), geared towards the sustainable development and management of the fisheries resources of the participating countries. The beneficiary countries are Antigua & Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Lucia, St. Kitts & Nevis, St. Vincent & the Grenadines and Trinidad & Tobago. The Commonwealth of the Bahamas, a member of the CARICOM group of countries was excluded because at that time it was not considered to be in need of such assistance. However, the CARICOM countries, through their Secretariat in Guyana, continued to seek further foreign assistance for an expanded CARIBBEAN project.

The European Union-funded project, the Fisheries component of the Integrated Caribbean Regional Agricultural and Fisheries Development Program (ICRAFD) is the European Development Fund's response to the request made for extending the coverage of the CFRAMP project for the benefit of additional CARIBBEAN countries. The ICRAFD project is mainly meant to extend the benefits of the CFRAMP project to four additional ACP or CARIFORUM countries, namely the Commonwealth of the Bahamas, Haiti, the Dominican Republic and Suriname, for them to reach the same level of competence as the CFRAMP participating countries. The Implementing agency for the 5-6 year ICRAFD or CARIFORUM project is the same as for the CFRAMP project, namely, the CARICOM Fisheries Unit, located in Belize City, Belize.

The CFU sent a technical, multidisciplinary team on a Planning Mission to each of the four beneficiary countries of the CARIFORUM project to acquaint themselves with the nature of the fisheries and all aspects of the industry including getting acquainted with the respective Stakeholders, Resource User Groups, policy makers and all the major issues and problems facing the industry, and to implement a Multi-disciplinary Survey of the national fisheries mainly for planning purposes. This is the report of the Multidisciplinary Survey conducted in the Commonwealth of the Bahamas.

1.1: The Multidisciplinary Survey: Methods of Collecting Information

The Multidisciplinary Survey was designed to provide coverage of the widest cross section of the disciplines which together make up the fisheries industry, and as much coverage of the stakeholders that constitute the backbone of the industry, as was possible under the prevailing circumstances. The use of multiple techniques of data collection, including formal and informal one-on-one and group discussions, official and non-official documentary reviews, participatory and non-participatory observation and structured and non-structured interviews, also added to the reasonable quality of the data garnered. Bearing in mind the lack of any reliable and consistent data base from which a random sample could be taken and further bearing in mind the lack of resources and the paucity of time available, the multidisciplinary-multi-stakeholder-triangulation approach was the nearest to approximating reality as could be designed and executed, under the existing conditions.

The survey was preceded by documentary research and reviews, meetings with stakeholder groups, policy makers and visits to landing sites, fishing communities and fish processing establishments, doing participant and non-participant observation, focus group interviews and one-on-one informal discussions and interviews. The information garnered through these activities helped in fine-tuning the survey instruments from which this report was prepared. The survey instruments administered in the Commonwealth of the Bahamas were as follows:

- **Baseline Survey of the Fisheries Department**
- **Key Informant Interviews**
- **Interviews on the Status of the Data Collection Program**
- **Interviews on the Status of the Fishers' Organizations**
- **Socioeconomic Baseline Survey of Fishers and Fishing Communities.**

1.2: Baseline Survey of the Fisheries Department.

As the organization with the mandate to coordinate and oversee the management of the fisheries resources of the entire Bahamas, its capacity to handle the responsibilities involved is of paramount importance. The instrument used sought to evaluate the organizational structure, the functions and the various programs run by the department, against the availability of qualified staff and other resources to carry out the mandate. Two of these instruments were administered, one involving the Director of the Department and the other to the two most senior technical staff. This made it possible to make some comparative analysis of some critical policy areas. The instrument used ia attached in Appendix 1 of this report.

1.3: Key Informant Interviews

The mainly open-ended interview guide was designed to allow for deep probing of issues to which the interviewees responded. The main target is categories of individuals who are conversant with the main issues facing the industry, and are experienced and knowledgeable enough to provide reliable information. They were administered in a relaxed and informal way. The instrument inquired into burning issues of resource conservation, policy and legal aspects of management, and community participation in the decision making process. The selection of respondents catered for the main perspectives, views and knowledge of the various stakeholder groups. In the Bahamas, 24 of the instruments were administered in the field, at landing sites, in fishing communities and fish processing establishments, chiefly in New Providence (Nassau) and in the islands of Abaco and Grand Bahamas, as time and the resources available could allow. A copy of the instrument utilized is attached as Appendix 2.

1.4: Interviews on the Status of the Data Collection System

Data Collection is one of the main activities to be implemented under the ICRAFD project that the Bahamas and the other three countries would be benefiting from. The analysis of the data would allow for the assessment of the stocks, from which policy can be generated. The semi-structured survey instrument utilized for the gathering of data enquired into the nature of the system used in data collection, form, content, instruments, staff responsibilities and the main inadequacies that need to be addressed.

Seven of these instruments were administered to the Supervisor and staff both from the Main Island and the Family Islands. The questionnaire is attached as Appendix 3.

1.5 Interviews on the Status of the Fisher folk Organizations

The success of any fisheries conservation and management planning and implementation would depend on the direct resource users support and cooperation. They would need to organize themselves to benefit from institutional strengthening and capacity building activities to be implemented and for them to have meaningful representation on decision-making institutions. The instrument used for this purpose enquired into the degree of cohesion among the fishers' groups, between them and the fisheries establishment and government and their preparedness to collaborate with government to manage the resources. The analysis would facilitate the identification of their strengths and weaknesses, so that remedial action could be planned and implemented for their revival and consolidation. In the Bahamas, 3 of these semi-structured survey instruments were administered, using the Focus Group Interview approach, by which a number of members of each of three fishers' and vendors' organizations were

collectively interviewed on their organizations' perceptions, attitudes and needs, the types of organization, the services they render and their relationship with government, the fisheries officials, and other organizations in the society. The instrument is attached as Appendix 4.

1.6: Socioeconomic Baseline Survey of fishers and fishing Communities

This was the most in-depth and extensive survey instrument (Appendix 5) targeting the Resource Users and close stakeholders in the industry. It utilized the multidisciplinary-multi stakeholder- triangulation approach. The non-random sampling techniques, namely the Quota and Snowball methods, were used in selecting the potential respondents at the landing sites and in the fishing communities. Due to the fact that no clear-cut provincial specialization in terms of species targeted and gear utilized seemed to be apparent, it was decided that as many of the important fishing islands should be covered in the exercise. The islands of New Providence, Abaco, Acklins, Andros, Eleuthera, Grand Bahamas and Long Island were all sampled for coverage (see Fig. 1 below) leaving only a few less inhabited islands in the extreme south uncovered, partly due to logistical and resource availability problems. The table following shows the number of respondents from each of the islands.

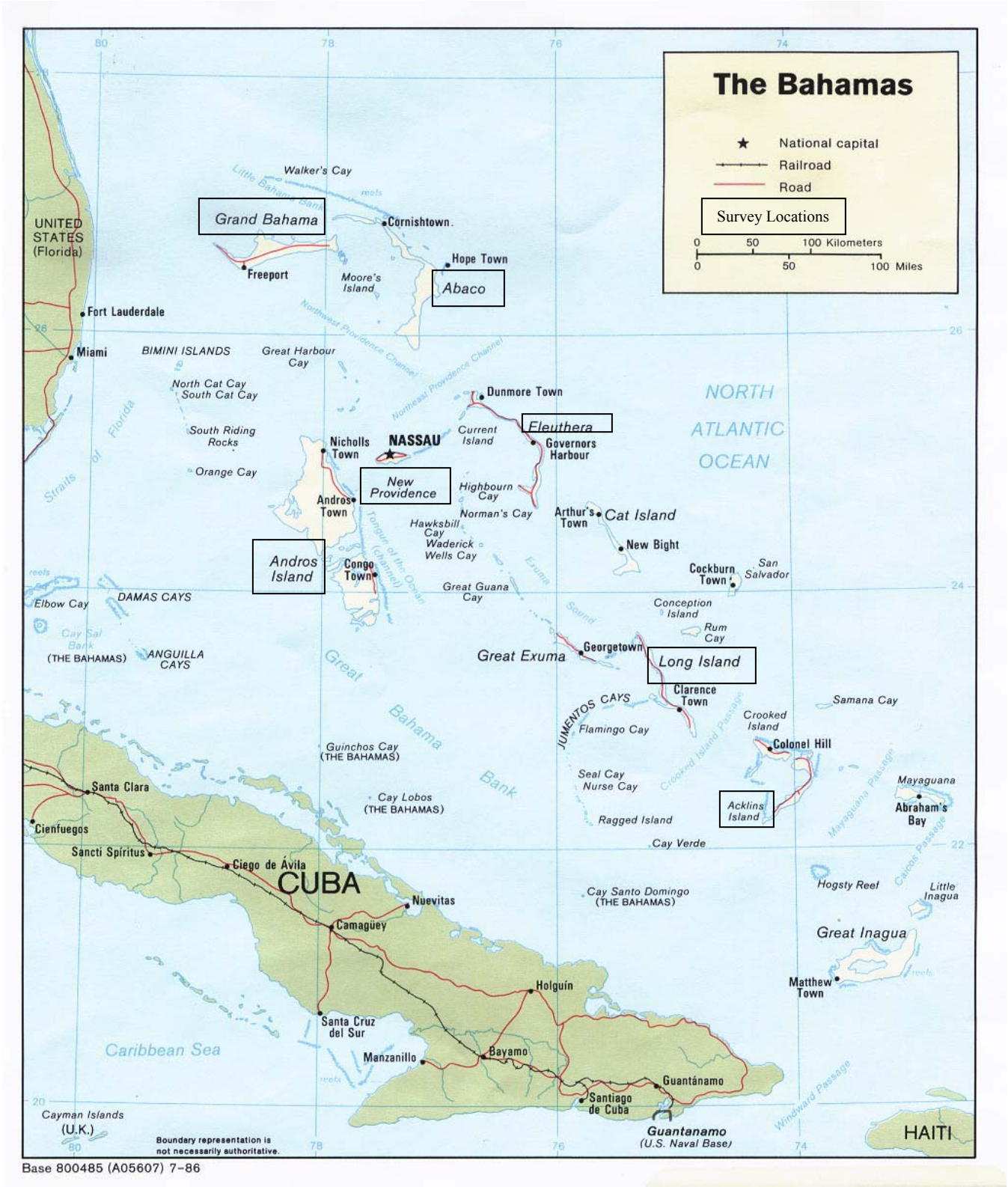
TABLE 1: SURVEY LOCATIONS AND DISTRIBUTION OF RESPONDENTS

Survey Locations	No. of Respondents
New Providence	**21**
Abaco Island	**21**
Grand Bahama	**19**
Long Island	**20**
Eleuthera	**19**
Andros Island	**19**
Acklins Island	**10**
TOTAL	**129**

FIG.1

MAP OF THE BAHAMAS SHOWING COMMUNITY BASELINE SURVEY LOCATIONS

MAP OF THE BAHAMAS SHOWING COMMUNITY BASELINE SURVEY LOCATIONS



2.0 THE COMMUNITY BASELINE SURVEY: THE SOCIOECONOMIC, DEMOGRAPHIC AND TECHNOLOGICAL CONTEXT

2.1: Socioeconomic & Demographic Background

As the main survey instrument targeting the direct and indirect Resource Users and other community-based stakeholders, the questionnaire sought to garner information on the bibliographical, demographic and social background of the respondents and the technological basis of their fishing practices and took a qualitative measure of their attitudes, perceptions and behaviours vis-à-vis resource conservation and management measures. The information gathered will enable us to interpret some of the major findings on their perceptions and attitudes towards resource management. The following table shows the occupational statuses of the respondents to this survey:

TABLE 2: RESPONDENTS BY STATUS IN INDUSTRY

Status	Frequency	Percentage
Active Fishers	**71**	**83.7**
Fisher-Boat owners	**20**	
Fisher-Captains	**17**	
Vendors	**8**	**16.3**
Processors	**4**	
Others	**9**	
TOTAL	**129**	**100.0**

What this table demonstrates is the preponderance of the direct resource users in the make up of the respondents for the Community Baseline Survey, without completely ignoring other immediate stakeholders in the industry. Whatever deficiencies exist in this in terms of achieving a multi-stakeholder make up is compensated for, by the representation of other stakeholders in the Key Informant Interviews and to some extent, in the other mini-surveys. The gender make up of the Community Survey, as shown by the next table confirms the male dominance of the fishing profession, that largely leaves the areas of fish and fish products trading and traditional processing for women.

TABLE 3: GENDER BREAKDOWN OF THE RESPONDENTS

Gender Category	Frequency	Percentage
MALE	117	90.7
FEMALE	12	9.3
TOTAL	**129**	**100.0**

The age structure of the Interviewees of the Community Baseline Survey is presented in the next table:

TABLE 4: AGE COMPOSITION OF RESPONDENTS

Age Groups (Years)	Frequencies	Percentage
< 20	3	2.3
20-29	25	19.4
30-39	37	28.7
40-49	40	31.0
50-59	13	10.1
60-69	10	7.8
70-79	1	0.7
TOTAL	**129**	**100.0**

While the youthful make up of the group, particularly the 20-50 brackets, mirrors the pattern shown by the findings in other countries in the CARICOM/CARIFORUM region, note should be taken of the sizeable number in the 50+ categories, which could be a reflection of higher life expectancy in the Bahamas. The general spread of the age groups is a healthy sign for the industry, providing ample opportunities for the new entrants to benefit both from the experiences of the more seasoned, and also from capacity building programs implemented by the fisheries administration and other organizations.

Many developing countries tend to feature an artisanal fisheries' tradition, whereby sons undergo a period of apprenticeship under the tutelage of their fathers or other familial elders in the fishing profession, making fishing a family undertaking passed on from generation to generation. The data gathered from this group of respondents showed that 48.1% had fathers who were fishers, and a further 27.9% had other older relations in the profession. However, only 16.3% of the respondents had their children in the profession. Whilst this is not enough to read trends into, it could be a first indicator that fathers might be beginning to choose education and other professions to bequeathing their profession to their offspring. Should this become a trend, we could see an end to an ages-long tradition in fishing communities. This could be a legitimate subject for future research.

The levels of education of this particular group of respondents could support the hypothesis that suggests a strong relationship between educational attainment of parents and the choice of fishing as a profession for their offspring. The low social standing of fishers in the wider society could also be a potent variable to consider. The next table summarizes the levels of educational attainment of the respondents of the Community Baseline Survey:

TABLE 5: EDUCATIONAL ATTAINMENT OF THE RESPONDENTS.

Levels of formal education	**Frequency**	**Percentage**
No Schooling	1	0.8
Primary school not completed	3	2.3
Primary school completed	48	37.2
Secondary school not completed	17	13.2
Secondary school completed	51	39.5
Tertiary/Vocational/Professional completed	3	2.3
Tertiary/Vocational/Professional uncompleted	2	1.6
University, not completed	1	0.8
TOTAL	**126**	**97.4%**

With about 57.4% having reached secondary schooling level, and about 44.2% having advanced beyond secondary education level, it should be legitimate to consider this an exceptional attainment in the general population of fishers and other stakeholders in the fishing communities in the region. This becomes even more impressive when consideration is given to the proportion of the respondents who had received some form of technological and vocational training after leaving the formal educational stream. About 51 or 44.2 % of the respondents had reportedly had such training.

Even more striking are the fields in which the training was had. Some of the examples are Accounting and Finance, heavy equipment repair and operation, electrical works, navigation and naval communication. Others were in carpentry and joinery, plumbing, boat repair and the more familiar Tour Guiding, Scuba and Skin Diving, Sport Fishing and Training for Boat Captaincy. These equip the beneficiaries with extra income earning opportunities that could make the introduction of more stringent management measures less politically and socially threatening to political decision makers.

The latter argument could be stretched further, when the number and proportion of respondents who have other sources of income are taken into consideration. 74 or
57.4 % of the respondents reportedly had extra income earning sources. But here again it is the areas of engagement that is striking. There are Air Conditioning and Satellite technicians, Auto Mechanics, Boat Engine Repairers, a Dock man, Construction workers, Heavy Equipment Operators, and Taxi and Restaurant owners. This reflects a more diverse and complex economy than pertains to other CARICOM countries where similar surveys have been carried out. But it also reflects a group that has been exposed to higher education and vocational training. Over-dependence on fishing, as the only source of income, which is usually the norm among small-scale fishers in the region, makes it politically difficult to introduce restrictive entry and access measures in the small-scale fishery sub-sector.

The role that education and training have played in the lives of this group of respondents is also reflected in the literate levels in terms of their general reading ability. The next table illustrates this:

TABLE 6: GENERAL READING ABILITY

Reading Ability levels	Frequency	Percentage
Can't Manage	**3**	**2.3**
Can Read a Little	**13**	**10.1**
Can manage	**63**	**48.8**
Can read Well	**44**	**34.1**
Can Read Perfectly	**1**	**0.8**
Excellent reader	**1**	**0.8**
N/A	**4**	**3.1**
TOTAL	**129**	**100.0**

The table shows a partial literacy level of about 87.6 %, and even when the confidence factor is taken into consideration, the rate comes to about 40%. A rough literacy rate of 70%+ should allow for the unhindered use of communication media and materials such as posters, handouts, brochures, booklets, comics, newsletters, information guides, newspaper announcements and press releases. There should be no major problems with engaging themselves and other groups in society in public debates, symposia, seminars and radio talk shows.

2.2: Fishing Technology and Practices

Of the 120 respondents to the question on ownership of fishing boats, 56 owned one boat each, twenty owned two boats each and 5 owned 3 boats each. In all the vessels were quite typical of what artisanal fishers elsewhere in the region use except that in the case of the Bahamas, quite a few were larger than usual. The next table represents the types of vessels operating in the survey locations:

TABLE 7: TYPES OF BOATS

TYPES	Frequency	Percentage
Boston Whaler	33	**28.2**
Skiff	31	**26.5**
Speed Boat	31	**26.5**
Dinghy	13	**11.1**
Others	9	**7.7**
TOTAL	**117**	**100.0**

The sizes of the fishing vessels are shown in the next table:

TABLE 8: SIZES OF FISHING BOATS

Length of Boats (ft.)	Frequency	Percentage
<15 –20	78	**66.7**
21-25	12	**10.3**
26-30	8	**6.8**
31-35	5	**4.3**
36-40	4	**3.4**
41-45	4	**3.4**
45 <	6	**5.1**
TOTAL	**117**	**100.0**

It is clear that the majority of the respondents are small-scale fishers who operate in the inshore fisheries of the Bahamas. Accordingly, most (93) of the boat owners and captains go to sea, with crews of 1-5, whilst only one boat reported a crew of 15+. The rapid change from fishing boats made of wood to the use of fiberglass and the use of engine powered boats rather than those that depended on the elements and physical force for locomotion also apply to the Bahamas. In the case of the Bahamas the data suggests that the change to engine powered

vessels has been almost total, with only one out of 117 boats operated with oars only as shown in the next table:

TABLE 9: HOW FISHING BOATS ARE POWERED

SOURCES OF POWER	NUMBER	PERCENTAGE
Outboard engine & oars	93	79.5
Outboard engine only	4	3.4
In board engine only	19	16.2
Oars only	1	0.9
TOTAL	**117**	**100.0**

2.3: Gear Types

The gear types used in the Bahamas are mainly traps (pots), seine nets, hook & line, and hooks supplemented by diving. Crawfish or lobsters are caught with lobster traps, spears, hooks or compressors used by divers. Artificial habitats, known locally as condominiums or condos for short, are constructed by fishers and placed at the bottom of the seabed to attract the lobsters that consider them as safe havens from predators.

The use of the Casitas has become very popular due to the fact that they are extremely effective in trapping the lobsters, raising the fear that unless further control measures are instituted, the practice may cause depletion of the stock. There are fears that the Maximum Sustainable Yield (MSY) has been reached and indeed been surpassed. The other issue of concern is the conflict that this is causing among fishers, through theft and the struggle for space. These problems need to be discussed at the National Fisheries Conference and solutions recommended for policy formulation. The main gears for the exploitation of conch are the hook and diving with compressors. Finfish are mainly exploited with seine nets and fish pots,

2.4: The Catch and its Marketing

The main fishing grounds are the Little Bahama Bank, the Great Bahama Bank and Abaco, and the main landing sites are New Providence, Abaco and Eleuthera, followed by the Grand Bahama, Long Island and Andros. The table following shows the main species targeted and landed, from information provided by the Respondents to the Community Baseline Survey:

TABLE 10: MAIN SPECIES TARGETED BY RESPONDENTS

Species	Frequency	Percentage
Lobster (Crawfish)	59	39.9
Snapper	23	15.5
Conch	19	12.8
Groupers	19	12.8
Bonefish	14	9.5
Grunts	3	2.0
Hind	2	1.4
Others	9	6.1
TOTAL	**148**	**100.0**

The order in which the species in the top echelons are arranged nearly approximates the real order into which national production falls {see Table 13 below). The fishers in the sample usually sell their catch to the general public, processing plants, hotels & restaurants and Fish Vendors in that order, and they usually carry their product to the customers directly, or sell at the beach or dock, or carry to the processing plants or the local fish market.

2.5: Ownership and Usage of Communication Devices

A very important aspect of co-management is the communication links between the government and the resource user groups and stakeholders, sometimes facilitated by NGOs. Information dissemination and exchange are so crucial that the channels of communication should always be kept open. The popularity of some media with the intended beneficiary groups would influence its adoption for sending messages to these groups. The next table shows the ownership of electronic communication devices, and the degree of use of the radio by the respondents in this study. In general the table illustrates the level of sophistication of the fishing public in the Bahamas, in the use of electronic communication devices. The high popularity of radio and TV is quite encouraging and could lend themselves most suitable for public awareness and education programs. However, the high costs of using TV as a medium for sending out messages to the fishing communities would make it advisable to limit its use to occasional flash messages on critical issues.

TABLE 11: OWNERSHIP OF COMMUNICATION DEVICES

ITEMS	FREQUENCY	PERCENTAGE
Ownership of radio at home	**116**	**89.9**
Use of radio at the wharf	**49**	**38.0**
Use of radio at sea	**67**	**51.9**
Ownership of Color TV	**124**	**96.1**
Ownership of Video Cassette Recorder	**107**	**82.9**
Ownership of Cellular Phone	**14**	**10.8**

The use of a well planned regular radio program, targeting fishers and fishing communities for awareness building should be thoroughly discussed at the National Fisheries Conference and preliminary plans drawn up for further consideration by the National Dialogue Group.

The dangers that small-scale fishers are exposed to daily when they venture out to sea are well known. There have been several instances when fishers get lost at sea for days, even weeks on end. There are also instances when rough weather conditions expose them to the danger of losing their lives. Recent developments in some countries in the region also show an increase in sea piracy by which the crews of these small fishing boats are attacked by criminal elements. For these reasons the use of some electronic means of communicating among themselves at sea or with the fishery officials and the security forces on land, should be mandatory. It could make the difference between life and death. The next table shows the level of sophistication attained by the fishers of the Bahamas in the ownership and use of these electronic devices:

This level of sophistication is unequalled among fishers in the region. The only requirement is to step up safety education and training to improve their use and to popularize their use further.

TABLE 12: USE OF ELECTRONIC DEVICES FOR SAFETY AT SEA

Devices	Frequency	Percentage	Usefulness
GPS	61	47.3	Determination of position through plotting coordinates, Precise location of position using satellite signals; showing direction and navigation routes, location of fishing spots
LORAN	5	3.9	As for GPS. Giving way to the latter.
VHF	81	72.8	Very High frequency, line-of-sight system. Limited distance of 20-25 miles. Generally for communication but particularly distress calls from boat to boat, boat to nearby land. Handy in emergencies.
SSB RADIO	13	10.1	As for VHF but longer distances although quality falls with increased distance.
CELL PHONE	18	3.9	For short distance communication to land.
RADAR	8	6.2	[***Ra***dio ***d***etecting ***a***nd ***R***anging]. Mainly for navigational purposes. Determining speed and movement of distant objects from HFR waves reflected from their surface.

3.0 STRUCTURE AND FUNCTIONS OF THE FISHERIES DEPARTMENT

The implementation strategy for both the CFRAMP and the ICRAFD projects obligates the CFU to provide the necessary technical and resource support to the national fisheries administrations, to ensure that the capabilities of the latter are built to the required standards that would enable them to utilize the skills acquired in implementing the activities planned for their respective countries. In effect therefore, the fisheries administrations are ultimately responsible for the implementation of the programs and projects in the respective participating countries. Whatever benefits accrue to the countries, by way of the sustainable development and management of their fisheries resources, would be obtained directly from the internal operations of the fisheries administrations and only indirectly from the contributions of the CFU.

Accordingly, one of the main objectives of the planning missions, including the implementation of the multidisciplinary surveys, was to assess the capabilities of the respective fisheries administrations to carry the additional load of work involved in taking on the implementation of the planned activities of the ICRAFD project. Remedial action would then be taken to plug all gaps and to build capabilities through the institutional strengthening programs to be developed in the work plans jointly prepared for the countries.

3.1: Overview of the Bahamian Fisheries

The fisheries administration of the Commonwealth of the Bahamas has the enormous responsibility to ensure 'the development of the fisheries sector through the sustainable use and integrated management of the fishery resources, coastal zone and marine environment for the well-being of Bahamians' (Departmental Briefing Document, Jan.,2000). The Bahamas is an archipelago of hundreds of islands, of varied sizes, spread over an enormous stretch of marine space that extends from South Florida to the large island of Hispaniola in the Caribbean Sea, covering an area of over 259,000 km.

There are, according to reports, about 350-400 registered fishing vessels of more that 20ft. in length, and the number of fishers is estimated at about 12,000, of which 7,000–8,000 are full-time fishers, and the rest, part-time. Additionally, there are Recreational fishers, estimated at about 4,000 and Sports fishers estimated at about 7,000. The annual catch/landings of fish for

1999 was about 10.9 million lbs. The quantity exported has been variously estimated at 6.0m. lbs. – 7.0m., lbs., with a value estimated, at about $75.3-$81.3 million, including value added through processing. The annual GDP ranking for fish and fish products is about 2.3%- 3.0%. The general fisheries policy reserves the entire EEZ exploitation to Bahamian fishers, whereas fish processing mainly targets foreign investors but allows for joint ventures between Bahamian nationals and foreigners. The Bahamas is a leading producer of fish and fish products in the region. The following table illustrates the volume and variety of the products in 1998, the year with total landings of 11.2m. lbs., and value of approximately, B$ 65.0m.

TABLE 13: FISH LANDINGS IN THE BAHAMAS,1998

PRODUCTS	Weight (lbs.)	Value (B $)
Crawfish (Tails)	5,478,508	53,364,247
Crawfish (Whole)	215,144	776,233
Conch (fresh)	1,477,374	3,651,628
Nassau Grouper	1,125,817	2,674,401
Other Grouper	228,235	460,581
Grouper (Fillet)	108, 803	327,422
Snappers	1,721,359	2,368,558
Stone Crab	85,126	609,001
Jacks	202,411	216,381
Grunts	198,232	155,601
Sharks	4,312	10,248
Green Turtle	5,072	6,571
Loghead. Turtle	2,052	3,693
Others	343,214	415,479
TOTAL	11,195,659	65,035,004

Source: Briefing Document, Dept. of Fisheries, Jan. 2000: 7-8.

The key part Crawfish (Lobster), Conch, Groupers and Snappers play in the sub-sector should be clear in the table just presented.

3.2: The Organizational Structure of the Department

With such an enormous responsibility as shown above, one would expect the staffing situation to be equally matched to the tasks involved. Unfortunately, the inadequate staffing position has been worsened by erosion over the years, particularly, in the area of technical expertise. In 1992, the total strength of the staff was 54, of whom 34 were within the professional/technical category. By 1999, there were only 30 Fisheries Officers, including the Director, Senior Fisheries Officers and Fisheries Officers. Of the 11m. lbs. of fish with the value of $65m., 3.9m. lbs., valued at $19,389,293 was produced in New Providence, and over 7.2m. lbs., valued at over $45.6m. was produced in the numerous family islands, yet the entire Family Islands are served by only 5 Assistant Superintendents, stationed in North Andros, Abaco (one at Cooper's Town, one at Marsh Harbour and one at Moore's Island), and one at Freeport, Grand Bahamas. One Fisheries Officer is stationed in Freeport, Grand Bahamas.

It is clear that the staffing position and processes are skewed against the outlying Family Islands, with the bulk of the technical expertise located in Nassau, the capital. The difficulties and costliness of transportation from island to island, mainly by Air Transportation, make the situation worse for the Family Islands. It is hoped that when the staffing position improves, the pendulum would swing a little more favourably in the direction of the Family Islands. The whole question of how to improve services to the Family Islands and where to obtain the resources to make that possible should be a major issue for both the National Fisheries Workshop and the National Fisheries Dialogue Group to examine in detail, and come up with viable recommendations for policy action.

At the time when the Planning Mission took place, the Department was responsible for providing a number of critical services to stakeholders. These included, coordinating the provision of duty-free concessions by government and small loans by the Bahamas Development Bank to stakeholders; the provision of technical assistance to stakeholders in the fish product trade; the provision of extension and consultancy services, and implementing of training programs in fisheries technology transfer and elements of fisheries conservation, and the issue of permits and licenses for various purposes.

The Director of Fisheries, also stationed in Nassau, the capital, reports directly to the Permanent Secretary, Ministry of Commerce, Agriculture and Industry. Vacant positions, particularly those demanding research skills for Resource Assessment and Fish Biology are difficult to fill. According to the administration, lack of reliable data affects the department's ability to properly manage the resources, and in many cases, the training opportunities are only available in overseas institutions of learning.

3.3: Fisheries Policy

As the next two tables illustrate, the Department places very high premium on Research and Stock Assessment as the main conduit through which sustainable development and management of the fisheries resources of the Bahamas will be achieved. When asked to arrange in order of priority, the subject areas in which staff training is urgently needed, the following was the outcome of the responses.

TABLE 14: PRIORITY SUBJECT AREAS FOR STAFF TRAINING

POSITIONS	SUBJECTS
1	Fisheries Research
2	Fisheries Data Management
3	Fisheries Statistical Analysis
4	Resource Conservation and Management
5	Environmental Protection
6	Community Participation & Education
7	Post Harvest Skills & Technology

It should be expected that the award of scholarships by both the government and the ICRAFD project would keep this inclination in perspective. At the time of the implementation of this survey, the level of funding of training programs by government was minimal, valued at about 2% of the annual budget of the department. The department listed insufficient funding and lack of expertise in some key areas such as stock assessment, as the major human resource problems facing the department and for which answers should be urgently sought. The fisheries administration recommended that increased staff training opportunities and additional resources should be priority areas to be addressed.

When asked to provide a listing by priorities, of the policy areas to which the Department would apply its limited resources, the following picture in the table below emerged. The choices tend to mirror that of the previous table, namely the high priority given for fisheries research and fish statistics for resource management. However, the positions of both community involvement and education, and the relative low position for co-management need to be revisited in a more comprehensive manner at the National Fisheries Conference. In fact, given the prominence of all the policy areas listed in this table in the current literature of fisheries management, we would suggest that all of them become issues for concept operational definitions, policy–wise assessment and strategizing sessions at the Conference.

TABLE 15: POLICY AREAS LISTING BY PRIORITY

POSITIONS	POLICY AREAS
1	Stock Assessment
2	Data Management
3	Fisheries Management
4	Community Participation and Education
5	Surveillance, Monitoring & Enforcement
6	Fisheries Co-Management
7	Environmental Protection
8	Fisheries Technology

3.4: Fisheries Information System

The collection of fisheries data on a daily basis by officers from the Fisheries Department, on levels of catches and exports began in the early 1960s and became fully operational by 1969. Since then, data collection has been carried out at the landing sites, in hotels and restaurants, processing plants, and in inter-island freight boats. The instruments used are questionnaires and receipts from the fish trade. By the time of this survey, about 7 officers from the Statistics Unit in the Department were involved in the regular data collection exercise, with about 5 assistants.

The types of data collected include Catch Data on species types, weight and the gear used in the catch. Second, the Effort Data on the number of fishers, boats, the boat size and capacity,

the number of days fished and the number of days at sea. There is the need for the collection of additional, more precise effort data, including length frequency data on key species. Third, some socioeconomic data on cost and price of fish and import and export data are collected.

The system has been computerized since 1989, with few changes made since then. The operating software are DOS, DBASE, EXCEL for collation and MS office, 2000. Although Windows 95 & 98 and Windows NT 4.0 Server are available in the department, they were not being used in data collection, except for the use of Microsoft EXCEL for manipulation of the data and the preparation of reports The software being used are not user friendly, involve retrieval difficulties and users have to use manual methods at some stages.

Generally, fishers tend to cooperate with the data collectors. Some fishers however, are reluctant to reveal the areas where they fish for 'security' reasons, and Exporters in processing plants and vessel owners and Captains, are sometimes reluctant to provide accurate financial information. The system is beset by other problems such as the lack of enough field personnel to effectively carry out the data collection, the lack of skills and experience among the existing collectors, the lack of effective supervision in the family islands, and the untimely delivery of data from the Family Islands.

There are also problems with coverage. All the islands are not covered, data collection in restaurants, hotels and processing plants not adequately covered. Generally only information reaching the plants are covered. Data on recreational fishing and small catches are usually missing from the data, and essential effort data are not well represented. It was observed that not all the right questions are included in the questionnaires used, and no analysis of data is done, since the skills for this are lacking, and reporting from analysis of the existing data could be seriously flawed. The Administration and the officers engaged in the data collection program agree that more staff training in data collection skills, including field techniques and communication skills, data analysis and report preparation skills are urgently needed. The ICRAFD project is expected to take care of this. Inadequate as the system may seem, the Department prepares Annual Reports, Statistical Abstracts, Sector Summary Reports for FAO, the Bahamian Central Bank and the Department of Statistics, although feedback rarely occurs.

3.5: Fisheries Research

It is within the mandate of the Fisheries Department to plan and implement fisheries research. The main focus of research had been on lobster optimum size studies, and stock assessment of conch and groupers for sustainable fisheries management. Although there has been a slight increase in funding of research projects because the need for information for management decision making and environmental protection have been recognized, budgetary allocation from governmental sources is still inadequate for the amount of research projects needing to be planned and implemented. Hence, the main constraint continues to be the lack of funding to replace the funds previously obtained from external sources as for example the FAO, for the Fisheries Census ($76,000) and minimum size options for lobster management (1996). There are still areas such as updating or setting new size limits for key species – conch, lobsters (crawfish), groupers and snappers), and setting export quotas, where applicable.

The Department has a few staff members with research capability, but the department still needs more qualified and motivated staff, coupled with expert advise and guidance. The department also owns a 65' vessel and a 20' vessel, but would still do better with some short-range vessels, and other equipment such as computers, microscopes and other equipment for carrying out surveys.

3.5: Aquaculture

This is a burgeoning sub-sector that has been identified by the department as an area with 'great potential'. At the time of this survey there were three active fish-farm establishments, which are constantly monitored by the Fisheries Inspectors from the Department. Of these, one was a shrimp farm, Lucayan Aquaculture of Freeport, which plans to expand into a 100-acre production facility. There are plans to introduce a special incentive scheme. The Harbour Branch of the Oceanographic Institute would be advising the government on further developments. There is already a policy position that allows for aquaculture farms to be 100% foreign-owned, with duty-free concessions for the importation of equipment, stock feed and other supplies. Applications for establishing of new fish farms in the Bahamas must first be approved by the Minister responsible for fisheries, before further action takes place.

The Commonwealth of the Bahamas, according to the Department of Fisheries, has several factors that make it suitable for aquaculture farming, including:

- Large area of land available for fish farm establishment
- Large expanse of pollution-free salt water

- Favourable temperature and rainfall patterns
- Good communication systems
- Good export market potential
- Ready manpower population, and
- A stable political system (Briefing Document, Department of Fisheries, 2000, p.10)

The department needs trained staff to advise potential investors and to establish an Aquaculture Unit in place of the one disbanded previously. At the time of this survey there was only one officer dealing with fish farming matters. The department needs at least two more trained personnel to man the unit.

This is one area where fishers could develop some interest, particularly the fishermen's organizations as potential sole investors or as joint investors. The possibilities could be examined at the National Fisheries Conference, with alternative income generation and reduction of pressure on the marine fishing grounds as the main motivating factors. If the outcome of the discussions is positive, then the National Fisheries Dialogue Group could continue the dialogue.

3.7: Sport Fishing

Sport fishing plays a key role in the Tourism Industry, particularly in the Family Islands. It takes the form of angling with a hook or lure attached to a line, hence it is considered to be environmentally friendly. The advantages that the Bahamas has in this activity are the availability of clear, unpolluted waters, excellent shoreline facilities, and close proximity to the South-East United States. The Bahamas already has the enviable reputation as an ideal game fish destination, particularly for billfish, and is considered the bonefish capital of the World. There are about some 20 bone fishing lodges and operations in the family islands of Andros, Exuma, Long Island, Abaco, Grand Bahamas, Crooked Island, Harbour Island and Berry Island. Other species that feature most in Sport Fishing tournaments are Blue Marlin, White Marlin and Sailfish.

All applications by foreigners for permits to organize sport-fishing tournaments in the Bahamas are to have the prior approval of the Minister responsible for Fisheries, and the organizers are expected to submit the results of the tournaments to the Minister, a stipulation that many organizers do not comply with. In 1995 it was estimated that 6,500 permits were granted to the Family Islands' Port-of-Entry. The Department of Fisheries, with the support of the Ministry of

Tourism and the Customs Department, is responsible for the management, development and administration of the Sport Fishing Industry.

3.8: Post- Harvest Technology.

The stringent standards for fish processing and export of fish products to the European and the United States markets has put pressure on the governments of Third World countries that trade in fish products with the former. As part of the strategy to satisfy the requirements, the Bahamian government set mandatory standards to be adhered to by processing establishments by September, 2000. This action was not based on law although the enactment of a law was in the making. The then existing fisheries regulations addressed processing requirements for crawfish and scale fish for export. The Draft Regulations soon to be enacted into law deals with the HACCP for mainly sea- food exports, including regulations for storage and processing.

When this survey was conducted, there were about 10 privately run processing plants, but already they were being affected by the new regulations. 5 of them had been approved, while the other 5 were requested to upgrade their facilities to the required standard. Personnel in processing plants and 'factory vessels' had undergone HACCP training. About three officers in the department had also been trained in HACCP, but the department wanted more staff to undergo training. The department sets standards for processing and it is responsible for the training of the staff of processing plants. The Department plans to strengthen the Inspectorate Unit and accordingly, it is asking for training opportunities or attachment programs for its staff.

3.9: Marine Protected Areas.

The Bahamas, as do some other CARICOM/CARIFORUM countries, is investing in the establishment of marine reserves as one way of restoring the health of the fish stock and promoting biodiversity conservation, in areas with coral reefs. The government plans to establish a network of NO-TAKE MARINE RESERVES (NTMR) of up to 30 reserves. The criteria being used in choosing areas for NTMRs include the fishing impact on the area, community management capabilities, the regional importance of the fishery grounds, community benefits to be derived, and the habitat diversity in the area. Already by July 2000, 4 of such NTMRs had been established, and 5 others had been approved. The 4 already established were Exuma Cays Land and Sea Park, Pelican Cays, Union Creek Reserve and the Black Sound Cay Reserve

The Fisheries Department is involved in the selecting and designing processes but not in the management process. Fishers are involved in the designing of the reserves but typically, fishers operating or residing in a particular community would not readily accept the establishment of a Reserve in their own backyard. The general management structures for these NTMRs were yet to be decided. The Bahamas Reef Environment Educational Foundation (BREEF), an NGO, has plans to install "Reef Balls" or Artificial Reefs in some of the NTMRs.

3.10: Fisheries Extension Programs

The Department had been running Extension Programs for over 25 years. The programs however, do not flow from a national policy or a Fisheries Management Plan. It rendered services on an ad-hoc basis. The objectives were to educate stakeholders, monitor adherence to regulations, oversee the enforcement of regulations and sanitation requirements for fish processing, facilitate the issue of permits and licenses, and coordinate and monitor the granting of government incentives. The methods used include the use of posters, handouts and brochures, community meetings, and face-to-face interaction.

It was the view of the Extension staff that the program is not achieving its objectives because it is not well organized, and the officers are over-burdened with several responsibilities, which sometimes were at cross purposes. There were about 7 Extension Officers, about 20% of the entire departmental staff, but there existed at least 7 more positions to be filled. It was also confirmed that the staff were not properly qualified for the task, most of them being High School

graduates, but training opportunities were rare, and provided at occasional local workshops. The staff listed other constraints such as lack of people relations and communication skills, minimal attention of the administration to their activities, hence a poor system of administrative control of their activities. The Unit also lacked operational funds and equipment. Some of these issues will be tackled by the ICRAFD project through the Community Involvement & Education sub-project.

The Administration was aware of the existence of more than 9 fisher folk organizations with which the Extension staff interact in the field and in the communities, but claims that they were not well organized and only about 3 of them were active. The information garnered by the Planning Mission Team showed the existence of the following organizations:

- South Andros Co-operative Society – South Andros
- North Abaco Fishermen's Co-operative – Fox Town, Abaco
- Northern Bahamas Fishermen's Association – Grand Bahamas
- Montague Vendor's [Ramp] Association – New Providence
- Potter's Cay Vendors Association – New Providence
- Arawak Cay Vendor's Association – New Providence
- Coral Harbour Fishermen's Association - New Providence
- Spanish Well's Fishermen's Association – Spanish Wells, Eleuthera
- Cat Island Co-operative – Cat Island
- Bahamas Bone Fishing Guides Association (Federation)
- Mangrove Cay Fishing Cooperation

Some Respondents to the Community Baseline Survey also identified themselves as members of the following organizations:

- Andros Guides Association
- Andros Island Bone Fish Association
- Andros Island Fishing Association
- Andros Professional Fishing Association
- New Providence Fishing Association
- North Abaco Cooperative

The Bahamas has the distinction of being the only country in the region having organized vendor groups. The task of the Extension Officers would be to review all these organizational titles against the reality on the ground and develop a register of existing fisher folk organizations. They should provide the necessary technical support that would keep these organizations alive, and organize information dissemination and exchange, training and awareness building programs for the benefit of these organizations. A Revival–cum-Consolidation Program should be planned and implemented. These organizations could be earmarked for representation and participation in the National Fisheries Conference and the National Fisheries Dialogue Group. As the FAC cannot be overloaded with too many representations, the Dialogue Group should be the ideal forum for sufficient representation of Resource User Groups, for collation of the viewpoints of the fishers' and stakeholder groups in the fishing communities. These could be submitted to the National Fisheries Advisory Committee for further consideration.

The leaders of three of the stakeholder organizations were interviewed, using the Status of the Fisher folk organizations survey instrument. These were the Mangrove Cay Fishing Cooperation, the Montegue Vendors Association and the Potters Cay Vendors Association. Whilst the fishers group had the long-term objective of stimulating the local economy, creating employment and marketing its product efficiently, the Vendors had relatively short-term objectives. One had the objective of preventing the physical displacement of its members from their location near a very busy wharf, by bigger, more influential private business enterprises, while the other had the objective of maintaining and upgrading the members' stalls and surroundings of their businesses, to avoid their displacement from their location. Whilst the fisher-folk organization is a marketing or producer organization, both vendors' organizations are lobbying or pressure groups. All three were relatively inactive for most of the time until they felt threatened by external forces.

All three groups felt that they had fairly good relations with the Fisheries Department, but they differentiated that relationship from that with the government, which they felt was poor due to bureaucratic hindrances and 'problems with broken promises.' The fisheries administrators also felt that they had quite cordial relationship with the fishers' organizations, even though there was much room for more regular contacts for the sharing of information, and keeping the channels of communication open.

Although there were no regular meetings with the stakeholder groups, the few that are held provide stakeholders with the opportunity to voice their concerns, and contribute some input into policy making. Some of the pressing issues dealt with on these occasions include, Multiple Use Conflicts, Poaching by foreigners, Lack of effective enforcement of regulations and requests for more and better government services. The representation of these organizations on the Fisheries Advisory Committee is instrumental in bringing problems facing the industry to the attention of government. The ICRAFD project will provide the department with technical and material support to improve the services they provide to the stakeholder organizations.

4.0: FISHERIES RESOURCE CONSERVATION AND MANAGEMENT

4.1: Status of Fisheries Management, Legislation and Enforcement

When requested to list in terms of priority, what the department's fisheries resource management policy goals were, the following table was the outcome of two separate responses. The prominence reserved for fisheries management and development and data management again emerges at the top of this table. However, when one attempts to draw straight lines from left to right, linking items on the left to their counterparts on the right of the table, the uncertainties contained in the table become clear. It is these uncertainties that should be the subject of critical reexamination, clarification, evaluation and resolution at the National Fisheries Conference.

TABLE 16: GOALS OF FISHERIES MANAGEMENT POLICY

1st Official Responses	2nd Official Responses
Sustainable Management	Fisheries Development
Data Management	Sustainable Management
Foreign Exchange Earnings	Food Self Sufficiency
Full Employment	Environmental Protection
Environmental Protection	Foreign Exchange Earnings
Social Stability	Full Employment
Food Self Sufficiency	Social Stability

Additionally, the prominence of socioeconomic variables in the elements making up this table might have contributed to the difficulties, seeing that the socioeconomic aspects of fisheries management in the literature of the CARICOM/CARIFORUM region, are the latest additions, and most professionals have not yet imbibed and internalized their importance. Most scholars and practitioners are still literally locked up in the biological/ natural sciences and statistical biases of past approaches. It should be noted that the socioeconomic aspects could have important implications for policy formulation and Fisheries Management Planning for, not only the Bahamas, but also other states in the region. The role of socioeconomic considerations in fisheries resource development and management should be a topic to be seriously considered at the Fisheries Conference.

The department did not have a Fisheries Management Plan at the time of this survey. Management measures had however been instituted through research and derived their legal backing from the Fisheries Resources (Jurisdiction & Conservation) Act, 1997, that came into

force the same year. This was followed by the Fisheries Resource (Jurisdiction & Conservation) Regulations, 1986 that empowers the Minister responsible for Fisheries to authorize their inclusion in the national fisheries laws.

These legal provisions allow for the conservation and management of the fisheries resources and to extend the limits of the jurisdiction of the Bahamas over the resources. The existing regulations included closed seasons and size limits for stone crabs, crawfish, conch, turtles and groupers. There were also Closed Areas for Grouper Spawning Aggregation grounds. Additionally there were gear restriction regulations for scale fish and licensing for vessels. Finally, there was a Draft Fisheries Act, defining government policy with respect to the utilization and management of the resources. There was also an accompanying Draft Fisheries Regulations, both awaiting passage into law. Such regulations are brought to the attention of the stakeholders and the general public through formal consultations, and direct communication with stakeholders, publication in the form of leaflets, posters and press releases.

The Fisheries Department, the Royal Defense Force and the Royal Police Force routinely carry out monitoring and surveillance of the activities of fishers at sea, landing sites and processing plants. These organizations attempt to ensure that all regulations are enforced, and immediate action taken against violators, initially through warnings, then subsequently through arrests and prosecution in court, where penalties are imposed when violators are found guilty. The general consensus is that the actions taken against violators are not strong enough to discourage further violations.

The officials also contend that because of the wide expanse of sea space to be monitored more resources were needed for that purpose. The Department works in tandem with the Royal Bahamian Defense Force, the Customs authorities and the Police Force. This is a common problem in the region and needs to be discussed at the National Fisheries Conference and solutions to the problem could be found and recommendations made for consideration by government.

4.2: Multiple Use Conflict and Conflict Resolution

Multiple Use of conflict among resource users is becoming a major problem in the region. Conflicts among users are manifested in two ways in the Bahamas. First, intrusion into the territorial waters by fishers from across the national borders, what is called poaching, by fishers mainly from the Dominican Republic, Cuba and Honduras. There was also evidence that some

tourists who enter the Bahamas as sport fishers end up taking substantial fish with them into the United States. Second, conflict among Bahamian fishers clashing over incompatible gears, sea space in over crowded grounds, fish piracy and ownership and stealing of casitas or condos.

The Key Informants in this survey identified these two as the two top problems facing the industry in the Bahamas. 98 (76%) Respondents to the Community Baseline Survey maintained that Bahamian fishers can fish anywhere in the waters of the Bahamas. However, 25 (19.4%) recognized that where casitas (condos), traps (pots) have been set by Bahamian fishers, the owners have the right to defend their property being interfered with by other local fishers. These rights however, exclude Outsiders who enter Bahamian waters illegally.

The causes of conflict among local fishers include the following:

- Removal of other people's condos, crawfish traps and fish pots, or stealing fish trapped in them.
- Overcrowding of several traps and condos in particular lucrative fishing grounds such as spawning aggregation spots, providing grounds for genuine confusion over ownership, but also deliberate theft of other people's property.
- Clashes between 'big' boats and 'small' boats, when the former intrude into the inshore grounds where the latter operate.
- Clashes between net operators and hook and line users.

Fishers also complained bitterly about 'Cubans and South Americans' poaching in Bahamian waters, Tourists exploiting juvenile fishes, American 'Yatching Guests' and 'Dive Boats' and other Tourists using their tourist permits to do illegal commercial fishing.

The local fishers consider these as serious problems that need to be addressed. We suggest that the National Fisheries Conference should start the proceedings and possibly provide a framework for the National Dialogue Group to develop policy advisories for consideration by government.

It seems that no clear-cut procedures exist in both the fisheries administration and the fisher folk organizations for conflict resolution and management. The answers to enquiries on this suggest that these clashes result in arguments and sometimes the use of violence, and that Marine Officials sometimes prosecute offenders. Others maintained that the best solution lies in dialogue, not violence or force. It would be proper to deal with the issues at the National

Fisheries Conference. Fisher folk organizations should also consider including Conflict Resolution strategies in their organizations' constitutions.

When asked whether there exist some traditional fishing practices outside of official legal instruments that are likely to prevent frequent clashes among fishers or with the law, 108 (83.7%) out of responded that such practice exist. The following table is a summary of the responses to specific practices:

TABLE 17: TRADITIONAL FISHING PRACTICES

FISHING PRACTICES	FREQUENCY	PERCENTAGE
Seasons during which they avoid fishing	**100**	**77.5**
Areas where they avoid fishing	**71**	**55.0**
Do not catch juvenile fishes	**91**	**70.5**
Catch and Release fish because of size	**99**	**76.7**
Build artificial shelters for young fish	**54**	**41.9**
Types of destructive gears which they avoid using	**57**	**44.2**

The responses look very encouraging for management purposes, but they might reflect the approval of those practices, rather than the existence of known traditional practices. The Bahamas has regulations on closed seasons, has begun creating marine reserves, and has regulations on sizes of fish that are illegal to harvest. The Respondents might therefore be rehashing of regulations with which they are familiar. Nonetheless, the responses are still good building blocks on which to forge positive attitudes towards fisheries resource conservation and management.

4.3: Key Informants on Fisheries Management

The Planning Mission constructed an open-ended interview schedule to be addressed by knowledgeable and experienced stakeholders in the industry and the fishing communities. The instrument sought in-depth information on specific resource management, community participation and co-management issues. In the Bahamas, there were 24 interviewees as indicated in the following table:

TABLE 18: RESPONDENTS TO KEY INFORMANT INTERVIEWS.

CATEGORIES	NUMBER
Fishers (All Categories)	**8**
Fisheries Administrators/Officers	**4**
Vendors	**3**
Processors	**2**
Senior Bureaucrats	**2**
NGO Representatives	**2**
Community Leaders	**2**
Academe	**1**
TOTAL	**24**

Fifteen of the interviews were conducted in New Providence (Nassau), three in the Grand Bahamas and six in Abaco (Sandy Point).

Problems of fisheries resource management

When asked to identify the main problems and issues facing the fishing industry in the Bahamas, the Key Informants' responses are summarized in the next table. The informants identified the illegal cross-border activities of fishers from neighbouring countries as the most serious problem that is facing the industry that needs to be addressed. It would seem that this issue should be examined closely at the National Fisheries Conference. The causes of conflict within the country among the local fishers also should be discussed. The Conference must arrive at policy recommendations for the consideration of the government. Taken together, the rest of the responses show the concerns of the Key Informants about the health of the stocks and the need for greater monitoring and surveillance to ensure more compliance with the regulations for protecting the stocks and the habitats.

Even more worrisome is that about half the respondents think that the government is doing nothing about the deteriorating condition of the stocks. However, the education programs held during the off seasons, particularly in the Family Islands, some wetlands restoration projects and the closure of grouper aggregation grounds at full moon were cited as some of the actions being taken to ameliorate the worsening condition of the stocks in the Bahamas. Most respondents called for more education and awareness building programs in the fishing communities, support for the formation and maintenance of fishers' organizations and regular patrolling of the waters to reduce the violation of regulations drastically.

TABLE 19: PROBLEMS FACING THE FISHING INDUSTRY

ISSUES/PROBLEMS	NUMBER
Poaching/Poor Border Controls eg. Cuba, Dominican Republic, Honduras.	**15**
Local fishers clashing over incompatible gears, sea space, fish piracy, ownership of casitas/condominiums.	**9**
Over fishing	**5**
Harvesting of Juveniles	**3**
Violation of closed season regulation	**3**
Use of chemicals/poisons in fishing	**2**
Lack of enforcement of regulations	**2**

Respondents also showed considerable awareness of the existing institutional provisions for the management of the fisheries resources. They gave recognition to the attempts made by the Fisheries Department to address some of the issues of concern to fishers and other stakeholders in the fishing communities, the work of the Fisheries Advisory Committee in providing policy advisory to the government. This body has a wide representation from the stakeholder groups in the industry, and represents the views of the various sub-sectors of the industry to the Minister responsible for the fisheries. In 1998 there were 25 members, including representatives of the Processing establishments, fishers organizations, islands' communities, the Defense and Police forces, the Customs Department, the Ministry of Tourism and the Family Islands Promotion Board in Fort Lauderdale in Florida. Mention was also made of the Draft Fisheries Act and Regulations awaiting passage into law, and the existing size limits, and closed seasons for crawfish, conch and groupers, and expressed concern about the paucity of equipment and other resources for effective patrolling and enforcement.

In responding to the question of whether there were some new laws needing to be introduced in the industry, a few thought that the existing regulations were adequate enough and that what was needed was a stronger enforcement of these regulations. However, a considerable number of respondents called for the instituting of more drastic measures such as stretching the closed season for crawfish further, placing of a ban on poaching, the use of compressors in fishing, the use of casitas, and the use of drag nets. Others recommended higher user fees for tourists. These harsh viewpoints should be reexamined by the broader representation of stakeholders at the National Fisheries Conference.

Community Participation in Fisheries Management

Twenty-three out of the twenty-four Key Informants endorsed the need for community participation in the decision-making processes for sustainable fisheries management. They emphasized the need for more dialogue, consultation and interaction between government functionaries and the stakeholders in the communities. They called for improvements in the communication links between the Center (New Providence) and the Periphery (The Family Islands), as the less populated islands in the extreme south are not given much attention in terms of consultation, surveillance and enforcement. It was felt that fishers must be more involved in research and assessment activities, and that the department should provide support for more effective organization of resource users in each local authority area, and ensure that the Resource User Organizations are well represented on the Fisheries Advisory Committee.

Though the Key Informants expressed support for the existence of a Fisheries Advisory body, they questioned if the members genuinely represented the interests of the communities, and the lack of feedback on the affairs of the body. Most of them admitted that the Fisheries Department sometimes addresses the concerns of the family islands but that there is still much more to be desired. The occasional community meetings organized by the Fisheries Officers are quite useful gatherings for the exchange of information and that they wished these could be organized more frequently, with the important proviso that immediate action is taken on decisions taken at such meetings.

The Role of NGOs in Fisheries Management.

The majority of the respondents showed very high appreciation for the role NGOs are playing in the fisheries resource management processes in the Bahamas; the support the latter render to the fishers' organizations in the building of public awareness and organizing of education programs in the communities, and their support for the development of a network of No-Take-Marine-Reserves (NTMRs); the ambitious plan to establish Local Technology Access Community Centres (TACCS) in all NTMRS locations, the Local Trust in Abaco; the Friends of the Environment in Marsh Harbour and Hope Town in Abaco, and the plan hatched by the Bahamas Reef Environment Educational Trust (BREEF) to train school teachers in 2-week environmental Courses in all schools by the year 2004, half of which had already been completed by 2000. BREEF, a private organization formed in 1996, had vowed to work closely with the Fisheries Department, and fight for greater appreciation for and protection of the marine environment in the Bahamas.

We recommend that a closer look be had of this developing healthy relationship, in order to chart a path to greater progress in this regard, at the National Fisheries Conference, to which the NGOs' representatives should be invited, for a more formal forging of working relationship.

Co-Management of the Marine Resources

On the question of the type of fisheries management strategy to adopt in the Bahamas, the response of the Key Informants interviewed, was not different from the outcomes in other CARICOM/CARIFORUM countries. Nineteen of the those who responded to the enquiry preferred government and fishers collaborating as partners in the management of the resources, one preferred a collaboration of government and the Fisheries Advisory body, and one preferred a combination of government, fishers and NGOs. These are healthy signs for the future of fisheries management in the Bahamas, seeing that resource co-management is the trend in most fishing areas in the world, at least in theory, these days.

4.4: Fishers & Fishing Communities on Fisheries Management

As the direct resource users fishers are regarded as the ones who would have more direct and intimate perception of the status of the condition of the stock that they exploit on a daily basis. For the most part, fishers in the region tend to perceive a decline in the health of the stock. The respondents in this survey in the Bahamas however differ. The next table summarizes their perceptions of the health of the stock:.

TABLE 20: PERCEPTION ON THE HEALTH OF THE STOCK

Issues	Perceptions	Frequency	Percentage
FINFISH			
Concerned about the condition of the fin fish?	YES	**104**	**80.6**
Catch weight declining?	NO CHANGE	**77**	**59.7**
Catch sizes declining?	NO CHANGE	**86**	**66.7**
LOBSTERS (CRAWFISH)			
Concerned about the condition of the lobster stock?	YES	**101**	**78.3**
Catch weight declining?	NO CHANGE	**64**	**49.6**
Catch sizes declining?	NO CHANGE	**75**	**58.1**
CONCH			
Concerned about the health of the conch stock?	YES	**58**	**42.6**
Catch weight declining?	NO CHANGE	**47**	**36.4**
Catch sizes declining?	NO CHANGE	**59**	**45.7**

The fishers of the Bahamas interviewed in this community survey are clearly worried that perhaps at the rate at which the stocks are being exploited, there may be a danger of depletion taking place, but they are not convinced that the decline in catches, signaling the approach of a stage of stock depletion has begun to happen. This is a different perception from the findings of previous studies of this kind in the region that clearly showed a negative perception. The same positive perception did not come from discussions with fisheries officials. Perhaps the best forum to confirm or reject this perception should be the National Fisheries Conference.

The next table illustrates the highest 15 responses, to choose from a list what they considered the causes of stock depletion, in terms of the number of times the items were cited by the interviewees:

TABLE 21: CAUSES OF STOCK DEPLETION

CAUSES	FREQUENCY	PERCENTAGE
Foreigners fishing illegally	**66**	**51.2**
The change in the weather	**65**	**50.4**
The number of fish traps	**62**	**48.1**
Fish caught too young	**61**	**47.3**
The Use of dynamite	**55**	**42.6**
Destruction of Mangroves	**40**	**31.0**
Too many nets	**35**	**27.1**
Too many fishermen	**31**	**24.0**
Too many industrial fishermen	**30**	**23.2**
Pollution from sewage	**27**	**20.9**
Too many local thieves	**26**	**20.2**
Fish trap mesh too small	**23**	**17.8**
Net mesh too small	**21**	**16.3**
Fish getting smarter	**16**	**12.4**
Too many sport fishermen	**15**	**11.6**

The fact that the problem with foreigners poaching in the waters of the Bahamas again emerges as the number one problem to this group of interviewees makes it a very critical issue to be thoroughly examined at the National Fisheries Conference. The Bahamas again distinguishes itself from the rest of the region by their fishers' readiness to risk the introduction of very harsh regulatory measures by citing problems that could bring such measures into reality. By contending

that the number of traps, fishermen and nets are too high, they could by default be suggesting the introduction of measures that would drastically reduce such numbers. These issues could be brought up at the National Fisheries Conference for further discussion.

Another important area of importance is the question of what a Fisheries Management Plan for the Bahamas should contain. It is on the plans of the ICRAFD project to assist the participating countries to update their existing plans or provide assistance for those without any to prepare new ones. It should be a good beginning for fishers' and other stakeholders' input into this exercise by discussing this at the National Conference. The following table shows the choices of fishers and other stakeholders to be contained in a Fisheries Management Plan.

TABLE 22: STRATEGIES FOR FISHERIES MANAGEMENT PLANNING

STRATEGIES	FREQUENCIES	PERCENTAGE
Heavy fines for the use of dynamite and poisons in fishing	**121**	**93.8**
All fishers must be licensed and must keep it up to date	**116**	**86.0**
Protect the mangroves and sea grass from destruction	**116**	**86.0**
Establish closed seasons for certain species	**115**	**89.1**
Protect juvenile fishes from being exploited	**115**	**89.1**
Establish fish sanctuaries	**110**	**85.3**
Ban some types of destructive gear	**91**	**70.5**
Heavy fines for those who fish without license	**81**	**62.8**
Limit the number of large boats	**52**	**40.3**
Limit the number of fish to be caught by fishers	**29**	**22.5**
Net mesh should be made wider	**23**	**17.8**
Limit the number of fishers	**18**	**14.0**
Fish trap mesh should be made wider	**18**	**14.0**

The respondents seem to have reversed their position on the introduction of harsher regulations that could curtail their activities abruptly and reduce their income earning opportunities. The last five items on the table presented here shows that these harsh measures are not preferred, in fact they are lowest in the choices of measures they would prefer to see in a Fisheries Management Plan for the Bahamas. The two positions should be revisited at the National Fisheries Conference and a reconciliation of the positions arrived at.

It is not surprising that they abhor the use of dynamite and poisons in fishing. The next interesting thing appearing at the top echelons of the table is a demonstration of their preference for relatively neutral measures such protection of habitats, juveniles, establishment of fish sanctuaries and closed seasons. They are already familiar with these measures, and know how to circumvent them.

4.5: The Role of Fishers in Fisheries Co-Management

As shown in the table that comes next, the fishers and stakeholders represented in this group of respondents have very high expectations of the role that fishers should play in the management of the fisheries.

TABLE 23: THE ROLE OF FISHERS IN FISHERIES MANAGEMENT

ROLES	FREQUENCY	PERCENTAGE
To be deeply involved	**121**	**93.8**
Turn in people fishing in no fishing areas	**102**	**79.1**
Turn in users of small mesh in traps and nets	**98**	**76.0**
Turn in unlicensed fishers	**82**	**63.6**
Play a leading role in management	**79**	**61.2**
Fishers to unite to manage fisheries	**69**	**53.5**

The preparedness of the fishers to be watchdogs over the violation of regulations by other fishers is a strong indicator of their readiness to assume the position of co-managers of the fisheries resources. However, fishers are always skeptical of their ability to present a united front in dealing with issues confronting them, and attempts should be made to promote unity among them by engaging fishers from different parts of the country or using different gears in fishing in working together to find solutions to their common problems.

Their interest in participating in the co-management of the fisheries is illustrated in the next table:

TABLE 24: CO-MANAGEMENT OF THE FISHERIES

FORM OF MANAGEMENT	FREQUENCY	PERCENTAGE
Government & Fishers	**96**	**74.4**
Government Alone	**21**	**16.3**
Fishers Alone	**5**	**3.9**
Government & Foreign Investors	**3**	**2.3**
Not Sure	**2**	**1.6**

It is clear that fishers are not interested in managing the national fisheries alone, but would wish to collaborate with the government in doing so. The Key Informants also chose co-management over the other models of governance. The concept of co-management should be further discussed and properly understood both at the National Fisheries Conference and by the National Dialogue Group.

5.0: CONCLUSIONS AND RECOMMENDATIONS

The main use of the findings of the multidisciplinary survey is to present the salient issues that were engendered by the survey to the stakeholders for thorough discussion. The forum for this exercise would be a National Fisheries Conference at which all the major stakeholders would be represented. In the case of the Bahamas, it would be useful to at least ensure that the seven main fishing islands included in the field work should be represented, either by the representatives of resident fisher folk organizations or some key informants from the fishing communities. It should also be ensured that those delegated are the true representatives of the organizations they are supposed to represent, and that some form of feedback mechanism is woven into the process.

Other stakeholders in the marketing, processing and management, surveillance and enforcement and administration areas could be selected from New Providence in order to reduce logistical costs in organizing the conference.

Issues that would demand further examination by stakeholders for the making of policy advisory to government would form the initial agendas for a proposed permanent National Dialogue Group made up of representatives of the same stakeholder groups that participated in the National Fisheries Conference.

The following are the major issues emanating from the analysis of the information garnered from the multidisciplinary survey:

ISSUE # 1: THE USE OF CASITAS

The popularity of Casitas or Condos, the artificial habitat constructed by crawfish fishers and lodged on the seabed to trap crawfish, has created pockets of overcrowding, with considerable negative effect on natural habitats, and conflict among fishers, including theft of other people's casitas or their contents. Their enormous efficiency in trapping the lobsters has boosted the annual landings of crawfish thus raising fears that the catch levels might be beyond the Maximum Sustainable Yield (MSY) of the fishery, and hence could threaten the future of the fishery. The National Fisheries Conference should have this issue on its agenda for in-depth discussion and produce policy recommendations for some form of control measures to be instituted.

ISSUE # 2: THE RADIO AS A MEANS OF INFORMATION DISSEMINATION

The Community Baseline Survey has shown that the TV and Radio are the main communication media easily accessible to fishers and other stakeholders in the fishing communities. The building of public awareness of issues relating to resource conservation and management, including the legal instruments governing these, could be facilitated by the use of these electronic devices for information dissemination to the general public. However, since the TV is relatively more costly to use for this purpose, its use should be limited to only flashes of critical messages. The National Fisheries Conference should deliberate on what kinds of radio programs would be suitable for the stakeholders in the fishing communities, their timing, their contents, and who the programmers would be. The department could then take it from there to develop the programs.

ISSUE # 3: IMPROVING SERVICES FOR THE FAMILY ISLANDS

The survey has shown that due to logistical problems the family islands in the south are deprived of some of the services rendered by the department. The National Fisheries Conference should make this a priority issue and device alternative means for improving the situation. If the human resource issue cannot be improved soon, a look can be made at utilizing available skills in the islands to obtain part time skills and provide the equipment and other resources for regular extension programs to be introduced in those islands, with occasional monitoring visits by technical experts in the department.

ISSUE # 4: STRUCTURING FISHERIES POLICY

Fishery policies should be geared towards finding solutions to the major biological, social and economic issues and problems facing the industry, and solutions to the problems besetting the resource users in their fishing operations. The National Fisheries Conference should review these issues, then revisit the policy areas listed in Tables 14 & 15 on pages 20-21 of this report, to produce a listing according to priorities for the Bahamas. It could be a valuable input into the development of a new Fisheries Management Plan for the Bahamas.

ISSUE # 5: FISHER FOLK ORGANIZATIONS AND AQUACULTURE

There is no doubt that there is enormous pressure on the inshore fisheries and unless something is done to relieve some of the pressure the fisheries might ultimately collapse. One of the long-term means of doing so is to find alternative means of income generation for the resource users. This could, not only improve their livelihood but could also cushion the harsh impact that more restrictive control measures could have on them, particularly the small-scale fishers. Additionally,

the resource user organizations could strengthen their organizations by diversifying their economic bases. The National Fisheries Conference could look into developing strategies in terms of planning and financing individual or joint ventures in the burgeoning sub-sector of Aquaculture. The National Dialogue Group could continue the strategizing process and produce a policy advisory for consideration by government.

The National Dialogue Group could in future explore the possibilities in fisher folk organizations becoming economically self-sufficient, and generating economic benefits for the generality of the membership. This could include gaining access to credit on easier terms for the organizations and for their members; investing in the processing and exporting business, aquaculture and other profit generating ventures, and encouraging the members also to diversify their economic bases. Organizations with solid economic bases and built-in incentive schemes, in which the benefits are perceived by the members to outweigh the costs, tend to be more stable and active.

ISSUE # 6: IMPROVING REPRESENTATION ON THE FAC

Whilst the Resource Users and other stakeholders in the fishing communities have confidence in the concept of Fisheries Advisory Committee, they have reservations about the representation process. They think that the process could be improved by increasing representation for the resource user groups, authorizing the organizations to elect their own representatives and building feedback mechanisms into the process. Indeed, some thought that the latter should be made mandatory. The National Fisheries Conference should examine this issue further and generate recommendations for its improvement.

ISSUE # 7: THE GOALS OF FISHERIES MANAGEMENT PLANNING

The Bahamas will soon be preparing a new Fisheries Management Plan that could be an improvement on the draft plan currently awaiting passage into law. The best approach to implementing this process is to ensure that the resource users and other close stakeholders are involved in the decisions making process right from the planning stage to the end when the plan would become a legal entity. The National Fisheries Conference should be a forum at which the stakeholders would have the opportunity to begin their input into the process. The policy items in Table 16 on page 28 should guide the deliberations on this issue.

ISSUE # 8: **EFFECTIVE SURVEILLANCE AND ENFORCEMENT**

Respondents to both the Key Informant Interviews and the Community Baseline Survey expressed dissatisfaction with the ineffectiveness of the surveillance and enforcement institutional

arrangements, and opine that unless the situation is improved, the fisheries would deteriorate further. There is good reason why the stakeholders should also have an input into how the situation can improve, including what role the resource user groups and other stakeholders in the fishing communities can play in the process. The National Fisheries Conference should review the existing system, its advantages and disadvantages, and how to improve it or replace it with an entirely differently constituted institutional arrangement. What would be the differing roles of the various groups involved? What factors could facilitate the effective participation of the fishers and the fishing communities?

ISSUE # 9: CONFLICTS AND CONFLICT RESOLUTION

Multiple Use conflict is at present one of the most expanding problems facing the fisheries in the region. This report has identified two general sources of conflict in the Bahamas. The first is the internally generated conflict between and among resource users with incompatible gears, differing goals, theft and piracy, overcrowding of users and clashes over space and increasingly, clashes between fishers and tourists. The second is the illegal intrusion of foreigners into the waters of the Bahamas from near-by countries and their utter disregard for the laws governing the fisheries and fishing practices in the Bahamas. The National Fisheries Conference, and perhaps subsequently, the National Dialogue Group, should review the situation and make policy recommendations, including who should be involved, how they should be involved, and what sanctions should apply. The stakeholders at the Conference should also consider the proposition that all the fisher folk organizations should make it a priority to include conflict resolution mechanisms in their organizations' constitutions. Second, processes should be set in motion for the formation of a national umbrella organization that will streamline the process and develop a national approach to the settlement of disputes. Third, the Fisheries Department should consider establishing standards and procedures for reducing Multiple Use conflicts to the minimum.

ISSUE # 10: INTRODUCING HARSHER MANAGEMENT MEASURES

Various stakeholders responding to questions posed on management measures that were in place in the Bahamas, tended to give the impression that there was more room for harsher measures to be instituted. Some wanted closed seasons periods to be extended further, others wanted the government to institute complete closure of some fisheries for more that 2 years, some wanted some gears that they consider to be destructive to be banned with immediate effect, others wanted the number of fishers, boats, nets to be curtailed. The question is whether they would in reality welcome such measures if the government actually attempted to introduce them. With the guidance of some of the measures listed in Table 22 on page 38 of this report, the issue should be revisited for the stakeholders to show where they stand.

ISSUE # 11: THE ROLE OF NGOs IN FISHERIES MANAGEMENT

From the findings of this survey, the Bahamas seems to have quite a number of NGOs operating in the marine resource conservation and management field, and the fishers and other stakeholders seemed to welcome the idea. The National Fisheries Conference could discuss the issue of the role of the NGOs in mobilization, education and awareness building and decide what expanded role they could play in facilitating the co-management of the resources, what the relations between them and the fisheries administration should be, and what the relations between them and the fisher folk organizations should be.

ISSUE #12: PROMOTING CO-MANAGEMENT IN THE BAHAMAS

The stakeholders dealt with in this survey overwhelmingly expressed support for the promotion of co-management and an expanded role for fishers and other stakeholders in the process. The concept of co-management has become popularized by the CFRAMP project in the participating CARICOM countries, but has fallen in danger of taking on a variety of meanings, depending on the specific agenda of the user at any particular time. The definition of the concept, the forms it could take, the specific political, geographical, environmental, socioeconomic conditions most suitable for it, the roles that the organized fishers, fishing communities, government and NGOs could play in the process, and ways of sustaining the system, should become the subject of intense examination, both at the fisheries conference and by the dialogue group.

Appendix I

Baseline Survey of Fisheries Divisions/Departments in ACP Countries
(Suriname, Bahamas, Dominican Republic & Haiti)

CARIFORUM PROJECT,

CARICOM FISHERIES UNIT, BELIZE

Belize City, Belize C.A.

The Fisheries Component of The European Union (EU) financed Integrated Caribbean Regional Agriculture and Fisheries Development Program (ICRAFD)

- ☐ Director of Fisheries/Chief Fisheries Officer
- ☐ Senior Fisheries Officer
- ☐ Other (specify)……...

Country: ……..

Location: ……..…….

Interviewer: ……..

Date of Interview: ……..……

GENERAL OVERVIEW OF THE NATIONAL FISHERY

(Objective: The purpose of this section is to obtain a general overview of the size and importance of the fisheries of this country**)**

1) Approximately, how many fishermen operate in this country?

   a. How many are registered or licensed?……
   b. How many are full time fishers?…….
   c. How many are part time fishers?……
   d. How many are recreational fishers?……...

2. Approximately, how many fishing boats are there in this country?

   a. How many are commercial boats?……
   b. How many are recreational?…….

3. What is the approximate annual total weight of

   a. The catch?…….
   b. The landings?……...
   c. Discards?……..

4. What is the value of the landings?……..

5. What is the **quantity** of fish exported annually?…….

6. What is the **value** of fish exported annually?……..

7. How much fish is imported annually:

   (i) In weight?…….
   (ii) In value?……...

8. How do fish and fish products rank in the annual GDP of your country?……...
   …….

SECTION 2

LEGISLATION, REGULATIONS AND ENFORCEMENT

(Objective: The purpose of this sub- section is to determine the current status of the legislative and regulatory framework governing fisheries in this country**)**

9. What act or acts provide legislative authority over fisheries in this country?……

……

10. When did the legislation(s) come into force?……..…

11. Does the legislation authorize preparation and implementation of fisheries management plans? □ Yes □ No

12. When were the most recent fisheries management regulations passed?……

13. Under whose authority are fisheries regulations passed?…….

……..

MONITORING, SURVEILLANCE AND ENFORCEMENT

(**Objective**: The purpose of this sub-section is to determine the current capacity for monitoring, controlling and effecting surveillance within the national sea space and the extent to which fisheries regulations are enforced)

14. What method is used to bring regulations to the attention of fishermen and other stakeholders in the fishing industry?……...

……

……

15. Are monitoring and surveillance of the fisheries regularly carried out?

□ Yes □ No

16. Which organization is responsible for fisheries surveillance and enforcement?

……

17. Describe how the surveillance operations are carried out……..
……
……
……

18. How frequently are patrols conducted?……..
……

19. How many persons in your department are involved in fisheries surveillance and enforcement – on a :
    a. full time basis? …….
    b. part time basis?…….

20. Are all fisheries management regulations enforced?
    □ Yes □ No
    If no, why?……
    ……...

21. Which regulations are seen as the most important?……
……
……..

22. What actions are taken when violation of regulations are discovered?……..
……

23. Are these actions sufficient to discourage further infractions?
    □ Yes □ No

24. What do you think are the main constraints to monitoring, controlling and effecting surveillance in your country?…….……..

25. What should be done to improve monitoring, surveillance and enforcement of fisheries regulations? ……..

……...….

……

SECTION 3

STATUS OF FISHERIES MANAGEMENT

(Objective: The aim of this section is to better understand how fisheries are managed, how fisheries management plans are formulated and implemented and how the fisheries change as a result of management intervention**)**

1. What is/are the main goal(s) of fisheries management in your country?

			If yes, what is the order of priority? (e.g. 1,2,3 etc with 1 indicating the highest priority)
Fisheries development	□ Yes	□ No	……
Food self-sufficiency	□ Yes	□ No	……
Full employment	□ Yes	□ No	……
Sustainable management	□ Yes	□ No	……
Social stability	□ Yes	□ No	……
Foreign exchange earnings	□ Yes	□ No	……
Environmental protection	□ Yes	□ No	……

2. What management measures are now in place to regulate the fisheries?

   ……

   ……

   ……

3. Do you have a fishery management plan? □ Yes □ No

4. If yes, when was the most recent plan:
   a. prepared ?……..
   b. introduced?……
   c. updated?……..…..

5. What are the objectives of the current plan?…….……...

6. Were fishers and other stakeholders involved in the preparation process?

□ Yes □ No

7.What aspects of the fisheries or species does the plan focus on?……

8. Was the plan developed as part of a fisheries project funded by an external agency? □ Yes □ No

If yes, what organization provided the funds, and how much funding did it provide?……

9. If you had to prepare another plan, what would you do differently?……..…

10. If you do not have a management plan, please explain why?…….

11. In the absence of a formal plan, how are management measures developed and implemented?

……..…….

SECTION 4

STRUCTURE AND FUNCTIONS OF THE FISHERIES DEPARTMENT

(**Objective**: To gain some insight into the structure and operation of the fisheries departments of CARICOM members. The main aspects of interest are organizational arrangements, staffing levels and training.)

1. Describe the place of your department in the government structure……...

……

2. To whom does the head of your department report?……...

3. What has been the annual employment level of the department for the past five years?

4. Which positions are the most difficult to fill with qualified personnel?…….

5.Which of these vacant positions are regarded as critical for your operations?……

Give reasons

6. How is the functioning of the department affected by these vacancies?……..

……

7.What steps are being taken to recruit or train personnel to fill vacant positions?……

……..…

8,Are there any sources of funding available for training staff? □ Yes □ No

9. If yes, specify.

10.Which subject areas have the greatest need for training?

			If yes, what is the order of priority? (e.g. 1,2,3 etc)
Fisheries resource conservation and management	□ Yes	□ No	……..
Post-harvest knowledge and skills	□ Yes	□ No	……..
Community participation and public education	□ Yes	□ No	……..
Data management	□ Yes	□ No	……..
Fisheries research	□ Yes	□ No	……..
Fisheries statistical analysis	□ Yes	□ No	…….
Environmental protection	□ Yes	□ No	…….

11.What are the priority sector areas to which scarce resources should be applied in the future?

					If yes, what is the order of priority? (e.g. 1,2,3 etc)
Fisheries data management	□	Yes	□	No	
Stock assessment	□	Yes	□	No	
Fisheries technology	□	Yes	□	No	
Community Participation & Public Education	□	Yes	□	No	
Surveillance, Monitoring & Enforcement	□	Yes	□	No	
Habitat Protection	□	Yes	□	No	
Fisheries co-management	□	Yes	□	No	
Institutional Strengthening / training					
Fisheries Administration					
Other (specify)……..					

11.What information and reports does your staff routinely prepare?……

12. What are the major problems affecting the operations of the department?……

13. What recommendations would you make to improve effectiveness and efficiency of your department?

SECTION 5

EXTENSION PROGRAMS

(Objective: The purpose of this section is to gain some insight into the nature and extent of fisheries extension services delivered by the fisheries department**)**

1. Does your department have an extension program or offer extension services?

□ Yes □ No

2. If yes, how long has the program or services been in existence?……..

3. Does the program flow from a national policy or management plan, or a fisheries project, or are services offered on an ad hoc basis?

4. What are the main objectives of your extension program?

5.. Are these being achieved? □ Yes □ No

If not, why?

6.. To which section(s) of the fishing industry are extension services provided?…….

7. What services are delivered?

8. Which services are considered to be the most important?……

9. What methods are used in delivering the services?

- □ Radio
- □ Television
- □ Posters/handouts/brochures
- □ Community meetings
- □ Videos/Slides
- □ Face-to-Face interactions
- □ Group discussions
- □ Environmental protection
- □ Newspapers

Other (specify)……..

10. How many of your staff is involved in extension work?

11. What percentage is this, of your total staff?……

12, Are all the extension positions filled? □ Yes □ No

13. If not, what percentage is vacant?……...

14. What training has your extension staff received?…….

15. What further training is required?……..…...

16,. What are the major constraints to offering extension programs/services?……

.

17. How do you deal with these constraints?

……..

SECTION 6

DEPARTMENT'S RELATIONS WITH RESOURCE USER ORGANIZATIONS

(**Objective**: This section examine the working relationships between the fisheries department, representing government interests in the fisheries and the resource user groups, who are the main stakeholders**)**

1. Are there any fisher folk organizations in your country? If yes, how many?

   □ Yes □ No

   If yes, how many?

2. Are they well organized?

   Yes □ No

3. Do they effectively represent fishers?

   □ Yes □ No

4. Does the fisheries department have regular meetings with the organizations?

   □ Yes □ No

5. What are the objectives of these meetings?…….

6. How often do you hold meetings?

7. What topics are generally discussed at these meetings?……

8. Could you cite any specific examples where the interaction with fishers' organizations has led to improvements in the fisheries?

9. Does your department involve fishers' organizations in making decisions effecting changes in the industry?

   □ Yes □ No

10. If yes, explain the process through which this is done……

11. If fishers' organizations support the activities of your department, are there

    i. particular areas of activity they support?

    □ Yes □ No

12. Are there any areas they do not support? □ Yes □ No

If yes, which areas?

13. How would you describe the working relations between your department and the fishers' organizations?

- □ very poor
- □ Poor
- □ barely cordial
- □ Cordial
- □ very cordial
- □ Excellent

What, if anything, needs to be done to improve the relations between your department and fishers' organizations?

SECTION 7

FISHERIES RESEARCH

(Objective: The aim of this section is to determine the existing capacity, the past and the present records of fisheries research in the country)

General Research

a. Does fisheries research fall within the mandate of your department?

□ Yes □ No

b. What has been the main focus of the fishery research conducted in your country over the past five years?

c. Has there been an increase or decrease in fisheries research over the past five years?

- □ Increase
- □ Decrease
- □ no change

d. What factors account for the change?……...

What are the main sources of funding?……

d. What are the main constraints?
e. What aspects of fisheries management would benefit most from fisheries research in your country?

Research Capacity

f. What resource does your department have to support fisheries research?……..

f. What resources are needed for promoting fisheries research?……
g. Has your department received external funding for fisheries research projects in the past five years?
h. If yes, specify donor, amount received and focus of the research…….

Section 8

Marine Protected Areas/Essential Fish Habitat

(*The purpose of this section is to have a better understanding of the actual status of the MPAs and "no-take reserves" in The Bahamas as well as to get some information about research conducted in those areas*)

1.How many Marine Protected Areas (MPAs) do you have in your country? Please, list them.
2. Was the Fisheries Department in your country involved with the following:
   a) design of MPAs?

      11. Yes
      12. No

   b) management of MPAs?

      13. Yes
      14. No

   If no, who is responsible for the management of the MPAs in your country?

3.How many of these MPAs are "no-take" reserves? Please, list them.

4.Is the Fisheries Department in your country involved with the following:

a) design of "no-take" reserves?

15. Yes
16. No

b) management of "no-take" reserves?

17. Yes
18. No

If no, who is involved in the management of the "no-take" reserves?

5.What of the following criteria were taken into account in choosing those "no-take" reserves areas?

Socioeconomic criteria	Ecological criteria
9. Fishing impact	9. Habitat diversity
10. Community management	10. Regional importance
11. Community benefits	11. Other
12. Other	

6. To what extend did the fishers accept the establishment of no-take reserves in areas where they have or had their fishing grounds?

7. Are there specific measures to regulate the fisheries in no-take reserves? If yes, what are those measures?

8. Regarding "no-take" reserves", were the fishermen and other users involved in the:

i. Design?

Yes No

i. Are they involved in management?

9. Are there plans to create new no-take reserves or to expand or modify the existing ones in your country?

9. Yes 9. No

If yes, please, specify.

10.Are there specific projects designed to asses the success of no-take reserves as fisheries management tools?

9. Yes 9. No

If yes, please, specify.

11.Has any other research been implemented in the areas where no-take reserves have been established in your country?

9. Yes 9. No

If yes, please, list them

12. Has your department (or any other organization) been designing or implementing any project regarding the status of essential fish habitats in your country?

9. Yes 9. No

If yes, please explain

SECTION 9

DATA COLLECTION

(Objective: The purpose of this section is to develop an understanding of the current status of data collection systems in your country. Of interest are data collection, analysis and reporting. **)**

1. Does your department collect fisheries data? □ Yes □ No

If yes, in what year did **routine data** collection begin? ……

b) how often do you collect data?……..…

2. Why do you collect fisheries data?

…….

3. What factors are taken into consideration in deciding what data to collect?……..

4. Where are data collected?

- □ in boats
- □ at landing sites
- □ in the market
- □ in hotels/restaurants
- □ at the Co-operatives
- □ Other (specify)……...

5. What collection instruments are used :
(***Tick all options that apply***)

- □ logbook

questionnaire

- □ routinely
- □ census
- □ sample survey
- □ observers

form

- □ routinely
- □ census
- □ sample survey
- □ observers
- □ visual survey

- □ receipts
- □ Other (specify)……..…..

6. What data elements do you record for?

Catch

- □ Species
- □ Weight
- □ Other (specify)……

Effort

- □ Number of fishermen
- □ Number of boats
- □ Boat size capacity
- □

□ Other
(specify)……

Gear

□ Type
□ Numbers
□ Dimension
□ Non –bait
□ Other
(specify)……
□ Size
□ Soak time
□ Bait
□

Biological Data

□ length frequency
□ maturity
□ Other
(specify)……
□ weight frequency
□ hard parts

□ **9. Cost & Price**
□ **10. Exports & Imports**
□ **Other**
(Specify)……..……..

7. List the person(s) –e.g. extension officers :

a. assigned to collect data in the field?

b. assist in data collection in the field?

……

8. How many persons are :

a. assigned to collect data in the field?……

b. assist in data collection in the field?……

9. Do persons assigned to collect data have other departmental responsibilities?

□ Yes □ No

If yes, what other responsibilities? ……

……

……

10. How co-operative are fishers in providing data?

- □ always cooperative
- □ most times cooperative
- □ sometimes cooperative
- □ never cooperative

11. Has the data collection system changed over the past five years in terms of the:

			Explain
9. type of data collected?	□ Yes	□ No	……..…… ……
10. coverage of collection?	□ Yes	□ No	……..… ……
11. method of collection?	□ Yes	□ No	……..…… …….....
12. frequency of collection?	□ Yes	□ No	……..…… ……..…….....

12. Is the data management system computerized?

□ Yes □ No

13. Which operating system is currently running on the computer(s)?

- □ DOS
- □ Windows 3.1
- □ Windows 95
- □ Windows 98
- □ Windows NT 4.0 Workstation
- □ Windows NT 4.0 Server
- □ Windows Professional 2000
- □ Linux

14. What software application(s) (eg Microsoft Word, Excel, Dbase) do currently have on your computer(s)?……

15. What are the problems involved in using the computerized system?

16.. Are there other organization(s) involved in:

Name of the Organisation

i. data collection □ Yes □ No …….

ii. fisheries statistical analysis □ Yes □ No ……..

iii. fisheries reports/summary tables □ Yes □ No ……..

.

17. If yes, what type(s) of:

a. data do they collect?……

b. reports do they produce?…….

18. What information products (eg. annual production tables, reports, etc) are produced from the data collected by your department?……

19. For whom are these products produced (e.g. external organizations such as the FAO, the national fisheries division etc.):

……

20. Does the department receive any feedback on the adequacy of the statistics/reports from users?

□ Yes □ No

If yes, from whom?

21. What are the main gaps (e.g. no data collected in 1993) in your data collection system?

……

22. What additional data elements (e.g. length frequency) should be collected?

23. How are decisions made about the data collection system? ……

24. Who participate in the decision making process?……..

25.. List any current problem(s) in the area of :

a.data collection ……
……..
……
……..

b.data analysis ……
…….
……
…….

c.Reporting ……
……

SECTION 10

AQUACULTURE

1. Is aquaculture development one of the sub-sectors of the fishing industry?

 Yes No

2. Approximately how many aquaculture establishments are there?……

3. What is the annual total value of aquaculture products?……

4. What is the annual export value of aquaculture products?……

5. Are there plans to expand this sub-sector in the future? Yes No

6. If so, what are the plans?

 ……

7. What resources will be needed for this expansion?

8. Do you have an aquaculture unit in your department? □ Yes □ No

9. How many officer serve in this unit?

10. How many more will need to be trained to serve in this unit?

SECTION 11

ORNAMENTAL FISHERY

1. Is ornamental fishery one of the sub-sectors of the fishing industry?

□ Yes □ No

If yes, which areas of the country are noted for this fishery?……..

2. Approximately how many persons are involved?

3. What are the species of fish involved

4. What is the annual total value of this industry?

5. What is the annual export value?

6. What resources will be needed for this purpose?

7. Is there a management plan for this fishery?

SECTION 11

ORNAMENTAL FISHERY

1. Is this fishery regulated?

□ Yes 0 No

If yes, what are the regulations?

……...

2. Are there plans to expand this sub-sector?

□ Yes □ No

If yes, what are the plans?

SECTION 12
POST HARVEST TECHNOLOGY

1.What regulations exist for the handling of captured fish?

2.Are these required standards backed by law? □ Yes □ No

3.Are the laws enforced? □ Yes □ No

4.Is/Are there persons in your department who have been trained in HACCP?

□ Yes □ No

5.Are there fishers who have been trained in HACCP? □ Yes □ No

6.. Is there any national strategy for marketing fish and fish products?

□ Yes □ No

6. Are there any fish processing plants in your country? □ Yes □ No

7. How many are there? who owns them?

…….

8. Do fishers' organizations have some control over fish processing?

□ Yes □ No

9. If yes, explain

……

10. What role does the department play in the handling, processing and marketing of fish and fish products?……

……

11. Would there be any need for training persons in the department in this area?

□ Yes □ No

Appendix II

Key Informant Interviews in ACP Countries
(Qualitative Assessment of Caribbean Fisheries Management)

(Suriname, Dominican Republic, Bahamas and Haiti)

CARIFORUM PROJECT,

CARICOM FISHERIES UNIT, BELIZE

Belize City, Belize C.A.

The Fisheries Component of The European Union (EU) financed Integrated Caribbean Regional Agriculture and Fisheries Development Program (ICRAFD)

Please tick as appropriate for Respondent

- □ Fisher (Member of Organization)
- □ Fisher (Non-member of Organization)
- □ Community Leader/ Stakeholder
- □ Fisheries Administrator/Senior Fisheries Officer
- □ Academia (University)
- □ Fisheries Officer (Extension /Field)
- □ Political Leader (Local, Regional)
- □ Senior Bureaucrat (Agriculture/Fisheries)
- □ NGO Representative (Fisheries, Marine Environment)

Country……

Location……

Interviewer……

Date of Interview……

1. What are the main fisheries management issues/problems in your
   a) Community? ……
   ……

   b) Country? ……..……
   ……

2. What is the level of community awareness of these issues in your
   a) Community? ……
   ……

   b) Country? ……..……
   ……

3. What is being done, at the community level, to respond to these issues/problems?
   ……
   ……
   ……
   ……

4. What (more) do you think could be done to respond to these issues/problems?
   a) At the local level? ……
   ……

   b) At the national level? ……..……
   .....

5. What are the current institutional arrangements (laws, rules, regulations & organizations) to deal with fisheries management issues?
   a) In your community? ……
   ……

   b) In your country? ……..……
   ……

6. What specific arrangements exist to facilitate community participation in fisheries in your country?
   ……
   ……
   ……..……

7. Do you feel provisions should be made for (increased) community participation in fisheries management? □ Yes □ No

   If yes, what should these be?……..…

8. Do fishers in your communities positively or negatively respond to the management initiatives of government agencies? □ Yes □ No

   Why?…….
   ……..……..…….
   ……

9. Are there any laws/regulations that you would wish could be introduced in fishing in your country? ……

   If yes, what are these?

……
……
……..
……

10. Who do you think should manage the fisheries in your community/country?

- □ Government alone
- □ Fishermen alone
- □ Government and fishermen as partners
- □ Other, (specify)…….

Appendix III

Questionnaire on Current Data Collection Issues
in the ACP Countries
(Suriname, Dominican Republic, Bahamas and Haiti)

CARIFORUM PROJECT,

CARICOM FISHERIES UNIT, BELIZE
Belize City, Belize C.A.

The Fisheries Component of The European Union (EU) financed Integrated Caribbean Regional Agriculture and Fisheries Development Program (ICRAFD)

Country……..……..……
Name of Organisation……..……..
Location of the Organisation…….……..……
Interviewer…….……..……
Date of Interview…….……

Questionnaire on Current Data Collection Issues

Question 1

General

Please tick where applicable

Please list the data collection locations in your country	Is Biological Data Collected at this location?		Is Catch and Effort Data Collected at this location?		Are there conflicts /Problems at this location?		Is there need for immediate attention?	
	Yes	No	Yes	No	Yes	No	Yes	No
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐

Question 2

Nature of Problems/Conflicts

Please tick as appropriate

Problem Issues	In Relation to Biological Data		In Relation to Catch and Effort Data	
	Yes	No	Yes	No
Providing estimate of catch data	☐	☐	☐	☐
Handling of unsold fish for maturity data	☐	☐	☐	☐

Cutting of unsold fish for maturity data	□	□	□	□
Reluctance/refusal to provide effort data	□	□	□	□
None payment for fish handled	□	□	□	□
Total absence of cooperation	□	□	□	□

Other, specify:……..

Question 3

Source of Problems/Conflicts

Indicate which group(s) cause(s) the most problem

		Explain
□	**Vendors**	……..…
□	Fishers	……..……
□	Boat owners	……..…
□	Captains	……..……
□	Other (specify)……..	

Question 4
The Human Effort Base

Please tick as appropriate

Human Resource Problems/Issues	**Yes**	**No**
Shortage of staff for data collection	□	□
Lack of effective supervision of data collectors	□	□
Problems with payments of salaries	□	□
No concerted effort by department/division	□	□
Poor conditions of work	□	□
Lack of effort by data collectors	□	□
Lack of effort by extension officer(s)	□	□

Insufficient training of data collectors	□	□
Inexperience of data collectors	□	□
Fishers not convinced that the program will benefit them	□	□
Lack of equipment and transportation	□	□

Other, please specify……...

Appendix IV

Questionnaire for Fishers' Organizations
in the ACP Countries

(Suriname, Dominican Republic, Bahamas and Haiti)

CARIFORUM PROJECT,

CARICOM FISHERIES UNIT, BELIZE

Belize City, Belize C.A.

The Fisheries Component of The European Union (EU) financed Integrated Caribbean Regional Agriculture and Fisheries Development Program (ICRAFD

Country……

Name of Organisation……..

Location of the Organisation……

Interviewer……

Date of Interview……

Section 1
Structure and Functions

Please tick all statements that apply to the organization.

1.1 Reasons for the formation of the organization.

- ☐ To provide services (give examples….) in the community
- ☐ To gain access to credit facilities
- ☐ To create employment in the community
- ☐ To gain access to fishery resources
- ☐ To have a better say in the decision making
- ☐ To obtain subsidies from government
- ☐ To do group business with little or no investment
- ☐ To stimulate the local economy
- ☐ To participate in the better management of the fisheries stock
- ☐ To make contact with the national fisheries authorities easier
- ☐ Any other
  (specify)…….

1.2 **Type of Organization:**

- ☐ **Marketing or producer type**: to harvest and/or distribute and market fish and fish products, including processing and storage
- ☐ **Consumer or Supply type**: to supply members with various types of merchandise, including fishing gear and vessel parts, which are in short supply or too costly to buy in the open market place.
- ☐ Credit or Financial type: to pool savings together for mutual aid eg. credit union, with minimal rate of interest.
- ☐ Service type: to offer cultural and social facilities which do not exist in the community eg. housing, funeral expenses, day care facility etc.

- **Lobby or Pressure Group type**: to represent the interest of members to government and other formal organizations.
- Any other
  (specify)…….

1.3 Characteristics of the Organization:

- **Active**: operates continually throughout the year.
- **Dormant:** comes alive only in times of crisis or in emergencies
- Voluntary membership
- **Equal distribution of benefits**
- Restriction in membership exists (provide a brief explanation…….
  ……..…
  ……
- Cooperation exists within the group
- There is cooperation with other sister organizations
- Leaders determine who gets/says what
- Any other
  (specify)…….

1.4 Membership and Leadership Structures:

How many members has your organization? ……..
How many are boat owners? ……..
How many are women? ……..
How many are fishers/boat owners/fisheries crew ……
How many are non-fishers? ……..

The Executive

How many members serve on the executive? ……
On the executive how many are boat owners? ……
.

How many women are on the executive? ……
.

How many non-fishers are on the executive? ……
..

Democratic Practices

1.5 How long has the present executive been in office?

- □ Less than a year
- □ One year
- □ Two years
- □ Three years
- □ Four years
- □ More than four years

How long did the previous executive stay in office?

- □ Less than a year
- □ One year
- □ Two years
- □ Three years
- □ Four years
- □ More than four years

1.6 Operations of the Organization

……..
How many statutory meetings are held in a year?

How would you describe the rate of attendance at meetings?

- □ Very high
- □ High
- □ Reasonable
- □ Low
- □ Very low

On which day(s) of the week are meeting usually held?

- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

During which times of the day are meetings usually held?

- Early morning
- Afternoon
- Evening

How often is election of office bearers held?

- Once in 1 year
- 2 years
- 3 years
- 4 years
- 5 years

Section 2

The executive of your organization and the general membership? ……..

Your organization and the community at large? ……..

Your organization and other fishers' organization in the area in which your members operate? ……..

Your organization and the fisheries department officials? ……

Your organization and the government? ……

2.2 Does your organization find it easy in presenting matters of concern to your members to Ministry/Fisheries officials?

Yes No

2.2.1 If yes, how often do you get feedback?

- ☐ Regularly
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

2.3 Does your Organisation have easy access to information from fisheries department?

☐ Yes ☐ No

2.4 How would you describe the existing nature of fishers' organization participation in fisheries management?

- ☐ Informed of decisions already made by government alone
- ☐ Responds to consultation at a late stage before final decisions are made
- ☐ Operates in partnership with fisheries officials in management
- ☐ Operates in partnership with fisheries officials in management
- ☐ Government has delegated certain powers to us in management of the fisheries
- ☐ Fishers organizations, including our own, are in complete control of management

Section 3

Condition of the Fisheries

3.1 Over the last 5 years what changes (if any) has your organization observed on the following:

The volume of the catches

- ☐ Increasing
- ☐ Decreasing
- ☐ Remained steady

5The weight of individual fishes caught

- ☐ Increasing
- ☐ Decreasing
- ☐ Remained steady

5The size of the fishes caught

- ☐ Increasing
- ☐ Decreasing
- ☐ Remained steady

5The number of fishery ground

- ☐ Increasing
- ☐ Decreasing
- ☐ Remained steady

5The population of fishes in the fishing grounds

- ☐ Increasing
- ☐ Decreasing
- ☐ Remained steady

3.2 List/Outline the problems in the condition of the fisheries in your area of operation which need to be addressed.

……
……
……
……

3.3 List/Outline the specific measures which need to be taken to improve the situation.

……
……
……
……
……
……

3.4 List/Outline your organization's views, based on the existing conditions, on the future of the fisheries in your area.

……
……

Section 4

Fishery Management

4.1 What form of fisheries management would your organization prefer?

- □ By government only
- □ By government and fishers' organization
- □ By fishers' organization alone

4.2 Under a joint management system it has been suggested that fishers' organizations would be required or expected to:

5	Provide information to fisheries officers on conditions in the fisheries	Would your organization like to participate? □ Yes □ No
6	Assist in the self-policing of fisheries including turning in violators even from their own organizations and communities	Would your organization like to participate? □ Yes □ No
7	Serve as surveillance agents in keeping track of foreign fishing fleet activities	Would your organization like to participate? □ Yes □ No

4.3 Does your organization have the personnel and resources to do these things?

□ Yes □ No

4.4 If not, list the resources your organization needs in order to be able to do these things very well?

……

Section 5

Needs Assessment

5.1 List/Outline the major problems facing fishers' organization like your own.

……

……

……

……

……

5.2 List in order of priority from the highest downwards the resources your organization needs to enable it to function more effectively

5.3 List/Outline in order of priority, from the most urgent/important, projects which need to be implemented in your area of operation in order to you're your organization become more effective..

……
……
……
……
……

5.4 Do you see any need for members of your organization to undergo some training program(s) in the near future?

□ Yes □ No

5.4.1 If yes, define the subject area(s) for the training program.

……
……
……
……

5.5 Do extension officers operate in your communities?

□ Yes □ No

5.5.1 If yes, list some of the activities they have been carrying out?

……
……

Appendix V

Baseline Survey of Fishing Communities in the ACP Countries
(Suriname, Dominican Republic, Bahamas and Haiti)

CARIFORUM Project,

CARICOM Fisheries Unit
Belize City, Belize, C.A.

The Fisheries Component of The European Union (EU) financed Integrated Caribbean Regional Agriculture and Fisheries Development Program (ICRAFD)

Fisher	□	**Vendor**	□	**Processor** □
Boat Owner	□	Captain	□	Other …….

Country……
Location……
Interviewer……
Date of Interview……

Section 1

Current Resource Management Practices

(Fishers/boat owners only)

Please tick where applicable….

1. Do you fish from a boat?

   □ Yes □ No

2. Do you own your boat?

   □ Yes □ No

If yes, how many?……

3. How is the main boat you fish from powered?

   No boat □
   Engine only (inboard engine) □
   Engine and oars (outboard engine) □

4. Approximate length of boat (state units)

   boat one …… □ meters □ feet & inches
   boat two …… □ meters □ feet & inches
   boat three …… □ meters □ feet & inches
   If more than twelve boats insert the information overleaf.

5. What word best describes your type of boat?

   Skiff □ Boston whaler □
   Dinghy □ Inflatable boat □
   Speed boat □ □
   Other, specify……

6. What describes your status in the fishing industry?

   Boat owner and captain □

Boat owner, but not captain	□
Boat owner, but does not fish	□
Boat captain, but not owner	□
Crew, receiving a share	□
Crew, receiving a salary	□
Crew, not receiving salary	□

Other, specify……

7. How many persons fish with you:

Regularly……..

Occasionally…….

8. Which of the following fishing gear do you use?

Fish trap	□	Mesh size	□
Deep Water Fishing Reel	□	Hook & line	□
Beach seine	□	Lobster trap	□
Gill net (drift net)	□	Cast net	□
Spear gun (Hooka)	□	Artificial Habitat Condo	□
Spear gun (free)	□	Stone Crab Trapp	□
Free dive (no scuba)	□	Purse seine	□
Hooka (no spear gun)	□	Hook or Loop (for lobster)	□

Other, specify …….

9a. Is there any fishing gear you now use that you did not use five years ago?

□ Yes □ No

If yes, which? ……..

9b. Is/Are there any fishing gear you used five years ago that you now do not use?

□ Yes □ No

If yes, which?……..

10. Which of these do you catch on a regular or seasonal basis?

Finfish	□
Sharks	□
Nassau Grouper	□
Other Grouper	□
Snappers	□
Lobster	□
Deep Water Snapper	□
Conch	□

Jacks □
Grunts □
Turtles □
Stone Crab □
Hind □
Blue Crab □
Queen Triggerfish □
Porgies □
Barracuda □
Bonefish □
Dolphin □
Mackerel □
Tuna □
Wahoo □
Kingfish □
Other, specify……..

11. Which of the above is your main catch? ……..

12. If you catch finfish, which of the following do you catch on a regular or seasonal basis?

Shark □
Snappers, groupers and hinds □
Tunas and billfishes □
Kingfish (mackerel, wahoo) and dolphin fish □
Coastal pelagics □
Reef fish □
Other, specify……..

13. Are you a member of a fishing cooperative ?

□ Yes □ No

14. If yes, please name it. …….

15. If yes, what services does your co-operative provide?

Marketing □
Fishing equipment sales □
Credit (loans) □
Education and training □
Duty-free gasoline □
Lobby government □
Other, specify……..

16. Which of the following devices do you use?

(Please tick as applicable)		**Purpose**	**How often used?**
☐	VHF	……	……
☐	SSB Radio	……	……
☐	Radar	……	……..…
☐	Depth Finder	……	……
☐	Loran	……	……
☐	GPS	……	……
☐	Differential GPS	……	……
☐	Other (specify)……		

Section 2

Current Resource Management Practices

1. To whom, do you mainly sell your fish? (***Tick all that apply***)

Co-operative	□	Government marketing company	□
Fish vendors	□	Private marketing company (local)	□
The public	□	Private marketing company (export)	□
Hotels	□	Public institutions (e.g. hospitals)	□
Restaurants	□		

Other, specify. …….

2. Where do you sell your fish? (***Tick all that apply***)

On the beach, dock	□
In the market	□
On the roadside	□
Take to customer	□

Other, specify……..

3. When fishermen from this location fish, do they have a particular area in which to fish or can they fish anywhere in the sea in your country?

Particular area	□
Can fish anywhere	□

If particular area, do fishermen defend this territory against encroachment by outsiders?

□ Yes □ No

4, Do you know of any conflicts between fishers and any other resource using groups?

□ Yes □ No

If yes, which groups? ……
……

What kind of conflicts? ……
……

How are they resolved? ……
……

5.Do you know of any conflicts between fishers?

□ Yes □ No

If yes, what kind of conflicts?

……..

…….

If yes, how did this come about? ……

……..

If yes, how do fishermen resolve these conflicts? ……...

……

6. Are there other things that fishermen do to protect the fish, conch and lobster and allow them to breed or rest? (***N.B. not the official closed season, if any***)

□ Yes □ No

What?

Seasons during which they avoid fishing	□	Yes	□	No
Areas where they avoid fishing	□	Yes	□	No
Size of type of fish which they do not catch	□	Yes	□	No
Catch and Release because of size	□	Yes	□	No
Build artificial reefs and shelters	□	Yes	□	No
Type of gear which they do not use	□	Yes	□	No

Other, specify ……...

Section 3

Perception of issues, needs, and Priorities

Fish

1. Are you **concerned** about the **population** of fish in the sea?

□ Yes □ No

2. Over the last five years has the average fish catch weight per trip,

Decreased?	□
No change	□

If decreased, what do you think is the reason that the catch **weight** has decreased?

……..

……..

3. Over the last five years has the average fish catch **size**

Decreased?	□
No change	□

If decreased, what do you think is the reason that the catch **size** has decreased?
……..
……..

4. Over the last five years have the kinds of fish caught in this area greatly changed?

Greatly changed	□
Slightly changed	□
No change	□

If changed, what do you think is the reason that the catch **composition** has changed?
……..
……..

5. Over the last five years has the location of fish changed?

Changed	□
No change	□

If changed, in what way has the location of the fish changed?
……..
……..
If changed, what do you think is the reason that the fish location has changed?
……..
……..

6. Are there fishing grounds that you know of which used to have a lot of fish, but which now have few fish?
□ Yes □ No

If yes, where?
……

7. What do you think can be done to improve the fish catch?……..…

Lobsters

8. Are you **concerned** about the **population** of lobster in the sea?

   □ Yes □ No

9. In the last five years has the average lobster catch **weight:**

   Decreased □
   No change □

   If decreased, what do you think is the reason that the catch **weight** has decreased?
   ……..
   ……..

10. In the last five years has the average **size** of each lobster:

    Decreased □
    No change □

    If decreased, what do you think is the reason that the catch **size** has decreased?
    ……..
    ……..

11. Over the last five years has the location of the lobster caught changed?

    Changed □
    No change □

    If changed, how has the location changed? ..……..
    ……..

    If changed, what do you think is the reason that the lobster location has changed?
    ..……..……..
    ……..

12. Are there lobstering grounds that you know of which used to have a lots of lobsters, but which now have few lobsters ?

    □ Yes □ No

    If yes, where? ……..……..…

……..

13. What do you think can be done to improve the lobster catch?……..…

……...

Conch

14. Are you **concerned** about the **population** of conch in the sea?

□ Yes □ No

15. In the last five years has the average conch catch **weight:**

Decreased? □
No change □

If decreased, what do you think is the reason that the catch **weight** has decreased?

……..
……..

16. In the last five years has the average **size** of each conch:

Decreased? □
No change □

If decreased, what do you think is the reason that the catch **size** has decreased?

……..
……..

17. Over the last five years has the location of the conch caught changed?

Changed? □
No change □

If changed, how has the location changed? ..……..
……..

If changed, what do you think is the reason that the conch location has changed?

..……..……..
……..

18. Are there conch grounds that you know of which used to have a lots of conch, but which now have few conch?

□ Yes □ No

If yes, where? ……..……
……..

19. What do you think can be done to improve the conch catch?……..…
……...

---

20. Do you think it is possible for human beings to abuse the sea and cause it to produce less ?

□ Yes □ No

21. If you feel that less fish are being caught, some people believe that the amount of fish caught is decreasing because of problems with the fish, some believe that it is because of problems with the fishermen. What do you believe?

Fish	□
Fishers	□
Both	□
Neither	□

22. Which of the following do you think can help to reduce the amount of fish caught?

The change in the weather	□
Too many fish traps	□
Fish trap mesh too big	□
Pollution from farms	□
Too many sharks	□
Too many fishermen	□
Too many sports fishermen	□
Too many commercial fishermen	□
Too many spear fishermen	□
Fish trap mesh too small	□
Pollution from sewage	□
Hotels, tourism	□
Fish getting smarter	□
Too many nets	□
Net mesh too big	□
Net mesh too small	□
Pollution from factories	□
Too many local thieves	□
Foreigners fishing illegally	□
Not enough markets	□
Not enough credit finance	□
Destruction of mangroves	□
Fish caught too young	□

The use of dynamite, bleach or other poisons ☐
Fishing in spawning aggregations
Fishing by lost fish traps

23. What do you understand by "Fisheries Management Plan"? ……
……..

24. I want to ask you some questions about Fisheries Management Plans. (When I use the term "Fisheries Management Plans" I mean plans to organize the fishing industry so that the fish population can remain healthy for many years to come).
There are different views about fisheries management. Which of the following do you believe?

The government alone ☐
The fishermen alone ☐
The government and the fishermen ☐
Other,
specify……

25 Who do you believe is taking Fisheries Management decisions now in your territory?

The government alone ☐
The fishermen alone ☐
The government and the fishermen ☐
Other,
specify……

26. Different people have put forward different strategies that should be included in a Fishery Management Plan. Which of the following strategies would you support?

Every fisherman must have a license and must keep it up to date	☐	Yes	No	☐
Persons fishing without a license should be fined	☐	Yes	No	☐
The number of fishermen should be limited	☐	Yes	No	☐
The quantity of fish caught should be limited	☐	Yes	No	☐
Establish fish sanctuaries for the fish to breed	☐	Yes	No	☐
Establish "Closed Seasons" for certain species	☐	Yes	No	☐
Fish trap mesh should be made bigger	☐	Yes	No	☐
Net mesh should be made wider	☐	Yes	No	☐
Protect the small fish from being caught	☐	Yes	No	☐
Protection of mangroves and sea grass beds	☐	Yes	No	☐
Heavy fines and punishment for dynamites or poisons	☐	Yes	No	☐

Limiting the number of large boats	□	Yes	No	□
Banning some types of gear	□	Yes	No	□

27. I f you say yes to banning some types of gear, which type of gears should be banned?

……...……

28. In your opinion:

Should fishermen be **involved** in managing the fish resources?	□	Yes	No	□
Do you think fishermen should take a **leading role** in managing the fish resources in the sea?	□	Yes	No	□
Would fishermen **unite together** to manage the resources in the sea?	□	Yes	No	□
If fishermen were given the **authority** they would turn in persons fishing without a license?	□	Yes	No	□
If fishermen were given the **authority** they would turn in persons fishing in "No fishing areas"?	□	Yes	No	□
If fishermen were given the **authority** they would turn in persons using poisons and dynamite?	□	Yes	No	□
If fishermen were given the **authority** they would turn in fishermen using small mesh in fish traps and nets?	□	Yes	No	□

29. "Fisheries Management Plans" refers to plans to organize the fishing industry so that the fish population can remain healthy for many years to come.

What do you think that people need to know in order to take good fisheries management decisions?……
……..

30. Does your government have any laws governing fishing in this area?

Yes No

If yes, what are these?

31. If yes, are these laws observed?

Yes, usually	□
Yes, sometimes	□
Only sometimes	□
No, occasionally	□
No, usually	□
Other, specify……	

Section 4

Biographical Data

1. How old were you on your last birthday? ……..

2. What is your date of birth (day/month/year) ….. / …. / ……

3. Gender □ Male □ Female

4. Do you have any source of income other than fishing?
   □ Yes □ No

   Please list all sources of income:

   i. …….
   ii. …….
   iii. …….
   iv. …….
   v. …….
   vi. …….

5. Level of education (***Tick all that apply***)

   Primary school/Elementary – not completed □
   Primary school/Elementary – completed □
   Secondary School – not completed □
   Secondary School – completed □
   Tertiary / vocational / professional – not completed □
   Tertiary / vocational / professional – completed □
   University – not completed □
   University – completed □
   Other (specify)……

6. State the type of school or college…….

7. Did you receive any training after leaving school?
   □ Yes □ No

   If yes, what training? ……..

   ……

   Why are you not practicing your skill or trade?
   ……...

……

8. How well are you able to read?

Can mange	□
Read a little	□
Can't manage	□
Other,	
Specify……	

9. Did either of your parents catch fish for a living?

Mother	□
Father	□
Both	□
Neither	□

Did either of your parents sell fish for a living?

Mother	□
Father	□
Both	□
Neither	□

10. Were any other relative involved in fishing?

□ Yes □ No

If yes, which? . ……..

11. Are any of your children fishermen?

□ Yes □ No

If yes, how many?…….

12	Do you have a radio at home? (Not VHF)	□ Yes	□ No
13	Do you have a radio with you on the shore/wharf	□ Yes	□ No
14	Do you take a radio with you while you fish	□ Yes	□ No

15 Do you have a television at home □ Yes □ No

16. How often do you read the newspapers?

Daily (6-7 days per week)	□
3-5 days/week	□
1-2 days/week	□
Rarely	□
Never	□

17. Do you own any of the following?

Colour Television	□
Video Cassette Recorder	□
Bicycle	□
Motorcycle	□
Motor car, van, truck	□