



**BELIZE CASE STUDY:
FISHERIES ADVISORY BOARD IN THE CONTEXT
OF INTEGRATED COASTAL MANAGEMENT**

P. McConney, R. Mahon and R. Pomeroy

for the
Caribbean Conservation Association (CCA)

in association with the
University of the West Indies
Centre for Resource Management and Environmental Studies (CERMES)
and
Marine Resources Assessment Group Ltd. (MRAG)



2003

Acknowledgements

The authors wish to thank past and present members of the Fisheries Advisory Board who attended the workshops and otherwise provided invaluable information. Vincent Gillett of the Belize Fisherman Cooperative Association provided research assistance. Several officers in the Fisheries Department and the Coastal Zone Management Authority and Institute contributed time and knowledge.

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Citation

McConney, P., R. Mahon and R. Pomeroy. 2003. Belize case study: Fisheries Advisory Board in the context of integrated coastal management. Caribbean Coastal Co-management Guidelines Project. Caribbean Conservation Association, Barbados. 70pp.

This document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

Executive summary

Belize has a Fisheries Advisory Board (FAB) that has been a powerful force in fisheries development since its establishment along with the Fisheries Department in 1965. The FAB has persisted since then without being legally institutionalised. However, despite this longevity, it has not been well documented as an example of national level consultative co-management. This case was selected as an example of an enduring multi-stakeholder consultative fisheries committee, in contrast to the situation in Barbados and most of the eastern Caribbean islands.

During its existence, over 60 people from a wide range of backgrounds have been members of the FAB. In examining the minutes of over 100 FAB meetings it is clear that this body has considered a diverse set of fisheries management (both conservation and development) issues. A few agenda items, such as illegal fishing by non-nationals and screening the schemes of overseas entrepreneurs, have been recurrent.

The interaction of ministers with their advisory board has been varied. In a country that is said to promote participatory natural resource policies and management, the work of the Board as an arrangement for bringing together government and non-government actors is expected to be instructive. Fisheries cooperatives exercise considerable power in and through the FAB.

The Coastal Zone Management Authority and Institute (CZMAI) grew out of the Fisheries Department, but it does not have a seat on the FAB. There are challenges to the integration of fisheries into coastal management, as promoted by the Code of Conduct for Responsible Fisheries. Reasons include conflict between the Fisheries Department and CZMAI, and the FAB having enough under its own jurisdiction without spreading itself thinly over other areas in which there are already a multitude of organisations and institutions. Some say integrated coastal management has had much success mainly because the public in Belize is environmentally conscious and compliant. The institutional arrangements for success promoted by government rely on NGOs for assistance. Poverty is also an issue that affects fishing. The fortunes of the poor are closely linked to the global performance of Belize as a country whose economy is driven to a significant extent by agriculture and preferential markets for its products.

Stakeholder groups most directly involved in this case include government Fisheries and Cooperatives Departments; members of the Belize Fisherman's Cooperative Association and the other cooperatives; and the several other organisational members of the FAB. Lessons learned from the Belize FAB are expected to have implications for the struggling or absent Fisheries Advisory Committees in the eastern Caribbean and those of larger countries where small government administrations need to urgently address interactions between coastal users.

1 Introduction

The purpose of the Caribbean Coastal Co-management Guidelines Project is to ensure that mechanisms for implementation of integrated pro-poor natural resource management in coastal zones are developed and promoted. This is assisted by understanding the requirements for establishing successful co-management institutions for coastal resources under various conditions in the Caribbean. These ideals reflect the policy and objectives of the United Kingdom (UK) Department for International Development (DFID) on eliminating world poverty. The project is part of the Natural Resources Systems Programme (NRSP) Caribbean programme for Land Water Interface (LWI) production systems. This component of the NRSP has the purpose: *“Benefits for poor people in targeted countries generated by application of new knowledge to natural resources management in the land water interface”*. It entails:

- ❖ An understanding of livelihood strategies;
- ❖ An understanding of natural resource management opportunities;
- ❖ Identification of the means to implement management opportunities relevant to the poor.

The project is a response to a September 2001 call for proposals from the NRSP to implement parts of the LWI logical framework (or logframe) (Box 1.1).

Box 1.1 Structure of call for proposals

Output 1: Improved resource-use strategies in coastal zone production systems developed and promoted

Activity 1.3: Mechanisms for implementation of integrated pro-poor natural resource (and pollution prevention) management in coastal zones developed and promoted

Sub-activity 1.3.1: Mechanisms for the improvement of sustainable livelihood outcomes for poor people living in coastal zones through integrated participatory resource management and prevention of pollution developed and promoted

Sub-activity 1.3.1, milestone (b): Understanding the requirements for developing successful co-management initiatives and mechanisms for promoting them

Target region: Caribbean

Source: DFID-Natural Resource Systems Programme

Project implementation is lead by the Caribbean Conservation Association (CCA) under its Coastal and Marine Management Programme (CaMMP). Project partners are the Marine Resources Assessment Group Ltd. (MRAG) of the UK and the Natural Resources Management (NRM) Programme of the University of the West Indies (UWI) Cave Hill Campus in Barbados where the CCA has its office. The execution period is 1 April 2002 to 30 June 2003 (15 months) with a budget of £87,112 (or approximately \$125,000 US dollars).

The Caribbean Coastal Co-management Guidelines Project seeks to ensure that people in the Caribbean, especially the poor, can effectively engage in successful partnerships with government for sustainable livelihoods in the context of well-managed coastal resources. The study addresses both the natural resource and human institutional aspects of co-management. Through a series of participatory investigations in case studies of conditions that favour, or do not favour, the co-management of coastal and marine resources at selected sites the project derives guidelines for developing successful co-management in the Caribbean. Uptake is

promoted by interaction with target institutions and potential beneficiaries, and wide dissemination of outputs. The project's main activities are listed below.

1. Selection of co-management analysis research framework
2. Ecological and environmental assessments of the natural resource systems and their utilisation
3. Institutional, socio-economic, cultural, political and other human dimension assessments
4. Comparison of how the natural resource and human factors assessed in 2 and 3 favour or constrain the establishment of successful, pro-poor and integrated co-management
5. Development of regionally applicable guidelines on successful, pro-poor and integrated co-management in the wider Caribbean
6. Capacity of target institutions and beneficiaries for co-management built through project participatory processes

This case study report is intended for access and uptake by a broad readership. Readers are also guided to the project's newsletters, reports and published papers for further information. The information generated from this and other case studies is synthesised in a comparative analysis. Guidelines for successful co-management are developed from the research.

In the next chapter, the research framework and methodology are described, followed by socioeconomic dimensions of the case, including poverty. Resource system and human system institutional analyses precede descriptions of exogenous factors, incentives to cooperate and patterns of interaction. Outcomes and performance are analysed prior to the final chapter discussion and conclusions on the lessons learned about what conditions may favour successful co-management in this case.

2 Research framework

This section sets out concepts that guide the research based on previous work in coastal co-management around the world. It sets the stage for presenting the case study results.

2.1 Definitions and concepts

Definitions of co-management focus on sharing management responsibility and authority between government and stakeholders (e.g. Pinkerton 1989; McConney 1998; Brown and Pomeroy 1999; Pomeroy 2001; Berkes et al. 2001). The fundamentals of what co-management should be, and is in practice, have been extensively researched (Jentoft 1989; Kuperan and Abdullah 1994; Pomeroy and Berkes 1997). Co-management encompasses several possible arrangements that are often depicted as a scale constructed from the relative sharing of responsibility and authority between government and stakeholders (Pomeroy and Berkes 1997; Berkes et al. 2001) (Figure 2.1).

As for participation (Arnstein 1969), there are various positions on the scale, and authors use different terms for co-management and its degrees. For example, the Caribbean Natural Resources Institute (CANARI) uses "participatory management" (see extensive document list at www.canari.org). The terms participatory management or co-management are gaining popularity in Caribbean government and NGO circles, and among some resource users (Almerigi et al. 1999; CANARI 1999; CANARI 2000; CANARI 2001; CCA 2001). These concepts, however, are not always fully understood by their users (also see Terminal Workshops Report). Conceptual and practical research issues therefore include the degrees of co-management and which terms to use.

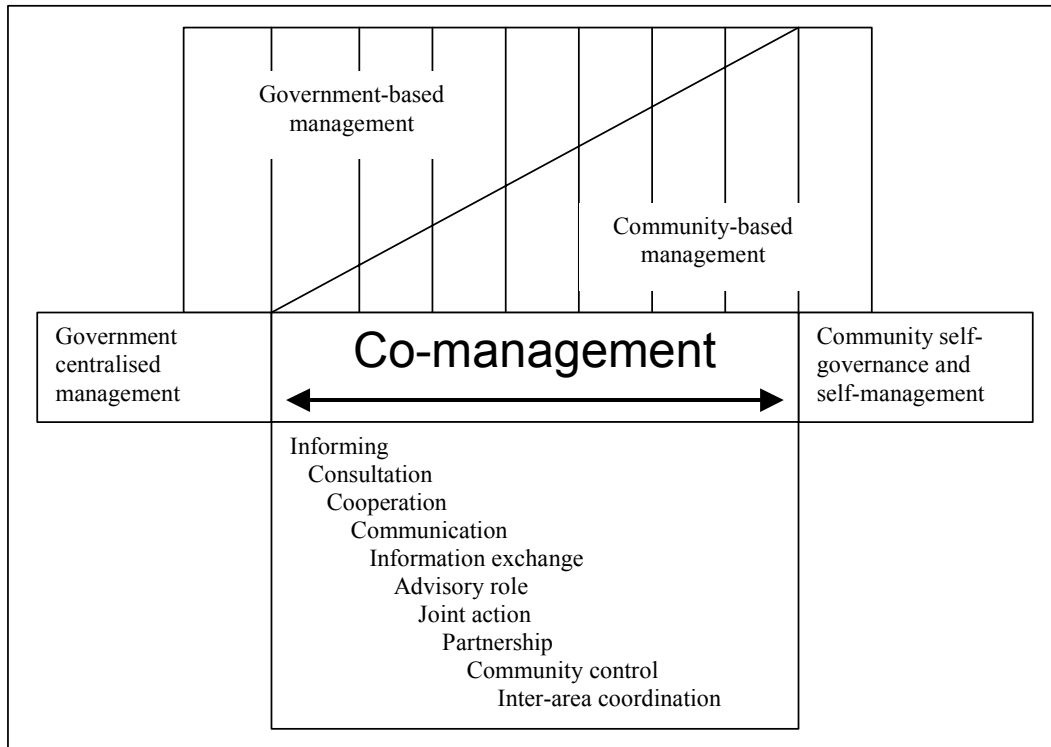


Figure 2.1 Sliding scale showing various degrees of co-management (based Pomeroy and Williams 1994)

Based on international and Caribbean literature it was determined that three degrees and labels would be appropriate (Figure 2.2). The first is “consultative co-management” which represents what is most common in several locations (Brown and Pomeroy 1999). People commonly use and understand the term consultation.

	Consultative co-management	Collaborative co-management	Delegated co-management	
<i>Government has the most control</i>	Government interacts often but makes all the decisions	Government and the stakeholders work closely and share decisions	Government lets formally organised users/stakeholders make decisions	<i>People have most control</i>

Figure 2.2 Degrees and labels of co-management

Adapted from: ICLARM and IFM 1998

Next is joint action and decision-making. This is where several countries seem to be headed. The term “collaborative co-management” was preferred to “cooperative co-management” because it connotes stronger partnerships, and the use of “cooperative” may be confused with the formal organisation types of the same name (Kurien 1988; McConney et al.1998).

Third is “delegated co-management” that includes, but is not limited to, community-based management since national co-management structures are especially common in fisheries management (Jacobs 1998; McConney and Mahon 1998). Few cases in the Caribbean appear to be at this level, but it is not uncommon in other areas of the world (Baird 2000).

Establishing successful co-management is seldom immediate. Like most participatory processes it takes time and careful tending. Pomeroy (1998) recognises three phases of co-management and describes the sequence of steps within these in some detail. A much-simplified version is in Figure 2.3.

Pre- implementation →	Implementation →	Post- implementation
Realise need for change	Try out new management	Maintain best arrangements
Meet and discuss change	Educate people in new ways	Resolve conflicts and enforce
Develop new management	Adjust and decide what is best	Accept as standard practice

Figure 2.3 Phases of co-management

Based on: Pomeroy 1998

Like cases in Africa (Normann et al.1998; Sverdrup-Jensen and Nielsen 1999), the Caribbean is generally at the pre-implementation or early implementation phase (McConney and Mahon 1998; McConney 1998). A few situations such as the Soufriere Marine Management Area (Renard 2000) may be mature enough to be labelled post-implementation. A very significant consequence is that neatly comparing “before” and “after” conditions arising from a co-management intervention such as a discrete project will be less feasible in the Caribbean than other locations such as in Asia where much of the literature on methodology originates (e.g. Pomeroy and Carlos. 1997; Pomeroy et al. 2001).

2.2 Research framework

The International Centre for Living Aquatic Resources Management (ICLARM) and Institute for Fisheries Management and Coastal Community Development (IFM) (ICLARM and IFM 1998) developed the methodology referred to above for the African and Asian cases (Figure 2.4).

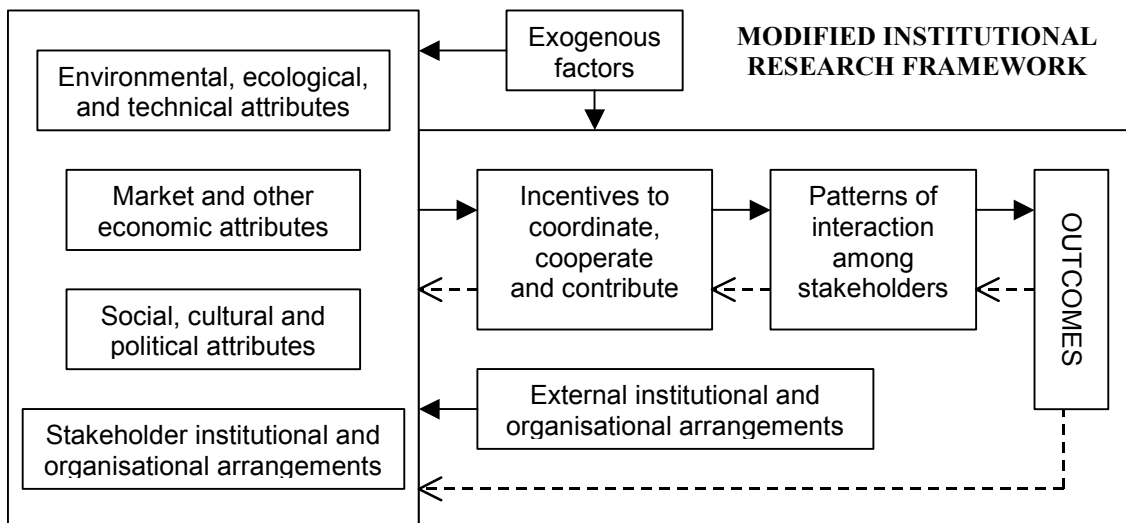


Figure 2.4 Modified ICLARM/IFM Institutional Analysis and Design Research Framework

The main analyses conducted within the framework are in Box 2.1. They are reflected in the logical framework for this project in terms of the assessments to be performed. Institutional analyses are of critical importance in researching co-management (Renard 1991; Noble 2000).

Box 2.1 Main analyses included in the framework

1. Institutional Arrangements Analysis: This component links contextual variables characterizing key attributes of the resource (biological, physical) and the resource users (technology, market, social, cultural, economic, political) with the management institutional arrangements (rights and rules). The contextual variables are each composed of a number of attributes. A causal relationship exists among and between the contextual variables, the institutional arrangements (the focus of the analysis) and the resulting transactional (action) situations. The institutional arrangements and the contextual variables affect the actions of the resource users and authorities responsible for fisheries management by shaping the incentives and disincentives they have to coordinate and cooperate in resource governance, management and use; the incentives, in turn, shape the patterns of interaction and behaviour between the co-management partners, i.e. the types of co-management arrangement established and the way it functions.

2. Co-management Performance Analysis: The co-management arrangement results in outcomes. These outcomes will, in turn, affect contextual variables as well as behaviour of resource users, other stakeholders and public authorities. Time is a critical element. All the contextual variables can change through time. This may cause change in institutional arrangements which, in turn, affect incentives, patterns of interaction and outcomes. The outcomes of co-management institutional arrangements can be evaluated in terms of e.g. management efficiency, equity, and sustainability of resource utilisation.

3. Characteristics of Successful Co-management Institutional Arrangements: The most important aspect of this analysis is the specification of what conditions and processes bring about successful long-enduring, fisheries co-management arrangements. From the analysis we can identify a list of principles and propositions about conditions and processes.

Source: ICLARM and IFM 1998

This project pays particular attention to integrated and pro-poor coastal management. Since poverty concepts may be new to some readers, a few words on the topic are warranted.

2.3 Pro-poor perspectives

DFID-NRSP (2001) emphasises the importance of a systems perspective on what is poverty and pro-poor, and how to address them. The concepts of poverty and the development of pro-poor strategies are complex social, cultural and economic issues (Centre for Development Studies 2000). Eradication or alleviation of poverty is often accompanied by attention to sustainable livelihoods (Carney 1998; Geoghegan and Smith 1998; Dorward et al. 2001).

In the Asia-Pacific region the focus is on alternative livelihoods since coastal resources are severely depleted and habitats are degraded. In the Caribbean, resources are often still adequate for use to be sustainable if supplementary livelihoods are found to ease the pressure without completely changing lifestyles. For example, fishermen displaced by MPAs in Belize are being re-trained to be fly-fishing and nature tour operators to obtain additional income in the tourist season, and facilitate increased compliance with fishing restrictions (Heyman and Hyatt. 1996; Heyman and Graham 2000).

Although the above initiative may be considered a pro-poor strategy it does not necessarily mean that it was specifically intended and designed as such. Poverty and pro-poor orientation by objective and implementation were not prominent in a recent institutional characterisation of Caribbean MPAs (Geoghegan et al. 2001). Statements such as improving welfare and the quality of life, without explicitly mentioning poverty, are more typical of planning documents for small-scale fisheries in the region (e.g. Government of Barbados 1993). Research must note direct and indirect, positive and negative impacts on poverty by both public and private sector initiatives. The attention of Caribbean governments to poverty has been relatively recent in most places. Poverty assessment studies from the mid-1990s to the present provide fairly current data for most countries (e.g. Kairi Consultants 1999a and b).

Institutional analysis provides insight into how social and economic institutions interact with each other and contribute either to the perpetuation or reduction of poverty. Poverty in the Caribbean is often associated with youth and female-headed households, making age and gender important variables (Brown 2001). There are chronic, structural and seasonal poor in the Caribbean, with fishers as an example of the latter (Brown 2001). Fishers and other coastal resource users in the informal sector may easily slip through the net of employment surveys.

Often critical to the success of co-management is the extent to which community-based organisations can engage in poverty eradication and alleviation (Centre for Development Studies 2000). This encompasses empowerment and the concept of “voice”. Pro-poor strategies must address causes that operate at the micro as well as the macro levels, and ensure that government policy effectively engages these causes either directly or by creation of an environment that facilitates positive action by other entities (Brown 2001).

3 Case study overview

The six selected case studies, in Barbados, Belize and Grenada, are summarised in Appendix 1. Belize has a Fisheries Advisory Board (FAB) that has been a powerful force in fisheries since its establishment along with the Fisheries Department in 1965. The FAB has persisted since then without being legally institutionalised. However, despite this longevity, it has not been well documented as an example of national level consultative co-management. The case was selected as an example of an enduring multi-stakeholder consultative fisheries committee, in contrast to Barbados and the situation in most of the eastern Caribbean islands.

Some authors argue that a sound legal basis is crucial for co-management, but the FAB has continued to operate while the legally mandatory fisheries advisory committees in the eastern Caribbean generally have either not started or been sustained. What is not clear, due to the absence of systematic documentation and evaluation, is how well the FAB has performed in the context of co-management. New draft fisheries legislation proposes to formalise the FAB with clearly spelt out terms of reference and responsibilities under a very much revised fisheries management structure. It would be useful to examine its history before entering this new phase.

During its existence, over 60 people from a wide array of backgrounds have been members of the FAB. The chairperson (only one has been a woman) has often been from the non-fisheries private sector. In examining the minutes of over 100 FAB meetings it is clear that this body has always taken its work very seriously. Meetings, typically called every month or two, have considered a diverse set of fisheries management (both conservation and development) issues. A few agenda items, such as illegal fishing by non-nationals and screening the schemes of overseas entrepreneurs, have been recurrent.

The interaction of ministers with their advisory board has been varied. The current minister is said to be very close to the board, using its advice regularly and providing it with the status of a genuinely participatory policy formulation mechanism. Some other ministers have perhaps been less close and positive in their interactions. Since the board is a creature of the minister, many features of its performance rest on inter-personal and professional dynamics, with the expected influence of politics, in addition to the more formal institutional arrangements that accompany such bodies. In a country that is said to promote participatory natural resource policies and management, the work of the Board as an arrangement for bringing together government and non-government actors is expected to be instructive. Fisheries cooperatives exercise considerable power in and through the FAB.

Tourism and aquaculture are more recent areas for either economic integration or conflict with fisheries to emerge. For example, increased employment opportunities may arise, but so too does the potential for accelerated coastal habitat degradation from pollution and other causes. Some of these interactions take place in the context of recent coastal management institutions that are still evolving and appear at times to exist in tension with the interests of the fisheries authority and stakeholders. The Coastal Zone Management Authority and Institute (CZMAI) grew out of the Fisheries Department, but it does not have a seat on the FAB. There are challenges to the integration of fisheries into coastal management, as promoted by the Code of Conduct for Responsible Fisheries. Poverty is also an issue that affects farming and fishing. The fortunes of the poor are closely linked to the global performance of Belize as a country whose economy is driven to a significant extent by agriculture and preferential markets for its products.

Stakeholder groups most directly involved in this case include government Fisheries and Cooperatives Departments; members of the Belize Fisherman's Cooperative Association and the other cooperatives; and the several other organisational members of the FAB. Lessons learned from the Belize FAB are expected to have implications for the struggling or absent Fisheries Advisory Committees in the eastern Caribbean and those of larger countries where small government administrations need to urgently address interactions between coastal users.

4 Research methods

The general action research methods used in the case studies include.

- ◆ Document analysis
- ◆ Questionnaire surveys
- ◆ Semi-structured interviews
- ◆ Focus groups, informants
- ◆ Workshops and seminars
- ◆ Periodic e-mail, newsletters
- ◆ Transfer of skills and concepts

The examples of co-management examined in this project are mainly in pre-implementation or early implementation phases. Emphasis is therefore placed on understanding the conditions and factors for successful co-management as perceived by the stakeholders at the research sites, but also supported by empirical evidence from initiatives at more advanced phases of development in other regions of the world. Effort was also directed towards promoting the uptake of concepts and practices that may lead to co-management success. This is participatory action research.

The main local partners in this case were the Fisheries Department and Belize Fishermen's Cooperative Association (BFCA). They assisted in mobilising past and present FAB members to participate in focus groups and workshops that examined all dimensions of the socio-economic and institutional analysis. Group activities were supplemented by semi-structured interviews with key informants and very brief questionnaires to obtain background information.

The partner organisations also provided an extensive time series of FAB meeting minutes dating as far back as the late 1960s that were used for detailed document analysis. The Fisheries Department and the CARICOM Fisheries Unit provided additional information on specific fisheries, and particularly on shrimp fishery management.

5 Resource assessment

Figure 5.1 illustrates a framework for resource assessment, putting the resource in the context of integrated coastal management, and noting the linkage between harvesting and marketing that partly determines livelihood strategies.

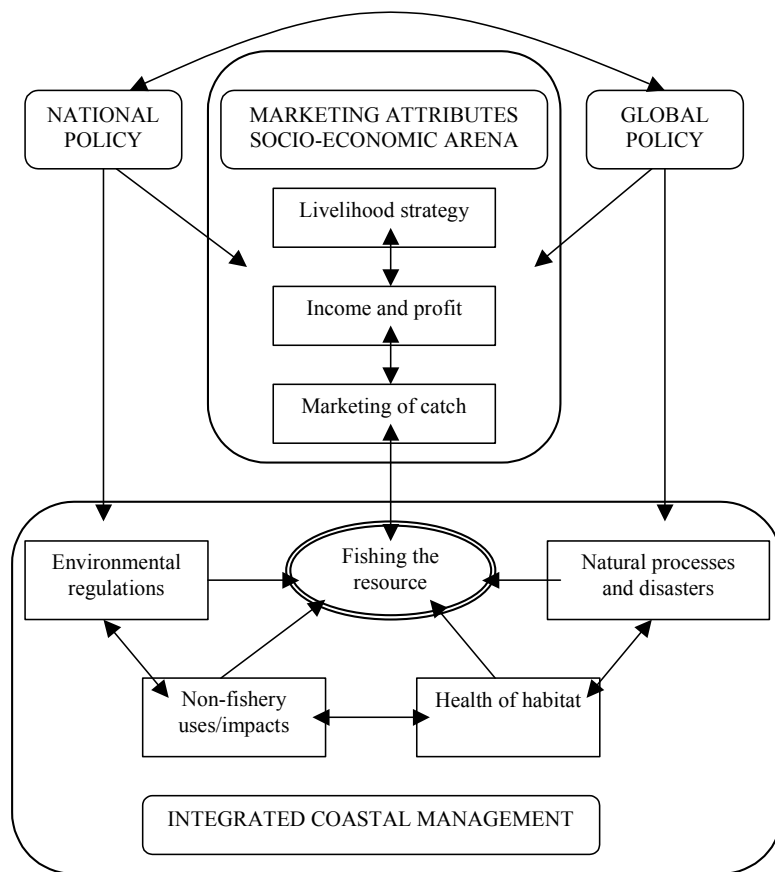


Figure 5.1 Framework for resource assessment

5.1 Geography

Belize lies between 15° 53' to 18° 30'N and 87° 15' to 89° 15'W, between Mexico and Guatemala (Figure 5.2). The country has a coastline measuring roughly 280 km from north to south. Total land area, including the cayes, is 22,960 km² in a jurisdiction of about 46,620 km²

including the territorial sea. The claim by Guatemala to terrestrial and marine portions of Belize is still under active negotiation. Belize is divided into six districts, 9 municipalities and over 240 villages (Figure 5.3). Over 70% of Belize is dominated by natural vegetation, and population density is relatively low over large areas of the country. Belize's barrier reef is the largest in the western hemisphere, second largest in the world, one of the "Seven Underwater Wonders of the World", and has been designated a World Heritage Site.

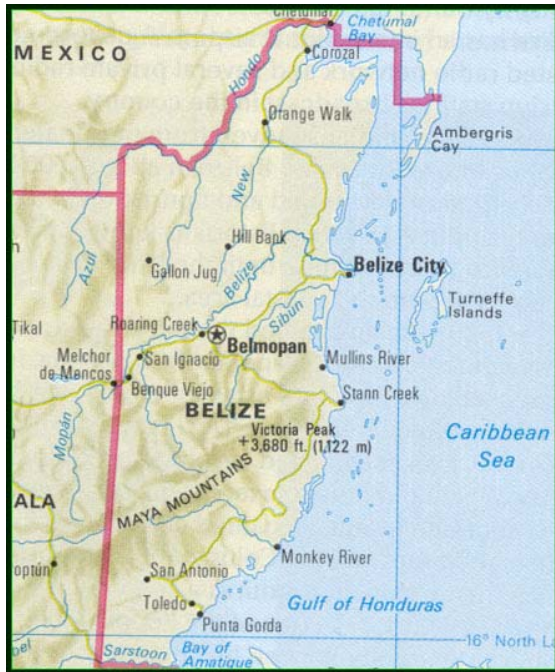


Figure 5.2 Belize country map



Figure 5.3 Districts in Belize

5.2 Belize fisheries

The fishing industry is a major contributor to the Belizean economy: 7.2% of the Gross Domestic Product (GDP) in 2001. It ranks third as a foreign exchange earner in the country (Belize Fisheries Department 2002). The fishing industry provides direct employment to over 3,000 registered fishers, and to over 500 processing and market workers. The fishing industry in Belize is mainly small-scale and is carried out primarily within the shallow protected waters of the main barrier reef (reef flat and reef slope) and at the atolls. Fishing activities in Belize have traditionally revolved around the lobster and conch fisheries. Over the last 10 years shrimp and finfish, both demersal and inshore pelagics, have gained recognition as fisheries of tremendous economic potential (Belize Fisheries Department 2002). Overall, fisheries in Belize have grown from about 790 registered fishers and 566 boats in 1973 to about 2600 registered fishers and 790 boats in 2000 (Marin 2001a).

5.2.1 Lobster fishery

The lobster fishery is the largest capture fishery in Belize. Lobsters are harvested with about 62,000 traps and 2,000 shades (casitas) (Marin 2001a). Between 1998 and 2001 lobster exports ranged in value from about US\$ 6-9 million. Free divers also catch lobster with hook sticks. The fleet comprises mainly wood or fibreglass outboard-powered skiffs, 4-9 m in length that are used for trapping. There are also larger wooden sailing sloops up to 10 m in length from northern villages that are used mainly in diving for lobster. They carry up to eight small canoes and

eleven fishers and stay out for 6-12 days. Traps are more commonly used in the north of the country, while diving is more common in the south central areas where there is more rock-rubble habitat.

Catch data from 1932 to the present show that lobster catches increased steadily to a peak of 1000 mt in 1981, with interannual variation due to recruitment variability. After 1981 they decreased slightly and appear to have levelled off at about 700 mt/year. A production model indicates an MSY of about 700 mt/year ranging between 550-825 mt/year depending on recruitment (Marin 2001a).

Lobster is landed primarily at the cooperatives where statistics are compiled from purchase slips. The majority of the catch (about 74%) comes from the central area of Belize between Dangriga and Placencia. There are presently four functional cooperatives where lobster tails and lobster head meat locally are bought from fishermen (Figure 5.4). The co-operatives are required to sell about 5% of their processed lobster.

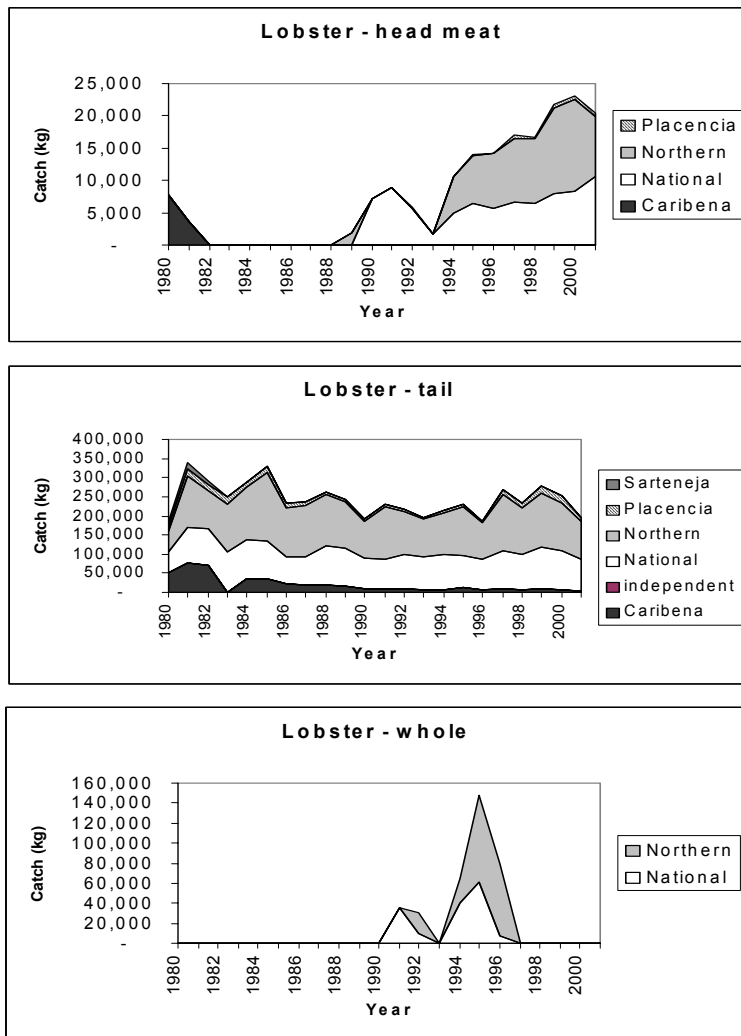


Figure 5.4 Lobster catch statistics

Fishing licenses and permits are required, but the fishery is open access. Management measures include: closed season (15 February – 14 June); closed areas with no fishing in the forereef and no traps or nets set on reef; SCUBA is prohibited; no berried females or moulting individuals can be taken; minimum carapace length of 3 inches. Enforcement of regulations is an ongoing problem. Unreported catches are also a serious problem that can undermine assessment efforts.

5.2.2 Conch fishery

Conch is the second largest capture fishery in Belize. In 2001 the total value of conch exported was US\$ 2.3 million. Conch is harvested solely by free divers in depths of 3-15 m from seagrass beds and back reef areas of the barrier reef system and adjacent atolls. The sloops described above for the lobster fishery are the main vessels used for conch fishing. The divers tow a small dory with them. The catch is then taken to the main boat or to a cay for cleaning.

Most conch is exported. Therefore, the export data reflect the trends in landings. Export data from 1960 to the present show a dramatic rise in exports from almost zero in 1960 to a peak of 562 mt in 1972. Subsequently, landings decreased and from 1979 to the present have been level, with considerable interannual variation, at about 180 mt (Marin 2001b). See Figure 5.5.

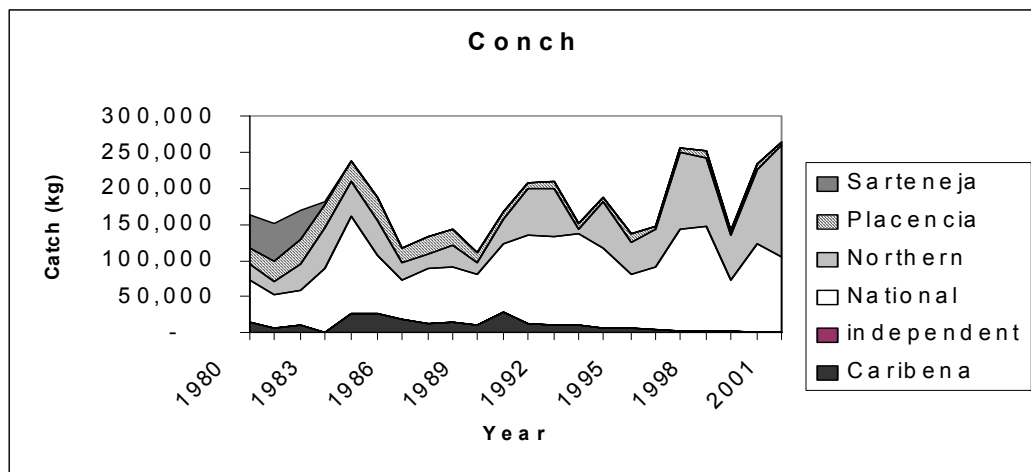


Figure 5.5 Conch catch statistics

There has been longstanding concern that conch are overexploited in Belize (Gibson et al. 1982). A fishery independent survey conducted in 1966 indicated that the population was primarily juveniles (Appeldoorn and Rolke 1996). The study concluded that the stock was seriously overexploited, and that the fishery was sustained by good recruitment, possibly from adjacent areas. Relatively high abundances of conch in Hol Chan Reserve indicated the role that reserves can play in maintaining adult stocks (Marin 2001b).

The fishery is open access, but there are several regulations in place for conch, including: a three-month closed season (1 July to 30 September), prohibition of SCUBA, and minimum size limits of 178 mm on the shell and 86 g on the (market clean) meats. However, enforcement of these regulations has been considered to be weak.

5.2.3 Shrimp fishery

The shrimp fishery in Belize developed in the mid 1980s. The Belize shrimp capture fishery can be divided into the Industrial trawl fishery and the coastal artisanal fishery. The artisanal shrimp fishery is a small and activities are limited to the southern area of the country where small skiffs and canoes are utilized. The industrial trawl fishery uses Gulf of Mexico type trawlers. During the season of 2001 there were 10 trawlers operating mainly in the southern waters of Belize, primarily Victoria Channel, Grand Channel and five miles in front of Dangriga. Details of the fleet are provided by Richards (1997). Of the 10 trawlers that operated, two belong to the Northern Fishermen Co-operative, while the others originate from Honduras and operate under a joint venture with the co-operatives at which they land their catch.

The industrial fishery is regulated by an open season from 15 August to 14 April. Other management issues pertain to the negative impacts of this fishery. There is a substantial by-catch of juvenile finfish and invertebrates that is discarded. The Fisheries Department has identified and recognized the need to address such important issues. Some of the by-catch is finfish of marketable size that are retained for sale.

The catch from the commercial vessels is landed at the cooperatives, with different cooperatives playing a prominent role at different times in the history of the fishery. Only National Fishermen Cooperative and the Northern Fishermen Coop have processing facilities. The latter processing the catch from its two vessels, while the former handles catch from the remaining cooperatives. In the processing plants, the shrimp are graded and packaged in boxes. They are exported and sold locally to restaurants, hotels and individuals. Richards reported that in 1995 45% of shrimp was consumed locally. Shrimp from the artisanal fishery are sold whole and fresh, primarily in local markets (Figure 5.6).

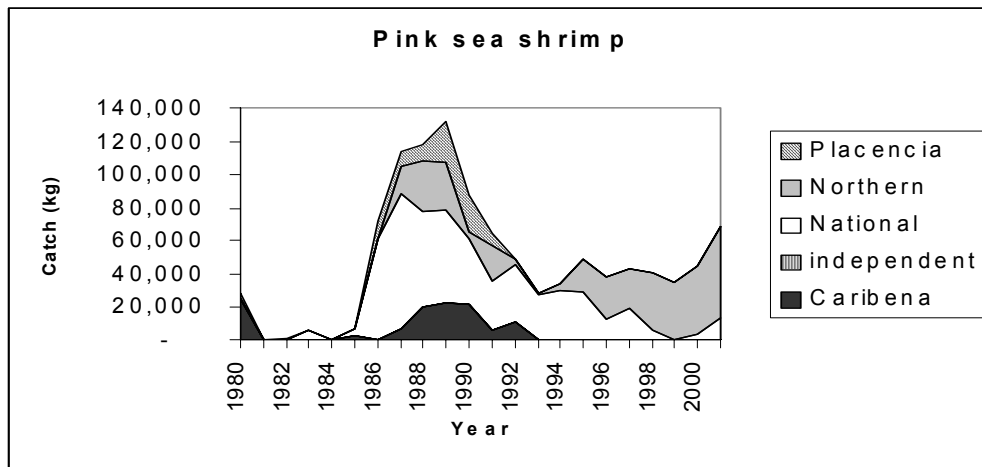


Figure 5.6 Pink sea shrimp catch statistics

5.2.4 Shark fishery

This is a seasonal fishery that uses gill nets and longlines to capture the sharks. This fishery is targeted because it is highly valuable particularly for its by-products such as the skins, fins, oil, and to a lesser degree for its meat. Private individuals and the fishing co-operatives have historically marketed shark locally and internationally. The commonly caught sharks for commercial purposes are the bull, black-tip, hammerhead, nurse, reef and lemon sharks. The

dried fins are processed primarily for export. The meat is sold either fresh or corned/salted and the fins are dried. The shark meat is mostly exported to Mexico and Guatemala.

5.2.5 Marine aquarium fishery

In Belize this industry has been established on a small-scale basis since the late seventies and while the economic value of the fishery has been recognized, it has not expanded to its full potential due to environmental concerns.

5.2.6 Finfish and spawning aggregations

Finfishing is mainly artisanal or small-scale, characterized by relatively small motorized vessels (approximately 23 feet in length) that fish primarily on a day-trip basis. Some fishermen may camp on the cayes during the fishing season. Fishermen often travel up to 50 km away from their homes to fish and market their fish to various cooperatives (Figure 5.7).

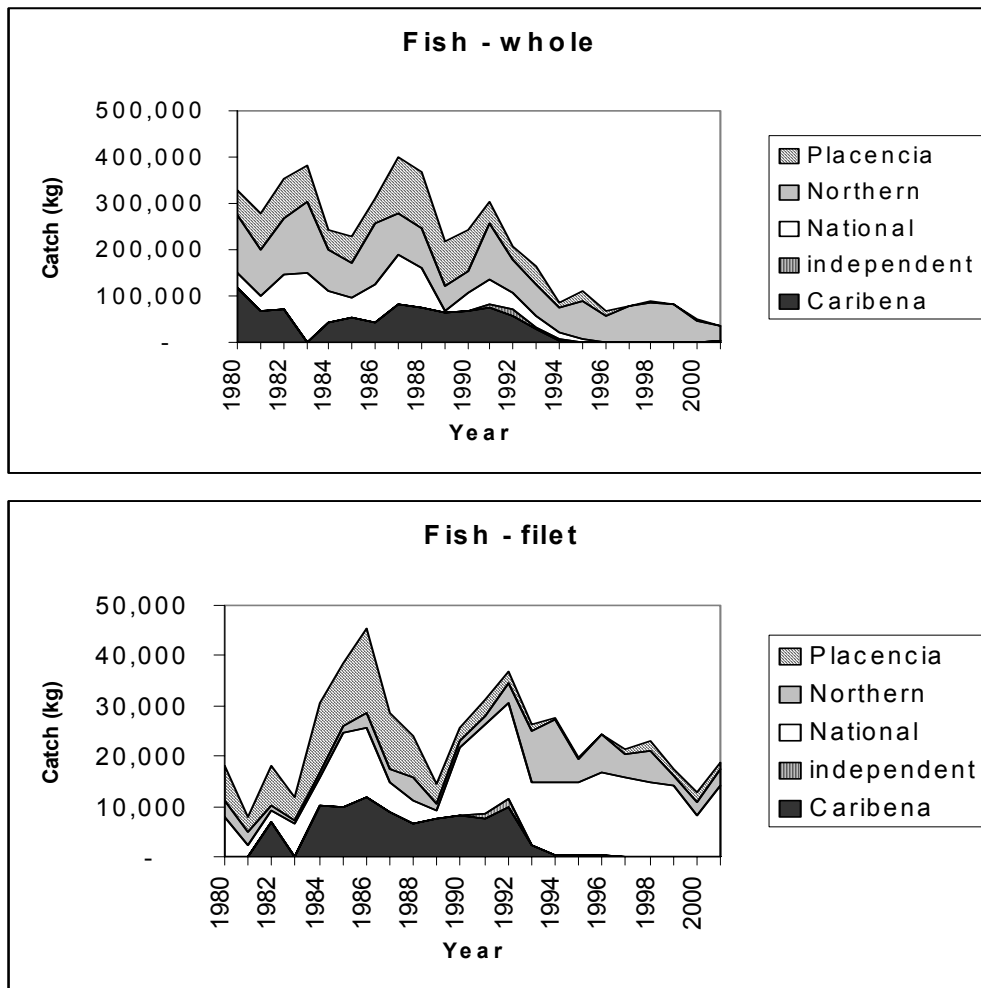


Figure 5.7 Finfish catch statistics

Fishermen take multi-species, multi-gear approaches to fishing during different seasons and to ensure a greater possibility for income. Fishing gears include gill nets, beach seine nets, cast nets, hook and line, lobster traps, fish traps, longline, and diving. Of special interest to fishers and conservationists are the seasonal assemblages of fish known as spawning aggregations.

As recommended on July 30, 2001 at the workshop entitled "Working Towards Sustainable Management of Nassau Groupers in Belize" a Spawning Aggregation Working Group was formed under the FAB with the following membership: Green Reef, Fisheries Department (2 persons), TIDE, Coastal Zone Management Authority, National Fishermen Co-op, The Nature Conservancy, Caribena Co-op, an independent Hopkins fisherman, Northern Fisherman Co-op, Placencia Co-op, Belize Tourism Board, Belize Tourism Industry Association. The Terms of Reference of the Spawning Aggregation Working Group are as follows:

- ◆ Provide recommendations for management
- ◆ Determine the economic impact of management recommendations
- ◆ Explore economic alternatives to fishing Nassau Grouper aggregations
- ◆ Establish a monitoring program for spawning aggregations
- ◆ Prioritize future research objectives
- ◆ Explore co-management options

The following action plan was agreed for 2001:

- Jul 30: Workshop "Working Towards Sustainable Management of Nassau Grouper in Belize" Established Terms of Reference, Time Frame and nominated members of the Spawning Aggregation Working Group.
- Aug 7: Receive confirmation from nominated members on their willingness to sit on the working group.
- Aug 14: First meeting of working group. Review Terms of Reference, develop a list of priorities and plan of action.
- Aug 20 -Sep 20: Additional meetings of working group.
- Sep 25: Workshop to present finding and recommendations of the working group to public.
- Sep 25-30: Present findings and recommendations to the Fisheries Advisory Board.
- Oct 31: Complete drafting of SI.
- Nov. 23: Final decisions and recommendations should be disseminated to stakeholders to allow adequate advance notice to the status of the Nassau Grouper Spawning Aggregation Sites for the December and January fishing moons.

5.2.7 Fishing effort and licensing

Entry into fishing is nominally by licence. The distribution of licences by district in 1999 is shown in Table 5.1.

Table 5.1 Fishing licences by district, 1999

District Of Belize	Fishing Licences
Corozal	591
Orange Walk	65
Belize	870
Cayo	34
Stann Creek	360
Toledo	175
TOTAL	2095

Table 5.2 Licences issued by the Fisheries Department from 1998-2001

Licences	1998	1999	2000	2001
Fishermen	1,718	2,137	1,872	1,707
Boat	759	728	750	1,455
Research	29	16	24	33
Processing Plant	?	?	?	9
Seafood Export	?	?	?	2,577

Of all the types of licenses issued by the Fisheries Department in recent years, most notable is the marked increase in fishing vessel licences (Table 5.2). While the fisher licences declined, the number of boat licences issued doubled between 2000 and 2001. Fishing vessels are scattered among about 40 settlements that range from the capital to small villages.

5.3 Aquaculture (*shrimp cultivation*)

Aquaculture production has been expanding at the impressive rate of 10% per annum globally over the past ten (10) years, which is more than three (3) times the rate of expansion of agriculture production and over six (6) times the rate of expansion of capture fishery production. The rate of expansion of aquaculture in Belize has been even more impressive, registering over 160% per annum (Figure 5.8) (Myvette and Quintana 2002).

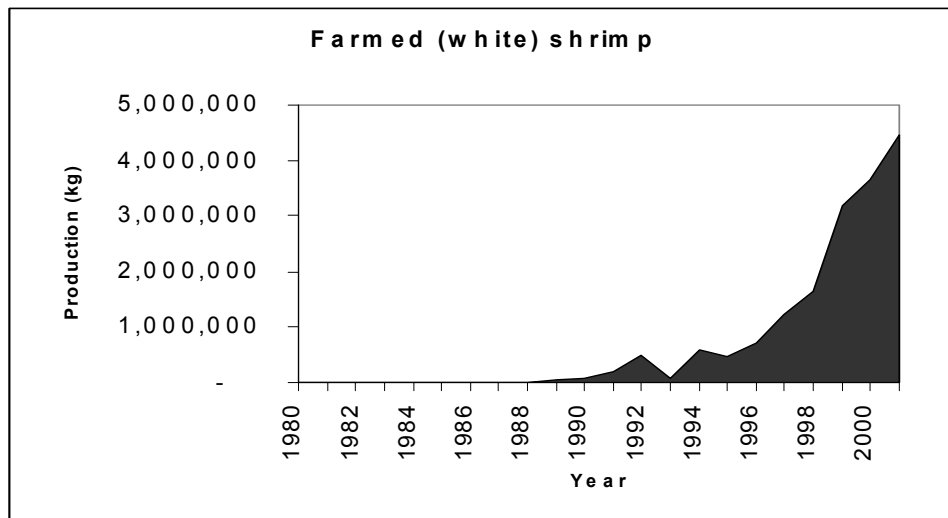


Figure 5.8 Production of farmed white shrimp

To date the industry is based almost exclusively on the production of the Pacific white shrimp *Penaeus vannamei*. Most of the production of this species is based on semi-intensive culture. There are currently over 5,800 acres of production ponds in operation. These have yielded over 7.1 million pounds of shrimp tails in 2001, with a market value of a little over Bz\$48.7 million. Almost all of the farmed shrimp production in Belize is geared for the export market. Thus far, this has been mainly limited to the US market, although there is an evolving interest in targeting the EU and other markets.

Apart from the generation of foreign exchange earnings, the industry is also important in providing employment and income for rural communities, especially in relation to processing activities. Other benefits of shrimp farming and aquaculture development in Belize includes enhanced business opportunities for ancillary services such as freight haulage and customs brokerage, as well as enhanced country side development in terms of public electrification and road construction.

Shrimp farming and by extension aquaculture development in Belize has also had some environmental consequences. Although these impacts have not been quantified or systematically assessed, the more likely impacts include species interactions from the introduction of exotic species and the impacts of sediments, BOD compounds and nutrients on sensitive coastal ecologies, such as the reef system. Factors that have contributed to the

success of shrimp farming include the availability of suitable land, the existence of a trainable work force, and expanding public infrastructure and support services.

While shrimp mariculture contributes significantly to the national economy, there are several constraints faced by this sector, which may impact the long-term sustainability of the industry. These include the scarcity of suitable coastal lands, the impacts of pathogenic diseases and the potential for future reoccurrences, the heavy reliance on imported inputs such as seedstocks and broodstocks, and the high costs of development and operational inputs.

The future development of the aquaculture industry hinges on the adoption of plans and the policies that would result in the production of high quality, safe, affordable and wholesome aquaculture commodities that are produced in an environmentally sound manner. Also key are opportunities for commercial profit, social justice and sustainability in all aspects of the industry. The strategic objectives to realize this goal include: maximizing biological production, optimising environmental “carrying capacity”, minimizing crop failure, ensuring that the country remains competitive as a shrimp farming location and other aspects of aquaculture, and expanding the socio-economic benefits to be derived from aquaculture.

6 Socio-economic attributes

According to Central Bank (2002) reports, real economic growth in Belize slowed to 4.6% in 2001 compared to 10.8% in 2000. This was mainly due to declining revenues from international markets and the diverse impacts of recent hurricanes. The main engine of continued growth was the primary sector, particularly forestry and fishing (36% growth), and specifically shrimp farming within the latter. Shrimp farm productivity declines due to disease were outstripped by expanding pond areas. In the marine capture fisheries, Hurricane Keith’s destruction of habitat and lobster traps reportedly cause a 2001 decline in harvest of 24% compared to 2000. Conch recovered by a 2% increase in landings as sea grasses recovered from Hurricane Mitch. Hurricane Iris disrupted fishing in southern locations in 2001.

The leading productive sector and mainstay of the rural economy is agriculture, of which fisheries is a sub-sector. At least, 35% of Gross Domestic Product (GDP) and 41% of total employment is directly dependent on agriculture, fisheries and forestry. This is because 90% of all manufacturing is based on inputs from or for the primary sectors of agriculture, fisheries and forestry (MAFC 2002). Over 27% of the employed population is found in these sectors combined, but males (37.0%) dominate the national workforce compared to females (6.5%) (Central Bank 2002). Belize’s trade is dominated (88% in 2000) by agricultural exports, particularly of the traditional products (sugar, bananas and citrus) plus, in recent years, marine products. These crops and fish products accounted for 83.3% of domestic exports and 94.5% of total agricultural exports (excluding forestry products). Over 75% of all farmers, the majority of whom are small-scale (often slash and burn or “milpa”), are poor. These farmers include recent immigrants from other countries in Central America, who work primarily as farm labourers in the citrus and banana industries.

The fisheries sub-sector has been of growing importance to the Belizean economy since the 1970’s. Contribution to employment (over 3,200 fishers), GDP (5%), and foreign exchange earnings by capture fisheries and aquaculture, rank this industry third in importance to the economy of Belize (MAFC 2002). Fishing has traditionally revolved around lobster and conch harvest for export, but shrimp and finfish are now also important to the economy, the latter including recreational fishing. Part-time commercial finfish harvesting is significant. There are small harvests of stone crabs, marine aquarium fish, seaweed, sharks, squids and scallops.

Exports of fisheries products, valued at approximately \$66.5 million in 2000, are expected to continue increasing due to the growth of aquaculture. Farmed shrimp (\$46.1 million) is the largest contributor to foreign exchange followed by lobster (\$15.9 million) and conch (\$3.9 million) in 2001. Total pond acreage under aquaculture production exceeds 5,100 acres, with 14 farms being operational.

According to Belize's national food and agriculture policy 2002-2020, the key to fisheries development is the fishers themselves since sustainable development must be "people centred" and focused on involving the stakeholders (MAFC 2002). The policy identifies increases in the number of licensed fishers, lack of enforcement capacity and consequent depletion of resources as serious constraints on achieving national goals.

6.1 Markets

Diversification of fisheries has not worked well over the years. The Fisheries Department has encouraged diversification of production from a few high value target species such as conch, lobster and large predatory aggregating finfish species, to the harvesting of deepsea stocks. Of recent interest in traditional fishing areas are untargeted or underutilized species such as the blue crab (*Callinectes sapidus*), the mangrove oyster (*Crassostrea rhizophora*) and the mackerel (*Scomberomorus maculatus*). The primary impediments have been a lack of knowledge of the abundance and distribution of deep-sea stocks, as well as the lack of financial capital, technology and know-how to capture, process, and market these species.

The overall thrust of the national policy is to engender self-sufficiency in terms of the production of a stable and reliable supply of products for the local market, and to expand production from all available sources for the export market, being mindful of the need to be competitive, both in terms of prices and quality, and keeping production activities within the limits or carrying capacity of the environment.

With regard to the capture fishery, the focus is still on a few high-value species in shallow marine environments. Product form has also remained largely unchanged, and in the case of exported commodities has been limited to fresh frozen products. The main destination for these products has been the US market, with limited attempts being made in recent times to target the EU market. The promotion of value added processing to generate new product forms for both the domestic and export markets also has positive implications for the future of the fishing industry. The fishing industry employs over 500 processing and market workers. Another avenue of diversification of the industry is through aquaculture.

6.2 Poverty profile

A 1995-1996 national poverty assessment undertaken through the Caribbean Development Bank (CDB) (Kairi Consultants 1996) still provides the most comprehensive information on the topic. Some of the key findings were:

- ◆ 25.3% of households or 33% of the total population fell below a national poverty line of Bz\$1,287.48 for an adult; this was highest in the Toledo (southern) district
- ◆ 9.6% of households or 13.4% of the population were indigent or extremely poor, with resources valued at less than Bz\$751.32 per annum; this was highest in the Toledo (southern) district
- ◆ 23.6% of male household heads and 30.5% of female household heads were poor
- ◆ 20.6% of the urban population and 42.5% of the rural population were poor
- ◆ Poor dominated the agriculture and fishing sector with 49.4% in the lowest quintile, and their participation in this sector was highest in the Toledo and Stann Creek districts

- ◆ Poverty gap was highest in the Toledo district (21.8%) and lowest in Stann Creek (4.9%)
- ◆ 76.3% of heads of households had achieved no higher than primary education
- ◆ There was a general problem of solid waste management throughout Belize
- ◆ Poverty among the Maya was about twice the national average
- ◆ Poverty among youth was 31.6%, and 27.6% among the elderly

There is no known research specifically on poverty in coastal communities, although the issue arises in several of the studies undertaken by government, international agencies and NGOs.

Considering gender, Ramos (2002) uses a comparison of the 1991 and 2000 census results to suggest that, although now only a small proportion of women are engaged in home duties, their participation in policy decision-making is also still low. Women constitute about half the population and labour force, but in 2002 there was only one female minister of Cabinet. Six out of twenty government Chief Executive Officers were women. The majority of trained women are in low to mid-level technical and management posts in both the public and private sectors.

6.3 Causes of poverty

The poverty assessment identifies five main causes of poverty in Belize:

- ◆ Historical underdevelopment, especially of the south that maintains a traditional culture and subsistence economy
- ◆ Substantial influx of poor and uneducated immigrants, many of them refugees, to the south
- ◆ Negative impacts on foreign exchange earning sectors from the international economy through trade liberalisation and advances in technology eroding the advantage of low wages
- ◆ Deficiency in human resource development, education and training, limits growth and economic transformation
- ◆ Difficulty in resolving macro-economic problems reduces expenditure in vital infrastructure and services while maintaining higher than desirable unemployment and underemployment

The report also lists underlying or maintaining factors such as:

- ◆ Poor income and employment generation in key productive sectors
- ◆ Rapid population growth
- ◆ Limitations of the existing safety net due to resource inadequacies
- ◆ Limitations in physical infrastructure
- ◆ Weaknesses in social infrastructure
- ◆ Gaps in the institutional infrastructure
- ◆ Poor community organisation

6.4 Responses to poverty

The government has articulated a National Poverty Elimination Strategy and Action Plan 1998-2003, prepared by a multi-stakeholder National Human Development Advisory Committee (NHDAC) chaired by the Ministry of Economic Development. The NHDAC (1998) identifies a three-pronged strategy to combat poverty in Belize:

- ◆ Poverty alleviation e.g. short term social assistance
- ◆ Poverty reduction e.g. medium to long-term infrastructural activities
- ◆ Poverty elimination e.g. long-term infrastructure plus social and economic planning

The government sees a clear link between poverty and the environment, with poor and marginalised people being most impacted by development initiatives that harm and degrade the environment. Consequently, the involvement of communities in environmental management is

critical in creating equitable balances between economic, social and physical development. Six broad themes were identified, through district and national consultations, to be part of the national strategy:

- ◆ Economic growth for employment and livelihoods
- ◆ Investment in human capital through education and training
- ◆ Investment in health services and health care delivery
- ◆ Housing shelter and human settlement
- ◆ Social vulnerability and safety nets
- ◆ Protection and conservation of the environment

Community level environmental management initiatives are supposed to be funded via the international Global Environmental Fund (GEF) and the national Protected Areas Conservation Trust (PACT). For coastal resources, the negative impacts of protected area use, tourism and land based sources of pollution are the main concerns (NHDAC 1998).

6.5 Effectiveness of responses

Although the bigger picture must be taken into account, this section relates mainly to coastal resources. Kairi Consultants (1996) note that the Fisheries Department has provided coherence to the sector, mainly through fishing cooperatives, but lacks the personnel and equipment to be fully effective. They suggest that the principle of co-management is well established in Belize through the FAB, which could be a mechanism for ensuring equity of fishing licence distribution among the districts and coastal villages. While fishing is a major contributor to income and employment, especially in the south, it is unlikely to significantly reduce poverty on its own due to spectre of overfishing. The greatest threat in this regard may not come from legal residents.

Local government poverty alleviation, reduction and elimination interventions in areas of high indigenous populations (especially in Toledo) need to take traditional authority structures into account. Indigenous populations are concerned that government promotion of village councils will undermine and replace traditional authority such as the alcalde system. However, lack of good local leadership also plagues many small communities, according to the poverty report. The latter also describes inadequate institutional coordination among and between government, NGO and CBO interveners as being wasteful of scarce human and financial resources. Better institutionalisation of social partnerships is a recommendation of the poverty assessment. More multi-stakeholder decision-making, rather than just consultation and implementation, is required (NHDAC 2000). This includes the government representatives on collaborative bodies being given more decision-making authority than at present.

Despite poor coordination, Belize's very active NGO community is an asset to poverty strategies since they reach at least as far as government into remote communities. Much technical assistance and credit to improve quality of life has come through NGOs. Working through the NGO umbrella organisations may improve efficiency. Some of the NGOs are politically active, and this may have consequences for their engagement by successive governments. Advocacy and assistance to empower and educate rural women is also prominent. The NHDAC (2000) recommends that government focus on its planning and facilitation functions while delegating more implementation to NGOs, CBOs and private sector organisations. The National Human Development Report for 1999 notes that devolution and decentralisation of power and authority by government has been manifested mainly in village and town council legislation (NHDAC 2000). However, it notes that many Belizeans are not convinced of real gains in democratic governance, and that more local level initiatives are needed to build the capacity for effective decentralisation.

7 Community-level institutional and organisational arrangements

Turning from the resource system, we now focus more on the human system. The two are inextricably interwoven. In Figure 7.1 the scales of institutional analysis expand outward and are nested to show their linkages and inter-dependence. Scales larger than community level are labelled external for the purpose of analysis and addressed in the following chapter. The FAB is a national level multi-stakeholder advisory body. In this case the term “community” refers to a community of interest and membership. The members of the Fisheries Advisory Board are the community in this case and their sphere of operation is at the level of the country.

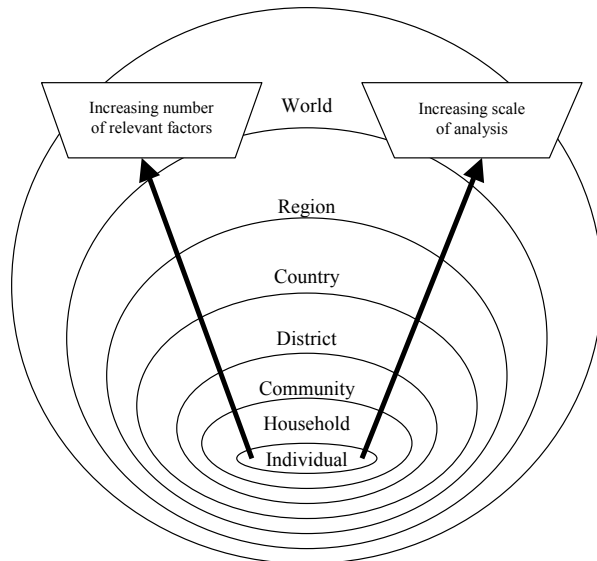


Figure 7.1 Number of factors to be addressed increases with scale of institutional analysis

Institutions are the customary rules and modes of interactions that people develop in order to effectively carry out their functions. Organisations are formal groups within such institutions. Factors of interest in an institutional assessment include those in Figure 7.2. They are relevant to how co-management may function, and be sustained, or fail.

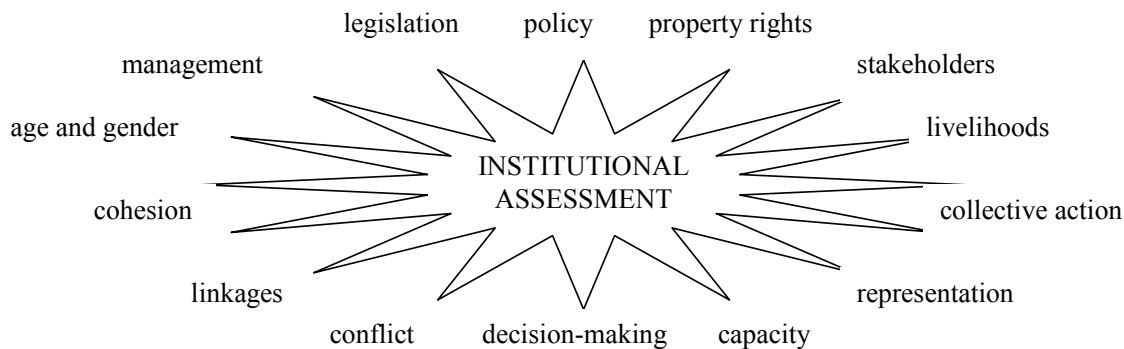


Figure 7.2 Some of the factors to be considered in institutional assessment

7.1 Fisheries Advisory Board

Thompson (1944), in his report on the fisheries of British Honduras, recommended the establishment of a fisheries department and a multi-stakeholder advisory committee. This was consistent with recommendations made for other British territories around the same time. The Fisheries Advisory Board (FAB) was formed in 1965 (Strasline 1988).

7.1.1 Terms of reference

From inception to the present, the FAB has never been incorporated into legislation. It has remained an administratively constituted body. It exists and operates at the pleasure of the government of the day and the public service.

Minutes of the FAB and other documents from the 1960s to 1980s describe the terms of reference of the FAB as:

- ◆ To advise the Minister on all measures proposed for the organisation, improvement, management and continued development of the industry
- ◆ To initiate proposals to government for the orderly continued development of the industry
- ◆ To recommend practical measures for the control of the industry and to keep a close watch on the marketing facilities both at home and abroad
- ◆ To advise government on any matter pertinent to the fishing industry, which may from time to time arise

A 1998 Fisheries Department memorandum to the Minister that accompanied the selection of a new Board provided a different list of the proposed areas of responsibility as follows:

- ◆ The management and development of fisheries
- ◆ The plan for the management and development of fisheries in the fishery waters and any review of such plan
- ◆ The need for any amendment to the Act or Regulations
- ◆ Proposals for access agreements, joint venture investments in fisheries, or development projects in the fisheries sector
- ◆ Initiatives for the regional harmonisation of fisheries regimes, including any regional licensing scheme for foreign vessels, and
- ◆ Coordination of the policies and activities of government departments and ministries with respect to any of the matters contained in this regulation

The language is taken, to the word, from eastern Caribbean harmonised fisheries legislation. The memorandum also states that FAB responsibilities extend to examining private sector development investments, and that it can commission the preparation of proposals or reports related to fisheries development. Another far-reaching statement is that the “Minister in charge of fisheries will be obligated to carefully consider all recommendations of the FAB before deciding on a course of action”. The contents of the memorandum reflect the views of the Fisheries Administrator at the time, but there is no evidence that it had the weight of policy.

Jacobs (1998:1) notes that the FAB was established “to ensure that the interests of all concerned are protected when decisions affecting the Fisheries Sector are being made.” He goes on to say that “Fishers in particular, have an opportunity to be heard before policies are formulated which can adversely affect them, and the board has the responsibility of finding the most appropriate balance when making management recommendations”. These statements reflect a responsive rather than proactive perspective that fishers are especially likely to be

impacted negatively by coastal and marine policy, due to competition or conflict with other interests.

7.1.2 Structure

The Minister typically appoints Members upon the joint advice of the Permanent Secretary (PS) and the Fisheries Administrator who use objective criteria for their nominations (Jacobs 1998). These criteria that apply to the final overall skills set of the Board include:

- ◆ Knowledge of the fishing industry
- ◆ Experience within the fishing industry
- ◆ Active engagement in a sector that is closely related or overlaps with the fishing industry
- ◆ Expertise in legal matters and especially the Fisheries Regulations
- ◆ Knowledge of maritime transport in Belize
- ◆ Expertise in management and development planning

In the selection of members the first priority is adequate representation of fishing cooperatives and independent fishers (Jacobs 1998). The next priority is said to be the selection of a chairman who has no or few commercial interests in fisheries. This is in order to minimise conflict of interest and to promote transparency. The chairman may select a vice-chairman from among the other members. Besides the Fisheries Administrator, the other official always represented is the Registrar of Cooperatives. The number of other members falls between seven and twelve. The FAB reports to the Permanent Secretary responsible for fisheries who is supposed to represent the views of the FAB to government in matters of fisheries policy. In the 1998 memorandum, "fishermen on the FAB will be obligated to represent the views of fishermen from the constituencies they represent". On the face of it, this seems to set up tension between the representation of the FAB, as a whole, by the chairman or PS versus the fishers who are mainly representatives of cooperatives that are only loosely responsible for different geographic areas.

The composition of the FAB has remained fairly stable over time, with changes reflecting the issues of the day, reflected particularly by the inclusion of enforcement agencies when illegal fishing rose from a high to a higher concern. The chairperson (including one woman) has usually been a prominent person from the business community, with knowledge of the public sector, who is appointed by the Minister on recommendation from the Fisheries Administrator and Permanent Secretary. The Fisheries Administrator often served as secretary, although this arrangement has been criticised because it potentially limits the amount of input that the Administrator can make in a meeting while also recording the proceedings. Several members have had long periods of service of over 10 years, and some up to 25 years. Since its inception over 60 people have served on the FAB. Some of the organisations and interests have included:

- ◆ Attorney-at-Law
- ◆ Belize Audubon Society
- ◆ Cooperatives Department
- ◆ Fisheries Department
- ◆ Fishing cooperatives and secondary body
- ◆ Independent fishers
- ◆ Ministry of Economic Development
- ◆ Police, Customs, Defence Force marine wing
- ◆ Port Authority
- ◆ Private sector (often as chairperson)
- ◆ Tourism industry

The Board occasionally forms sub-committees, normally chaired by the Fisheries Administrator, to conduct further investigations and make recommendations to the full Board. In 1998 the Fisheries Department, recommended the establishment of a permanent technical advisory committee, in order to provide “independent technical advice to the FAB”. It suggested that the members be drawn from industry, government, university and the NGOs. This apparently did not progress beyond being a suggestion. In the document it is made clear that the Fisheries Department wanted to ensure that the FAB would not duplicate its functions.

7.1.3 Operations

Whether or not the Fisheries Administrator was Secretary or not, the Fisheries Department served as secretariat. This entailed analysing matters for decision prior to Board meetings and presenting recommendations for consideration. Almost any type of activity for which government permission was specifically required, such as all types of licences, came before the Board. Once any matter concerning fisheries was deemed by members to be in the national interest it usually received the attention of the Board. Often this was accompanied by relevant presentations from project proponents, other government departments or specialist expertise. Regarding transparency, “subject to procedures established by the Board relating to confidentiality”, all documents of the Board are to be available for public inspection and copying.

Jacobs (1998) describes decisions of the Board as having to be by consensus, failing which arguments with no decision taken were presented to the Minister for his decision. Recent Board meeting minutes show decisions being taken by majority vote. This was not an explicitly planned change in the mode of decision-making. Key informants agreed that in the absence of a legal constitution many changes in the operation of the Board reflected the preferences of particular chairpersons or influential members. An example is this change in decision procedure.

Meetings are supposed to be held monthly on an agreed schedule, but records show that lack of quorum and postponements were not uncommon. Five members, including the chairman or vice-chairman, has been the typical quorum. Members may have to vacate their positions for:

- ◆ Reason of resignation or revocation of appointment
- ◆ Missing more than three consecutive meetings
- ◆ No longer representing a fishing cooperative
- ◆ Being associated with illegal fishing activities
- ◆ Misconduct, after a 2/3 majority vote of members

7.1.4 Constraints and way forward

Jacobs (1998) identified several constraints that prevent the Board from functioning optimally.

- ◆ No mechanism to fund the operational expenses of the Board (e.g. travel, remuneration)
- ◆ Personal or organisation expenses are high due to travel distances and schedules
- ◆ Being at the mercy of politicians and officials having not been established by legislation
- ◆ Lack of constructive working relationships between some cooperatives causes conflict
- ◆ Scarcity of technical expertise on the Board and no budget with which to hire expertise
- ◆ Minimisation of input by the Fisheries Administrator who has to function as Secretary

These points have been sources of contention for some time. There now exists a draft bill that seeks to replace the Fisheries Department with a new statutory entity to be called the Fisheries Development Authority (FDA). The FDA would be governed by a board of directors and have its own advisory committees, as described in detail later. The proposed formation of the Fisheries

Development Authority will provide a legal basis for the body that replaces the Board, and there may be payment for the services rendered by members, or at least the coverage of the personal expenses of participation.

Although Jacobs, writing in 1998, did not foresee the Fisheries Development Authority he made a number of recommendations for the future of the FAB. These address constraints by:

- ◆ Legalising the FAB to improve motivation
- ◆ Covering membership participation costs
- ◆ Increasing cross-sectoral representation
- ◆ Allocating cooperatives one representative
- ◆ Forming a permanent technical sub-committee
- ◆ Establishing a fund for the Board’s operations

The increase in multi-stakeholder participation was recommended in order to obtain inputs from recreational and sport fishers, include more non-government and civil society perspectives, add environmental conservation concerns and otherwise broaden representation. The aquaculture industry is conspicuously absent from the FAB, although a recent chairman had considerable interest in the sector. The sections below profile the current membership. The Fisheries and Cooperatives Departments, and the fishing cooperatives, are the key members of the Board.

7.2 Fisheries Department

The Fisheries Department was established shortly after the FAB was formed. The Ministry of Agriculture, Fisheries and Cooperatives (MAFC) is responsible for formulating, executing, monitoring and coordinating policies in these three areas, each of which forms a department in the ministry. Under the Fisheries Act, the Fisheries Department manages the fisheries industry, which includes aquaculture and marine reserves. The mission of the Fisheries Department is to *“provide the country and the people of Belize with the best possible management of aquatic and fisheries resources with a view to optimize the present and future benefits through efficient and sustainable management.”* The structure of the Fisheries Department reflects its focus on the capture fishery industry, aquaculture and ecosystems management, which includes marine protected areas (MPA) management (Figure 7.3).

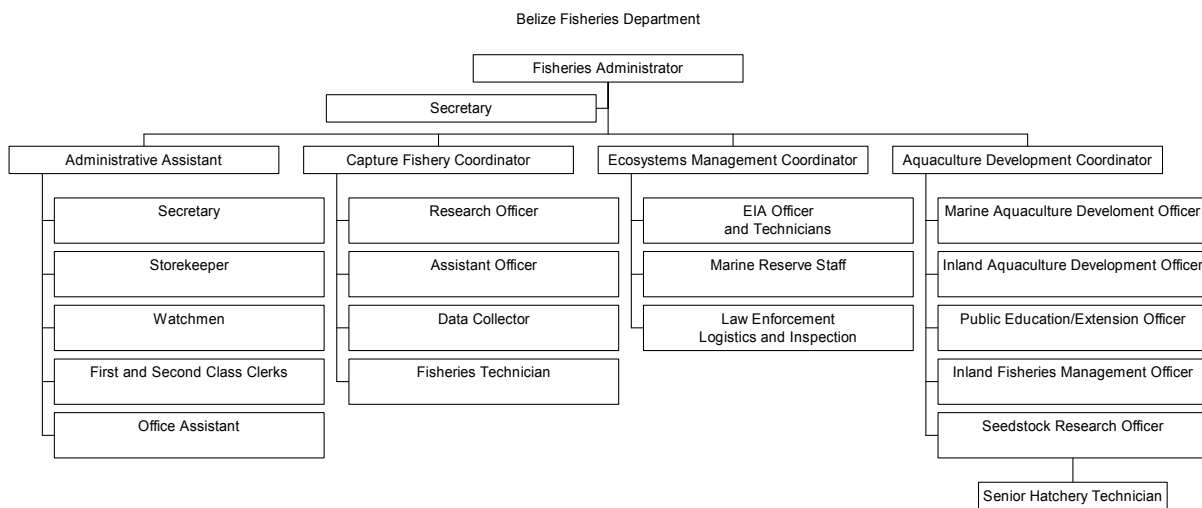


Figure 7.3 Structure of Belize Fisheries Department

According to the budgetary notes for 2002/2003 the functions of the Fisheries Department are

- ◆ Administration of fisheries laws
- ◆ Basic and industry related research
- ◆ Quality control of marine produce
- ◆ Training, demonstration work and administration of modern technology to fishermen and fish processing establishments
- ◆ Protecting the marine environment

There were 19 people on the established staff in 2002/2003 plus several more who were not appointed to established public service posts. The departmental budget is about a half-million Belize dollars, of which 90% is salaries, leaving a very small operational amount for performing its functions (Figure 7.4).

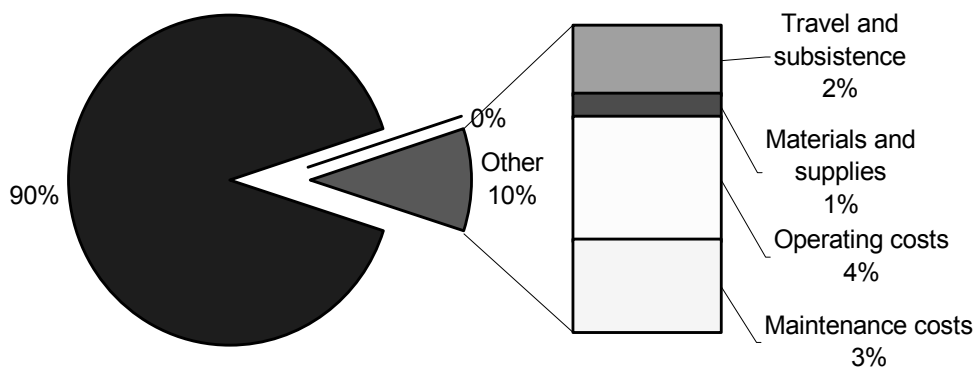


Figure 7.4 Breakdown of Fisheries Department expenditure budget 2002/2003

During the period of investigation the department had virtually no operational funds due to the government's policy of fiscal restraint. The Fisheries Administrator is still the only "technical" person on the Board in respect of fisheries science. Assistance has been obtained from the Caribbean Regional Fisheries Mechanism (CRFM) in some areas of support to the Board such as an analysis of the status and management of the shrimp fishery.

There is no comprehensive, completed, fisheries management plan, but there are gear restrictions, size limits, and closed seasons applicable to most of the fisheries previously described. Government resources are inadequate to patrol the waters of Belize or to fully enforce these regulations. The enforcement arm of the Fisheries Department lacks enough personnel and equipment, and has too poor logistical distribution, to be effective. Other marine enforcement agencies are not much better off. The Fisheries Department regulates issuance of fishing, boat and other licenses, but does not effectively limit entry or control fishing effort. Marine reserves have been established under the amended Fisheries Act to assist fisheries management by replenishing heavily exploited stocks, while also protecting essential habitats.

Through external funding the Fisheries Department implemented an integrated coastal zone management project that spawned the Coastal Zone Management Authority and Institute (CZMAI) that is described later. Therefore, for several years, the Fisheries Department and the Fisheries Advisory Board saw after the broader interests of integrated coastal management. Now that they are separate, tensions exist between the Fisheries Department and the Coastal Zone Management Authority and Institute due to their history and the personalities involved. A

source of friction through dependency is the payment of marine reserve staff from CZMAI funds. The issue of real or potential legal jurisdictional overlap has been a longstanding issue, but this appears to be resolved for the present, with the CZMAI staying clear of commercial fisheries.

7.3 Cooperatives Department

Credit unions, producer cooperatives and service cooperatives have been promoted in Belize for more than 55 years. They constitute an important engine of national development with avenues for skills development, employment creation, income redistribution, rural development, import substitution and foreign exchange earnings at relatively low cost to Government. Cooperatives are promoted as the best means available to the average man and woman to counteract poverty by identifying their common needs and pooling their resources to meet those needs. Their growing popularity has resulted in increased membership and assets.

The cooperative movement provides services in coastal and hinterland communities, and is said to support opportunities for employment and empowerment of youth and women. In 2000 there were 43 functioning registered societies (15 credit unions, 28 cooperatives) spread throughout Belize. The cooperative movement's combined membership is in excess of 69,000 people. In addition, about 2,000 small and micro entrepreneurs are affiliated to fishing, farming and honey-producing cooperatives. Credit union assets exceed \$196 million with loans outstanding in excess of \$158 million in 2000.

The mission of the Cooperatives and Credit Union Department is *"to enable the common person to generate income and self improvement through organized group enterprises based on cooperative philosophy and principles for sustainable development."* It operates under the Cooperative Societies Act. The legislation has been constantly updated to keep pace with the recent rapid growth of credit unions that has been a phenomenon throughout the Caribbean, even where producer cooperatives are weak.

The Government of Belize (MAFC 2002) has policies for cooperatives with six broad objectives:

- ◆ Assure the effective participation and full integration of women in cooperative development at all levels.
- ◆ Improve the management, economic and financial viability of cooperatives and credit unions.
- ◆ Strengthen the monitoring, inspection and supervision of credit unions and cooperatives
- ◆ Provide the legal environment, which will allow societies to operate as businesses.
- ◆ Increase the capacity of rural communities
- ◆ Enhance public confidence in credit union and cooperative enterprises.

The budget of the Cooperatives Department is only half that of the Fisheries Department, but again about 90% of it goes to salaries. For the purpose of the FAB, however, the relevant point is the presence of the Registrar on the Board to look after the interests of fishing cooperatives. This was more important in the initial stages of the Board and cooperatives movement. Now the fishing cooperatives represent their own interests very effectively.

7.4 Fishing cooperatives

There are 28 active agriculture/marketing cooperatives with a total membership of about 700 and gross revenue of \$0.8 million. These societies deal with commodities such as fruits, vegetables, grains, root crops, livestock and dairy products. However, the most successful

cooperatives in Belize are fishing cooperatives. Northern was the first cooperative, established in 1960. Up to a dozen fishing cooperatives have been formed over the years. Several failed.

There are now 4 active fishing cooperatives (Northern, Caribena, National and Placencia) with a total membership of 1,285 and assets of \$20.1 million. In 2000, fishing cooperatives' seafood exports exceeded \$19 million, representing more than 28% of total fish exports. Belize is reputed to have the most successful fishing cooperatives in the CARICOM region; their success based on exports from the capture fishery sector. Fishing cooperatives enjoy exclusive privilege of marketing most marine products, including lobster, conch, shrimp, scale fishes, fish fillets and crab claws (Vasquez 1984).

Despite these advantages and successes, problems of disloyalty, delinquency and financial mismanagement are said to exist (Ministry of Agriculture 1997 and 2002). Problems have reportedly developed in relation to the disbursement of credit and the recovery of debts. Fishing cooperatives have become primary lending institutions, and contrary to the situation with farmers, there are often no collateral requirements to access credit. Loans are disbursed to fishers on the basis of their potential to produce. This has resulted in significant delinquencies in loan repayment. Managers are reportedly reluctant to recover loans, and they lack a dedicated mechanism to monitor the activities of fishers to ensure that loans are repaid. Some observers identify a need to reform the system through legislation and the implementation of monitoring and accounting procedures. Informants concluded that cooperatives have succeeded despite rather than because of their leadership, mainly due to concessions and privileges offered by government. Under these generally favourable conditions, threats to fishing cooperative success come mainly from illegal fishing (e.g. under-sized fishing, out-of-season fishing, foreign fishing). The fishing cooperatives are reportedly the most powerful members of the FAB.

7.5 Other members

In comparison to the previous three members, the others are far less prominent. Often they are absent from meetings and there are fewer contributions from them recorded in the minutes.

7.5.1 Tourism

Like elsewhere in the Caribbean, tourism is of high and growing importance to the economy. Seasonality in tourism is declining with the increasing arrivals of summer tourists (Central Bank 2002). Americans were 53.7% and Europeans 11.8% of land and air arrivals in 2001. Cruise ship arrivals increased from 30,000 to 40,000 passengers over the last 2 years and continuing increases are expected. Visitors, with their local tour guides, are heavy users of the coastal and marine environments. The Belize Tourist Board regulates the tourism industry, including the expanding cruise ship industry, which many view as a growing threat to ecologically sensitive areas.

The Tourist Guide Regulations require that all tour guides meet standard levels of professional training and licenses can be revoked for non-compliance with environmental or other regulations. This may be jeopardized by new pressure within the industry to accommodate the mass-tourism market rather than the traditionally small-scale ecotourism market. There is particularly heavy and increasing pressure from the cruise ship industry, which now has up to five large ships arriving in Belize City on one day. The infrastructure and services for tourists, particularly on the barrier reef, are the main sources of interaction with the fishing industry. At present the tourism representative on the FAB is the Belize River Lodge.

7.5.2 Ministry of Economic Development

The Ministry of Economic Development representative on the FAB is usually be the person handling fishing industry concessions, and is not intended to be a person appointed for the purpose of integrating economic sectors through the Board. Generous developmental fiscal incentives, not sufficiently linked to environmental management, have been blamed for contributing to environmental degradation, despite the screening of infrastructure and other projects to mitigate negative impacts.

7.5.3 Environmental NGO

The NGO community plays a major role in environmental planning and management in Belize. They work individually, or collectively through the Belize Association of Conservation NGOs (BACONGO). The Belize Audubon Society (BAS), a membership organization, is the conservation NGO on the FAB. The BAS manages and co-manages several terrestrial and marine protected areas. The latter are Half Moon Caye and Blue Hole Natural Monuments. There have been longstanding disputes with the Belize Fishermen Cooperative Association over access to and use of some of the areas included in these protected areas.

7.5.4 Independent fishers

Gibson (1978) noted that the higher failure rate of southern fishing cooperatives could be due to these people, most of whom are Garifuna, typically being farmers who only fished part-time. Using inefficient fishing methods compared to the north, they were consistently less productive and found it difficult to support the cooperative system. Most of the independent fishers are in the south of the country and their representative usually comes from the largest town in the area, Punta Gorda. The Rio Grande fishing cooperative has recently been re-established there, and this pattern of representation may change.

7.5.5 Legal adviser

The Board frequently considers statutory instruments and other legislative matters. A member with legal training is provided in order to minimise the occurrence of legal loop-holes in the policy recommendations of the Board, particularly since many of them are submitted to the Cabinet for decisions (Jacobs 1998).

The FAB is only one body in the complex institutional landscape of integrated coastal management in Belize. There are as many, or more, agencies and groups outside of the FAB.

8 External institutional and organisational arrangements

Moving beyond the membership of the Fisheries Advisory Board there are several institutions and organisations that impact on the work of this body in the context of integrated coastal management. Belize is a country of numerous institutions and organisations at several levels. This section focuses on only a few, and on the institutions affiliated with the CZMAI in particular. The prospect of an entirely new set of arrangements through the introduction of the Fisheries Development Authority is also examined in some detail.

8.1 Coastal Zone Management Authority and Institute (CZMAI)

Prior to coastal management organisations, the principal inter-ministerial coordinating body dealing with coastal matters in the context of environmental management was the Physical Planning Sub-Committee. It became dormant in 1993.

Recent coastal zone management (CZM) in Belize originated at a workshop in San Pedro in 1989 where it was recognized that an integrated, holistic approach to management of Belize coastal resources was necessary. The participants at that meeting recommended that a CZM Unit be established under the Fisheries Department to initiate the required integrated CZM program. By 1990, a small CZM Unit was functioning and a CZM Technical Committee was established. In early 1993, a GEF/UNDP CZM Project was launched, providing significant financing that made integrated CZM in Belize a permanently established national programme.

The CZM Act was passed in April 1998, and became operational in May of that year. Some terms are defined in Box 8.1, and identified legal-institutional deficiencies have included:

- Legal definition of coastal zone refers only to areas under the high water mark, excluding the mainland and caye areas that affect the barrier reef
- The Authority is primarily an advisory and consultative body rather than a regulatory one
- No agencies are required to consult with the CZMAI since it has no regulatory powers
- The fisheries authority feels that overlap exists between coastal zone and fisheries legislation, but this is not clear, and the uncertainty fuels tensions between the agencies

Box 8.1 Legal interpretations of coastal management terminology in Belize

“coastal zone management” includes the conservation of the Barrier Reef and other coastal resources, and the planning, management and sustainable development of resources within the coastal zone;

“coastal waters” means the sea, as that term is defined herein, and those waters adjacent of the landward line of the adjoining land, or of land connected permanently or intermittently with the sea, which contain a measurable quantity of seawater, including but not limited to sounds, bays, lagoons, ponds and estuaries;

“coastal zone” includes the area bounded by the shoreline up to the mean highwater-mark on its landward side and by the outer limit of the territorial sea on its seaward side, including all coastal waters;

Source: Coastal Zone Management Act, Chapter 329, Laws of Belize

Despite its deficiencies, the Act frames the institutional arrangements for CZM in Belize through the establishment of a CZM Authority and its technical arm, the CZM Institute. The Board of Directors of the Authority is appointed by the Minister to be the principal policy-making organ of the Authority, and is constituted as provided in Box 8.2.

Box 8.2 Composition of the Authority’s Board of Directors

- 15.(1) The Board of Directors shall consist of the following nine members:-
- (a) the Permanent Secretary of the Ministry responsible for Fisheries;
 - (b) the Permanent Secretary of the Ministry responsible for Forestry;
 - (c) the Permanent Secretary of the Ministry responsible for the Environment;
 - (d) the Permanent Secretary of the Ministry responsible for Economic Development;
 - (e) the President of the University of Belize;
 - (f) one representative from non-governmental organizations;
 - (g) one person representing the private sector;
 - (h) the Chief Executive Officer, *ex officio*, without a right to vote;
 - (i) the Director of the Institute, *ex officio*, without a right to vote.

(2) The non-governmental members of the Board shall be nominated by their respective non-governmental organization or network. Only persons who are qualified and are from organizations or networks recognized by the Minister shall be appointed after nomination.

Source: Coastal Zone Management Act, Chapter 329, Laws of Belize

The Permanent Secretary to whom the FAB reports represents the government's fisheries interests on the Authority's board. There is therefore the potential for exchanges of information and synchronisation. The board presides of the functions of the Authority that are in Box 8.3.

Box 8.3 Functions of the Coastal Zone Management Authority

5.-(1) The functions of the Authority shall be to:-

- (a) advise the Minister on all matters relating to the development and utilization of the resources of the coastal zone in an orderly and sustainable fashion;
- (b) advise the Minister on the formation of policies in regard to the coastal zone;
- (c) assist in the development and implementation of programmes and projects that translate the marine and related policies of the Government into activities that contribute to sustainable development of coastal resources;
- (d) assist in the development and execution of programmes and projects that foster and encourage regional and international collaboration in the use of marine and other related areas of the environment;
- (e) review the Coastal Zone Management Plan prepared in accordance with the provisions of Part V of this Act and furnish recommendations thereon, if any, to the Minister;
- (f) commission research and monitoring in any coastal area or in relation to any activity which may impact on such areas;
- (g) promote public awareness of the unique nature of the Belize coastal zone and of the importance of its effective conservation and the sustainable management and utilization of its resources for the benefit of present and future generations of Belizeans;
- (h) in consultation with governmental agencies, nongovernmental agencies and the private sector, assist in the preparation of guidelines for developers for coastal zone development;
- (i) co-operate with government departments, statutory boards, non-governmental organizations and the private sector on matters that are likely to have an impact on the ecology of the coastal zone;
- (j) in collaboration with government and private sector agencies, maintain a national coral reef monitoring programme and coastal water quality monitoring programme and any other technical monitoring programmes;
- (k) advise the Minister on any other matters relating to the coastal resources that may be referred to the Authority by the Minister.

Source: Coastal Zone Management Act, Chapter 329, Laws of Belize

Although no regulatory powers have yet been developed within the CZMA, it serves as the focal point for marine conservation planning, monitoring and research. The CZMA facilitates and earmarks funding for technical and management support in planning, implementing and environmental monitoring activities in the Belize Marine Protected Area System and advises the Ministry of Agriculture and Fisheries, the Department of Environment, the Department of Petroleum and Geology, and other relevant departments in matters related to the management and use of the marine protected areas. These departments regulate coastal resource use

through the issuing of development and mining permits in coastal areas. The CZMAI is seen as being conservationist rather than production-oriented, and this has contributed to a certain level of tension between the Fisheries Department and CZMAI. Some suggest that this is another reason for the exclusion of the CZMAI from the FAB. On the other hand the CZMAI has argued that the FAB cannot be expected to give objective management advice if its most powerful members, including the host agency, are oriented towards increased exploitation.

8.1.1 Coastal management Advisory Council

The Act also establishes an Advisory Council appointed by the Authority. Its function is to advise on technical matters pertaining to coastal issues and to facilitate coordination among agencies. This Council is comprised of a representation from the government, private sector, NGO community and academia (Box 8.4).

Box 8.4 Composition of the Advisory Council

6.(1) There is hereby established an Advisory Council appointed by the Authority consisting of -

- (a) the Fisheries Administrator;
- (b) the Chief Forest Officer;
- (c) the Chief Environmental Officer;
- (d) the Ports Commissioner;
- (e) the Commissioner of Lands;
- (f) the Director of the Office of Geology and Petroleum;
- (g) the Director, Belize Tourism Board;
- (h) the Principal Public Health Officer;
- (i) the Physical Planner in the Ministry of Natural Resources;
- (j) the Housing and Planning Officer, Housing and Planning Department;
- (k) two representatives from nongovernmental organizations, namely, one from a conservation organization, and one from the tourism private sector;
- (l) not more than two members from the private sector who are suitably qualified in or have technical competence and experience in one or more of the following disciplines:
 - (i) marine fisheries and aquaculture;
 - (ii) physical and engineering sciences;
 - (iii) marine technology;
 - (iv) environmental science;
 - (v) business management;
- (m) the Director, University of Belize Marine Research Centre;
- (n) the Director of the Institute, who shall be an *ex officio* member.

Source: Coastal Zone Management Act, Chapter 329, Laws of Belize

The Fisheries Administrator heads the list of Council members, and this provides additional opportunities for cross-fertilisation with the FAB. The functions of the Council are in Box 8.5.

Box 8.5 Functions of the Advisory Council

7. The functions of the Council shall be to:-

- (a) advise the Institute on technical and other related matters;
- (b) advise the Authority on any matter with a view to enabling the Institute to perform its

functions;

(c) at the request of the Authority, formulate draft policies, plans and programmes relating to coastal zone management;

(d) facilitate and encourage the sharing of information among government agencies, non-governmental organizations and educational institutions with regard to coastal zone matters;

(e) review the Coastal Zone Management Plan prepared in accordance with Part V of this Act;

(f) perform any other duties as may be assigned to it by this Act or any regulations made thereunder.

Source: Coastal Zone Management Act, Chapter 329, Laws of Belize

8.1.2 Coastal Advisory Committees (CAC) and Marine Protected Area Advisory Committees (MPACC)

The “National Integrated Coastal Zone Management Strategy for Belize” (CZMAI 2003) is intended, as an overarching document, to fulfil part of the requirement of the Act to prepare a coastal management plan. The role of the coastal authorities and development in poverty alleviation is referred to the strategy. It also acknowledges the important role and contacts of the Fisheries Department in the process of integration through stakeholder participation. During consultations on the strategy, the main fisheries-related concerns were about access to fishing grounds inside of marine reserves, and the incursions of foreign fishermen. The strategy envisages stakeholder participation in a series of regional coastal management plans for designated areas, each having a Coastal Advisory Committee (CAC).

The institutional arrangements at the local level are Coastal Advisory Committees (CAC) and Marine Protected Areas Advisory Committees (MPACC). These bodies (Figure 8.1) have elaborate terms of reference that essentially bring the roles of the national committees down to a smaller scale for purposes of planning, management and sense of ownership that includes increasing the legitimacy of content and process of instruments related to coastal management.

This multiplicity of institutions stretches the resources of the public and private sectors. The capacity, effectiveness and sustainability of these stakeholder committees have been examined and found wanting (Johnson 2002). Prominent in the long list of issues are:

- ◆ Lack of participation by key stakeholder organisations for logistic and other reasons
- ◆ Inadequate representation and poor information exchange with organisation members
- ◆ Poor integration with the system of village councils and their decision-making processes
- ◆ Uncertainty over the authority of the committees in relation to other coastal bodies
- ◆ Lack of information to participate meaningfully in technical and scientific decision-making
- ◆ Inefficient organisation and conduct of meetings due to lack of capacity and basic skills
- ◆ Tendency not to form sub-committees to get work done in more effective small groups
- ◆ Occasional cases of conflict among stakeholders with advantage taken of power inequities

The Act also provides for the preparation of a Coastal Zone Management Plan and for the introduction of fiscal measures to support the work of the Authority and Institute. In 2001, the CZMAI established development guidelines for nine coastal regions in Belize. The sub-regional approach is to facilitate more ‘bottom-up’ decision making and planning for coastal management. Placencia is located in the Placencia/Laughing Bird Caye Coastal Planning Region.

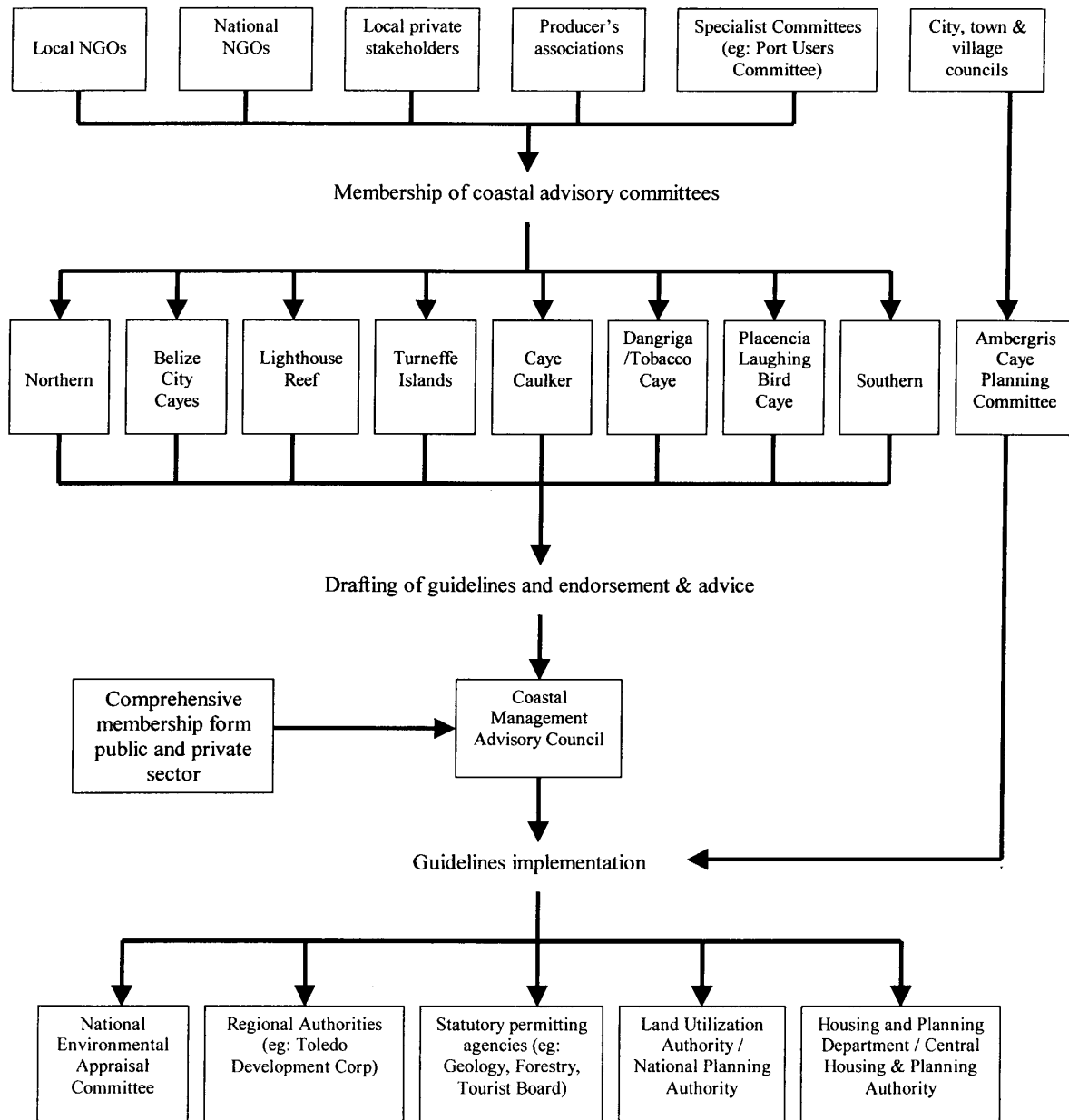


Figure 8.1 Committees in the integrated coastal management process

The guidelines have been prepared to guide current and future development activities on the cayes in the region. The guidelines are based on provisions set out in the draft National Integrated Coastal Zone Management Strategy. The purpose of the Coastal Advisory Committees is to review these guidelines and modify them to suit local need and interests. The strategy is also guided by the draft Cayes Development Policy of 2001 which is aimed to regulate caye development and coastal activities. The plan identifies development sites and specifies the types of land use, lot size, building density, means of utility supply and other relevant performance standards for each site.

Several other integrated committees have provided broad-based platforms to discuss policy development and the implementation of key programmes. The Barrier Reef Committee was established as a national forum for oversight of the World Heritage Sites and World Bank's Conservation and Sustainable Use of the Meso-American Barrier Reef System Project. A National Coral Reef Monitoring Working Group was formed to integrate and coordinate various reef monitoring efforts throughout the country. Given the large number of similar initiatives that are undertaken simultaneously by several local and external agencies there are always a few such groups that operate in addition to the formal legal-institutional arrangements.

The CZMAI has a Public Awareness/Education Program that engages the public in the CZM process. It also develops and disseminates public awareness material on the programmes of CZMAI. This is done primarily through the production of video and audiovisual materials, radio talk shows, the organizations quarterly newsletter Coastline, public education campaigns for communities, school visits, workshops/seminars, training, media releases and the provision of library services. In terms of other information and interaction, the CZM Institute organises training courses, supports other agencies involved in CZM, maintains coastal monitoring programmes, and spearheads preparation of a national CZM plan. The CZMAI lacks mechanisms for raising revenue to carry out its activities, except through external sources, but this may change as it expects to gain control over attractions for which user fees can be charged. The Act provides for sports fishing licences and use of natural resources within the zone.

8.2 Department of Environment

The Environmental Protection Act of 1992 provides the framework through which the much-understaffed Department of Environment enforces regulations preventing pollution (Jacobs 1999). Regulations for environmental impact statements and industrial effluents offer specific controls for industrial development. Although enforcement manpower is limited, the small scale of Belize's industrial sector aids the identification and control of potential sources of pollution. Belize has adequate environmental legislation but lacks enforcement and monitoring capacity. Under the Environmental Impact Assessment (EIA) regulations of 1995, the Department of Environment enforces regulations and, via the National Environmental Appraisal Committee, screens projects that may require EIAs. Similarly, the Land Utilization Authority is responsible for Special Development Areas, which are forms of strategic planning that provide zoning of land use. A zoning plan for Belize's marine waters will ultimately be developed by the CZMA within an overall Coastal Zone Management Plan.

8.3 Forest Department

The Forest Department of the Ministry of Natural Resources is responsible for administering the Forest, National Parks Systems and Wildlife Protection Acts and thus for all protected areas designated under them. Under the National Parks Systems Act of 1981, national parks are created "for the protection and preservation of natural values". The National Parks Systems Act provides for four categories of protected areas: national parks, nature reserves, natural monuments, and wildlife sanctuaries. The Wildlife Protection Act allows for protection on many coastal and marine reptiles, mammals, amphibians, fish and birds. Coastal areas listed as under the jurisdiction of this agency by the CZMAI (2001) include:

- ◆ Corozal Bay Wildlife Sanctuary (1998)
- ◆ Bacalar Chico National Park (1996) that also includes a marine reserve
- ◆ Caye Caulker Marine and Forest Reserve (1998)
- ◆ Half Moon Caye Natural Monument (1982)

- ◆ Blue Hole Natural Monument (1996)
- ◆ Laughing Bird Caye National Park (1996)

Ravndal (2002) stresses that the capacity and funding of the Forest Department is insufficient for it to be a meaningful co-management partner in these protected areas. (Also see Friends of Nature case study).

8.4 Belize Port Authority

The Belize Port Authority (BPA) maintains lighthouses within several marine protected areas and property holdings related to the lighthouses. Other issues related to BPA are its regulatory function of ship operation and navigation within the Barrier Reef System, and waste management and disposal. It has been represented on the FAB due to the importance of navigation and shipping as maritime activities. It also maintains a register of vessels.

An issue that still plagues the Fisheries Department is that the Belizean open ships' register was managed by a contracted external company as a strictly commercial undertaking. This resulted in Belize being identified as a country issuing a flag of convenience to foreign fishing vessels that do not comply with international conservation regulations. Belize has suffered several repercussions from this in the International Commission for the Conservation of Atlantic Tuna (ICCAT).

8.5 Community Management of Protected Areas Conservation Project (COMPACT)

COMPACT is part of a United Nations Foundation and UNDP/GEF Small Grants Program joint initiative to demonstrate how community-based initiatives can significantly increase the effectiveness of biodiversity conservation by complementing and adding value to conservation programs at six World Heritage Sites/Biosphere Reserves and globally significant coral reefs that includes the Belize barrier reef (PFB et al. 2001). Commencing in 2001, it is jointly implemented by the Programme for Belize (PFB), Belize Enterprise for Sustainable Development (BEST) and the Association of National Development Agencies (ANDA).

The main purpose of COMPACT is to promote and finance sustainable livelihood approaches and other community level interventions to help reduce threats to the barrier reef. It operates by awarding funds to projects proposed within certain themes. Sustainable fishing is one of the themes, with emphasis on sustainable responsible fishing practices and reducing pressure on fishing grounds. Another theme is developing co-management capacity particularly among traditional users, CBOs and NGOs. Community-based MPA co-management agreements did not exist before 1998 and there is still need to build capacity and consensus around the definitions and responsibilities of co-management.

Informants suggest that there is insufficient technical fisheries support for COMPACT small grants recipients from the Fisheries Department or other capable entities. This illustrates one of the problems with either the oversight function of the FAB being too narrow, or there being insufficient other opportunities for interfacing with projects that do not, on the face of it, have a strong commercial fisheries thrust but are still relevant.

8.6 Aquaculture

Aquaculture, primarily shrimp farming, was described under the resource assessment sections. This rapidly expanding industry has significant economic and political power, exercised most

recently to distance itself from the harvest sector by seeking exclusion or reduced control under the proposed Fisheries Development Authority (FDA) Act. In seeking to be treated differently from commercial fisheries the industry has not very actively sought representation on the Fisheries Advisory Board. At the time of writing, there was uncertainty over what would be the final status of aquaculture under the draft FDA bill.

Several government agencies including the Department of the Environment, CZMAI, Fisheries Department, Lands and Surveys, Belize Agricultural Health Authority, Office of Petroleum and Geology and the Ministry of Economic Development currently all play roles in the industry (Myvette and Quintana 2002). In 2000 some producers formed the Shrimp Farmers Association with a broad mandate to look after their collective interests. Of the conservation-oriented NGOs, the Belize Audubon Society has been the most vocal in regard to the impacts of shrimp farming on waterfowl and other aspects of ecology. Friends of Nature, an NGO based in Placencia, is concerned about impacts from the several shrimp farms around the Placencia Lagoon.

8.7 Environmental legislation

Belize has developed a National Protected Areas Systems Plan and a National Environmental Action Plan. These plans refer to a host of environmentally related legislation for which several reviews are available (McCalla 1995). The principal legislation includes:

- ◆ Ancient Monuments and Antiquities Act
- ◆ Crown Lands Act
- ◆ Environmental Impact Assessment Regs.
- ◆ Environmental Protection Act
- ◆ Fiscal Incentives Act
- ◆ Fisheries Act and amendments
- ◆ Forest Act
- ◆ Harbours and Merchant Ships Act
- ◆ Housing and Town Planning Act
- ◆ Land Surveyors Act
- ◆ Land Utilization Act
- ◆ Mines and Minerals Act
- ◆ National Lands Act
- ◆ National Parks Systems Act
- ◆ Pesticide Control Act
- ◆ Petroleum Act
- ◆ Port Authority Act
- ◆ Protected Areas Conservation Trust Act
- ◆ Public Health Act
- ◆ Solid Waste Management Authority Act
- ◆ Water and Sewerage Act
- ◆ Wildlife Protection Act

Ineffective institutional arrangements for collaboration and coordination; inadequate monitoring and enforcement; and insufficient capacity are frequently cited problems (McCalla 1995).

8.8 Fisheries legislation

The Fisheries Act applies to all waters within the Exclusive Economic Zone (EEZ) and can be extended by Ministerial Order to inland waters. Marine reserves, permitted through a 1983 amendment to the Act, are established for conservation of marine fauna and flora, preservation of fish spawning grounds and essential habitat, promotion of scientific study, natural re-stocking and enhancement of aesthetics (Box 8.6).

Box 8.6 Fisheries Act: arrangement of sections

1. Short title.
2. Interpretation.
3. Application of the Act.
4. Appointment of officers.
5. Powers of officers.
6. Prohibition of commercial fishing, etc., without a boat licence.

7. Prohibition of commercial fishing without a personal licence.
8. Prohibition of certain scientific or research operations without a permit.
9. Prohibition of export, etc., without a licence.
10. Offences and penalties.
11. Use of poison or explosives.
12. Inspection, seizure and forfeit use of nets.
13. Regulations.
14. Marine reserve.
15. Penalty for breach of regulations.
16. Protection of officers and agents from personal liability.
17. Certificate as to identity or species of fish to be admissible.

Source: Laws of Belize

A difference exists in the establishment procedure between national parks and marine reserves. In the former, the area is designated and then a management plan must be drawn up. In the latter, the planning and public consultation procedure is completed prior to reserve establishment. Marine reserves may incorporate adjacent areas of land and allow for multiple uses. There is reportedly no specific provision for devolution of management authority to third parties, but several co-management agreements have been established as if there is, and they have not been challenged.

Of greatest significance to this study is the proposal of the government of Belize to establish an autonomous Fisheries Development Authority (FDA) to take over and manage the functions of the Fisheries Department. There is a draft Belize Fisheries Development Authority Act that provides the legal institutional framework. It is clearly stated that the Act “does not apply to functions performed, or duties and obligations discharged”, by the:

- ◆ Belize Agricultural Health Authority
- ◆ Coastal Zone Management Authority
- ◆ Coastal Zone Management Institute
- ◆ Department of the Environment

The FDA has a wide range of objectives with an emphasis on economic development, but they also address sustainability of management and participation by stakeholders (Box 8.7).

Box 8.7 Objectives of the proposed Fisheries Development Authority

7. The objectives of the Authority include the following:-
 - (a) implementing efficient and cost-effective fisheries management plans for and on behalf of Belize;
 - (b) ensuring that the exploitation of fishery resources, and the carrying on of any related activities, are conducted in a manner that is consistent with the principles of ecologically sustainable development, in particular the need to conserve existing fishery resources by having regard to the impact of fishing activities on non-target species and the environment;
 - (c) optimising economic efficiency and sustainability in the exploitation of fishery resources;
 - (d) establishing a regulatory and revenue collection framework under which fishery resources are exploited;
 - (e) ensuring accountability to, and the participation in policy formulation and implementation by, the fishing industry and the Belizean public in the management of fishery resources;

- (f) achieving government targets in relation to the recovery of the costs of the Authority;
- (g) ensuring, through proper conservation and management measures, that fish and aquatic life are not endangered by over-exploitation;
- (h) promoting and supporting aquacultural development and ensuring its sustainable development in terms of Belizean participation and environmental protection;
- (i) establishing departments to deal with the capture fisheries sector, the aquatic life sector, the eco-systems management sector, and the revenue and regulation sectors of the fishing industry;
- (j) developing new fishing products and improving the handling, processing and distribution of fishery products in or outside Belize;
- (k) doing all other things necessary and expedient to secure the proper execution and purposes of this Act.

Source: Draft Fisheries Development Authority Act, 2002

The list of functions proposed for the FDA is even more comprehensive, but provisions that speak directly to enhancing participation and co-management are scarce (Box 8.8).

Box 8.8 Functions of the proposed Fisheries Development Authority

- 8. The Authority has the main functions of consulting and co-operating with members of the fishing industry, departments of Government, private sector and civil society, and the general public in fulfilling the following specific functions of the Authority, namely:-
 - (a) to establish management plans in relation to Belizean fisheries;
 - (b) to explore for, devise and develop new fishery resources, products and fisheries for Belize;
 - (c) to establish priorities in respect of research related to fisheries and to arrange for the undertaking of such research;
 - (d) to establish priorities in the management and conservation of aquatic life and marine reserves, managed fisheries, fishery management areas and protected areas;
 - (e) to introduce and demonstrate to fishermen new types of fishing vessels and fishing gear, equipment and techniques;
 - (f) to improve the handling, processing and distribution of fish, aquatic life and fishery products and resources;
 - (g) to formulate, or assist in the formulation and assessment of fishery development projects, and for this purpose to undertake economic and other studies alone or jointly with any other person;
 - (h) to make use, wherever possible, of the service and facilities of any department of Government or any agencies thereof, or of any person in the implementation of its objectives;
 - (i) to construct, or assist in the construction of, or advocate for the construction of, commercial cold storages, or commercial bait freezing facilities equipped with mechanical refrigeration, that will be suitable for the preservation of fishery and aquatic life products;
 - (j) to assist boat-builders to construct, modify, convert and equip fishing vessels for the members of the fishing industry, subject to the imposition of appropriate fees;
 - (k) to assist in the construction and equipment of commercial ice-making and ice-storing facilities, or commercial fish-chilling facilities, that will contribute to improvements in productivity in commercial fishing operations;

- (l) to consult and negotiate with foreign governments, institutions and business interests in relation to access by foreign fishing vessels to Belizean fisheries and ports;
- (m) to consult and exchange information with local or foreign bodies having functions similar to the Authority's functions;
- (n) to collect, analyse and publish, on a periodic basis, information and data relevant to the management of fish, fishery resources, products, reserves, protected areas, fishery management areas or managed fisheries;
- (o) to accept gifts, grants, bequest and devises made to it, with the approval of the Minister, and to act as trustee of money and other property vested in it on trust;
- (p) to facilitate an exchange of views between persons having an interest in the fishing industry on matters affecting the industry;
- (q) to develop a unified approach to any matters affecting the fishing industry;
- (r) to inquire into, and to report to the Minister on, matters affecting the well-being of the fishing industry;
- (s) to inquire into, and to report to the Minister on, matters referred to it by the Minister in relation to the fishing industry;
- (t) to develop, and to submit to the Minister for approval, recommendations, guidelines, policies and plans for measures consistent with the principles of ecologically sustainable development designed to safeguard or further the interests of the fishing industry;
- (u) to do or perform any other function conferred upon it by or under this Act or any other law, or anything incidental to, or consequential upon, the proper exercise of such functions.

Source: Draft Fisheries Development Authority Act, 2002

As with all statutory bodies, the Board of Directors will be the principal policy-making organ of the Authority. Its composition is set out in Box 8.9, and commonalities with the current board of the CZMAI are obvious.

Box 8.9 Composition of the Fisheries Development Authority's Board of Directors

20.(1) The Board of Directors shall consist of the following persons:-

- (a) a representative of the Ministry responsible for Agriculture, Fisheries and Cooperatives or his designee;
- (b) a representative of the Ministry responsible for Natural Resources or his designee;
- (c) a representative of the Ministry responsible for Economic Development or his designee;
- (d) a representative of the Ministry responsible for Tourism or his designee;
- (e) a representative of the Ministry responsible for Finance or his designee;
- (f) two representatives of the Aquaculture Industry;
- (g) two representatives of the fishing sectors;
- (h) a representative of Non-Governmental Organisations dealing with the protection and conservation of Belize's natural resources;
- (i) a representative of the Belize Tourist Industry Association;
- (j) a representative of the Coastal Zone Management Agency, who shall not have the right to vote; and
- (k) the Managing Director, who shall not have the right to vote.

Source: Draft Fisheries Development Authority Act, 2002

Of particular interest is the prohibition against the representative of the CZMAI having the right to vote. This clearly reduces the opportunities for that representative to influence the Board and to perhaps seek synchronisation of policies and practices. Having these two very similar boards with overlapping jurisdictions, directorships and interests seems to be an inefficient use of scarce human resources. However, there is also provision for wider consultation (Box 8.10).

Box 8.10 Consultation by the proposed Fisheries Development Authority

- 10.(1) The Authority, for the purpose of considering any matter, or obtaining information or advice, relating to the performance of its functions, and the discharge of its duties, may consult with persons, bodies, the Government or any foreign Government or agency thereof, including:-
- (a) persons or bodies representative of the whole or a part of the fishing industry;
 - (b) the Government, a Government Department or an agency thereof performing any functions related to fisheries, agriculture, natural resources or the environment;
 - (c) persons, including members of the scientific and academic community, having an interest in matters associated with the fishing industry.

Source: Draft Fisheries Development Authority Act, 2002

The Board may establish committees to assist it in the performance of its functions and the exercise of its powers, and may also abolish any such committees. The provisions for the Fishery Development Advisory Committees come closest to the FAB, but also seem as if they would duplicate the functions of the CACs and MPAACs in several locations (Box 8.11).

Box 8.11 Fishery Development Advisory Committees under the Authority

- 29.(1) Without prejudice to the generality of the power of the Board to appoint committees under section 28, the Board may also appoint Fishery Development Advisory Committees to assist the Board in the performance of its functions and the exercise of its powers in relation to:-
- (a) a reserve, protected area, fishery management area, or managed fishery; or
 - (b) a fishery.
- (2) A Fishery Development Advisory Committee has the function of:-
- (a) being a liaison body between the Authority and the persons engaged in a fishery, reserve, protected area, fishery management area or managed fishery;
 - (b) providing advice to the Authority in relation to the preparation, adoption and operation of a fishery management plan;
 - (c) monitoring and reporting to the Authority any type of information or data, including scientific, economic or other information relating to a fishery, protected area, reserve, fishery management area, or managed fishery.
- (3) A Fishery Development Advisory Committee has power to do, on behalf of the Authority, all things necessary or convenient to be done for, or in connection with, the performance of its functions.

Source: Draft Fisheries Development Authority Act, 2002

The draft Act allows the Authority to enter into a variety of agreements but the latest version available did not specifically mention co-management. Explicit provisions for co-management were suggested by the CZMAI in comments on one of the drafts circulated in 2001. Up to the time of writing in May 2003 there was uncertainty about the status of this draft legislation and warnings from civil society groups that there had not been sufficient discussion and transparent analysis of its implications for fisheries and coastal management. Since the FDA would need to seek much of its own funding, the prospect of the most lucrative seafood industry (aquaculture) escaping from the net of the Act was cause for concern in terms of revenue, if not management. Other sources of uncertainty that affect the coastal management system are exogenous events.

9 Exogenous events

Exogenous events are those beyond the control of the resource users, fisheries authority and often the entire fisheries management system. They are more than uncertainty in the system. They include sudden shocks and surprises that test the resilience of ecosystems and human systems. Obvious examples are most types of natural disasters, but macroeconomic and social impacts are also very relevant to the small open economies of Caribbean countries.

9.1 Hurricanes and storms

Over the last few years, natural disasters have contributed to a reduction in agriculture production and exports, and caused short-term increases in food imports. The aggregate impact from Tropical Storm Roxanne (1995) and Hurricane Keith (2000) in Northern Belize together with Tropical Storm Chantal and Hurricane Iris (2001) in Southern Belize resulted in more than US\$200 million in losses/damages to the agriculture sector alone. Damages caused by Keith and Iris impacted nearly 40,000 and 20,000 people, amounting to 33.8% and 18.9% of GDP, respectively (Central Bank of Belize 2002). These natural disasters caused short-term shortages of domestic commodities such as rice, corn and beans and contributed to reduced exports of shrimp, lobster, papayas and bananas in the corresponding years, apart from damages caused to infrastructure (Central Bank of Belize 2002). Recovery from Hurricane Iris is still in progress in areas around Placencia (Figure 9.1).

9.2 Illegal fishing

The long standing infiltration of Honduran and Guatemalan fishermen into Belize waters to harvest fish, even during the closed season in Belize, does not hold well for the future of the fisheries resources in Belize. A harmonized management structure is needed between the three countries to reduce this practice and reduce tensions. Efforts in this regard are in progress.

9.3 Global events

Global events are also of consequence. The incidents of September 11, 2001 in the United States reduced travel to Belize, and hence earnings from tourism, although there are signs that it is recovering. Fisheries exports from Belize are impacted by international trade arrangements such as World Trade Organization and North American Free Trade Agreement. The impacts of ICCAT on the management of foreign fishing vessels flying the Belize flag have been mentioned previously.

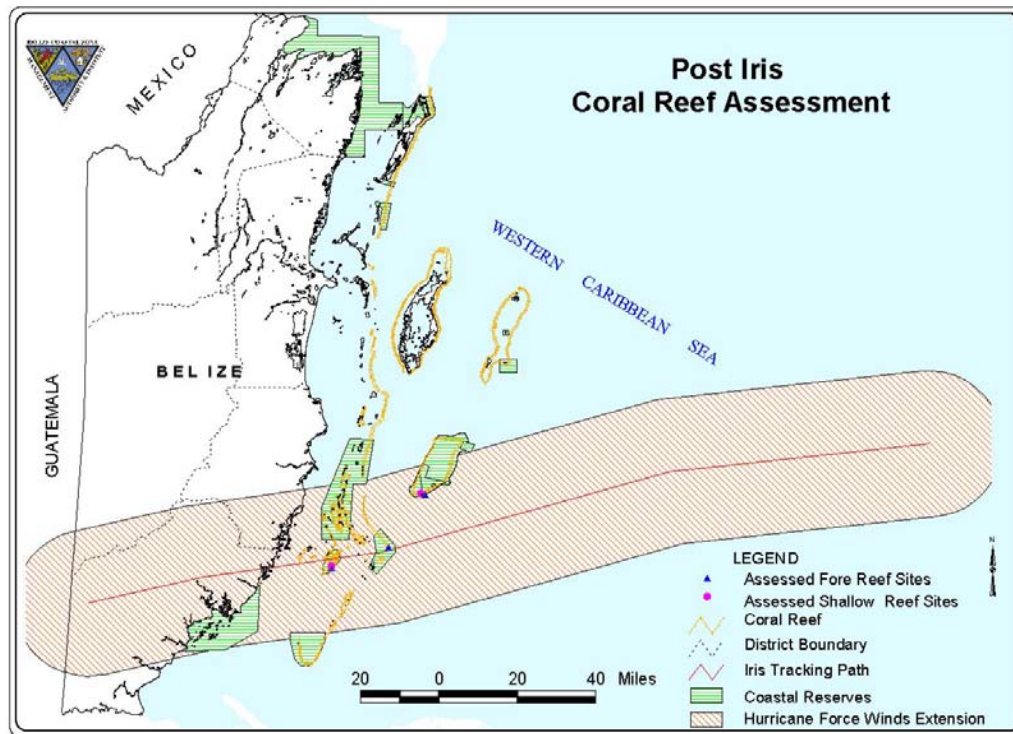


Figure 9.1 Post-Iris coral reef assessment showing hurricane path in relation to MPAs

10 Incentives to cooperate and patterns of interaction

The resource system and human system characteristics described in previous sections provide incentives for the stakeholders to engage, or not to engage, in co-management. Incentives to cooperate, or not cooperate, vary with the stakeholders, particular circumstances, time and other factors. Co-management arrangements are dynamic. Although incentives are variable, they must always be sufficient to make the effort of co-management worthwhile; otherwise it will not be sustainable. Finding new incentives to sustain co-management institutions is a constant challenge for all partners.

10.1 Review of FAB meetings

Patterns of interaction reflect the nature of these positive and negative incentives and the types of partnerships that may be formed or sustained in co-management. Over one hundred FAB meeting minutes, from the late 1960's to the present, were examined and supplemented by information from interviews. Several agenda items recurred over this period, but not all for the same reasons. Figure 10.1 illustrates the frequency with which some items were discussed in terms of the number of meetings at which they were recorded.

Incentives and interactions are summarised in Table 10.1 based on more detailed examination of the same records used to generate Figure 10.1. A brief description of the nature of the agenda item is accompanied by a comment on the incentives and interactions.

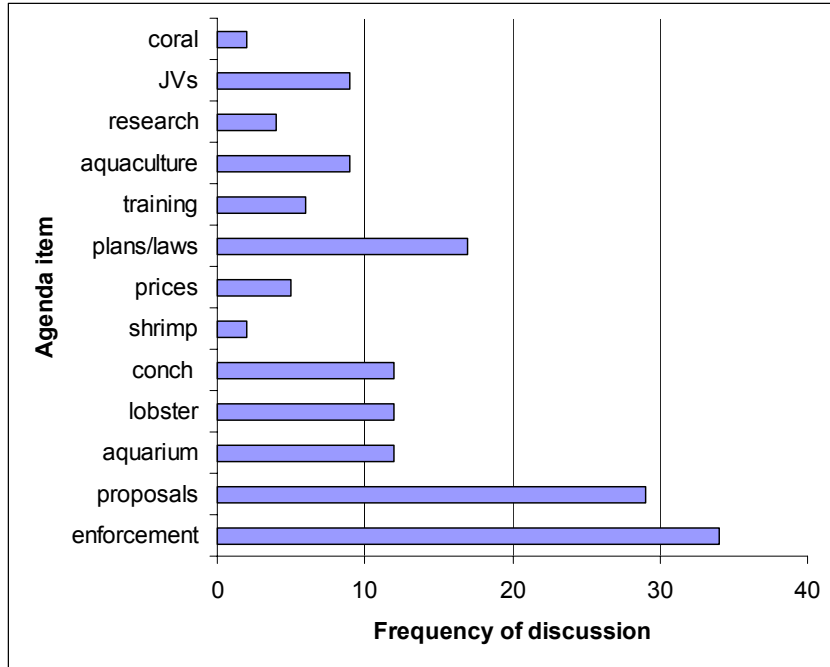


Figure 10.1 Frequency of recurrent FAB agenda items

Table 10.1 FAC agenda items, incentives and interactions

Annotated agenda item	Incentives and interactions
<p><u>Illegal foreign fishing / enforcement</u></p> <p>Illegal fishers from Honduras and Guatemala remain a problem. No effective enforcement has been instituted.</p>	<p>The illegal foreign fishers reportedly have no respect for size limits, closed seasons or other regulations. Fishers have accompanied police on patrols. Sub-committees were formed to address the problem. Enforcement agencies were invited to sit on the FAB. A levy to pay for enforcement was recommended. TRIGOH initiative.</p>
<p><u>Project / investment proposals</u></p> <p>Review of schemes proposed mainly by foreign investors</p>	<p>Cooperatives and other members generally stuck together to ensure that no permissions were granted unnecessarily to foreign interests in place of Belizeans</p>
<p><u>Fisheries-related plans and laws</u></p> <p>Formulation of 1983-1988 fisheries development plan and review of several legislative amendments</p>	<p>Frequent complaints from chairpersons and members that not enough time was spent on these policy matters as compared to reviewing proposals, licences and personal permissions. Changes to regulations debated. Meeting minutes do not provide details on follow up to decisions</p>
<p><u>Coral</u></p> <p>Review schemes for coral research and extraction for aquarium trade</p>	<p>Consensus on the need for coral reef conservation and need to restrict coral harvest for research or other purposes. Occasional statement that coral and mangrove clearance was outside of the FAB's jurisdiction</p>
<p><u>Joint ventures</u></p> <p>Mostly proposals for large-scale shrimp trawling with coops. Some for seafood processing and export</p>	<p>Very thorough reviews of joint venture proposals whether made by locals or foreigners. Strong inclination to reject proposals that appeared to be inequitable. Cooperatives chided for dependency and lack of entrepreneurship.</p>

Annotated agenda item	Incentives and interactions
<u>Research</u> Groups and individuals mostly from the USA as visiting scientists.	Generally not contentious. Typically accompanied by a recommendation from the Fisheries Administrator that would be agreed with.
<u>Aquaculture</u> Investment proposals and environmental impacts	Generally not contentious. Aquaculture was not seen as a threat to capture fisheries. Acknowledge other agencies responsible for ensuring environmental responsibility
<u>Training</u> Belizean fishers as deep sea boat captains; other opportunities	Relatively few opportunities discussed. Lamented the few Belizeans who were adequately trained for deep sea fisheries and constraint to fuller exploitation of the EEZ
<u>Seafood prices</u> Removal of price controls; status of export markets for seafood	Arguments made for the removal of price controls given the increasing costs of inputs to fishing. Discussions over the relationships between local and overseas prices.
<u>Shrimp fishery</u> Joint ventures; number of vessels allocation of boats to cooperatives	Intense debate over the appropriate numbers of shrimp trawlers, including those in joint venture and the allocation among cooperatives. Query profitability of shrimp fishery.
<u>Conch and lobster fisheries</u> Regulations; harvest levels; illegal harvest; status of resource	Debates over reasons for maintaining or changing regulations including ill-advised decision by Minister to allow early soaking of traps. Use of fisher knowledge.
<u>Aquarium fish</u> Proposals for harvest and trade	Close examination of proposals to harvest aquarium fish and live rock from a strong conservation perspective

Based on the composition and operation of the FAB several types of interactions are of interest:

- ◆ Between FAB and Ministers
- ◆ Between FAB and the Fisheries Department
- ◆ Between FAB members and their affiliate groups
- ◆ Between FAB and fishing industry stakeholders
- ◆ Between FAB and other stakeholders or interested parties

These are dealt with in turn below.

10.2 Interaction with Ministers

The minutes record several meetings between ministers responsible for fisheries and the entire Board, and some describe the outcomes of separate meetings with the chairperson or small delegations from fishing cooperatives. From this evidence and interviews it appears the most ministers made themselves accessible to the Board and interacted with it on their own initiative. New ministers typically held an inaugural meeting with Board, and some Ministers made a habit of personally attending meetings when topics under discussion were critical issues of the day. In recent time the latter is very noticeable. BFCA representatives remarked upon the importance of the FAB as a tool for quickly and thoroughly educating new Ministers about the fishing industry and fisheries management.

Statements by Ministers generally praise the work of the FAB, but a recurrent theme is the apparent reluctance of the body to concentrate on policy matters versus administration or

management. In particular, policy seldom originated with the FAB. The Board tended to review or endorse policy, but not to formulate it for ministerial consideration. An exception is the 1983-1988 Fisheries Development Plan. Ministers are noted as having provided lists of areas that they wanted the Board to address.

Informants noted that Ministers brought policy matters to the Board mainly when they wanted to have a particular policy endorsed in order to claim sectoral support, or if they wanted to avoid making their own decisions on politically sensitive issues. The latter included the extent to which foreign interests could be allowed to invest in the fisheries of Belize, and the mode of their investment such as by joint venture or their own enterprise. Not surprisingly, the Board was, in general, quite protectionist in their advice. This became a strong policy approach to fisheries as being the province of Belizeans notwithstanding the sales by Belizeans to foreigners at various times, and the constant incursions of illegal foreign fishers that continue unabated to this day.

In cases of Ministers wanting endorsement through the FAB, a typical scenario would be when a foreign investor successfully gained access directly to the Minister, as often happens in the Caribbean, rather than through the ranks of public officers. Approached in this way, Ministers may become sold on dubious schemes that are not technically sound or have little merit. Such schemes may be fraudulent attempts to obtain funds from government on the pretext of offering opportunities for equity investment in apparently high yielding projects that are actually designed to fail. Rather than refer the investors to the technical screening process, some Ministers found rationale for circumventing the system and tried to persuade the chairman of the FAB to obtain a quick favourable decision. The chairman and FAB were usually alert to these events and did not let false investors receive inappropriate approval through the Board. Attempts were made to ensure that all proposals submitted through official channels went to the Minister only after evaluation by the FAB. This system was largely successful.

Fishing cooperatives had easy access to Ministers. The representatives of the Belize Fishermen Cooperatives Association (BFCA) were noted several times as having meetings with the Minister directly in order to press their perspective on issues currently before the FAB. Informants reported that some Ministers objected to this power tactic and referred matters back to the entire Board. Other Ministers, or the same on other occasions, gave audience to the cooperatives and the outcomes of these encounters are reported in the minutes. Seldom, according to available records, did a Minister openly support the cooperatives in defiance of the collective advice from the Board, but informants said that this did occasionally occur. Minutes show the FAB frequently being reminded, via the chairperson, that its role was purely advisory and that Ministers were not obligated to accept what was recommended.

Although it is difficult to track through meeting minutes, there is consensus that most of the advice offered by the FAB was taken by Ministers. The extent of filtering through the public officers (Fisheries Administrator and Permanent Secretary) it is not clear in many cases, but given the close monitoring of government decisions and actions by the fishing cooperatives it is unlikely that there was much deviation from what was put forward by the FAB. Where Ministers tried to ignore the advice of the FAB (e.g. objection to aquarium fish export), the Board actively lobbied against their decisions. In some cases the Board, or more often the BFCA, went over the Minister to the Prime Minister (e.g. lobster ranching) to ensure that its advice was followed.

10.3 Interaction with the Fisheries Department

Whereas the Permanent Secretary (PS) serves largely as a conduit for official communications, the Fisheries Administrator (FA) has had an intimate relationship with the FAB. Informants

thought that the position of the FA as Secretary was strategic in several respects. In the opinion of some the BFCA engineered having the FA as Secretary, a non-voting position and one expected to be relatively neutral, as a means of ensuring that the Fisheries Department did not unduly influence the FAB, or at least not more than the BFCA itself. Given that the Fisheries Administrator is the only member with detailed knowledge of the operations of the Department, and the only one with training in fisheries management, the position of that person is critical to the FAB and inevitably powerful. There is little evidence of the Department using the FAB to forcefully pursue its own agenda, although a memorandum in 1998 stated that the FAB needed to become more familiar with the Fisheries Department in order to support its work more actively, and presumably publicly.

FAB members seemed generally satisfied with the role of the Fisheries Department as secretariat and main research arm. They did not see the need for independent research advice, but agreed with the proposal from the Fisheries Department itself that capacity for technical analysis and advice be strengthened by the formation of a permanent technical sub-committee. Background research on the aquarium trade and shrimp farming were cited as examples of the excellent research that was possible.

As secretariat, the Fisheries Department is responsible for many of the operational and structural features of the FAB. Structurally, members found that the large number of persons currently on the Board (12) made it unwieldy for conducting business in an efficient and timely manner. Too much talk and too little action were identified as problems. Marginal members e.g. Port Authority were recently dropped from the Board in an effort to trim its size. On the other hand, members complained of cancelled and postponed meetings due to lack of quorum and absence of key members for particular topics. The Fisheries Division indicated that the matter of poverty in relation to fisheries or coastal management had not been addressed in research or brought for discussion before the FAB. FAB members did not see gender or the need to empower women as issues within the FAB or the fishing industry.

The absence of members who had far to travel (e.g. from Punta Gorda and Placencia) was a concern for two reasons. First, since they received no travel support, their participation was an inequitable cost compared to members located in Belize City or Belmopan, for example. Officers of government agencies received travel assistance or could get transport through favours. Thus the members who were often the most disadvantaged faced the highest personal costs. Also, in the absence of these members (e.g. representative of the southern independent fishers) it was likely that important information for decision-making would be omitted or inequitable decisions would be taken due to not having their perspective.

Members noted that the large number of agencies and institutions concerned with marine matters often confused visitors, citizens and stakeholders. Items ended up on the agenda that were thought inappropriate. Clearance of mangroves and dredging were examples. Apart from representatives on the FAB having personal knowledge of, or affiliations with, other coastal management agencies there appear to be few instances of close coordination on coastal matters that were referred to, but outside of the immediate interest of, the FAB. Seldom do FAB minutes mention these other bodies other than through reports from the Fisheries Department.

10.4 Interaction of FAB members with their affiliate groups

In addition to the Fisheries Department, the BFCA also does research on matters put before the FAB. This is often by means of polling its membership for opinions. The BFCA has been chided for not supporting its positions and contentions with hard evidence and factual, verifiable data.

The BFCA appears to perform as much in the role of a pressure group as a source of fisheries information.

Representatives of other ministries on the FAB may not function as effectively as required due to being too junior in their organisations, frequently being substitutes for more senior officials. The latter are engaged in running their own multi-stakeholder bodies. Frequent changes in ministerial portfolios result in new faces being a common occurrence. This lack of continuity and efficiency is mitigated mainly by the fact that these representatives are not the key players on the FAB, and their presence is largely symbolic. This observation has led some members to question the size and composition of the FAB.

However, most members maintain that the composition of the FAB is appropriate since these marginal members bring useful perspectives, even if only personal, and provide a healthy mix of views for the Board to consider. If these members cannot adequately represent their ministries at least they represent a segment of public opinion. Members considered the coverage of the FAB to be national in scope except for the problems mentioned earlier about the participation of people from distant places.

10.5 Interaction with fishing industry stakeholders

The management committees of fishing cooperatives are informed by FAB minutes or reports circulated by their Board representatives. However, it was admitted that not all of the individual members of the primary cooperatives were as well informed as they should be. Sometimes this was simply due to the logistics of communicating with fishers scattered over large geographic areas on offshore cayes and in small villages. It was also due to the timing of management meetings not always coinciding with the optimum period for transferring information from the FAB representative. Lack of interest in the FAB was not cited as a reason for not being well informed.

Independent fishers have a representative on the FAB, but because they are independent that person is not truly representative of collective views. Instead he represents expert opinion and a fairly extensive knowledge of the views of colleagues. Most independent fishers are said to get their views to the FAB through the Fisheries Department. The latter also communicates directly with both independent and organised fishers; it does not always use the cooperative hierarchy.

The Board interacts with the general public through the Fisheries Department. Apart from the occasional media interview, it is not customary for the FAB to make independent statements to the public. The Fisheries Department had a newsletter called *Pisces* its production was stopped due to lack of funds. Television, radio and posters are common means of communication. The BFCA issues a newsletter aimed at its membership, but also of interest to the general public. Its newsletter is well known throughout the English-speaking Caribbean where few cooperatives are sufficiently well organised or funded to produce their own newsletters on a regular basis. A few informants thought that issues of information and transparency were becoming sufficiently important that the FAB should have a person dedicated to communications about the fishing industry in general, not only the work of the FAB

10.6 Interaction with other stakeholders or interested parties

Comments on this topic have been made in the sub-sections above. The fundamental point is that the FAB is highly focused on the concerns of commercial fisheries, and aquaculture to a much lesser extent. It is not highly focused on networking with other institutions in the coastal management arena. This networking is left more to the Fisheries Department than the FAB.

A majority of members said that the CZMAI needed to sit on the FAB, however the long history of interaction between the two groups may be positive or negative. Previous top personnel of the CZMAI had close association with the Fisheries Division from the time coastal management was just a project in that department. This may have influenced the exclusion of the CZMAI in addition to the overriding perception of the CZMAI as an agency that, despite previous ties, was now heavily conservationist and not a strong supporter of commercial fishing as a sustainable use of Belize's marine environment.

It was also thought that the aquaculture industry should sit on the FAB. The previous chairman had aquaculture interests and presumably could have engineered the representation of this industry. However, aquaculturists have the political clout of major investors in maintaining high levels of foreign exchange for Belize through exports. It is highly likely that they wish to maintain privileged status in being only lightly and indirectly regulated by government agencies. It would not be advantageous to them to volunteer for increased scrutiny by being party top the FAB. It is widely thought that the economic benefits of shrimp farming outweigh the environmental and coastal management concerns of top government policy-makers at the moment given the state of the country's economy.

On the other hand, some stakeholders, mainly environmental or community management NGOs, have expressed interest in being invited onto the FAB. The BFCA opposes the addition of more potentially conservationist groups to the FAB membership. Its representative is very concerned that fishers are progressively being excluded by such groups from the most lucrative fishing grounds, mainly to the benefit of tourism and external agendas that do not assist the development of the people of Belize who depend on the sea for their livelihoods.

10.7 Changing institutional arrangements

The proposed transformation of the Fisheries Department into a Fisheries Development Authority is a major change in the institutional arrangements for coastal management. It has been in the making for several years and was discussed by the FAB. Yet several respondents opined that the final stages of legislative approval were being rushed through Parliament without sufficient attention to the consequences of the changes being made. This was clearly expressed by both government and civil society participants at a national coastal management conference held in May 2003 after the Bill to establish the FDA had been read in Parliament but not passed.

Civil society representatives indicated that there had been insufficient public information on the proposed change for informed debate and interventions. Government officials warned of gaps in the legislation and the obvious overlaps with the CZMAI. Some questioned whether there was room for two similar organisations that must inevitably compete for funding if not power. Within the Fisheries Department there are no obvious signs of preparation for the transitions, which would be the first of its kind in the English-speaking Caribbean. Members of the FAB were not certain of their fate under the proposed structure. Given that the draft legislation was still under discussion there was hope, by some, that remedial changes were still possible. However it was not clear who would lead the thrust in this respect. The current chairman of the FAB did not see this as a policy matter in which the Board should play a leading role, unless so requested, given the higher level of policy from which it emanated.

11 Outcomes and performance of co-management arrangements

Some informants have suggested that it would be politically unwise for the Board or Belizean authors to write about the FAB because of the likely repercussions from exposing how the body has succeeded or failed over its three decades of existence. However, this study shows that the FAB has operated no differently from most other fishery advisory bodies.

The FAB has been judged very successful in getting governments to adopt policies that restrict investment opportunities in the fisheries sector mainly to the local fishing cooperatives and independent fishers, either on their own or through joint venture (Jacobs 1998). A critical component of this policy is the privilege that fishing cooperatives enjoy in being the exclusive marketers of the fishery products that they traditionally harvest, process and depend upon. The establishment of procedures for evaluating joint venture proposals through the Board, after they had been presented to potential cooperative partners, was seen as an important accomplishment of the FAB.

One of the fisheries in which this policy has been obvious and perhaps most effective is the shrimp trawl fishery. The resource management effectiveness of the Board in this fishery has been less obvious since, for decades, there have been conflicts over the number and allocation of shrimp trawlers, despite the evidence of overfishing. FAB records show that the cooperatives were generally successful in increasing the number of trawlers beyond what other Board members recommended. However, the FAB prides itself as the most appropriate forum for exchanges between all of the major stakeholders involved in commercial fisheries, and the success achieved in giving the smallest fishing organisations and individuals a say in fisheries management.

In the case of the lobster fishery, use of the local knowledge of fishers by the Board was said to have prevented the establishment of inappropriate closed seasons, and resulted in improved management effectiveness. However, in earlier years the later was threatened by a Minister's decision, contrary to the views of the Board, to allow lobster traps to be soaked two weeks prior to the opening of the season. This practice contributed to illegal fishing.

Related to this, FAB members identified the failure to control unauthorised foreign fishing as a major shortcoming, but admitted that this was beyond their terms of reference or capacity to act upon. Over the years the Board came up with innovative solutions that necessarily depended on implementation by other agencies. Efforts at improvement were consistently thwarted by operational constraints, corruption and higher priorities.

Successes outweigh failures in the context of commercial fishing. However, the FAB is not as closely integrated into coastal management as seems desirable according to the principles of the Code of Conduct for Responsible Fisheries. Some reasons may be due to low levels of conflict between the Fisheries Department and CZMAI, but the main reasons concern the FAB having enough to look after under its own jurisdiction without spreading itself thinly over other areas in which there are already a multitude of organisations and institutions. Some respondents say integrated coastal management has had much success mainly because the public in Belize is environmentally conscious and compliant, but there is no framework for success based on the institutional arrangements promoted by government except their reliance on external NGOs for assistance. Some perspectives of the conditions for success are presented below.

12 Conditions for successful co-management

The purpose of this project was to suggest mechanisms for the implementation of integrated pro-poor natural resource (and pollution prevention) management in coastal zones that could be developed and promoted through understanding the requirements for establishing successful co-management institutions for coastal resources under various conditions in the Caribbean. In this chapter we present conclusions based on the research framework that guided the study.

12.1 Type of co-management

The research framework summarises the main types of co-management as consultative, collaborative and delegated. The Belize Fisheries Advisory Board (FAB) is, strictly speaking, an example of consultative co-management as suggested by the title of the institution. However the power exerted by fishing industry stakeholders and the types of decisions that the body has taken causes it to exhibit characteristics of collaborative management on particular issues and under some policy-makers. With the expected passage of the Fisheries Development Authority Act, legally constituted Fishery Development Advisory Committees should replace the informal FAB and a Board of Directors will govern the Authority. As a statutory body, the Authority may be better placed to promote co-management than the Fisheries Department, but it is too early to predict what the institutional arrangements will be in relation to the existing structures.

12.2 Phase of co-management

The FAB is an example of post-implementation co-management as its over thirty-five years of existence suggests. As a mature institution, its structure and operations have been accepted as standard practice. Although conflicts may arise within the institution and between it and other parties, ways have been developed to address, deflect or avoid perturbations. It will be instructive to note what features and mechanisms the new bodies acquire from the old in terms of institutional memory, or whether experimentation with institutional arrangements begins anew.

12.3 Conditions for co-management

This section is based on findings that have been presented above and on the proceedings of a special workshop of stakeholders in this case study where they were asked to discuss and evaluate a list of variables presented to them by the researchers based on previous research on co-management. In this process the workshop participants had the opportunity to add or delete variables that they found to be critical or irrelevant respectively. The Belize workshop on the critical conditions for successful co-management included researchers, fisheries officer, fishing cooperative representatives, coastal management authority and former board members who are still involved in resource management. The proceedings of the meeting are summarised in Table 12.1.

Table 12.1 Stakeholders perceptions of critical conditions for success in Belize

0 = absent; 1 = present but weak; 2 = present to a fair extent; 3 = strong feature of the fishery

CO-MANAGEMENT CONDITION	REMARKS	#
1. Clearly defined boundaries: of the resource; of the management area; of the "community"	<ul style="list-style-type: none"> Co-management agreement and MPA boundaries are on paper, but public not much aware of them Users are confused and some are outside "community" boundaries Areas of responsibility more clearly defined for MPAs and through use of committees 	1/2

CO-MANAGEMENT CONDITION	REMARKS	#
2. Membership is clearly defined as to who really has a stake in the fishery (is a stakeholder)	<ul style="list-style-type: none"> • Conch is large, diffuse and can be empty • Shrimp is small and easy • More stakeholders asking to be on FON Board • Boards usually contain most stakeholders • Cooperative system helps define stakeholders • Harder to define stakeholders in lobster fishery • Committees comprise fishers from different areas so easy to define membership 	2
3. There is shared recognition of a resource use problem that needs to be addressed	<ul style="list-style-type: none"> • Generally present. • Sometimes research conclusions are challenged • Need a lot of consultations for shared recognition of problem • Gap in how to solve problems • Agree to management, but not how to do it • Example of fishers relinquishing grouper fishery 	3
4. Clear objectives for management can be defined based on the problems and interests	<ul style="list-style-type: none"> • Many objectives defined but not clearly integrated into management plans, e.g. hoteliers at FON re fees for whale shark access being unclear at first about the initiative • Means of meeting objectives often unclear • Objectives are defined in meetings but cannot all be addressed • Means to address problems generally known • Varies and evolves depending on location and who are stakeholders with clear understanding of problem • FON management plan comes from the stakeholders, e.g. changing MPA zones now understood 	3
5. Good fit between the scale of the resource and feasible management arrangements	<ul style="list-style-type: none"> • FON has impacts from outside their area; fishers from Sarteneja • Gladden Spit outside easy range of rangers • Mgmt capability not up to handling the scale • Debate on BFCA and Half Moon Caye area • Geographic extent of MPAs and capability to manage areas do not agree 	2
6. Management approaches and measures are flexible to suit changing circumstances	<ul style="list-style-type: none"> • Often too flexible, leading to uncertainty • But legislation is slow, often too lengthy, lagging behind the management decision and action need • Consider frequent shrimp fishery season changes • If decision is made informally, then flexibility is good • Good in southern Belize due to small population, but bad in Guatemala 	2

CO-MANAGEMENT CONDITION	REMARKS	#
7. Cooperation exists, and is adequate, at the resource user level and in government etc.	<ul style="list-style-type: none"> • Good between fishers and government e.g. SPAG • Often reluctant and based on need rather than policy • Bad re CZMAI not being on the FAB, but also other agencies • Cooperation exists but weak and given reluctantly • Government agencies do not coordinate responsibility and authority • Serious fragmentation of government agencies still exists • Strong at community level but weak nationally 	1
8. Leadership exists, and is adequate, at the resource user level and in government etc	<ul style="list-style-type: none"> • Adequate leadership capacity • Government leaders accessible to fishers 	2
9. Group cohesion where fishers, managers and others can act collectively within their groups	<ul style="list-style-type: none"> • NGOs and cooperatives stick together, have secondary organisations • Managers are less cohesive than resource users • With managers it depends on issue • Stick together on common agenda • If fishing issue, cooperatives have cohesion • Placencia tourism cohesive in interaction with fishers; also cohesion between groups 	2
10. There are mechanisms for managing conflicts within and among stakeholder groups	<ul style="list-style-type: none"> • Fishers go to FD and their MPs to solve conflicts • Meetings are common e.g. in BFCA structure with Half Moon Caye case • CZMAI acts as mediator • Limited violence • People go to fisheries dept • Powerful ones go to minister first • FAB meets with conflicting groups informally and come out with an agreement • Still being developed; strong at community level due to smallness 	2
11. Communication amongst the stakeholders is effective, and there is adequate networking	<ul style="list-style-type: none"> • Related to conflict management • Does not work to prevent conflicts from arising • Not always sustained • Need more exchange of ideas • Can you sustain dialogue to avoid conflict? • Mediation through communication • Not sure networking is strong, e.g. fishers and tour guides 	3

CO-MANAGEMENT CONDITION	REMARKS	#
12. Coordination between government, local community and other stakeholders is effective	<ul style="list-style-type: none"> • Exists where agencies need support on some thing • Decisions not well coordinated • Pool resources to reduce costs • Avoid consultation if convenient • Poor coordination e.g. of developers at Placencia • Village council structure helping to improve • More horizontal than vertical communication • Example of dredge permitted in protected area • Good coordination for site visits but weak in other areas such as developers and local government • Better due to co-management projects and MBRS project 	2
13. Trust and mutual respect characterise the relationships among the key stakeholders	<ul style="list-style-type: none"> • Fairly okay among government agencies • Not good between government and NGOs or CBOs due to external funding, lack of transparency • Some respect based on formal mandates • Coordination improving horizontally across government agencies but not vertically between government and public • NGOs do not believe government is transparent and vice versa • Respect government agency mandates and NGO access to money • Exists at community level due to similarity of backgrounds 	1
14. Organisational capacity exists for all stakeholders to participate effectively in management	<ul style="list-style-type: none"> • Very variable at all levels and scales • Government not prepared for new role as co-management partner • Only 1 person in Forestry Dept • NGOs lose or change staff frequently • Government agencies have shrinking budgets • Difficult to adapt to new role of co-manager • NGOs getting technical and financial support • Government has new role as regulator of NGO but not getting the capacity built to do it • Fisheries Department seems limited; slow to respond e.g. in enforcement. • NGOs stronger on average than government 	1
15. Adequate financial, and hence physical, resources are available for management tasks	<ul style="list-style-type: none"> • All under budgeted • FON is okay but SCMR is weak; much variability; better due to CZMAI 	1
16. External agents provide support for management but do not encourage dependency	<ul style="list-style-type: none"> • CZMU project to strengthen MPA management is good example • Sustainability goal always present • External agents provide support but encourage sustainable financing • Donors clear on wanting demand-driven and sustainable initiatives 	3

CO-MANAGEMENT CONDITION	REMARKS	#
17. Benefits of participation must exceed costs from the levels of individuals up to larger groups	<ul style="list-style-type: none"> • Too early to gauge due to external funding • Benefits from participation processes such as cohesion and quality of decision-making • Individual benefits to participants are okay • Cost measurement needs to be more transparent • FON has raised expectations of transparency and accountability • Overall benefits may be low, but good for some • Government does not put in much money as mostly external financed • Resource users get personal benefits exceeding costs 	2
18. Individuals, groups affected by management arrangements are included in decision-making	<ul style="list-style-type: none"> • Work in progress, site variable • Location specific especially in decision making • FAB successful; co-ops successful • FON is good, but Glovers and SCMR are weak 	1/2
19. Management rules are enforceable by resource users and the management authority	<ul style="list-style-type: none"> • Law enforceable but awareness, will and resources are lacking, although variable • Enforceability informed by users • Laws well intentioned and enforceable (in theory) • Fishers aware of rules • Resources needed to assist enforcement • CZMAI has physical presence in parks, supply human and other resources 	2
20. Legislation gives users some meaningful level of ownership or control over resource use	<ul style="list-style-type: none"> • Not legal, but strong property rights in lobster fishery; study on lobster tenure in Caye Caulker • Changes necessary to accommodate changing coastal use e.g. cage culture • Agencies with legal mandate have ultimate say • No legislation gives ownership through traditions • Have to change law for aquaculture • FAB not in legislation but protected areas are • Licensing fishermen gives ownership • Co-management agreements and advisory boards create sense of ownership 	1
21. Legislation gives users authority to make management decisions, perhaps shared	<ul style="list-style-type: none"> • No legal provision for government's co-management agreements • Tendency to put in laws in place but not in practice 	1
22. Decentralisation and delegation of authority is part of the policy of resource management	<ul style="list-style-type: none"> • Yes e.g. co-management agreements, but site specific and variable between agreements • Decentralisation and delegation sometimes limited • Agencies unprepared for their responsibilities • Decentralizing, but not well planned • Policy to decentralize but no legal framework • Feature of present government 	2
23. Co-management has a good social and cultural fit to the circumstances of the situation	<ul style="list-style-type: none"> • In practice through cooperatives for a long time but not labelled co-management • People involved in the past used other terms 	2

12.3.1 Boundaries

The FAB is a national institution and the laws of Belize set out the geographical areas covered. The country has a longstanding boundary dispute with Guatemala and marine areas in the south may be subject to changing jurisdiction. Moreover, the country's marine boundaries are porous, with fishing by foreign nationals a common occurrence. These issues are challenging for operations and decisions, but do not unduly constrain the FAB from being an institution of co-management.

Institutional boundaries are more complicated than geographic boundaries in Belize. There is considerable overlap in interest and jurisdiction of governmental agencies with their various committees, and they in turn face overlapping national and international NGOs, plus local CBOs. These institutional intersections provide opportunities for both useful synergy and counterproductive duplication and inefficiency. The institutional boundaries of the FAB and its successors require attention if co-management arrangements are to achieve the efficiency and effectiveness associated with good governance.

12.3.2 Membership and stakeholders

Although not prescribed in law, the membership of the FAB is relatively stable. Stakeholders in its operations and decisions are also easily identifiable. The composition of the body has adapted to circumstances. There were periods in which enforcement agencies such as Police and Customs had a presence, but now the emphasis is on fisheries management and business, including aquaculture. A conspicuous anomaly is that the CZMAI, which began as a fisheries project and is clearly a major stakeholder, is not a member of the FAB. Although the current FAB chairman is affiliated with the aquaculture industry, the absence of representation around the table is also notable given the importance of this sector to Belize. These are exceptions to the otherwise well balanced multi-stakeholder body.

12.3.3 Resource use problem

The FAB addresses all fisheries matters in Belize. This includes many resource use problems. Minutes of meetings suggest that resource use problems are well known by members, and agreement can usually be reached on solutions. However, implementation of FAB advice has proven challenging on several occasions, such as in the persistent case of illegal fishing.

12.3.4 Management objectives

There is no current and public comprehensive fisheries management plan, although schemes are under development for key fisheries. The objectives of management are shared within the FAB and the better-organised cooperatives that provide feedback to members from the FAB. However the general public, non-governmental organisations and other agencies of government are not fully informed about matters of fisheries management. This is an area for improvement.

12.3.5 Scale of management

Within the waters of Belize most fishing activity and management takes place behind the barrier reef, leaving some room for expansion. The scale of management is not problematic, and well within the scope of the FAB to cover given its membership.

12.3.6 Management adaptation

There is a fairly constant stream of fisheries regulations, orders and amendments, illustrating attempts to keep fisheries management legislation current. The FAB has deliberated on

changing the openings of seasons for several resources, the most contentious being lobster and shrimp. In the case of the latter there have been claims that the management has been too flexible at times, but the most common complaint is that the legislative process is too slow for adaptive management. The management regime should be made more adaptive without going to the extreme of becoming a source of uncertainty and apparent indecision.

12.3.7 Cooperation

Within the fishing industry, the alliance of primary cooperatives into a secondary body builds a series of bonds starting with the individual fisheries cooperative member through to the national level cooperative. There is generally good cooperation within this movement that is quite strong partly because of the high economic value of the exported lobster and conch catches. Amongst government agencies, cooperation is driven mainly by necessity to pool resources or ideas. The cooperation between fisheries and coastal authorities needs improvement. Relations between government and non-governmental organisations are mixed since the benefits of cooperation are known, but some NGOs are viewed as potentially threatening to government authority by adhering to their own, often externally driven, agendas.

12.3.8 Leadership

A leading person from the business sector with an appreciation for the public service typically chairs the FAB. The FAB usually has good leadership. The multiplicity of active organisations in the Belize fishing industry suggests that finding leaders is not an issue of much concern. However, reports indicate that the organisation of meetings and implementation of projects by several bodies related to fisheries and coastal use are not up to expected standards. Therefore strengthening of operational leadership is warranted. Leadership also appears to be adequate within government, although the frequency with which the head of the fisheries authority changed in recent years may impact negatively on co-management arrangements, if repeated.

12.3.9 Collective action

The longevity of the fishing cooperatives and most of the NGOs could not be achieved without commitment to collective action. This was said to be stronger among the resource users than among the managers who only recently are becoming more closely networked under coastal zone management strategies. The aquaculture farmers have also grouped themselves for collective action. In general the stakes in Belizean fisheries have been high and hence have motivated collective action by several categories of stakeholder. This is a positive feature.

12.3.10 Conflict management

Conflict, or at least rivalry, between the more powerful fishing cooperatives has become customary. The FAB has been used as an arena for such conflicts but does not incorporate any formal mechanisms for conflict management. Although the potential for conflict between national and foreign fisheries is high, there is usually separation of operations that minimises this, and a formal tripartite body has been formed in the southern region where the problem is worst. As aquaculture and tourism expand, coastal conflicts will increase. It would be appropriate for the FAB to pay attention to this from a fisheries co-management perspective unless it is adequately covered in the overall context of coastal management, in which the CZMAI appears prepared to act as mediator.

12.3.11 Effective communication

There are many stakeholders in the coastal arena, with fisheries being only one of the activities. Communication takes place through the use of occupational, district and other categories of

committees and groups. The FAB is only one example. Communication is not always effective because of the logistics involved, such as bringing members from distant locations, and due to inadequacies of organisational skills. The public learns little of the work of the FAB. There is room for improvement in communication, especially with the public and hence also fishers who are not members of cooperatives.

12.3.12 Coordination

Similar to the preceding comments, coordination in the coastal and marine arena, including fisheries, is complicated by the number of stakeholders. For the FAB, coordination of the policies and activities of its members has been variable. Efforts to coordinate enforcement aimed at reducing foreign illegal fishing have not been successful. However members were highly coordinated in their efforts to keep the lucrative shrimp fishery in Belizean hands. The coordination between government agencies and among NGOs seems largely based on necessity. Limited capacity is also one of the reasons for coordination being sub-optimal and in need of improvement.

12.3.13 Trust and respect

The legal mandates of government agencies are respected and trust exists among them. However, there is generally less trust between government agencies and NGOs or CBOs, for reasons alluded to previously that mainly concern external agendas and funding. Despite the large number of committees, there is also lack of transparency on the parts of all stakeholders, including government. In the FAB there is evidence of respect for official positions such as that of the Fisheries Administrator, but there is also evidence of mistrust between the fisheries authority and fishing cooperatives. These deficiencies have not been significant enough to seriously impede the FAB, but should be rectified if possible through demonstrating the benefits of collaboration and joint activity in co-management.

12.3.14 Organisational capacity

Organisational capacity is very variable across the spectrum of stakeholders. The offices of external NGOs have overseas resources to draw upon in support of local staff. These NGOs have local project partners who often benefit from this expertise, funding or other assistance. A question often raised is whether this access to external capacity is desirable and sustainable. However it has been argued that these NGOs are the driving forces behind the conservation and co-management initiatives of Belize, and without them the government would achieve little. To be effective as co-management partners, Belizean NGOs and government agencies require additional capacity as a matter of urgency.

12.3.15 Financial resources

The understaffing and under-budgeting of critical agencies is well documented, the Forestry Department being a classic case. The FAB has no capacity to act on its own. It is not set up with a staff or separate budget. In order for the FAB to be more effective it should have access to its own financial resources where action independent of government is considered beneficial. An example could be in the commissioning of independent fishery assessments. There is also very critical sharing of financial resources such as with the CZMAI supporting some MPA staff of the Fisheries Department. However, these relations have also been sources of tension between the organisations.

12.3.16 External agents

Prior sections mentioned the positive role that external agents play in supporting conservation and co-management. There is also the threat of agendas and actions that are not consistent with those of the country. One of the more important regional bodies is the Caribbean Regional Fisheries Mechanism (CRFM) that is headquartered in Belize. Several of the large international NGOs have considerable influence on coastal and marine matters including policy. Involvement of external agents will continue to be important in Belize, but more attention must be paid to setting the national and local agendas to ensure an appropriate foundation for co-management is available to guide these interactions.

12.3.17 Net benefits

Over nearly four decades of work, the benefits from the FAB (in terms of the best local advice available) would have exceeded costs considerably. Members participate without remuneration or funds to defray expenses. In coastal management more generally, many of the costs to date have been borne by external sources through assistance to institutions within Belize. There is little systematic measurement of costs and benefits, although attention is turning to this. One of the benefits of the FAB and other bodies is the potential for transparency that should facilitate the decision-making of stakeholders. This potential is not always realised. The number of overlapping jurisdictions and bodies poses a serious threat to sustained benefits due to the cost of inefficiency and participation fatigue.

12.3.18 Representation in decision-making

The representation on the FAB has normally been fairly congruent with the geography of the country and interests of fisheries stakeholders. The weakest district comprises the south from which a representative of the non-cooperative fishers has been drawn. The aquaculture industry and coastal authority require greater representation, but both are powerful stakeholders and may set up their own structures, as in the case of CZMAI. This increases overlap and potential for negative interactions, but may be beyond the sphere of influence of the FAB. Although there have been complaints that the policy makers do not pay sufficient attention to the advice of the FAB, the body appears to have reasonable power at present in this domain.

12.3.19 Enforcement

Enforcement of Belize's boundaries and contravention of fishing laws have been frequent FAB agenda items, especially in relation to illegal foreign fishing. It is an area in which the FAB has been most ineffective in addressing, but this goes beyond the fisheries sector into issues of national security. Co-management can be easily undermined if the State is unable to remove the uncertainty of intruders essentially free-riding on the efforts of co-management partners. In the cases of small NGOs and small-scale fishers with limited resources this can be a serious threat. More attention must be paid to enforcement, but as part of a larger national agenda.

12.3.20 Property rights

Property rights are not a distinctive feature of the fisheries of Belize, although territoriality in lobster fishing is reportedly well developed in some locations, but poorly documented. Some see the drive towards the formation of marine protected areas along the barrier reef as a threat to livelihoods from fishing. MPA properties typically exclude or restrict fishing. Where fishing is permitted, several communities report incursions of fisheries from distant areas as threatening their sense of access rights to, and efforts at conserving, the fishing locations nearest to their communities. Given the trend towards parcelling the marine areas around Belize, an integrated approach to determining the property rights within these areas is urgently needed.

12.3.21 Sharing decision-making

The FAB has functioned well as a forum for multi-stakeholder decision-making and advice to the policy level with which it has often been quite close. However, since the FAB is not a statutory body, the institutional arrangements function at the pleasure of the policy makers in power. The fact that it has lasted so long suggests that policy makers see benefits from this arrangement. However the FAB has also apparently been used for political convenience, with policy makers ignoring advice that is not favourable, using the FAB as a means of delay or deflection and only taking action on recommendations that coincide with decisions already taken. The structures proposed under the Fisheries Development Authority Act may change this relationship, but the fisheries authority becoming a statutory body also changes the context of decisions.

12.3.22 Decentralisation and delegation

Due to the size of the country there is some decentralisation of the fisheries administration with officers outposted in remote locations such as the fisheries officers in marine protected areas. The formal co-management agreements between the Fisheries Department and NGO partners for managing marine reserves are examples of decentralisation and delegation. However some of these agreements are said to institutionalise dependency on the Fisheries Department for support and allow that agency to retain most of the critical decision-making. The agreements also vary with the partner in question. The FAB itself is a mechanism for delegation given that many of its decisions, although nominally advisory, have been accorded the status of executive power under particular administrations and on particular topics.

12.3.23 Social and cultural fit

Belize is a developing democracy, having only recently severed colonial ties. The willingness of organisations to become co-management partners suggests a good social and cultural fit. Yet the readiness of these partners and their level of understanding of what co-management is in their circumstances has been called into question. It has been suggested that the fit is good due to misunderstandings and lack of a framework for terrestrial and marine co-management. It has also been suggested that co-management has been marketed in the context of parks and tourism as a means of income generation. These observations call for detailed examination of the socio-cultural fit in order to ensure that co-management is sustainable.

12.4 Priority action

Stakeholders in Belize recommended that priority be given to setting clear objectives and improving coordination in the coastal and marine area. They noted that improvement in trust and respect was fundamental, as was increasing organisational capacity. More transparency and systems of measurement were required to compare costs and benefits.

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14 Appendices

14.1 Appendix 1: Project case study summaries

14.1.1 Barbados

Sea egg fishery — A food fishery for white sea urchins (*Tripneustes ventricosus* locally called "sea eggs") has declined on several occasions. After several closures to facilitate recovery, the government recently initiated co-management. Stakeholder groups include the Fisheries Division and Coastal Zone Management Unit (CZMU) of the government; and the Barbados National Union of Fisherfolk Organisations (BARNUFO).

Fisheries Advisory Committee — Under its 1993 Fisheries Act the government of Barbados activated a multi-stakeholder Fisheries Advisory Committee in 1995. The FAC has struggled to define and meet its co-management mandate. Stakeholder groups include the Fisheries Division of the government; individual and organisational members of the FAC.

14.1.2 Belize

Laughing Bird Caye National Park and Gladden Spit Marine Reserve MPAs — These MPAs in Belize's barrier reef are co-managed by an NGO under co-management agreements with the Forestry and Fisheries Departments. Government stakeholders include the Fisheries and Forestry Departments, Coastal Zone Management Authority and Institute. Friends of Nature, Belize Tourism Industry Association and Belize Fisherman's Cooperative Association are some of the NGOs.

Fisheries Advisory Board — Belize has a Fisheries Advisory Board (FAB) that has been a powerful force in fisheries for over 30 years. However, it has not been well documented as an example of co-management. Stakeholder groups include government Fisheries and Cooperatives Departments, Belize Fisherman's Cooperative Association, members of the FAB.

14.1.3 Grenada

Lobster fishery (focus on Sauteurs location) — At the rural town of Sauteurs government recently started a co-management project to encourage use of more responsible fishing gear for lobster harvest, and the fishing co-operative in the area is presently being revived. Stakeholder groups include government Fisheries and Cooperatives Divisions, the Agency for Rural Transformation, St. Patrick's Fishermen's Co-op.

Seine net fishery (focus on Gouyave location) — The seine net fishery in Grenada is a case of an attempt by government to systematically document traditional fishing rules and customs in order to incorporate them into fisheries management plans and legislation. Stakeholder groups include the Fisheries Division of government, Agency for Rural Transformation, Grenada Community Development Agency, Gouyave Improvement Committee and St. John's Fishermen's Association.