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# **BARBADOS CASE STUDY: THE FISHERIES ADVISORY COMMITTEE**

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in association with the  
**University of the West Indies**  
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and  
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## **Executive summary**

A feature of harmonised fisheries legislation of CARICOM Member States in the eastern Caribbean is that Fisheries Advisory Committees (FAC) be established to advise the minister responsible for fisheries on fisheries management, conservation and development. The FAC is a formal, national co-management arrangement via a multi-stakeholder body. Barbados' FAC has existed since 1995. This case study examines the institutional relationships of the FAC in Barbados and examines what may be done to enhance its co-management capacity. Conditions for FAC success, and factors that are more likely to result in failure, are likely to be similar in some of these islands. This has regional relevance since, despite the legislation; few Member States have successfully established or sustained FACs

The nine-member FAC in Barbados is a technical committee of fairly low status, made mandatory under the Fisheries Act and affiliated to the Ministry of Agriculture and Rural Development. The committee has had a difficult history in terms of gaining recognition and receiving feedback from various ministers responsible for fisheries. However, it has achieved reasonable success due to the support from the Fisheries Division in following up on advice tendered. The FAC has become more representative of the fishing industry through amendments to the Fisheries Act and comprises a majority of members from the fishing industry. However, most industry members are appointed in a personal capacity and linkages to fishery workers and investors are tenuous.

In planning for its new term of office the Fisheries Advisory Committee stressed the need for its own capacity building and empowerment through information acquisition, communication, the strengthening of shared interests and appreciation of the value of the fishing industry. The FAC wishes to move from being a consultative body to ultimately becoming a collaborative institution through a change in the legal mandate upon the minister's instruction. The Barbados FAC is a case of consultative co-management in the implementation stage. Several of the factors for success are already satisfied, but communication and capacity building, especially for collective action, stand out as areas requiring priority attention.



## 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. This case is combined with others in a comparative analysis. Guidelines for successful co-management are developed from these outputs.

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 of discussion and conclusions on the lessons learned about what 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](http://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.

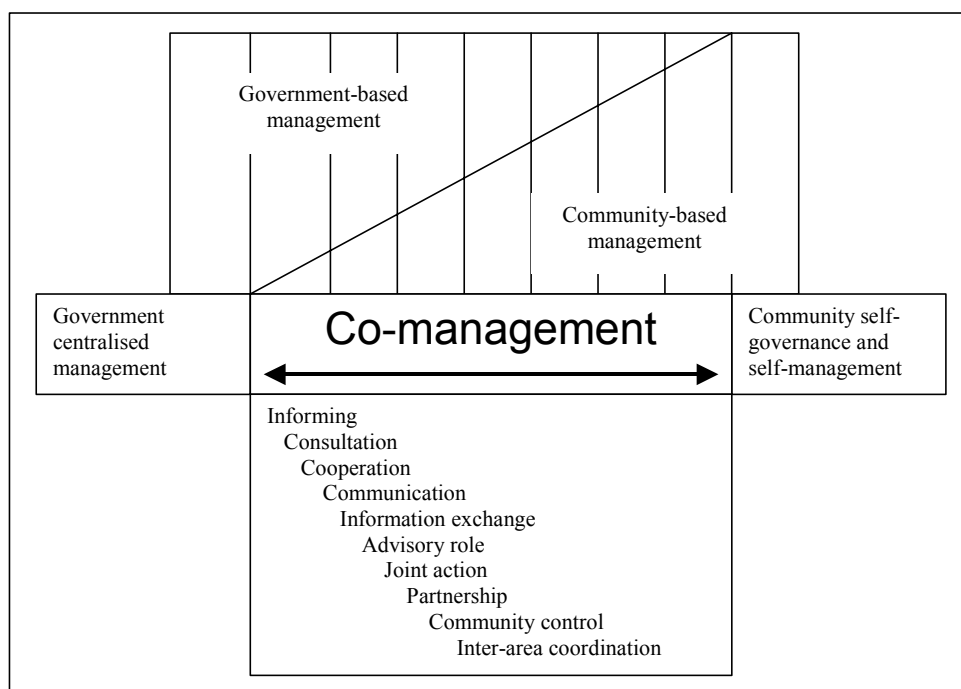


Figure 2.1 Sliding scale showing various degrees of co-management

Based on 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.

	<b>Consultative co-management</b>	<b>Collaborative co-management</b>	<b>Delegated co-management</b>	
<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).

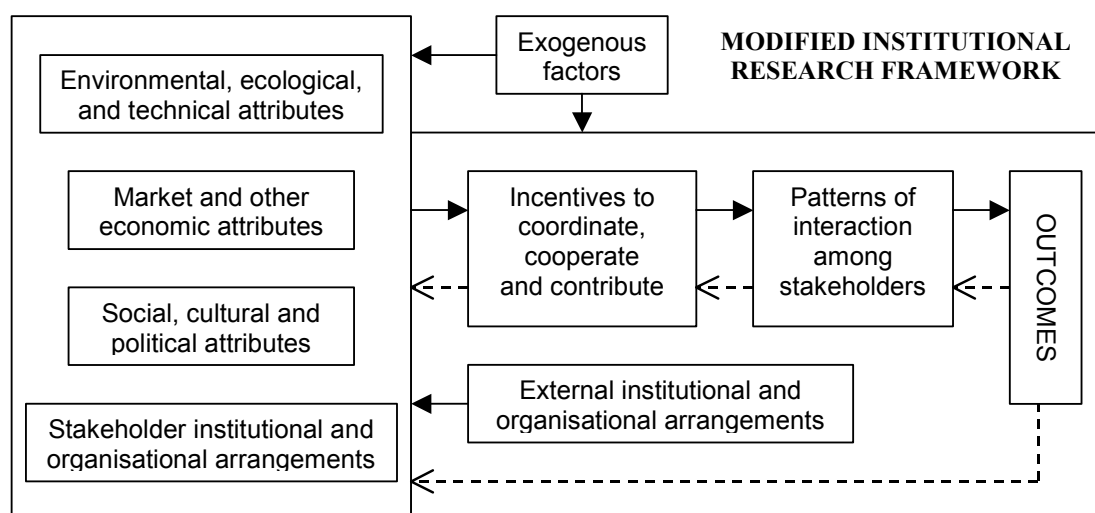


Figure 2.4 Modified ICLARM/IFM Institutional Analysis and Design Research Framework

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 1999).

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. 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, two each in Barbados, Belize and Grenada, are summarised in Appendix 1. Under its 1993 Fisheries Act the government of Barbados activated a multi-stakeholder Fisheries Advisory Committee (FAC) in 1995. It was not the first time that such a body had been formed. In the 1940s, prior to the first fisheries officer being appointed, there was a colonial Fisheries Advisory Committee that functioned up until the time of independence. The body was revived for brief periods after this. However, none of the previous bodies had been established through law.

The FAC that started in 1995 has struggled to define and meet its co-management mandate. Stakeholders on the FAC include agencies of government, individuals and organisational members. In a sense the FAC occupies a space between the fishing industry and the policy makers where it could facilitate partnerships and broker decisions that have input from top and bottom. The reality is that the FAC seems removed from both of these arenas and has a very limited sphere of influence, even in the context of having its advice taken and acted upon.

The case examines these institutional relationships and explores what may be done to improve upon the co-management capacity of the FAC. It has regional relevance since the fisheries legislation of most CARICOM Member States contains provisions for such a body, but few of these countries have actually established or sustained them. Conditions for success and factors that favour failure are likely to be similar in most of these islands given their similarities.

## 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 at 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 may be regarded as action research.

This case study employed focus group and workshop methods with former and present members of the Fisheries Advisory Committee. Participatory strategic planning was undertaken with the Committee using the methodology illustrated in Figure 4.1.

### Participatory Strategic Planning

*Based on: The Technology of Participation*

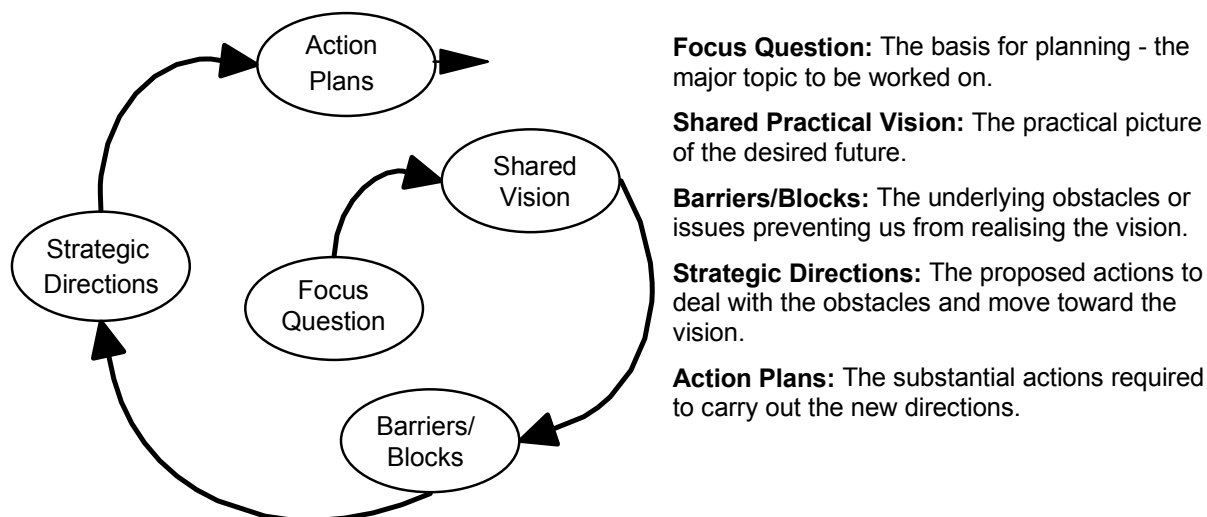


Figure 4.1 Method of participatory strategic planning

These methods were supplemented by document analysis. The target beneficiaries undertook collaborative activities such as a joint newsletter on the role and composition of the FAC.



## 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.

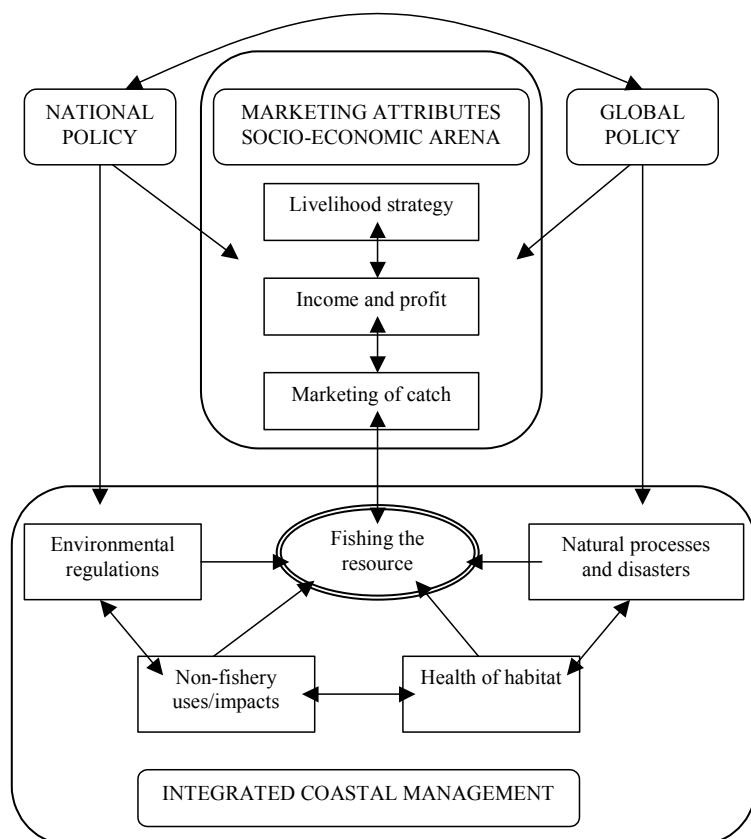


Figure 5.1 Framework for resource assessment

### 5.1 Geography

Barbados is the most eastern of the Caribbean islands, being entirely surrounded by the Atlantic Ocean and located at latitude 13° 10' N and longitude 59° 35' W (Figure 5.2). The mainly low relief and coralline island has a total land area of about 430 square kilometres encompassed by 97 kilometres of coastline. The island shelf is only 320 square kilometres, and deep water is found close to shore. Current patterns around Barbados are complex, but generally directed towards the northwest, sometimes bringing lenses of lower salinity water that contains debris from the Amazon and Orinoco Rivers of South America.

### 5.2 Barbados fishing industry

The Barbados Fisheries Management Plan (Barbados Fisheries Division 2001) summarises the fisheries of Barbados and their management. In its deliberations, the FAC addresses the full range of fishery resources in the island, and is instrumental in developing and reviewing the Fisheries Management Plan (FMP).



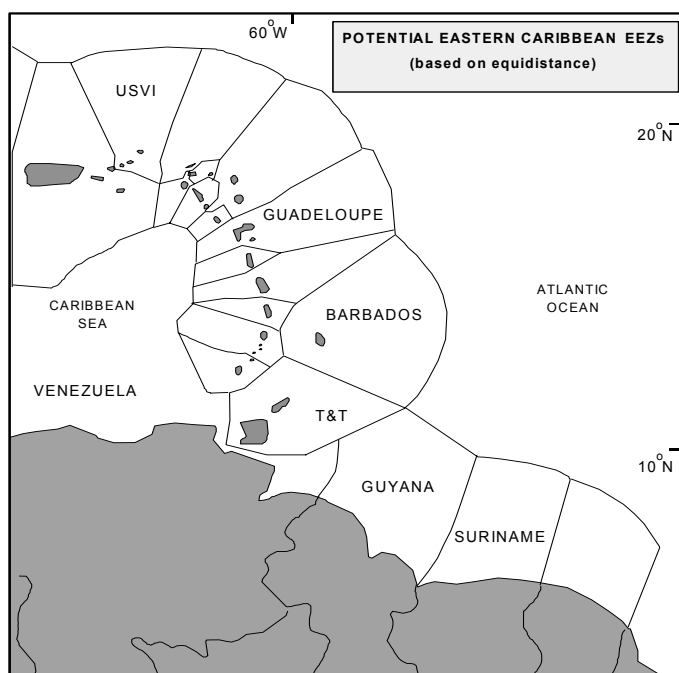


Figure 5.2 Location of Barbados

### 5.2.1 Types of fisheries

The Fisheries Management Plan for Barbados recognises nine different types of fisheries taking place in the waters of Barbados. The categorisation of types of fisheries is based primarily on the species caught and the gear used.

- Large pelagic fishes (e.g. dolphin, tunas, kingfish swordfish, shark) are caught with hand lines, troll lines, and longlines. These fisheries are carried out in waters off the island shelf.
- Flyingfish are caught with gillnets, hand lines and dip nets in waters off the island shelf.
- Shallow-shelf reef fishes (e.g. parrotfish, surgeonfish) are caught with fish traps, set nets and spear guns on and around coastal coral reefs.
- Deep slope fishes (e.g. snappers, groupers) are caught mainly with fish traps and hand lines. They are used on the deep-reef slope, bank reefs and deep shelf areas.
- Coastal pelagics (e.g. herrings, jacks, small tunas) are caught with many gear types, e.g. hand lines, troll lines, cast nets, seine nets on the island shelf.
- Sea urchins (known as sea egg) are harvested by hand or with a rake from shallow waters.
- Turtles (e.g. loggerhead, hawksbill, leatherback) were fished with entangling nets. However, the fishery was closed until further notice in 1998 as an international conservation measure.
- Lobsters (e.g. spiny, spotted) are taken in fish traps and by divers (by hand and with spears) in coastal waters on the island shelf.
- Conch (e.g. queen conch) are taken by divers by hand from coastal waters on the shelf.

### 5.2.2 Stock assessment

There has been minimal conventional stock assessment carried out locally for Barbados' fishery resources. Furthermore, there is little ongoing effort aimed at assessing the fishery resources of Barbados with the objective of placing the management plans on a more technically sound base. The majority of human and financial resources available for stock assessment are

directed towards collecting information on fishing effort and landings. This information is used mainly to estimate fisheries production rather than to determine trends in stock abundance or status. Fishery Management Plans are therefore reliant on a variety of alternative indicators of stock status including local fisher knowledge.

Resource assessment for the migratory large pelagics and flyingfish, is appropriate only on a regional or international basis covering the full distributional range of the stocks. For many large pelagic species, the International Commission for Conservation of Atlantic Tunas (ICCAT) is the responsible fisheries management organisation. It conducts assessments and establishes management measures. Most species managed by ICCAT tend to be fully or over exploited. In Barbados, the status of stocks of several coastal large pelagic species that ICCAT does not attempt to manage, notably dolphinfish, blackfin tuna, *Scomberomorus* spp., is largely unknown.

There has been some effort to assess the status of flyingfish in collaboration with neighbouring countries. The results have thus far been inconclusive, owing to lack of data from all participants in the fishery, but preliminary evidence suggests potential for cautious expansion. The resource is characterised by a high degree of interannual and seasonal variability in abundance that makes it difficult to predict levels of sustainable effort.

The remaining fisheries are contained within the waters of Barbados and can be assessed and managed at the national level. With regard to reef fishes, many south and west coast areas are considered overfished. This is based largely on observed shifts in species and size composition of the catch. The status of east coast reef fish resources is unknown, but they were usually considered healthier than on the west coast prior to the 1999 fish kill. The status of the deep slope and bank snapper stocks is unknown, but preliminary studies suggest that some areas may have potential for increased harvest. Sea eggs have suffered several stock collapses due at least in part to overfishing. Assessment has been limited largely to surveys of distribution to determine areas of depletion and strength of incoming year classes. The status of stocks of lobster and conch are unknown. Populations of these species appear to be small owing to lack of suitable habitat, such as seagrass in the case of conch.

### 5.2.3 Fishing boats

The fishing fleet comprises four types of boat as described below:

- ◆ Moses are open boats 3-6 m in length; propelled either by oars or 10-40 hp outboard engines; used primarily for reef and coastal fisheries. Gear commonly used includes hand and trolling lines, fish traps and cast nets. Also used for transporting seine nets and apparatus used for diving.
- ◆ Launches or Dayboats are mostly wooden vessels 6-12 m in length; propelled by inboard diesel engines from 10-180 hp; used primarily for harvesting flyingfish and large pelagics on day trips. Gear commonly used includes hand and trolling lines, gill nets and hoop nets. They are also used for tending set nets and apparatus used for diving.
- ◆ Iceboats are usually greater than 12 m in length; propelled by inboard diesel engines; used primarily for harvesting flyingfish and large pelagics on trips of 5-10 days. Gear commonly used includes hand and trolling lines, gill nets and hoop nets.
- ◆ Longliners are greater than 12 m in length; propelled by inboard diesel engines; used primarily for fishing tunas and swordfish, with a by-catch of large pelagics, on trips usually of 12-28 days. Pelagic longline gear is the mainly used, but some carry all of the other gear associated with iceboats.

For purposes of registration, licensing, safety and inspection, the fleet is divided into three length classes: Class 1 is < 6m; Class 2 is 6-12 m; Class 3 is 12-24 m. Fishing vessels exceeding 24 m are also dealt with under provisions for ships. The fleet size statistic is approximate since not all of the vessels on the register are active at the same time (e.g. under repair or construction) and some may have stopped fishing entirely, but remain listed until their status is confirmed and they are removed from the register. Except for the largest iceboats and longliners, most fishing vessels are built locally, and most are made of wood. Iceboats are replacing launches as the preferred vessel for pelagic fishing. Trends in the numbers of boats of different types are shown in Table 5.1

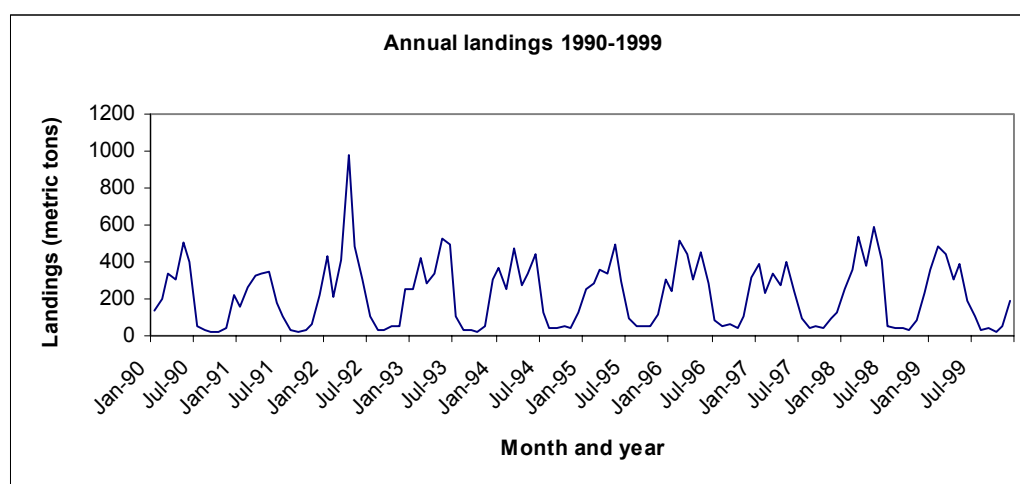
*Table 5.1 Registered Barbados fishing fleet by vessel type, 1994-2002*

<b>Vessel type</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
Moses	323	355	368	399	400	412	434	471
Launches	353	302	298	303	276	288	290	289
Iceboats	54	93	115	123	146	149	156	163
Longliners	10	13	19	22	25	30	31	31
Annual total	740	763	800	847	847	879	911	954

Source: Fisheries Division

#### 5.2.4 Catch

Fisheries for large pelagic fishes and flyingfish produce most of the landings. Landings from the fisheries for seine fish, reef fish, deep-slope snappers, lobster, conch and sea eggs are relatively small (Table 2). The fishery is characterised by the marked seasonality of flyingfish and the most important large pelagic, dolphinfish (Figure 5.2). These are most available between November and the following June, which is essentially the “fishing season”. In this period there is considerable interannual variability in the abundance of both species, as well as in the timing of their availability. For flyingfish, there are usually two peaks: one between November and January and another between March and June. The fisheries for reef, seine, and deep-slope fishes are carried out primarily in the period between fishing seasons. Other large pelagics targeted by longliners appear to be available year round, but their abundance is also highly variable.



*Figure 5.3 Variability of total annual landings of all species 1990-1999*

The inter and intra-annual variability in abundance and timing for the two main target species is a major driver of the fishery. Searching for fish when they are scarce has resulted in excursions by many vessels into waters of neighbouring countries, particularly Trinidad and Tobago. The quest for a fishing agreement with Trinidad and Tobago was in progress prior to the establishment of the FAC.

Shore-based infrastructure and operations must respond rapidly to the interannual variation in fish abundance and corresponding fishing activity. This can often place a strain on services such as harbour facilities including offloading space and ice. The composition of annual landings for a fairly typical year is shown below (Table 5.2).

*Table 5.2 Estimated total national fish landings for 2000*

<b>Species Or Species Group</b>	<b>Estimated Landings (metric tons)</b>	<b>Percent of total landings</b>
Flyingfish	1916	61.8
Dolphinfish	729	23.5
Large tunas	191	6.2
Billfish	77	2.5
Kingfish (wahoo)	36	1.2
Carangids (jacks)	28	0.9
Snappers	25	0.8
Shark	14	0.5
Pot fish (reef fish)	12	0.4
Swordfish	10	0.3
Small tunas	3	0.1
Unspecified	61	2.0
<b>Total</b>	<b>3102</b>	

Source: Fisheries Division

## **6 Socio-economic attributes**

### **6.1 General**

Amerindians from South America settled on the island around 1600 B.C. These Arawaks lived along the coast and used harpoons, nets, and hooks, to fish for food. Portuguese sailing to Brazil named the island Barbados. The first English ship reached the island in 1625 and claimed it on behalf of King James I. In 1627 an English ship landed with a party of 80 settlers and 10 slaves to occupy the island. The colonists established a House of Assembly in 1639, making it the third oldest parliamentary democracy. Barbados remained a British colony until internal autonomy was granted in 1961 followed by full independence in 1966. It is still a member of the Commonwealth. The Constitution of Barbados enshrines parliamentary democracy based on the Westminster model of Britain. Ideologically the two main political parties are very similar and described as social or liberal democratic. In recent years both have stressed the importance of participation and social partnerships in their political campaigns.

Since the 1630s, sugar cane has dominated agriculture and supported a rich agro-commercial mercantile elite. Black slaves and white indentured servants met the labour demands of agriculture. Slavery, abolished in 1834, was followed by a four-year apprenticeship period. Freedom from slavery was celebrated in 1838, at the end of the apprenticeship period, with over 70,000 Barbadians being of African descent and a significant proportion of the population being poor whites. Today about 80% of the over 270,000 people in the population are classified as black, with another 16% being mixed race, and the remainder white. Protestant religions are most common, but religious diversification is increasing.

Sugar and plantation capitalism continue to be driving socio-economic forces, but with sugar of declining importance as the economy is transforming into one dominated by international business financial services and tourism. Trade in agricultural and manufactured products declined in 2001 due mainly to external shocks such as the international impacts of terrorism, trade liberalisation and financial controls. Real gross domestic product (GDP) declined by 2.6% in 2001, compared to a 3% increase in 2000, and unemployment increased for the first time in eight years, reaching 9.9% at the end of 2001 (Economic Planning Division 2002).

## 6.2 Fisheries

In the context of the Fisheries Advisory Committee, a useful baseline is the description of the fishing industry in the colonial Barbados of 1940. Poor social and economic conditions partly motivated the riots of 1937, and Brown (1942) describes the fishing fleet as consisting of 371 sailboats and 165 rowboats, employing 1200 fishers. A rehabilitation Fishing Boat Loan Scheme was established and administered by the first Fisheries Advisory Committee using Colonial Development and Welfare funds. According to the first Fishery Officer appointed in 1944:

prior to 1942 little or no attention had been paid to the fishing industry by the Government, so much so, that the Barbadian fisherman found himself in a class below that of the agricultural labourer economically; as such he set his own standards, which to him may have been satisfactory, but to other more intelligent people repulsive, unreliable and uncooperative. It has taken great effort to change this attitude over the last five years, and although some progress has been made, much remains to be done. (Wiles 1949:68)

Table 6.1 chronicles some of the more significant events in the fishing industry that reflect its progress economically and technologically. The intervening half-century saw great progress mainly in these two dimensions, the former often as a result of the latter. Social changes are very poorly documented in comparison.

*Table 6.1 Some key events in the recent history of the Barbados fishing industry*

Year	Event
1940	Fishing fleet consists of 371 sailboats and 165 rowboats employing 1200 fishers
1942	Report on the industry by H.H. Brown recommends a Fishery Department
1943	Fishing Boat Loan Scheme administered by the first Fisheries Advisory Committee
1944	<ul style="list-style-type: none"> <li>◆ Fishery Division established with Colonial Development and Welfare funds</li> <li>◆ First Fishery Officer and one Clerk appointed</li> <li>◆ A new Fisheries Advisory Committee chaired by the Director of Agriculture</li> </ul>
1945	Fishing included in the first development plan for Barbados

Year	Event
1947	Fishing Industry Act (FIA) requires boats to be inspected and registered
1949	<ul style="list-style-type: none"> <li>◆ Colonial government finances Fisheries Division after CD&amp;W grant expires</li> <li>◆ Tractor with winch at Tent Bay to replace manual labour for hauling boats</li> <li>◆ Fishery experimental boat "Investigator" launched</li> <li>◆ Amendment to FIA requires fishers to be registered annually</li> </ul>
1952	<ul style="list-style-type: none"> <li>◆ Gill net for flyingfish capture is introduced to fishers after 2 years of trials</li> <li>◆ Boatyard set up at Fishery Experimental Station and "Calvert" design introduced</li> <li>◆ Fisheries Division has a staff of 17 people</li> <li>◆ Boat motorization started</li> </ul>
1955	<ul style="list-style-type: none"> <li>◆ Hurricane Janet destroys many fishing boats</li> <li>◆ Supply of wood from felled trees facilitates boat rebuilding and motorization</li> </ul>
1961	<ul style="list-style-type: none"> <li>◆ Fishing cooperatives introduced as savings societies</li> <li>◆ Formation of the Barbados Marketing Corporation (BMC)</li> </ul>
1962	The Barbados Fishing Vessels Co-operative Insurance Society formed but inactive
1963	Workmen's Compensation Act amended to include fishers as employees
1964	Most fishing savings societies converted into full cooperatives
1967	UNDP/FAO Fishery Project introduces chilled fish through the BMC
1968	Most fishing cooperatives have disbanded or become inactive
1971	Barbados Development Bank makes its first loan to the fisheries sector
1972	UNDP/FAO Fishery Project termination
1974	First small iceboat operated briefly
1976	First large iceboat is commercially operational
1980	Sand Pit fishers form group to counter relocation by the Barbados Port Authority
1981	First locally built fibreglass iceboat is commercially operational
1982	Iceboat owners form Barbados Fish Processing Ltd., to market their catches
1983	Fish gluts caused by iceboats overwhelm the market
1985	Short-lived attempt to form a Fisherman's Association
1986	Barbados Fishing Cooperative Fishing Society Ltd. (BARFISHCOS) registered
1987	Sea egg fishery closed for a two-year period to facilitate population recovery
1991	Barbados Union of Fishery Workers (BUFW) registered as a trade union
1993	A Fisheries Act, drafted to facilitate fisheries management planning, is passed
1994	Barbados United Fisherfolk Association (BUFFA) formed
1995	First Fisheries Advisory Committee is appointed under the Fisheries Act
1997	<ul style="list-style-type: none"> <li>◆ First fisheries management plan (FMP) is approved for 1997-2000</li> <li>◆ Fisherfolk Organisation Development Project commences</li> </ul>
1998	<p>Fisheries (Management) Regulations are passed into law based on FMP</p> <p>Sea egg fishery closed for a three-year period to facilitate population recovery</p>

Year	Event
2000	<ul style="list-style-type: none"> <li>◆ Barbados joins the International Commission for the Conservation of Atlantic Tunas</li> <li>◆ Barbados becomes party to the UN Fish Stocks Agreement</li> <li>◆ Barbados becomes party to the FAO Compliance Agreement</li> <li>◆ Fisheries Act amended to expand the Fisheries Advisory Committee</li> </ul>
2001	Second fisheries management plan (FMP) is approved for 2001-2003
2003	<ul style="list-style-type: none"> <li>◆ Barbados joins the Caribbean Regional Fisheries Mechanism of CARICOM</li> <li>◆ Barbados promotes development of a regional fisheries policy and regime</li> </ul>

The average contribution of the fishing industry to the economy, in terms of gross domestic product (GDP), is occasionally up to about 1%. The dollar value tends to be about Bds\$30 million per year, or about 22% of non-sugar agriculture and 17% of all agriculture. This is from annual fish landings of about 3,000 to 5,000 metric tons. The fishing industry has historically served as a social safety net, providing work for those unable to find other employment. All fisheries are currently open access and fishing employs about 2% of the island's labour force, which is around 17% of the people involved in agriculture. When fish catches are good, a very mobile male and female opportunistic labour force engages in both harvest and postharvest income generation activities.

The Fisheries Division has recently sought to register people who work in the fishing industry. When these data are available for analysis it should provide a more accurate social and economic profile of the fishing industry and a breakdown by the occupations within it. Some statistics are unlikely to have changed much recently, such as boat ownership being by individuals rather than partnerships or companies, with over 90% of these people being male and owning only one vessel (McConney 1995). However less than half of boat owners fish their own boats, a pattern of ownership reinforced during the 1960s when sail boats became motorised through a loan scheme. Investor ownership increased as the trend towards larger and more capital intensive vessels continued. In addition, the closing of the Barbados Development Bank (BDB) in 1996 meant that credit for fishing was available mainly to those who had collateral from other sources and did not require special development financing. One of the reasons for the closure of the BDB was poor loan repayment by fishing and other sectors.

## **6.3 Fish marketing**

### **6.3.1 Landing sites**

There are about 30 fish landing sites around the island with facilities of varying standards, not all of which are used year round. These sites are categorised as primary (markets), secondary (sheds) and tertiary (beaches) based on the type of physical infrastructure present (Figure 6.1).

The majority of catches are landed at the six primary landing sites - Bridgetown Public Market, Oistins Fish Market, Speightstown Fish Market, Conset Bay Fish Market, Skeetes Bay Fish Market and Weston Fish Market which are characterized by market buildings and other facilities such as chill or cold storage, ice, lockers, and haul-out areas. Bridgetown has a fishing harbour. Oistins, Speightstown, Conset Bay and Skeetes Bay have jetties. Fish tolls, catch, effort and price statistics are collected at the fish markets.



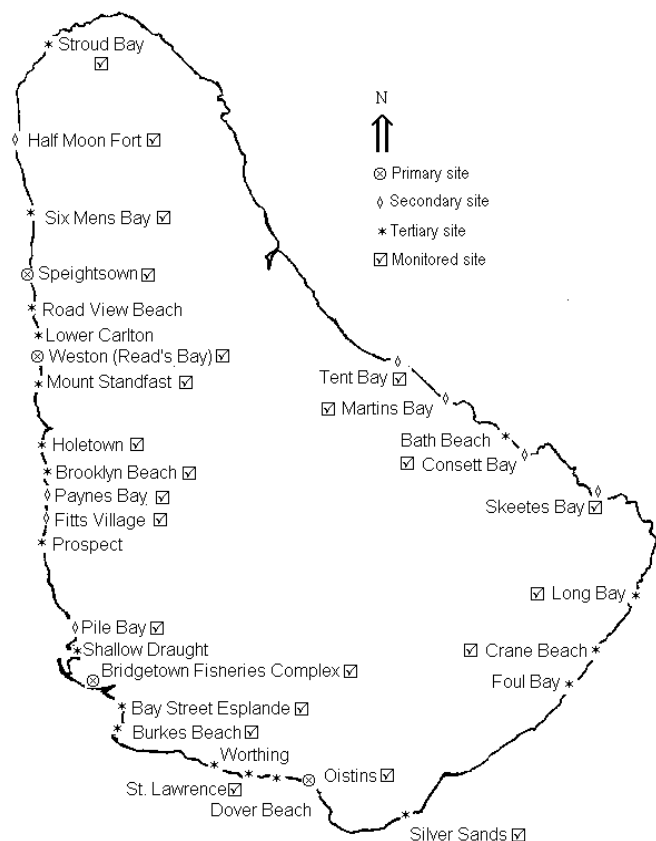


Figure 6.1 Fish landing sites and fishing vessel mooring sites around Barbados

Sheds and slabs for cutting fish characterize the secondary sites. Several of these secondary sites are being upgraded to markets. Caretakers are employed by the Fisheries Division to clean the sheds and collect catch and effort statistics. There are also many beach and bay areas or tertiary sites, without physical infrastructure, where boats are moored or beached and fish landed. Some sites have data collectors visiting regularly or permanently stationed. Barbados is characterised by ribbon settlement along the coast, and with the exception of Oistins, Bayfield, Conset Bay and Six Men's Bay, few of the landing sites are associated with fishing villages.

### 6.3.2 Transactions and earnings

Fish catches are typically sold by the boat captain, owner or an agent directly to consumers or to fish vendors and processors (Figure 6.2). Demand among different sectors of the market varies according to species and quantity available. Bargaining is common, but the fishers tend to be price-takers particularly when fish is plentiful and buyers are more successful in colluding to maintain low ex-vessel prices. McConney (1995) reports that credit and other ties between the harvest and postharvest sectors can have considerable influence on prices and the persons to whom fish is sold. He reports that social networks are used for coping with the several different types of uncertainties facing participants in the fishing industry. There is also a clear and almost universal perception of the power hierarchy that prevails in the fishing sector that puts processors over vendors, boat owners and fishers in that order. This hierarchy reflects perspectives on trends in the income-earning ability and political influence of the stakeholders.



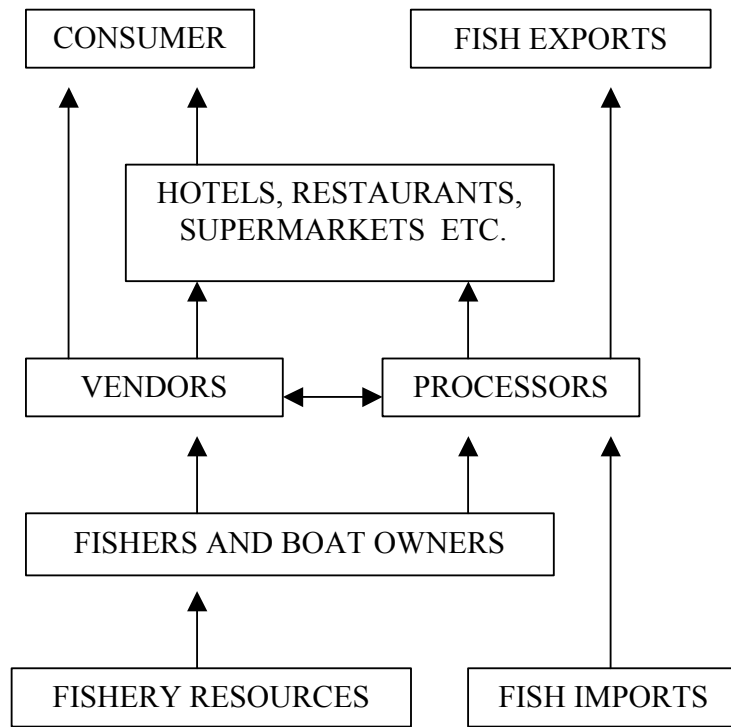


Figure 6.2 Major fish marketing channels

Estimates of income from fishing vary widely depending upon the assumptions surrounding the costs and earnings of fishing enterprises. Using estimates from several sources McConney (1995) calculated that in the harvest sector, a crewman would make about Bds\$6,500 to \$10,000, and an owner-captain around \$7,000 to \$24,500 for an eight-month pelagic fishing season. Some studies have suggested that most fishing boats do not make a profit if depreciation and loan repayments are taken into account. Several boat owners reported that they inherited their boats, and keep them mainly for recreational purposes, or some purpose other than profit making. Key informants reported that they are reluctant to act collectively to defend their fishing interests because of the low profitability of the industry.

#### 6.4 Alternative livelihoods

In Barbados, given the marked seasonality of fishing, fishers switch between different sectors of the fishery in order to obtain sufficient income. In the November to June period, pelagic fishing is the regular income source, but in the hurricane or off-season the smaller inshore or demersal fisheries described in the resource assessment above become more important.

In a sample of over 100 fishers nearly all relied on fishing for their sole source of income. The few that had alternative sources of income were engaged in general labour or low-skilled technical jobs during the off-season (McConney 1995). Among boat owners, however, almost 25% held managerial or professional jobs while only 20% relied on their boats alone for income. Vendors and processors often also have investments in areas other than fishing.

## 6.5 Barbados poverty profile

The Inter-American Development Bank conducted a poverty assessment in 1996-1997 (Diez de Medina 1998) that forms the basis for this summary. The study calculated the average per capita annual poverty line to be Bds\$ 5,503.00, below which Barbadians are considered "poor". Around 8.7% of the total households live below the poverty line, which means about 35,000 people or 13.9% of the total population. Table 6.2 presents a profile of poverty.

Table 6.2 Demographic poverty profile (1996-1997)

Statistic	Poor	Non-poor	Total
Household size	5.03	2.98	3.15
No. children < 5 years	0.66	0.28	0.32
No. children 5-14 years	1.31	0.39	0.47
No. members of 60 of age & +	0.29	0.51	0.49
No. employed	1.48	1.34	1.35
No. unemployed	0.66	0.19	0.23
No. non-attending schools 5-18 years	0.14	0.04	0.05
No. inactive of 15 of age & +	0.92	0.75	0.77
Global participation rate (%)	69.9	67.1	67.2
Female participation rate (%)	66.9	61.8	62.2
Unemployment rate (%)	30.8	12.4	14.6
Female unemployment rate (%)	40.1	14.8	19.6
Dependency ratio (inactive per active)	1.4	0.9	1.0
Dependency (inactive per employed)	2.0	1.1	1.2
Female-headed households (%)	58.5	42.6	44.0
Households with non-attending schools 5-14 years (%)	1.3	0.5	0.6
Households with non-attending schools 15-18 years (%)	10.2	3.0	4.0

Source: Statistical Department as reported in Diez de Medina (1998)

Gender is essential in explaining poverty in Barbados. Most poor households are headed by females (almost 59%). Within female-headed households, 11.5% are poor, whereas within the male-headed households the rate is 6.5%. The gender composition of the family is linked to marital status since single parents head most of the poor families (57.3%). Poor households tend to have younger heads; persons below 44 years of age head 48.4% of poor households.

Another important factor in Barbadian poverty is education. Most of the poor household heads have only primary or elementary education, accounting for almost 54% of the poor, whereas another 40% only reached secondary level. The employed poor show a higher share of people with only primary education, which is closely tied to their higher probability of being in unskilled occupations than the non-poor. The economy has become increasingly oriented to services where relatively high standards of production and skills are required. High unemployment rates, being closely associated with low income, are characteristic of the poor population.

The mean unemployment rate within poor households is almost two and a half times that of non-poor ones. Poor households tend to make more intensive use of their so-called "secondary labour force" - women and youth. They also tend to have a higher percentage of old people still working. Unemployment rates for poor households are higher in all age groups. If gender is taken into account, it can be seen that unemployment rates are very high for poor females,

particularly young ones. Female unemployment is closely linked to poverty in Barbados. The unemployment rate is 40.1% for poor females.

A high proportion of poor people are self-employed, which is a close proxy for the informal sector. The poor have a higher percentage working in agriculture and fisheries, and construction and quarrying than the non-poor (Table 6.3).

*Table 6.3 Economic characteristics of poverty intensity (1996)*

Determinants or correlates? of Poverty	Proportion of Poor	Poverty Gap	Intensity	Proportion of Households	Contribution to National Poverty		
	(P0)	(P1)	(P2)	Percent	P0	P1	P2
<b>Occupation of Head</b>							
Never worked	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Legislator, senior officials, managers	2.6	0.7	0.3	6.1	1.8	1.9	2.1
Professionals	1.0	0.4	0.2	7.0	0.8	1.2	1.1
Technicians and associate profess.	3.8	0.7	0.2	4.4	1.9	1.4	0.9
Clerks	5.9	1.3	0.5	4.9	3.3	2.8	2.3
Service workers/shop/market workers	11.9	3.1	1.3	8.7	11.8	11.6	11.2
<i>Skilled agriculture and fishery workers*</i>	14.5	5.0	2.6	1.7	2.8	3.7	4.4
Craft and related workers	9.6	2.5	1.2	9.2	9.9	9.9	11.3
Plant and machine operators	12.9	3.3	1.3	5.1	7.5	7.4	6.8
Elementary occupations	17.1	4.5	1.8	16.6	32.2	32.1	30.2
Not applicable	6.9	1.8	0.8	36.2	28.3	28.0	30.1
Total	8.8	2.3	1.0	100.0	100.0	100.0	100.0
<b>Industry of Head</b>							
Sugar farming	9.1	2.5	1.2	0.5	0.6	0.6	0.7
Other agriculture (excludes fishery)	15.9	4.4	1.7	3.0	5.5	5.8	5.0
<i>Fishing*</i>	8.4	5.6	4.2	0.4	0.4	1.1	1.9
Mining and Quarrying	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Sugar Milling	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Manufacture (excludes sugar)	6.7	1.3	0.4	4.2	3.2	2.3	1.5
Electricity, gas, water	5.0	3.0	2.6	0.8	0.4	1.0	2.0
Construction	10.2	2.7	1.1	5.2	6.0	6.2	5.9
Wholesale and retail trade	6.2	1.6	0.6	6.8	4.8	4.6	4.2
Hotels, restaurants, etc.	7.7	2.2	0.9	5.1	4.4	4.9	4.6
Taxis and rented vehicles	18.7	4.4	1.3	0.4	0.8	0.7	0.5
Other transport	7.5	2.3	1.0	1.7	1.5	1.7	1.8
Other tourism services	2.8	0.1	0.0	0.6	0.2	0.0	0.0
Communications	0.0	0.0	0.0	0.9	0.0	0.0	0.0
Finance	2.4	0.4	0.0	1.4	0.4	0.2	0.0
Insurance and pensions	6.9	2.2	0.8	0.8	0.6	0.7	0.6
Real estate and rental	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Business services	8.0	1.0	0.2	0.9	0.8	0.4	0.2
Public administration and computer	6.5	1.9	1.0	3.1	2.3	2.6	2.9
Educational services	4.5	0.9	0.3	2.9	1.5	1.2	0.8
Health and social work	7.6	1.5	0.5	3.2	2.7	2.1	1.5
Act. of membership	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Recreational, cultural services	19.3	6.5	2.3	0.3	0.6	0.8	0.7
Other government services	6.7	1.0	0.3	4.6	3.5	2.0	1.4
General services	12.7	2.7	0.9	11.2	16.2	13.2	10.2
Total	8.8	2.3	1.0	100.0	100.0	100.0	100.0

Source: Statistical Department as reported in Diez de Medina (1998)

A more recent sample survey in two rural and urban communities confirms the broad findings and trends of the IDB survey. It adjusts the poverty line to \$5,725 due to inflation and suggests that persons who earn between \$6,000 and \$10,000 are in a "vulnerable" category (Saptagiri 2002). The report also supports the IDB recommendation for the Poverty Alleviation Bureau to

establish a national database on poverty and income distribution.

## **6.6 Poverty Alleviation Bureau**

In order to assist with the alleviation and eradication of poverty in Barbados the Poverty Alleviation Bureau was established in October 1998 as an agency of the Ministry of Social Transformation. The Bureau seeks to build on community development, empower community organisations and individuals, and ensure their access to adequate resources and opportunities in keeping with its aims and objectives in Box 6.1.

### *Box 6.1 Aims and objectives of the Poverty Alleviation Bureau*

- ◆ To assist in the alleviation and eradication of poverty through the empowerment of individuals and groups by the provision of economic and financial opportunities as well as educational and vocational training.
- ◆ To establish cordial and effective working relationships with Government agencies, NGOs, Community Based Organisations, individuals and community groups in an effort to reduce inefficiencies, duplication of efforts and wastage of resources.
- ◆ To ensure a faster and more meaningful delivery of services.
- ◆ To create the climate for young people to gravitate towards the growth and development of small/micro business enterprises.
- ◆ To pioneer the development of a new entrepreneurial class.

Source: Poverty Alleviation Bureau brochure

Officers are aware that poverty alleviation can be little more than thinly disguised political patronage that deepens dependency on government instead of reducing it. The Bureau stresses partnerships and networks in achieving its aims and objectives. Despite the above poverty statistics that identify fishing as an activity of the poor, the Bureau has not been approached by the FAC, or fisherfolk directly, for assistance to the industry. Neither has it observed that poor people are particularly associated with coastal communities. There is no interaction between the fisheries or coastal authorities and the Poverty Alleviation Bureau since the authorities do not include poverty in their planning and management considerations.

## **7 Community-level institutional and organisational arrangements**

We now focus on the human system. The ecosystem and human system are inextricably linked. The sections below examine institutional arrangements at different scales of analysis (Figure 7.1). The scales expand outward and are nested to show their linkages and inter-dependence. For a location-based case, such as this, the scales larger than community level are labelled external for the purpose of analysis.

In this case the term “community” refers not to a geographical and spatial location such as a village, but it refers to a community of interest and membership that constitutes the Fisheries Advisory Committee (FAC). The members of the Fisheries Advisory Committee are the community in this case.

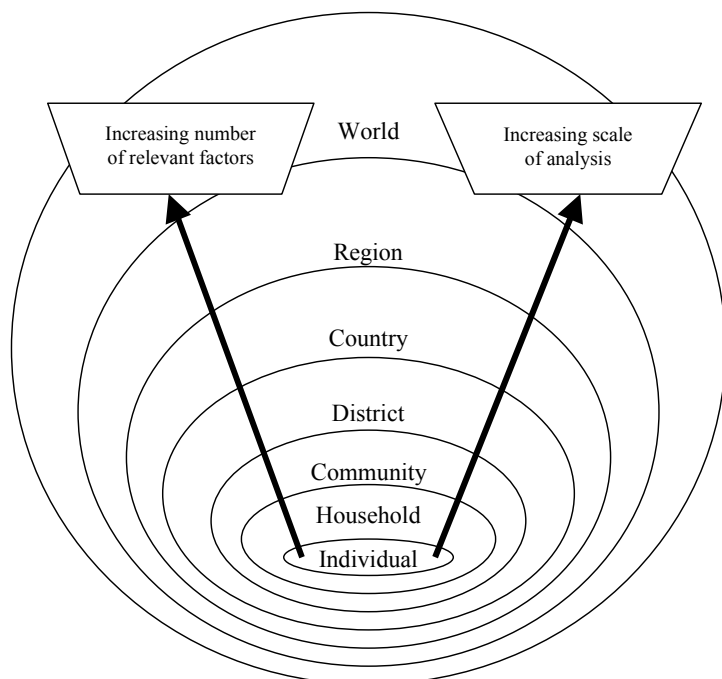


Figure 7.1 Number of factors to be addressed increases with scale of institutional analysis

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. Arrangements of interest include those in Figure 7.2 that increase in number and complexity of interaction as the scale of analysis increases. They are relevant to how co-management may function, and be sustained, or fail.

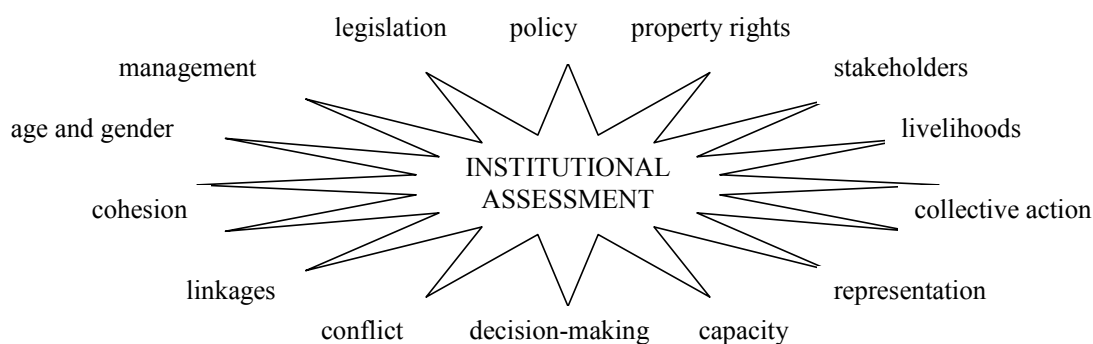


Figure 7.2 Some of the factors to be considered in institutional assessment

### 7.1 Fisheries management environment

In order to appreciate the Fisheries Advisory Committee as a community, and to later examine the institutions and organisations external to the FAC, requires a broad perspective of the fisheries management environment in Barbados and many other Caribbean countries (Figure 7.3).

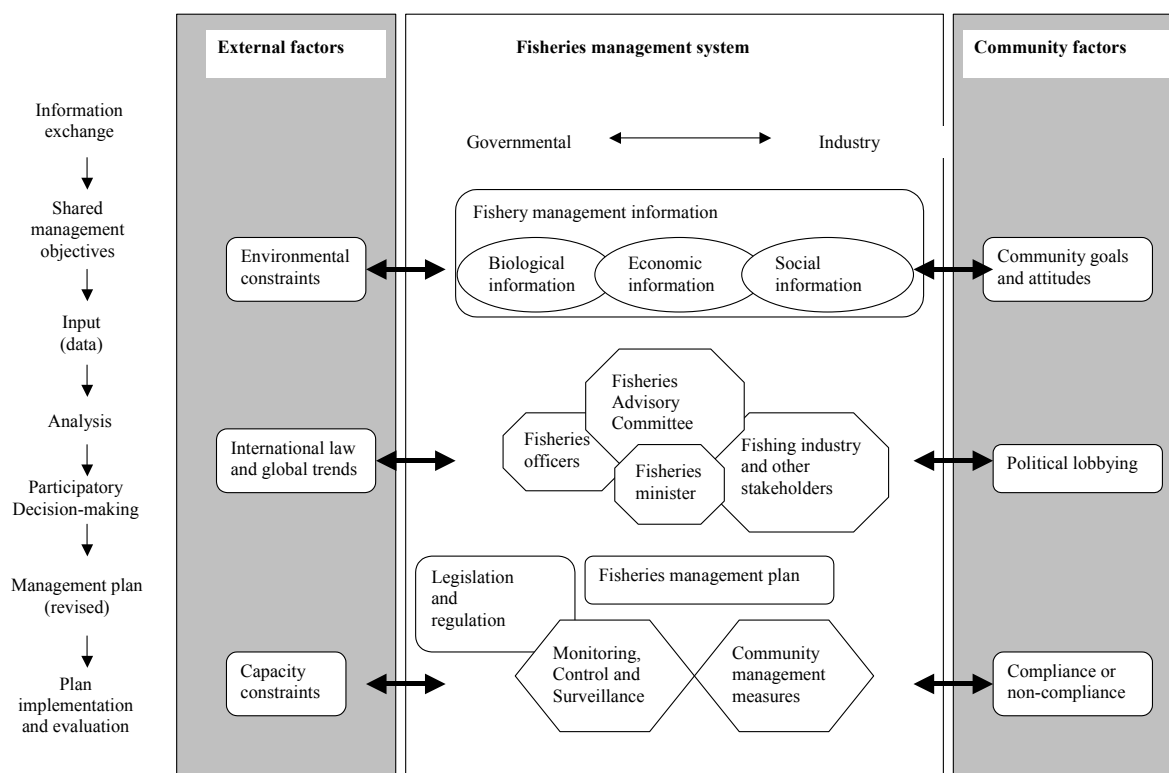


Figure 7.3 Fisheries management environment

Source: Fisheries Division (2001)

Schematically, the Fisheries Advisory Committee occupies a central position in the fisheries management system. The earlier versions of the FAC and similar bodies reflect the priorities of different periods as described below.

## 7.2 Earlier fisheries committees

### 7.2.1 Previous FACs

The first FAC was appointed in 1943, prior to the first Fishery Officer who was appointed in 1944. Throughout the colonial period, under the chairmanship of the Director of Agriculture, it served as the executive decision-making body on fishery matters under reportedly difficult socio-economic conditions. Although much was accomplished in physical and technological terms compared to the pre-war condition of the industry described by Brown (1942), ordinary fisherfolk were not represented on the early FAC that comprised civil servants and sportsfishing businessmen. Social development was apparently not a priority, although in a 1942 memorandum, Brown (the colonial Director of Fisheries Investigation) recommends “to foster fisherman’s associations etc.” as the first duty of the prospective Fishery Officer. In 1961 the fishing cooperatives gained representation on the FAC, but the body became dormant, or was discontinued, a few years later for reasons that are not clear, but were reported related to the transition from colonial rule towards independence.

An attempt was made to revive the FAC as a planning mechanism in 1978 since, according to the minutes of the inaugural meeting, “the Minister [responsible for fishing] ... was now anxious to see the fishing industry develop.” The committee, chaired by a senior civil servant, comprised other civil servants, a scientist, a non-fishing boat owner, and a boat-owning processor. Fishers and vendors were not represented. According to records and interviews, this 1978 committee did not last much beyond the year, falling into dormancy due to internal conflict and failure on several occasions to achieve a quorum. There is no evidence of any attempt by the Ministry to save or revive the committee.

There is insufficient evidence to comment extensively on this forum for planning, although the colonial FAC did appear to be successful in achieving its physical development objectives. The composition of the FAC became more representative of industry occupations, but in the last instance still did not involve the average fisherfolk. Given the 1978 experience, it is not clear how committed the Ministry is to supporting a FAC. In general, non-statutory multi-stakeholder advisory committees were the most common form of structured civil society participation in fisheries management and planning. A statutory basis was only recently introduced in 1993.

### **7.2.2 Fish Importation and Marketing Committee**

The Fish Importation and Marketing Committee (FIMC) originated from a 1990 meeting between fish importers (mostly fish processors) and the Minister responsible for fisheries who “wanted to regularize and put some order into the process of importing fish into Barbados” according to the minutes. The new committee was supposed to base importation allocations on aggregate requirements, amounts of fish in stock and projected supplies along the lines of the Ministry’s pork and poultry committees which were working well. It was the only Ministry committee chaired by the Fisheries Division, and the closest to a FAC within its narrow mandate of fish importation and marketing. Between its start in November 1990 and end in July 1993, when it became inactive due to chronic poor attendance, at least twenty meetings were held.

At the time, the importation of fish was done through approval of individual requests for licences. Information on neither fish supply nor demand was available, and requests were usually approved after a ritual reduction in the quantity permitted. This arrangement caused the harvest sector to complain that they had little incentive to expand production, especially in the off-season, due to competition from imported fish. The processors argued that they could not stay in business unless they allowed importation to increase supplies and maintain customers.

The initial proposed FIMC membership was for persons from five government agencies, the fishing cooperative, an independent fisher, a boat owner and three processors. The Fisheries Division brought on a fish vendor and another fishing organisation representative. Later, the number of processors was reduced to two. Meeting minutes show chronic absence by some government agencies and fisherfolk, except the processors. The latter showed a high degree of self-interest. The Ministry seldom commented on the meeting minutes or provided feedback.

The only notable achievements of the FIMC were the formulation of a plan for importing fish in proportion to the amount purchased from the local fleet, and a process for estimating aggregate demand through negotiation. However, since the Fisheries Division lacked both the resources and legal jurisdiction to monitor and enforce the plan, the system relied heavily on honest self-reporting. It was alleged that importers could circumvent it by submitting false records or by going to the Ministry directly, and the policy was soon discredited by the harvest sector.



The fishing industry's unpredictable nature and scarcity of representative organizations made it unlike agriculture. Committee composition evolved to be sufficiently representative, but this did not produce balanced participation since only the processors, who were motivated by personal benefit, participated actively. This participation declined sharply once the importation policy they sought was in place. The members of the fisherfolk organizations did not truly represent them. At least one complained that the FIMC was never discussed by his organization. The Fisheries Division came to occupy a position of much greater responsibility than authority. This harmed its relations with the harvest sector since it confirmed perceptions that processors wielded more power than the state agency, and that the latter was ineffectual at protecting the harvest sector even within an institution initiated partly with that objective.

### **7.3 Fisheries Act**

The Fisheries Act of 1993, as amended in 2000, is based generally on the Organisation of Eastern Caribbean States (OECS) harmonized legislation. One significant difference is that it does not provide for local area management authorities (LAMAs) to which the management of marine and coastal areas can be delegated by the government. Providing well defined physical boundaries and establishing a territory to control and exclude others from is one of the strongest and most fundamental requirements of many coastal co-management regimes as witnessed in Dominica and St. Lucia marine protected areas. However, in most other respects relevant to this study there is much similarity. Besides the Fisheries Advisory Committee, the Barbados law covers:

- ◆ Fisheries management and development schemes
- ◆ The establishment of a fisheries advisory committee
- ◆ Fisheries access agreements
- ◆ Local and foreign fishing licensing
- ◆ Sport (recreational and game) fishing
- ◆ Registration of fishing vessels
- ◆ Construction and alteration of fishing vessels
- ◆ Fisheries research
- ◆ Inspection and safety at sea
- ◆ Fisheries enforcement
- ◆ Obligation to supply information
- ◆ Prohibiting the use of explosives, poisons or other noxious substances

Closed seasons, fishing operations, gear restrictions and other matters are left to regulations that the Minister responsible for fisheries has the authority to create for the management of fisheries. Fisheries regulations have been in draft form since the Act was passed. They are frequently added to or edited by the fisheries authority and legal officers, but seem to come no closer to implementation. Absence of regulations is a serious constraint to proper fisheries management and full activation of the provisions in the parent Act. Amendments to the Act in 2000 touched on the composition of the FAC.

### **7.4 Legal mandate and composition of FAC**

The appointment of a Fisheries Advisory Committee by the Minister is mandatory, and its terms of reference are as broad as the legislation governing fisheries (Box 7.1). There was a two-year lag before a committee was appointed at the end of 1995, and shorter gaps in appointing or re-appointing members for subsequent terms, but generally this aspect of the fisheries law has been upheld.



**Box 7.1 Legal mandate of the Fisheries Advisory Committee**

5 (1) The Minister shall by instrument in writing appoint a committee to be called the Fisheries Advisory Committee to advise him on

- (a) the development and management of fisheries;
- (b) joint venture investment in fisheries, access agreements or other agreements in respect of fisheries;
- (c) matters concerning or facilitating the harmonisation of fisheries legislation including the licensing requirements for foreign fishing vessels;
- (d) the co-ordination of the policies with regard to fisheries with other departments of Government;
- (e) any other matter specified in the Act or any regulations made under the Act.

Source: Fisheries Act

The composition of the Fisheries Advisory Committee is in the First Schedule to the Act (Box 7.2). The last two members (e and f) were added in the June 2000 amendments to the Act, making a committee of nine people. The Chief Fisheries Officer recommends prospective members to the Minister after some level of consultation with the fishing industry and the candidates. The FAC has not attracted political attention, perhaps because it is simply an advisory body rather than a regulatory or financial one. To date the chairpersons have not been political affiliates, as is often the case with some statutory boards.

**Box 7.2 Composition of the Fisheries Advisory Committee**

The Fisheries Advisory Committee consists of

- (a) the Chief Fisheries Officer or his nominee *ex officio*;
- (b) a biologist who specialises in fisheries;
- (c) a representative of the Ministry of the Environment;
- (d) four other persons engaged in the fishing industry, who are recommended by the Chief Fisheries Officer;
- (e) a representative of the Markets Division; and
- (f) a representative of the registered fishing associations.

Source: Fisheries Act

The composition is fairly broad, and fishing industry persons hold 5 out of the 9 seats at the table. Also, the fisheries biologist has not yet been from the public service. Figure 7.4 illustrates the affiliations of various members of the Fisheries Advisory Committee.

The Schedule sets out some standard operational guidelines for the FAC. Since its inception the FAC has been able to meet on the first Wednesday in almost every month at the Fisheries Division, sometimes inviting special guests, but not being an open forum for anyone to attend. Decisions have always been by informal consensus, never by formal voting or through resolutions and motions.

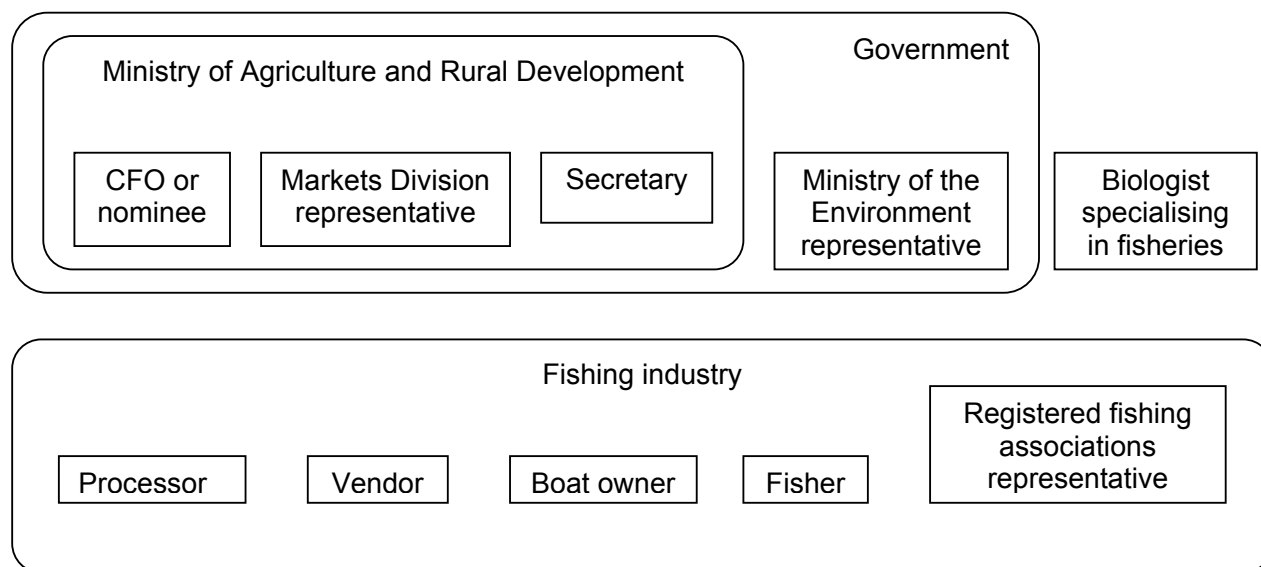


Figure 7.4 Affiliations in the composition of the FAC

## 7.5 Ministry of Agriculture and Rural Development

The Ministry of Agriculture and Rural Development (MAR) has primary responsibility for fisheries mainly through its Fisheries and Markets Divisions, with the Minister being advised by the Fisheries Advisory Committee (FAC). MAR provides the legal and structural framework for the FAC in relation to government. Sections with most relevance to fisheries are in Figure 7.5.

The Agricultural Planning Unit (APU) compiles fisheries related statistics, integrates fisheries into agricultural planning where possible; plays various roles in the project cycle including reporting on major capital projects; occasionally conducts fisheries-related surveys; deals with some matters of fisheries economics and trade. The role of the Unit in relation to fisheries is not well defined and is largely determined by specific tasks or projects.

The Projects Unit implements local and foreign-funded capital projects such as the improvements to landing site infrastructure. It formulates, appraises, monitors and evaluates projects with the participation of the Fisheries Division and other agencies. Upon completion, fisheries projects are handed over to the Fisheries Division or Markets Division for operation.

The FAC interacts indirectly with the above two sections through the Fisheries Division. The Fisheries and Markets Divisions are addressed later in detail as members of the FAC. Both of these Divisions report directly to the Permanent Secretary rather than through the Chief Agricultural Officer. The Ministry has undergone several institutional analyses that show the Fisheries Division as having low internal status, being secondary to agriculture. Some fisherfolk perceive the recent removal of “fisheries” from the name of the ministry as indicating further lowering of this status.

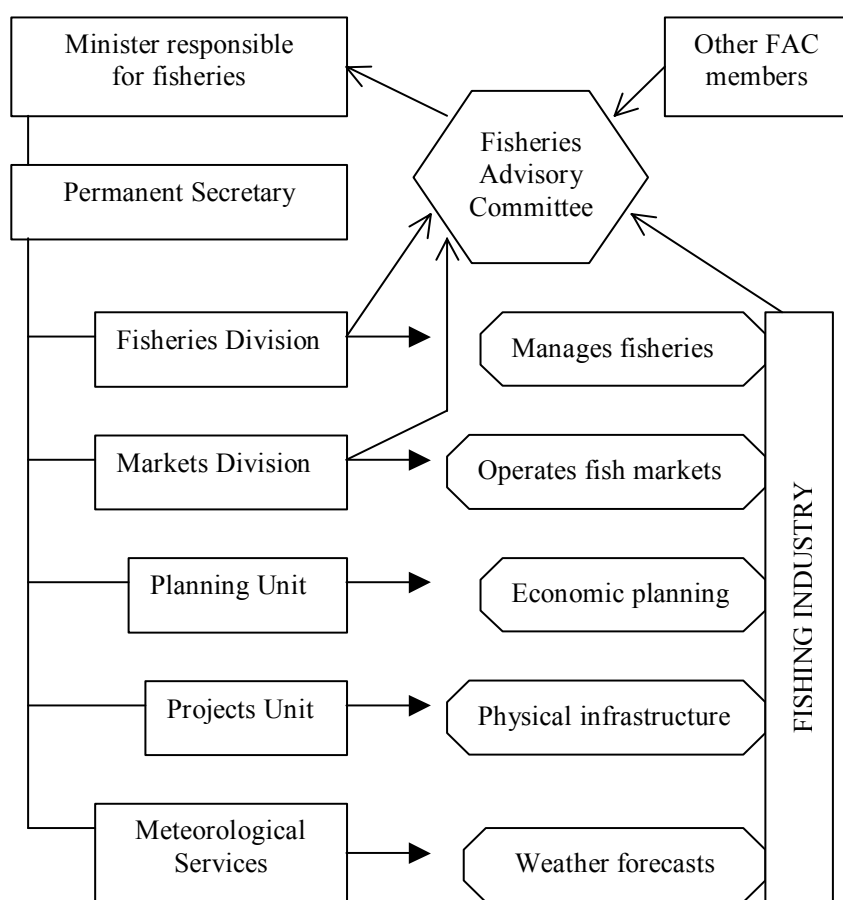


Figure 7.5 Functions of Ministry bodies in relation to the FAC

The Ministry has, from time to time, supplied an administrative officer as secretary to the FAC mainly to maintain a regular tie with the ministry and because the Division would otherwise have to assign a technical officer for this purpose. For the second term of the FAC the Chief Fisheries Officer chose to perform as secretary to facilitate efficiency and accuracy of minute-taking and circulation. Sub-sections below introduce the membership of the Fisheries Advisory Committee, with discussion of their interactions appearing later using specific examples and events for illustration.

## 7.6 Membership of the FAC

### 7.6.1 Fisheries Division

Established in 1944, the Fisheries Division is responsible by law for fisheries management, including both fisheries conservation and development, and associated administration and services. The Division maintains secondary and tertiary landing sites. Upgraded facilities are handed over to the Markets Division as primary sites. Figure 7.6 shows current organizational structure, staffing and responsibilities.

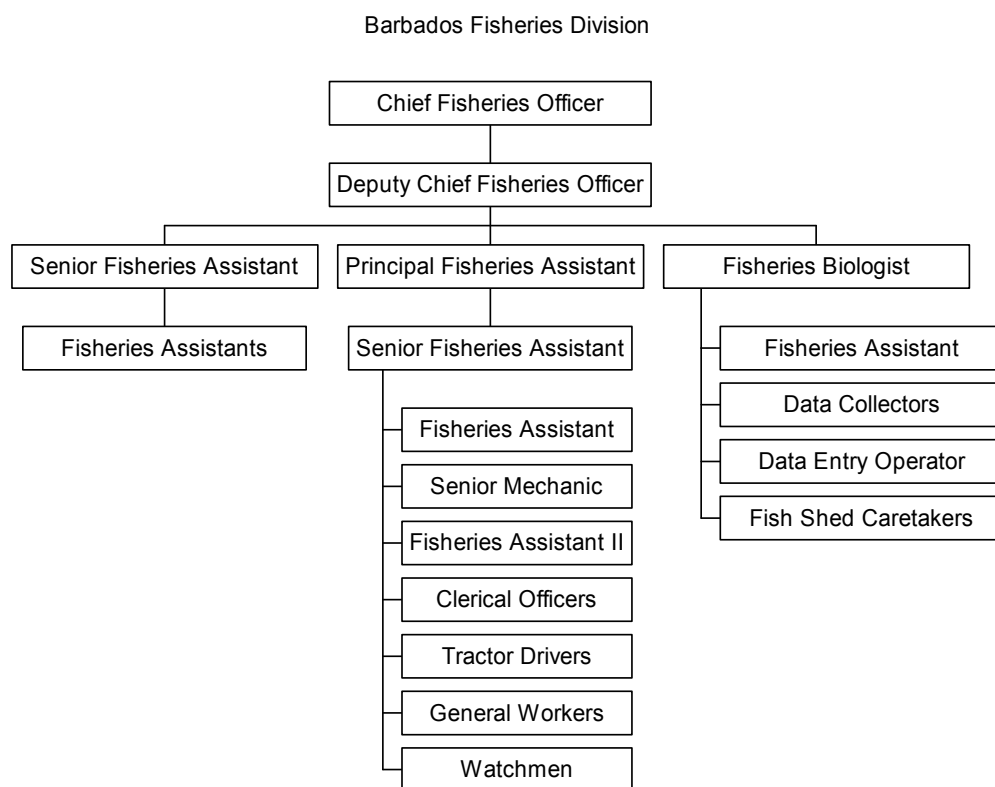


Figure 7.6 Structure and staffing of the Fisheries Division

The total annual budget typically ranges between Bds\$1.5 to \$2 million, with personal emoluments comprising about 60%. In the past, the Division’s capital works budget has exceeded over Bds\$20 million, but the Division had no access to, or control over, these funds used for infrastructure. There are small annual “operating expenses” and “supplies and materials” allocations to fund FAC meetings.

Beyond the Chief Fisheries Officer being responsible for overall planning and coordination, the Fisheries Division is divided into three sections for:

- ◆ Fisheries science, assessment, aquaculture and information management
- ◆ Fisheries development, fisherfolk organisations and infrastructure advice
- ◆ Fisheries administration, services, incentives, registration and inspection

Of these three sections, the weakest in terms of technical staffing and budgetary allocation is responsible for fisheries science and assessment.

### 7.6.2 Fisheries biologist and chairperson

Somewhat in contrast to the above, the “biologist who specialises in fisheries” has been a key member of the FAC. In the first committee an experienced private sector fisheries consultant was appointed. He was re-appointed as chairman in the second term of the committee. In the present third term, the biologist is again chairperson. A university marine science lecturer and researcher is the first female chair of the FAC.

The first chairman was the Chief Fisheries Officer. The Ministry specifically instructed this initial arrangement in order to provide, at start-up, the technical and administrative guidance that

could have been absent if an “outsider” was appointed. At the end of the 3-year term the Chief Fisheries Officer specifically requested not to be re-appointed as chairman since he felt strongly that a person not in government should lead the committee. Given the present composition of the committee, unless a strongly technical person is available from the fishing industry, the chair may remain in the province of the science member.

### **7.6.3 Ministry of the Environment: Coastal Zone Management Unit (CZMU)**

To date the Ministry of the Environment has selected an officer of the Coastal Zone Management Unit (CZMU) to be its representative on the FAC. The Ministry does not request or receive feedback on the FAC, so its CZMU representative functions independently. The Deputy Director, Marine Biologist and acting Director have been representatives on the FAC.

The Coastal Zone Management Unit (CZMU) was set up in 1983 as a specialized governmental unit specifically concerned with issues relating to coastal erosion and the application of management strategies for dealing with this threat. The objective of the Unit is to design and implement a comprehensive and effective Coastal Zone Management Plan for the island and to ensure that the coast retains its vital and pivotal role in the economic, social and physical development of Barbados. This process is well under way as set out in the Coastal Zone Management Act of 1998 within the five main operation areas of the Unit, which are.

- ◆ Oceanographic assessment
- ◆ Coastal research
- ◆ Consultation on coastal engineering
- ◆ Development control
- ◆ Education outreach

Its mandate has broadened to encompass climate change and marine protected areas (MPAs). About two-dozen technical and support staff members perform the routine work of the Unit. They also provide critical support during the major, externally funded, research and coastal engineering projects that have occupied the Unit for its entire period of existence. Although it has become more integrated as a regular government agency, the CZMU often still operates in the mode of project unit.

One of the more recent projects, reported in more detail in the sea egg case study of this research, was one of demonstrating sustainable, community-based management of coastal resources. The sea egg fishery and seamoss aquaculture projects brought the CZMU and Fisheries Division into collaboration on a regular basis. These agencies have always worked closely, both formally and informally, due to sharing interests and equipment, and because their jurisdictions on coral protection and fish health occasionally overlap.

### **7.6.4 Markets Division**

Overlapping jurisdiction is also evident between the Fisheries Division and the Markets Division. The latter is the legally designated manager of all public markets including the fishing facilities at Bridgetown, Oistins, Speightstown, Weston, Paynes Bay, Conset Bay, Skeete’s Bay and Tent Bay. The Division licenses fish vendors, collects fish tolls (landings tax), provides ice and fish storage facilities, rents lockers, monitors fish quality and maintains some boat repair areas. The Bridgetown fishing harbour and terminal are its major infrastructural responsibilities.

The Fisheries Division is operationally interwoven in several areas with the Markets Division, and proper discharge of Markets’ responsibilities is indispensable for the management of the fishing industry. However, outside of the FAC there are no formal mechanisms for coordination

or cooperation between the two agencies and informal relations are not strong. Markets Division has been included in a Fisheries Division's request for institutional strengthening because of the interdependence that is elaborated upon later in this case.

Because fish market related issues kept arising at the FAC, the Markets Division was invited to be a regular participant at all committee meetings in April of 1997, before the Fisheries Act was amended in 2000 to facilitate its formal membership. The invitation and amendment were also consequences of the Minister repeatedly urging closer collaboration between the two Divisions. The Minister chaired a two-day retreat on the matter early in 1999. Markets Division has been represented by a number of senior officers, but usually delegated by the head of the agency. The Minister has intervened to put fish markets on the agenda of the FAC more often than any other item. Members report that, despite this, their advice on Markets matters is not taken.

### **7.6.5 Barbados National Union of Fisherfolk Organisations (BARNUFO)**

The Barbados National Union of Fisherfolk Organisations (BARNUFO) is a secondary, or umbrella, fishing industry organisation. It is not a trade union, but an alliance or federation. BARNUFO's mission, according to the written constitution, is to fulfil the requirements of its member fisherfolk organisations with a view to improving their socio-economic conditions based on sustainable development of fisheries "from the hook to the cook". The body was officially formed on 26<sup>th</sup> March 1999 when it replaced an informal fisherfolk organisation coordinating council. Both bodies were outputs of the Fisheries Division's Fisherfolk Organisation Development Project. The members of BARNUFO are the primary fisherfolk organisations of Barbados, not the individuals in the industry, although a constitutional reform to allow individual membership is being considered. Two persons can be selected from each primary member organisation to be representatives in BARNUFO. The representatives elect Directors at annual general meetings. BARNUFO has already achieved much in its short history, despite limited capacity, such as:

- ◆ Successfully persuading the government to provide compensation after a major fish kill in 1999
- ◆ Joining forces with the government in disbursing about \$500,000 in fish kill compensation
- ◆ Obtaining a grant from an international agency for national fisheries management planning
- ◆ Providing coordinated fishing industry input into the 2001-2003 Fisheries Management Plan
- ◆ Representing the fishing industry at international meetings on fishery and small island topics
- ◆ Representing the fishing industry at local meetings as its main recognised stakeholder group
- ◆ Becoming a member of the Fisheries Advisory Committee that reports to the Minister
- ◆ Receiving government grants and space for establishing and operating a BARNUFO office
- ◆ Training members of primary fisherfolk organisations in several areas related to fisheries

Some of the demands that members and non-members expect BARNUFO to meet include:

- ◆ Supplying fisheries equipment and providing physical facilities for the fishing industry
- ◆ Training member organisations even further in matters pertaining to the fishing industry.
- ◆ Developing economically efficient methods of fishing in responsible and sustainable ways
- ◆ Marketing fish and fishery products as a service to the industry and for capitalisation
- ◆ Negotiating with government and other agencies on matters of interest to members
- ◆ Organising a variety of activities to promote and improve the general welfare of members
- ◆ Engaging in fisheries resource management and conservation locally and internationally

Since not all of these demands can be achieved simultaneously BARNUFO adopted a strategic planning approach to its growth and development. This planning, conducted with the assistance

of the UWI, for the 2002-2006 period included identifying a collective vision, the challenges, and consequently some prioritised strategic directions. Vision elements are explained in Table 7.1.

*Table 7.1 BARNUFO vision elements and their explanation*

<b>VISION ELEMENTS</b>	<b>EXPLANATION OF THE VISION ELEMENTS</b>
Financially viable organization	To have sufficient constant revenue through business to be a cooperative and lending institution capable of buying, processing and marketing fish products locally, regionally and internationally, among other projects.
Regional & global networks	To have the capacity to network with other organisations regionally and globally, and help to establish agreements such as for fishing access.
Social security for industry participants	To establish insurance programs for fisherfolk, some of which may be compulsory for their own welfare.
Fully staffed operational office	To have an office with appropriate, efficient management and access to a functional resource and skills data bank.
Capable trained industry	To provide extensive and complete industry training.
Improved cooperating industry	To serve as a hub for the growth and enjoyment of cooperation, mutual learning and social interactions between fisherfolk.
Effective successful management	To have genuine partnerships with Government as we work together for better management of the industry.

Source: BARNUFO 2002

There was consensus on five key challenges to be overcome (Table 7.2).

*Table 7.2 Challenges to be faced and explanations of them*

<b>CHALLENGES FACED</b>	<b>EXPLANATION OF THE CHALLENGES</b>
Poorly developed approaches to business	The operation is weak and slow-moving due to several factors: limited business experience, operating at the level of day-to-day management instead of providing the broader vision, limited use of technology for gathering data, and too often making decisions based on opinion and guesswork instead of research.
Training not timely	Our members are not fully clear about the real benefits to them through training. This may be because our training has not kept pace with changing trends in the industry, has been sporadic and does not meet the needs of all.
International information and perspective on fisheries not used	For the most part the majority of our members do not know what is going on around them with respect to global approaches to fisheries, so cannot use these data.
"Somebody else will do it" attitude	Many of our members still do not see how they can benefit from collaborating with their peers. This is worsened by distrust of the leaderships and a reluctance to take responsibility for their own lives and futures.
Non-empowering system of governance	Government is still operating in a very top-down manner and showing very little willingness to have fisherfolk as full partners in the management of the industry.

Source: BARNUFO 2002



The resulting strategic directions for BARNUFO over the 2002 to 2006 period are:

- ◆ Building human and financial capital
- ◆ Strengthening BARNUFO through networking
- ◆ Fostering partnerships between government and the industry

These directions, and particularly the last, are pertinent to the perspective and performance of BARNUFO on the Fisheries Advisory Committee. BARNUFO's president, who has led it since its formation, represents the organisation. Prior to becoming a member under the amended Fisheries Act she, like the Markets Division, was permanently invited by the chairman to participate freely in all FAC meetings. She is the only female leader of any fishing industry organisation in Barbados. Her organisation of sea moss farmers was one formed during the CZMU demonstration project in collaboration with the Fisheries Division.

### **7.6.6 Fishing industry profession representatives**

The four fishing industry members on the Fisheries Advisory Committee have been fishermen, boat owners, fish vendors and fish processors, or combinations thereof. Although not required, the fisheries authority has tried to ensure that the fishing industry members, with their experience and expertise, are also leaders in fisherfolk organisations. This is to increase the opportunities for fuller representation of the industry, at least informally.

Not all occupations in the fishing industry are represented. Boat builders, fish helpers (cleaners, scalers, boners) and commercial fishing equipment supply companies have not been represented. On the marketing side, neither are institutional buyers (hotels, supermarkets) or the general consuming public specifically at the table. The Barbados Game Fishing Association, established in 1961 to run local fishing tournaments is also absent. None of the above have requested representation on the committee. Like persons from other government agencies such as foreign affairs, national insurance and defence who have been specially invited participants, there is a mechanism to obtain their input as need arises.

### **7.7 Profile of FAC members**

Some members are appointed to the Fisheries Advisory Committee in a personal capacity (industry members and biologist) while the remainder are representatives. How the FAC functions is due, in some measure, to the backgrounds of the individuals. A brief profile of eighteen past and present Fisheries Advisory Committee members shows that two-thirds of them are male. There is an age range from 32 to 73 years, with 46 as the mean. Nearly half of the members have a tertiary education qualification, and those with secondary education have some type of additional training. As expected, training and main sources of income were all relevant to fisheries. Most of the members were also involved in some type of community work, although not always fisheries-related, but a third were affiliated to fisherfolk organisations.

Regarding selection to serve on the FAC, the replies pointed to invitation by the Fisheries Division or the organisation the member represented. In some cases of the latter it was simply an instruction without consultation or prior information. However, all members who responded said that their reasons for serving on the Fisheries Advisory Committee concerned wanting to contribute to the management and development of the fishing industry. Most also said that it was an opportunity for them to learn more about fisheries beyond their normal sphere of interaction within the industry.



## 8 External institutional and organisational arrangements

Moving beyond the membership of the Fisheries Advisory Committee there are several institutions and organisations that impact on the work of the committee.

### 8.1 Fisheries management planning

Under section 4(1) of the Fisheries Act, the Chief Fisheries Officer is to “develop and keep under review schemes for the management and development of fisheries in the waters of Barbados”. The flow chart (Figure 8.1) describes the stages of the fisheries planning process.



Figure 8.1 The fisheries planning process

The Chief Fisheries Officer in consultation with the Fisheries Advisory Committee determines the need for, extent of, and approach to the plan formulation process and public review. A major review of the fisheries management plan (FMP) is likely to occur at least once every three years, which is the recommended duration of the plan.

The Fisheries Division and Fisheries Advisory Committee collaboratively drafted the first, 1997-2000, FMP before going to general public consultation. This was before BARNUFO existed. For the preparation of the 2001-2003 plan, the first step was taken by BARNUFO to conduct community and national consultations with the fishing industry and other interested parties in order to get their views on issues facing the fishing industry plus recommended actions in response. Most industry recommendations were not specific on the 'how' and 'who' aspects of taking action. The Fisheries Division got the views of government agencies and interested parties not covered by BARNUFO. The results from all consultations (over 400 contributions) were pooled to produce much of the 2001-2003 FMP.

The FAC examined the draft FMP prior to public review. Following public review, final changes are made and the Minister responsible for fisheries approved it as required under the Fisheries Act. Thus the FMP becomes the major policy and planning document for the fishing industry that can be used to guide legislation, other plans, projects, administration, budgets and all other aspects of fisheries management. The remaining sections of this chapter are based largely on the contents of the FMP.

## **8.2 International agreements**

In covering all aspects of the Fisheries Act the FAC is concerned with international agreements. The Code of Conduct for Responsible Fisheries promotes the adoption of practices for the sustainable use, management, development, and conservation of all fisheries and aquaculture through the voluntary compliance of governments, fishing industries, non-governmental organisations and other entities associated with fisheries. Article 6 of the Code sets out general principles that have been incorporated into the 2001-2003 FMP as guiding principles for policy.

Other relevant major fisheries-related international instruments include:

- 1982 United Nations Convention on the Law of the Sea (UNCLOS)
- 1992 Rio Declaration on Environment and Development; Chapter 17 in Agenda 21 of the United Nations Conference on Environment and Development (UNCED).
- 1993 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (i.e. 1993 FAO Compliance Agreement)
- 1995 United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (i.e. 1995 UN Fish Stocks Agreement)

## **8.3 Inter-governmental organisations**

Many regional and international agencies and programmes can influence the Barbados fishing industry. Ones that the FAC has considered according to meeting minutes are given below.

**CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP):** was a regional programme to provide the CARICOM region with information necessary to manage and develop its fishery resources. It was funded mainly by the Canadian International Development Agency (CIDA) and CARICOM Member States and has recently ended.

**Caribbean Regional Fisheries Mechanism (CRFM):** the successor to CFRAMP was officially launched as a CARICOM organisation in March 2003. The goal of the CRFM is to promote sustainable use of fisheries and aquaculture resources in and among Member States, by the development, management and conservation of these resources in collaboration with stakeholders to benefit the people of the Caribbean region. Priority areas include regional

management of fish stocks, national management of fish stocks, capacity building, international representation, project management and socioeconomic planning.

**International Commission for the Conservation of Atlantic Tunas (ICCAT):** determines management measures for conservation of tunas and tuna-like species. Barbados contributes catch and effort statistics, and became a Contracting Party on 13 December 2000.

**Food and Agriculture Organization (FAO) of the United Nations::** offers training, technical advice and assistance; provides technical and scientific literature; and facilitates consultation on fisheries topics mainly through regional meetings.

**The FAO Western Central Atlantic Fisheries Commission (WECAFC):** facilitates consultation on fisheries topics mainly through regional meetings. Barbados has recently re-confirmed its interest in remaining an active member of WECAFC and chaired its ad hoc working group on flyingfish from 1999-2000.

**Intergovernmental Oceanographic Commission Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE):** is concerned with fisheries oceanography including harmful algal blooms, whales and large marine ecosystems.

**Organization of Eastern Caribbean States (OECS) and its Environmental Sustainable Development Unit (ESDU):** provides advice on fisheries matters for its eastern Caribbean member states (Barbados is not a member of OECS, but has links through an Economic Co-operation Agreement).

#### ***8.4 Regional and national inter-sectoral linkages***

Barbados has promoted the policy that the waters within the EEZs of CARICOM Member States be utilized as a common resource, shared for fisheries exploitation purposes, and managed on a regional basis (i.e., Lesser Antilles) where possible. This 'common sea' concept is proposed as a model for long-term Caribbean development with the achievement of economies of scale and improved efficiency through regional integration, perhaps including trans-boundary inter-sectoral linkages. Barbados is responsible, within CARICOM, for advancing the Caribbean Single Market and Economy (CSME).

However, Barbados has yet to develop a comprehensive national policy for the utilization of the EEZ that would embrace fisheries, energy, tourism, environment, national security, shipping, communications etc. The FMP recognises some linkages between fisheries and other sectors of the economy as shown in Figure 8.2, but linkages are not well documented at the national or sectoral planning levels.

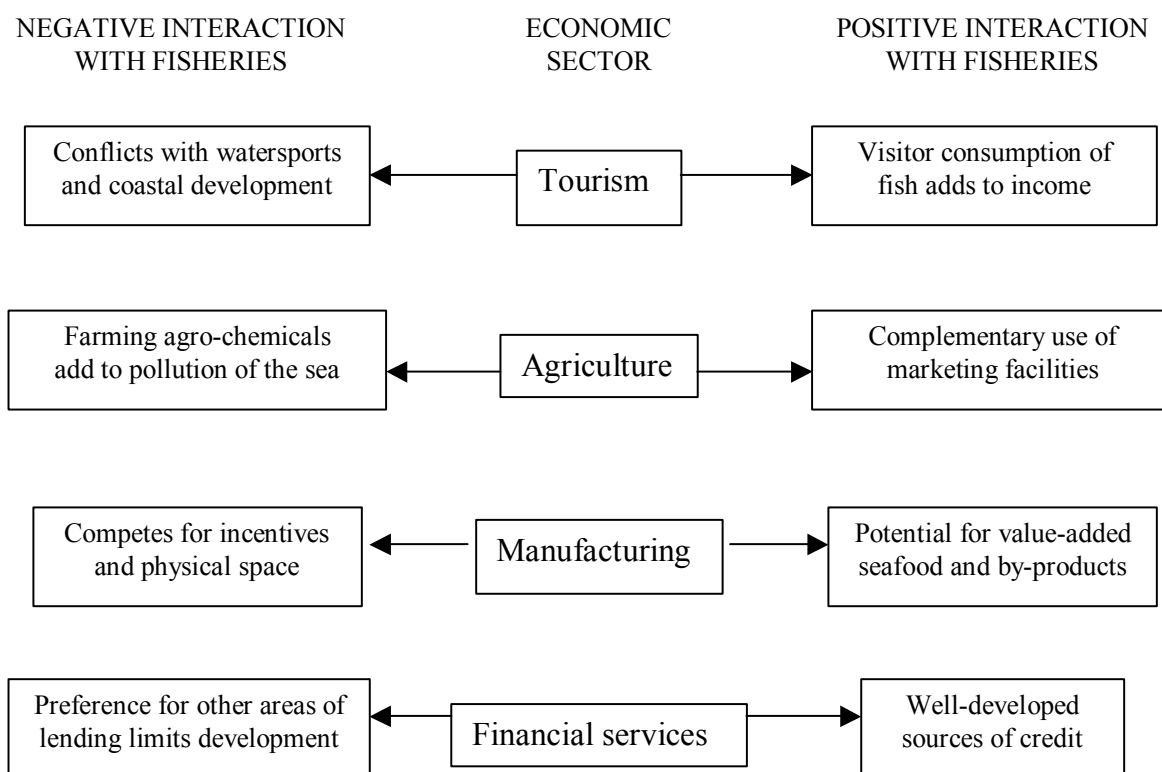


Figure 8.2 Positive and negative inter-sectoral linkages

### 8.5 Integrated coastal management

The Coastal Zone Management Act of 1998 requires that a coastal zone management plan be prepared, including the standards for the management of underwater parks and of restricted areas. The Act states that fisheries management plans for living resources outside of restricted areas shall prevail in the case of conflict with the coastal zone management plan. It does not specifically address the integration of fisheries as encouraged by the Code of Conduct for Responsible Fisheries, but there is scope for this to occur through participatory processes. It outlines a 5-year planning cycle and means for public participation.

Marine protected areas (MPAs) and marine parks management are undergoing institutional shifts to arrangements not yet fully determined. Proposals have been made for the Folkestone Marine Reserve and a marine park for Carlisle Bay. The CZMU is considering several other marine protected areas but the purposes and regimes of these areas, including their relation to fisheries management, have not yet been determined.

### 8.6 Fisheries-related legislation

Over the life of the FAC, several pieces of legislation have been reviewed or referred to. Many of the ones from the Fisheries Division are still in draft after several years (Table 8.1).

Table 8.1 Summarised content of fisheries-related legislation

Legislation	Summary of content or purpose
Fisheries (Management) Regulations (1998)	Regulates seine nets; fish traps; trammel and other entangling nets; lobsters; marine turtles, eggs and parts; sea eggs; tunas; aquarium flora and fish; and corals.
Fisheries (Sea eggs closed season) notice (1998)	Imposed a three year (1998-2001) moratorium on the harvesting, sale and possession of the white sea urchin, <i>Tripluva ventriosus</i> .
Draft Fish Quality and Inspection Act	Will cover seafood safety and quality assurance to international standards in relevant areas, particularly affecting public health and trade.
Draft Fisheries (Fees) Regulations	Sets fees for registration, inspection, licences, tractor and other services. As an incentive, fees of fishing industry organisation members are intended to be 33% of those to be paid by non-members.
Draft Fisheries (Operations) Regulations	Deals with almost everything else not specifically covered such as foreign fishing, safety at sea, scheduled forms, registration of fishing industry organisations, sportsfishing, aquaculture, etc.
Markets and Slaughterhouses Act (1958)	Registration of fish vendors, operation of fish markets, collection of fish tolls. This Act is expected to be repealed and replaced.
Barbados Territorial Waters Act (1977)	Defines territorial and internal waters.
Marine Boundaries and Jurisdiction Act (1978)	Defines waters of EEZ, and important in ongoing boundary delimitation negotiations.
Defense Act (1979)	Control and surveillance in the EEZ and territorial waters.
Shipping Act (1994)	Registration and inspection of large vessels, and includes the fishing vessel register by default.
Coastal Zone Management Act (1998)	Coastal resource management and planning.
Marine Pollution Control Act (1998)	Prevention, reduction and control of marine pollution.

## 8.7 Other government agencies

Government agencies that interact with the fishing industry and Fisheries Division are described below in Table 8.2.

Table 8.2 Government agencies that interact with fisheries

Government agency	Role in relation to fishing industry
Ministry of the Environment (Coastal Zone Management Unit; Environmental Division; National Conservation Commission; Environmental Engineering Division)	Coastal zone planning and management, protection of endangered species, biodiversity, marine parks and protected areas, health inspection of premises and fish.
Ministry of Defence and Security (Coast Guard)	Search and rescue, fisheries surveillance and enforcement, safety at sea and seamanship training.

<b>Government agency</b>	<b>Role in relation to fishing industry</b>
Town and Country Development Planning Department	Evaluation and approval of physical plans for fisheries and aquaculture/mariculture construction.
Ministry of Health (Public Health Inspectors)	Fish quality in public places; pollution monitoring and control.
Ministry of International Transport (Director of Maritime Affairs, Port Authority)	Registration of ships, reflagging of foreign vessels, jurisdiction over ports and open moorings, sea lanes and navigation.
Ministry of Foreign Affairs	Law of the Sea and other international or regional agreements, delimitation of marine boundaries, fisheries access negotiations.
Ministry of Education (Community College, Polytechnic, schools)	General education and specific training related to fishing, preparation of young people for careers in the fishing industry.
Ministry of Industry, Commerce and Business Development (Cooperatives Division)	Promotion of cooperatives and provision of management advice, auditing and assistance with cooperative record-keeping and legal compliance.
Ministry of Finance and Economic Affairs (Economic Affairs Division, Value Added Tax Office, Customs Department)	Approves and monitors operational and capital budget, foreign-financed projects, duty and tax concessions, economic analysis.
Ministry of International Trade	Trade liberalization policy affecting fish and fish products.
Government Information Service	Dissemination of fisheries-related public information.
Barbados Statistical Service	Compiles and disseminates information used in planning e.g. fish trade, labour force, population.
Ministry of Public Works	Maintains small fishing facilities, engineering advice on major infrastructure at landing sites.
Insurance Corporation of Barbados:	Insured most of the fishing fleet during its phase as a statutory body.
Agricultural Development Trust:	Is expected to provide credit and fund technical assistance as an improved replacement for the Barbados Development Bank which closed in 1996.

## **8.8 Fishing industry organisations**

Establishment and sustainability of fishing industry organisations (fisherfolk organisations) has been a major renewed thrust of fisheries policy and management planning since 1997. Local and externally funded projects have provided assistance. Over a dozen primary producer organisations have been administratively registered with the Fisheries Division (Table 8.3).

*Table 8.3 Registered fishing industry organisations in Barbados*

<b>Fishing industry organisation</b>	<b>Registration date</b>
Barbados Fishing Cooperative Society Limited	18 Feb. 1986
Oistins Fisherfolk Association	4 Nov. 1997
Weston Fisherfolk Association	29 Jan. 1998
Sand Pit Fisherfolk Association	6 Feb. 1998
Northern Fisherfolk Association	20 Mar. 1998
Paynes Bay Fisherfolk Association	4 May 1998

<b>Fishing industry organisation</b>	<b>Registration date</b>
Speightstown Fisherfolk Association	20 May 1998
Tent Bay Fisherfolk Association	12 Jun. 1998
Pelican Fisherfolk Association	24 Jul. 1998
Pile Bay Fisherfolk Association	18 Nov. 1998
Conset Bay Seamoss Group	17 Dec. 1998
Barbados Fisherfolk Divers Association	5 Mar. 1999
Barbados National Union of Fisherfolk Organisations	26 Mar. 1999
Mount Standfast Marine Preservation Association	12 May 1999

Few of these groups are very active, and some exist in name only. According to the current FMP, non-governmental fishing industry organizations promote self-reliance and ensure that stakeholders are adequately represented in interactions with government and the private sector. They are essential for co-management (Fisheries Division 2001). There were to be attempts at reviving or strengthening or amalgamating these organisations in the 2001-2003 period once the fishing industry stakeholders were in agreement and willing to participate. Little evidence was found of such revitalisation, and it appears as if most organisations are weakening further.

### **8.9 Other NGOs**

Other non-governmental organisations have played pivotal roles in the management of the fishing industry:

**Caribbean Conservation Association (CCA):** facilitates development and implementation of policies, programmes and practises which contribute to the sustainable management of the region's natural and cultural resources. CCA's **Coastal and Marine Management Programme (CaMMP)** has assisted with annual fisheries planning and the sea egg fishery specifically.

**Gulf and Caribbean Fisheries Institute (GCFI):** facilitates information exchange on technical and scientific fisheries topics mainly through its annual meetings that fisheries officers attend.

**Bellairs Research Institute of McGill University:** conducted fisheries related research at their local marine science station, particularly from the 1960s to 1980s

**University of the West Indies (UWI):** offers fisheries and environmental research and teaching through undergraduate courses in marine science; graduate degrees are part of the **Natural Resource Management Programme (NRMP)** offered through the **Centre for Resource Management and Environmental Studies (CERMES)**.

**Barbados Marine Trust (BMT):** formed in May 2000, is interested in marine management and conservation, particularly of coastal and nearshore resources with linkages to tourism.

**Barbados Game Fishing Association (BGFA):** formed in 1961 is the sole body representing recreational fishermen, and tournament anglers in particular.

### **8.10 Other statutory advisory committees**

A list of government statutory advisory bodies is below:

- ◆ Town and Country Planning Advisory Committee
- ◆ The Advisory Committee for the Children's Development Centre
- ◆ National Advisory Committee on Occupational Safety and Health (NACOSH)



- ◆ National Advisory Council on Women
- ◆ Tourism Advisory Council
- ◆ Private Investigators and Security Guards Licensing and Advisory Board
- ◆ Prison Advisory Board
- ◆ Advisory Board – Government Industrial School,

The two that come closest in character to the Fisheries Advisory Committee were selected for closer examination and interviews with key informants.

### **8.10.1 Town and Country Planning Advisory Committee**

This committee has not functioned for the past year since the Minister responsible has not appointed members. The main legal provisions governing the committee are in Box 8.1.

#### *Box 8.1 Legal provisions governing the Town and Country Planning Advisory Committee*

- 4 (1) There is hereby established a body to be known as the Town and Country Planning Advisory Committee
- (2) The constitution, procedure and powers of the Committee shall be in accordance with the First Schedule.
  - (3) The Committee shall, with a view to the proper carrying out of the provisions of the objects of this Act, advise the Minister on any matter on which the Minister may seek its advice, on the preparation of development plans and generally as to the planning of development in the island.

Other points to note:

- ◆ Appointments are limited to 9 people and made by the Minister
- ◆ The composition of the Committee is not prescribed in law
- ◆ Periods of appointment cannot exceed 2 years but reappointment is open
- ◆ The minister may appoint temporary substitutes
- ◆ Minutes are to be kept by a secretary who is an officer assigned by the Chief Town Planner
- ◆ The Minister can determine remuneration and allowances of all members

Source: Town and Country Planning Act

Previously, the advisory committee mostly reviewed matters as requested by the Ministry. These included the Physical Development Plan, reports, listed buildings, the Planning Act and planning other legislation. The committee advised on what measures are feasible or not. The work was fairly *ad hoc* and depended on the issues of the day in the context of what the Ministry was doing. However, the committee could select to look at anything it thought that the Ministry needed to be advised on. One informant stressed that how such a committee functions is often dependent on the individual members. By law the Chief Town Planner is supposed to provide a secretary to the committee who should be someone trained in planning. However, in practice, this did not happen and the Ministry appointed an overworked administrative officer.

There have been times when persons have not been appointed, or when the committee has not been active. Instances occurred where the committee was not been able to meet due to lack of a quorum. Sometimes persons may not have the time or the inclination to meet. This advisory committee has no staff resources or budget. Payment per meeting is poor and attendance at meetings may be, by some, considered to be simply a token public service.



Ministers tend to appoint people who are well known in their field, and therefore are the busiest, as compared to persons who may have the time but less to offer in expertise. It was thought important to appoint persons who meet criteria for expertise and can devote time. Some persons were apparently not asked in advance if they could and were willing to serve.

There is little formal documentation about this advisory committee but it has prepared some formal reports such as on the functions of the planning office, and the implications of the Physical Development Plan. The advisory committee ensures that the minutes go to the Permanent Secretary. The Minister ought to be aware that the minutes are available, but sometimes the Minister does not see them, and there is no follow-up decision or action. It is felt that if a Minister receives advice, he or she is likely to utilize it. The problem that this advisory committee faces is how to be effective.

When Ministers appoint party supporters to lead certain types of committee, then there is close contact between the Minister and the chairperson because of the political basis for the linkages. Technical advisory committees that are appointed to advise on the work of the Ministry do not attract Ministers' attention in the same way. The response to this advisory committee may depend on how keen the Permanent Secretary to provide feedback. No response is the biggest problem that the advisory committee faces. If there is a response, then members would be more keen to actively participate. Advisory committees typically suffer from a lag between meetings and the decision-makers' response.

### **8.10.2 Tourism Advisory Council**

The Tourism Advisory Council is constituted under the Barbados Tourism Authority Act (Box 8.2).

#### *Box 8.2 Legal provisions governing the Tourism Advisory Council*

- 28 (1) There is established a body to be known as the Tourism Advisory Council.
- (2) The Second Schedule has effect with respect to the constitution of the Council and otherwise in relation hereto.
- (3) The Council shall advise the Minister on any matter connected to tourism as the Council thinks fit or that is referred to it by the Minister.

Composition of the Tourism Advisory Council taken from the Second Schedule of the Act:

- ◆ Chief Immigration Officer
- ◆ Commissioner of Police
- ◆ Comptroller of Customs
- ◆ Environmental Officer
- ◆ Barbados Hotel and Tourism Association
- ◆ Trade union representing the majority of tourism workers
- ◆ Airlines Association of Barbados
- ◆ National Cultural Foundation
- ◆ Barbados Chamber of Commerce
- ◆ Other persons with qualifications and skills related to travel, tourism, conservation, environmental protection, education and cultural development

Other points to note:

- ◆ Composition of the Council clearly reflects the Ministry of Tourism and the Environment
- ◆ The Minister determines period of members' appointment and can appoint substitutes
- ◆ The Minister is to designate a public officer as secretary
- ◆ Minutes are to reach the Minister within 14 days of the meeting at which they are confirmed
- ◆ The Minister can determine remuneration and allowances of all members

Source: Barbados Tourism Authority Act

The language of the legal provisions clearly reflects the brief period in which there was a Ministry of Tourism and the Environment. The council has not functioned for the last two years since appointments have not been made. In the past it dealt with matters referred to it by the Minister, or matters that they felt they had to deal with. Recommendations were forwarded to the Minister from the council, and it was reportedly effective in bringing about change. The council assisted with the formulation of documents that have been used in the tourism industry to formulate policy. In particular, it was instrumental in drafting the "Green paper on the sustainable development of tourism in Barbados: a policy framework" released by the Ministry of Tourism in mid-2001.

## 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, but include sudden shocks and surprises that test the resilience of both 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

Barbados lies in the southern extremity of the Atlantic hurricane belt, and has not suffered a serious national impact from a direct hurricane hit since Janet in 1955. However, several storms and near misses of hurricanes (especially Hurricane Allen in 1980) have created sea conditions that impacted the fishing industry (Table 9.1).

Table 9.1 Hurricane and other rough sea events that impacted Barbados

Weather system	Date
Hurricane	1675
Hurricane	1780
Hurricane	1831
Hurricane	1898
Hurricane Janet	21 Sep. 1955
Hurricane Allen	3 Aug. 1980
Unidentified rough sea event (depression)	28 Sep. 1983
Unidentified rough sea event (depression)	9 Nov. 1984
Tropical depression (became Hurricane Gilbert)	9 Sep. 1988
Tropical storm Isaac	30 Sep. 1988
Tropical storm Joan	13 Oct. 1988
Weston flood	3 Aug. 1995
Tropical storm Iris	25 Aug. 1995
Hurricane Marilyn	13 Sep. 1995

Source: McConney 1999a

In both cases dozens of vessels were lost or damaged, and relief measures were put in place to facilitate recovery. The large-scale fleet re-building that took place after Janet in 1955 was also used as an opportunity to accelerate motorisation of the fleet.

The Central Emergency Relief Organisation (CERO) coordinates a network of disaster response agencies of which the Fisheries Division is a part. The Division prepares or updates an annual hurricane plan to safeguard the fleet, including arrangements with the private sector for vessel haul-out, lifting or shelter. There are also annual extension events, such as workshops and simulations, to carry preparedness information into the fishing industry.

Fisherfolk organisations have not played any significant role in hurricane preparedness, but individuals in the fishing industry typically collaborate well with each other, government and the private sector to secure vessels. During the life of the FAC there have been no major rough sea events to deal with, but the committee normally reviews the annual hurricane plan.

## **9.2 Fish kill**

The fish kill events that occurred in several southeastern Caribbean countries between August and October 1999 were accorded the status of natural disasters due to their substantial ecological and economic impacts in most of the countries affected. The issue was discussed at a high political level within the Caribbean Community (CARICOM). In response, the CARICOM Secretariat (CARISEC) through its CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP) in association with the Caribbean Environmental Health Institute (CEHI), the Pan American Health Organisation (PAHO) and government of Barbados agreed to host an emergency one-day workshop to share information and formulate responses as reported in Willoughby (1999). The Barbados fish kill event is summarised in Box 9.1.

### *Box 9.1 Summary of Barbados fish kill event*

- From Friday 17th September, residents and fishermen have reported large numbers of dead reef-associated fish on a beach along the southeast and east coasts.
- During the first two weeks the fish kill was confined to the southeast and east coasts. Dead fish from this area were taken by current and tides to beaches where fish kills have not been confirmed.
- During the third week the number of dead fish on the southeast and east coast beaches declined to almost zero.
- During the fourth week hundreds of dead fish washed up long the north coast.
- The species composition of dead fish found on the beaches along the southeast and east coasts
  - 33 species from 20 families
  - 18 unidentified species
  - The majority of dead fish were surgeon fishes (47%) followed by Bermuda Chubs (23%), parrot fishes (7%), sea basses (5%), trigger fishes and grunts (each 4%). The other species each represents less than 2% of the dead fish and together only 10%.
- Other observations:
  - Wash-ups occurred mainly at night
  - Green/dirty water was reported prior to and during early stages of the fish kill
  - High sea surface temperatures 28 – 32<sup>o</sup> C during September
  - Reversals of normal NW currents prior the first observed fish kill
  - Pelagics have not been affected so far

- Gross anatomical examination revealed no abnormalities such as sores or lesions
- Gills and livers were pale in colour
- The stomachs and guts of species sampled (except the Bermuda chub) were empty
- The stomachs of the Bermuda chubs examined were filled with an unidentified algae
- The bile bladder of some samples was ruptured
- Large numbers of the seedlings of an unidentified legume were on the beaches during the initial stages of the fish kill.
- Impact was mainly on adult fish.

Source: Willoughby 1999

In Barbados, microscopic examination revealed several lesions and large numbers of a *Streptococcus* bacterium was confirmed as the primary cause of death. Local and overseas analyses suggested that the bacterium was *Streptococcus iniae*. Fish from non-affected areas on the west coast showed no signs of the bacterium. Orinoco River and the Amazon River outflows moving along the South American coastline develop a series of surface freshwater lenses. These lenses are known to be lower in salinity and oxygen, and higher in temperature than seawater and can be maintained for up to 1 to 2 months. These lenses could have contributed to the fish kill.

The countries affected felt impacts on their economies, particularly fisheries and tourism sectors. The news media reported widely on the problem. All fish sales plummeted everywhere in Barbados, not just of affected species or locations. People were reluctant to have sea baths in fear that there was an unknown threat to public health and safety. Recovery, long after the fish deaths had ceased, was facilitated in Barbados by fisherfolk organisations and independent fish processors combining forces to offer free fish samples to the public in a display of solidarity and confidence in their products. Since 1999 there have been much smaller annual re-occurrences in Barbados in areas where the original impacts were greatest. These residual effects are expected to continue during periods of elevated sea temperature.

The 1999 fish kill event and half-million dollar compensation package offered by government to fishing enterprises engaged the attention of the FAC. The identification of eligible recipients and disbursement of compensation funds was implemented collaboratively by BARNUFO and the Fisheries Division. Today it still remains the activity that BARNUFO is perhaps best known for.

### **9.3 International economics and events**

As noted earlier, globalisation, trade liberalisation, international terrorism and other external events often and persistently impact negatively upon the economy of Barbados. Impacts were cumulative and severe in 2001, resulting in the negative growth previously reported upon. It is likely that international events will continue to influence the fortunes of the fishing industry through the general economy and features such as credit availability, interest rates, liquidity, spending power and trade regimes.

## **10 Incentives to cooperate and patterns of interaction**

The resource system and human system characteristics described in previous sections may 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 often dynamic. Although incentives are very variable, they must always exist in sufficient quantity and quality to make the effort of

co-management worthwhile, otherwise it will not be sustainable. Finding new incentives to sustain co-management institutions can be a constant challenge for all partners.

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. In this case interactions can be allocated to five main categories:

- ◆ Among FAC members and their affiliate groups
- ◆ Between FAC and the Fisheries Division
- ◆ Between FAC and the Ministry of Agriculture and Rural Development
- ◆ Between FAC and the fishing industry stakeholders
- ◆ Between FAC and other stakeholders or interested parties

Sections below start with an examination of FAC agenda items, look closer at some key examples and conclude with activities undertaken as participatory research during the project.

### **10.1 FAC agenda items**

Table 10.1 describes the agenda items addressed by the Fisheries Advisory Committee from 1995 to 2001 based on the records and meeting minutes at the Fisheries Division. Incentives to cooperate and the interactions that relate to each agenda item are described, based in part on documentation and informal interviews with fisheries authorities and fishing industry participants within and outside of the FAC.

*Table 10.1 FAC agenda items, incentives and interactions*

<b>Annotated agenda item</b>	<b>Incentives and interactions</b>
<u>FAC operational guidelines</u> How the FAC would operate ... meetings, documents, secretary, communication	Incentive for committee to function properly. Reflects all five categories of interaction. The provision of the secretary by the Fisheries Division or Ministry, holding meetings behind closed doors and lack of public meetings were important decisions
<u>Credit for fishing industry</u> Getting credit after 1996 closure of BDB ... just a discussion of the situation that was felt to concern individuals more than any collective	Improving industry access to credit was not a high priority item despite its historical importance to the development of the fishing fleet. Little action on this. Some people felt that the fishing fleet was already too large and that the history of loan defaulting reduced favourable arguments.
<u>1995 UN Fish Stocks Agreement</u> Reviewed and recommended to become party ... took several years to happen	Incentive for Fisheries Division to persuade members to support Barbados becoming party. More issues raised by other agencies and the Ministry than by FAC members.
<u>Training for fishing industry</u> Advise on goals of training; content and format of annual training course	Both Fisheries Division and industry members keen on this topic. Relatively low interest of industry in training offered remained a problem throughout. Not very well promoted.

<b>Annotated agenda item</b>	<b>Incentives and interactions</b>
<p><u>Fisheries physical infrastructure</u> Several sessions on maintenance; plans for new facilities reviewed; needs assessed</p>	<p>Industry and FAC share interest, but inputs of the FAC were infrequent and not detailed. The FAC was more of an information clearing-house than source of technical advice. There were separate governmental technical committees for all major capital infrastructure projects.</p>
<p><u>Fisheries operations regulations</u> Assisted in drafting regulations not yet law; good exchanges of info on what is practical</p>	<p>Fisheries Division often needs to show endorsement by industry to gain ministerial approval. Industry was aware that fisheries in Barbados are only lightly regulated, even in comparison to terrestrial activities. Agreement easily reached among FAC members on provisions, but not a priority for Ministry despite resulting weakening of powers.</p>
<p><u>Hurricane preparedness</u> Reviewed annual plan; communications with fishing industry; roles of agencies</p>	<p>Logical incentive to collaborate for safety of the fishing fleet. Fisheries Division frustrated by relatively low level of interest shown by industry in preparedness. Thought to reflect culture of not planning properly within the industry.</p>
<p><u>Fisherman's Day/Fisherfolk Week</u> Annual plans for the event; discussion of theme; allocation of responsibilities</p>	<p>All involved are interested in highlighting the industry. The Fisheries Division took the lead. Only moderate industry interest in this event that is not a strong part of the culture of fishing compared to more Roman Catholic countries.</p>
<p><u>Fisheries products and consumer education</u> Discussion, no action, on fish promotion and nutrition information for consumers</p>	<p>Weak incentive except for Fisheries Division to satisfy its food security role since fish consumption is high. Neither fish sellers nor consumers have demanded assistance. Very little interaction.</p>
<p><u>Aquaculture development and legislation</u> Review sections in draft regulations; discuss aquaculture - fisheries interactions</p>	<p>Incentive only for the Fisheries Division to put in place for proper management. Little interest from all other stakeholders and no interaction beyond agreement on need for legislation within the FAC. Industry sees no threat from aquaculture due to limited potential in Barbados.</p>
<p><u>Liberalisation of trade in fish and products</u> Implications of fish import licence removal; negotiation on the tariffs under WTO scene</p>	<p>Threat of severe general economic hardship and increased postharvest problems is a strong incentive to work together as illustrated in industry negotiations on import tariff changes due to WTO. Interactions of all five categories experienced mostly favour protectionism.</p>
<p><u>Fisheries Division structure and staffing</u> Sessions on institutional strengthening of Fisheries Division and a few on fish markets</p>	<p>Incentive for Fisheries Division to seek support for staff demands, and for industry to provide support in order to obtain more assistance from Fisheries Division and the Markets Division. Neither markets Division nor the Ministry show evidence of interest. Interaction remained at the level of discussion and weak show of support.</p>



<b>Annotated agenda item</b>	<b>Incentives and interactions</b>
<p><u>Markets Division operational procedures</u></p> <p>Several sessions on this expected output of the Minister's retreat; still incomplete</p>	<p>Strong incentive for Fisheries Division due to threat of increasing problems at fish markets out of its jurisdiction. Also strong for industry since livelihoods are at stake. No evidence of Markets Division interest except to fulfil the directive of the ministry. Mixed from ministry due to high-level directives but no or little follow-up to the advice provided by the FAC. Puzzling interactions.</p>
<p><u>1997-2000 Fisheries Management Plan</u></p> <p>The FD drafted the first FMP and the FAC reviewed each section ... info exchange</p>	<p>Strong incentive for Fisheries Division to involve FAC and industry to meet legal and policy requirements. Threat of unfavourable content and interest in information drew in the industry. Moderate interest from the ministry. All categories of interaction, and all positive.</p>
<p><u>2001-2003 Fisheries Management Plan</u></p> <p>Advice on changes in content; review draft FMP; endorse final draft to the Minister</p>	<p>As for above. Stronger incentive for industry involvement in the second plan due to the availability of external funding and Fisheries Division need to integrate the FMP more into the thinking of the industry. Positive interaction.</p>
<p><u>Safety and inspection regulations</u></p> <p>Reviewed drafts several times ... still not law yet, fisher members upset by delays</p>	<p>Fisheries Division and fishing industry members of FAC saw and acted on strong incentive to cooperate in reducing hazardous working conditions. Fairly poor voluntary compliance with existing safety guidelines suggests that the industry sees this as lower priority.</p>
<p><u>Effect of VAT on fishing industry</u></p> <p>Application of VAT to fishing; identification of eligible persons; review of legislation</p>	<p>Shared incentive of Fisheries Division and industry to reduce the impacts of the recently introduced value-added-tax. Good cooperation from other stakeholders such as Customs Department and gear suppliers.</p>
<p><u>Incentives for fishing industry</u></p> <p>Lists and process of duty / tax concessions implemented; concessions through FFOs</p>	<p>Shared incentive for Fisheries Division, Ministry and fishing industry to get the most concessions allowable by the Ministry of Finance. Industry did not capitalise on Ministry agreement with Fisheries Division to operate incentives more through the fisherfolk organisations.</p>
<p><u>1993 FAO Compliance Agreement</u></p> <p>Reviewed agreement, recommended to become party; achieved a few years later</p>	<p>Incentive for Fisheries Division to persuade members to support Barbados becoming party. More issues raised by other agencies and the Ministry than by FAC members.</p>
<p><u>Fisheries management regulations</u></p> <p>Reviewed draft regulations arising from first FMP; endorsed implementation based on FMP</p>	<p>Shared incentive for sustainable management and healthy resources constrained by weak conservation ethics or culture in the Fisheries Division and fishing industry. Consensus reached on provisions, but law not complied with or enforced to any great extent.</p>

<b>Annotated agenda item</b>	<b>Incentives and interactions</b>
<p><u>Markets and Fisheries Divisions</u></p> <p>Many sessions on interaction between agencies; advised Markets join FAC in 1997; met on issues raised by Minister's 1999 retreat on the two agencies</p>	<p>A critical interaction. There is more incentive for the Fisheries Division to structure cooperation in order to ensure that fisheries are properly managed than there is for the Markets Division to cooperate in return. Ministerial interest in facilitating cooperation is high, but not matched by willingness to take action on advice. Industry has very strong incentive to support cooperation but no leverage to intervene to make it happen. (See example below)</p>
<p><u>Fisherfolk organisation development</u></p> <p>Advised on 1997-2000 promotion of FFOs; discussed role of FFOs in management and development.</p>	<p>Fisheries Division and fishing industry have a strong incentive to cooperate in this in order to implement the fisheries management plans and increase power to the institutions of fishing. Mixed interactions as fostering fisherfolk organisation dependency is a concern of the Fisheries Division, but so too is insufficient assistance.</p>
<p><u>Fish kill event and response</u></p> <p>Advice on the compensation; allocation of responsibilities; review of relief process</p>	<p>Strong incentive for Fisheries Division, BARNUFO and fishing industry to cooperate in disbursement of compensation funds and recovery of industry. Both interact with ministry to ensure financial accountability.</p>
<p><u>Fish quality and draft legislation</u></p> <p>Review of 1997 legislation not yet enacted; export of fish to the EU; competent agency</p>	<p>All parties should have strong incentives to cooperate, but although fish export to the EU has had to cease neither the ministry nor industry treat it as priority. Interactions were good in drafting. There was no contention, but there has also been no action.</p>
<p><u>Regional Fisheries Mechanism</u></p> <p>Inform the Barbados input on the CRFM; review promotional material on formation</p>	<p>There should be strong incentives starting from the policy level since regional cooperation is a national priority. The interactions have mostly been with external agencies besides within the FAC.</p>
<p><u>Fisheries research and research agencies</u></p> <p>Discussed what research by which agencies is necessary for management</p>	<p>The Fisheries Division has a strong incentive to cooperate with the fishing industry and external stakeholders due to its limited internal research capacity. The Fisheries Division could also use local ecological knowledge. Perhaps not as high a priority item to the fishing industry.</p>
<p><u>National insurance for fishing industry</u></p> <p>Met with NIS staff on categorisation of fish workers, compliance and NIS benefits</p>	<p>Strong incentive for Fisheries Division, NIS and fishing industry to ensure that the law is not broken and people who contributed can receive social benefits. Raised by fishing industry as high priority, but interest and action are sporadic even though interactions are positive.</p>
<p><u>Commonwealth fishing vessel adviser</u></p> <p>Advised on need for this consultant; review of project outputs on boat standards etc.</p>	<p>Stronger incentive for Fisheries Division than fishing industry to seek improvement of vessel design and safety in order to carry out its legal mandate. Interactions were positive, but there seems to be little follow-up by the key external agency, the polytechnic.</p>



Annotated agenda item	Incentives and interactions
<u>ICCAT membership and allocation criteria</u> Recommended membership in ICCAT; reviewed Barbados inputs on allocation.	Strong incentive for Fisheries Division to persuade members to support recommendation that Barbados become a member. Some interaction with external agents and Ministry, but the fishing industry is less informed.
<u>FAC sub-committee revised structure</u> Recommended working groups on harvest, postharvest and research not implemented.	Strong incentive for the FAC members and the Fisheries Division to ensure wider participation and delegate some responsibility. Fishing industry has little incentive but this may be due to the FAC being poorly known.

Source: Fisheries Advisory Committee meeting minutes

## 10.2 Operations at fish markets

Of all the items on the FAC agenda, the only one that the Minister has repeatedly directed for attention, the one that has most engaged the interest of the fishing industry members, and the one that has been most difficult to make progress on, has been the operation of fish markets. Fish markets encompass harvest, postharvest and consumer interests but do not fall directly under the Fisheries Act or Fisheries Division. The sections below illustrate some of the issues.

### 10.2.1 Bridgetown Fisheries Complex (BFC)

Operation of the primary landing sites, which are all managed by the Markets Division, involves a range of government and private stakeholders. Problems with these landing sites, in particular the Bridgetown Fisheries Complex (BFC), has occupied much of Fisheries Advisory Committee meetings. The problems were comprehensively documented in 1998 when a review of the operations of the BFC was carried out as part of a study on the redevelopment of Bridgetown to enhance its tourism image and utility. The study examined the various activities carried out at the BFC with a view to determining the need for additional facilities to accommodate fleet growth over the next 25 years and whether these facilities should be located in Bridgetown or elsewhere (Mahon and Jones 1998).

The study found that there were problems with most aspects of operation of the BFC. The most important among these were as follows:

- Vessel berthing arrangements for both offloading fish often resulted in delays in offloading and in the need to adopt unsafe offloading practices;
- Berthing between trips increased risk of vessel damage;
- Provision of ice was unorganised and there was reported corruption in ice sales;
- Boatyard arrangement for repairs and refurbishment were inefficient;
- Sanitary conditions were poor in fish handling areas;
- Fish offal was not removed in a timely fashion leading to terrible odours;
- There were conflicts in use of freezer and fish processing facilities;
- Retail areas were poorly managed and unsanitary;
- Vendors were poorly regulated and conflicts among them were common.

In summary, it was clear that the market was not being run in an efficient and businesslike manner. There were many complaints from users, and both Markets and Fisheries Divisions were heavily criticised for failing to take necessary action. One of the main concerns was that

the facility would not meet the required standards of seafood safety for exporting to the USA, Europe, Canada and Japan, and exports to these countries would be refused. However, the general concern was that poor management was preventing the realisation of the potential benefits of the facility, the construction of which had been expected to provide considerable opportunity for growth in the Barbados fishing industry. Furthermore, poor management was resulting in the degradation of the facility to the level where it would no longer be possible for it to serve its intended purpose without considerable investment in refurbishment.

Analysis of the source of the problems at the BFC has proven to be controversial. Some users expressed the view that the BFC had started out on the wrong foot from the outset. The initial designers of the facility had perceived that there would be much greater cost-recovery in its operations, and that this would have provided the funds required to maintain the facility. Instead, the Government chose to absorb most of the cost of operating the facility, by not charging for berthing or boatyard space, and charging minimal rents for the use of processing and retail areas. A related area of concern was the construction of the new fishing facilities at Conset Bay and Skeete's Bay, and the plan for a facility at Six Men's Bay. It was thought that if a solution to the problems at the BFC could not be found, the new facilities would experience similar problems, rapidly becoming inefficient and degraded.

During discussions of the BFC problem at the FAC, many associated issues emerged. The first was that neither the Markets Division nor the Fisheries Division had clear responsibility for all aspects of operations at the BFC. At the time of opening, the BFC was a modern fishing facility with a wide range of technical equipment. Thus its operation was quite different from the type of facility that the Markets Division was accustomed to operating. The lack of willingness by the Markets Division to exercise firm control over the practices of various users was seen as a root cause of the ongoing problems at the BFC. The fact that the legislation governing practices at the market was outdated was also considered to be an important factor contributing to the difficulty in establishing good operating practices at the BFC. A new Fish Quality and Inspection Act has been in draft form since 1997, but is not yet in force. This legislation would require practices that are consistent with modern handling procedures and standards for exporting to major overseas markets.

Various solutions were suggested by users in the 1998 study and frequently discussed in FAC meetings. One of the primary recommendations was that the control of the market be placed in the hands of one or other of the Fisheries or Markets Division. In most cases the view was that it should be the Fisheries Division, as many of the operational needs of the BFC were specific to fisheries. Another type of solution proposed was various degrees of privatisation of the facility, ranging from leasing out various functions such as provision of ice and boatyard operation, to full privatisation. The primary concern regarding these suggestions was that the small operator would be placed at a disadvantage. The example of the Barbados Port Authority as a well managed, government owned facility was offered. Other attempts to improve the management of the facility included the establishment of a fisherfolk organisation there, and attempts to establish a user committee that could address problems. In 2000, both the Fisheries Division and the Markets Division were pursuing activities aimed at remedying several of the problems. These included consultations with various user groups and government departments, but fell short of the establishment of a formal user committee with assurance that its advice would be implemented.

### 10.2.2 Bridgetown Fisheries Complex Advisory Committee

The Bridgetown Fisheries Complex Advisory Committee was the most significant attempt to involve facility users in the management of a fish market. It involved all categories of fisherfolk and generated a high level of interest since fisherfolk are affected by operations at the markets.

A mid-1991 public meeting between the Minister responsible for fishing and the users of the Bridgetown Fisheries Complex (BFC) to discuss complaints spawned the committee as an avenue for continued dialogue. An October 1991 memorandum lists the membership as comprising Markets Division staff (chairs) and representatives from the Security Division, Barbados Union of Fishery Workers (BUFOW), Barbados Fishing Cooperative Society Limited (BARFISHCOS) and Fisheries Division. According to the minutes of the first meeting, the purpose of the committee was to advise the market manager on operations, and to advise the Ministry on policy. Only two full meetings were held.

The two meetings were preoccupied with heated complaints from the fisherfolk representatives about security measures they perceived as excessive and discriminatory. Although issues were unresolved and others not discussed, the reason given for the suspension of meetings was that the Markets Division was preparing major studies and policy initiatives for discussion by the committee. It was not suggested that the committee itself be part of that process, the policies were not produced and the discussion never occurred. Although the Ministry enquired once about the lack of further progress it did not attempt to revive the inactive committee.

Since opening in 1989, the senior management of the BFC has changed seven times. The environment was not conducive in 1993 to reviving the committee due to conflicts between users, and between management and users, which blocked communication. As an interim strategy, management held meetings to resolve the major problems of particular user groups. Furthermore, it was decided that users should share directly in decision-making by determining operational procedures themselves where this administrative flexibility existed. The minutes of meetings held in 1994 suggest that the latter approach has potential for evolving into a more formal collaborative arrangement. But since it is the Ministry that decides the most important issues, the question of commitment to the advisory process still arises given the previous lack of remedial action when such committees have faltered. The institutionalization of continuity in dialogue seems particularly important where each new manager has the potential to introduce idiosyncratic changes to market operations. The committee has not been revived, but the benefits of having such bodies at fish markets are frequently mentioned when problems arise.

### 10.3 Fisherfolk organisation formation

The Fisheries Division demonstrated support for co-management with fisherfolk organisations by implementing the Fisherfolk Organisation Development Project (FODP). A consultant was engaged to promote and assist the formation of sustainable organisation in the late 1990s resulting in several new or strengthened fisheries organisations. The goal was to lay the foundation of institutional capacity within the fishing industry for co-management. Progress was reported in McConney et al. (1998) and McConney (1999b) using variables similar to this study.

*Table 10.2 Evaluation of fisheries co-management conditions in Barbados*

Co-management condition	Score	Co-management condition	Score
Individual incentive structure	2	Political and social stability	1
Recognised resource management problems	2	Networking and advocacy	2
Leadership	2	Enabling policies and legislation	2

Co-management condition	Score	Co-management condition	Score
Stakeholder involvement	1	Provision of financial resources/budget	1
Empowerment	2	Government agency support	2
Trust between partners	2	Social and cultural fit	2
Property rights over resource	3	Partner sense of ownership	2
Local political support	2	Effective enforcement	2
Capability building	2	Partnerships and contractual agreements	1
Organisations	1	Overlap of interests	2
Conflict management	3	Flexibility	1
External agents	1	Appropriate scale	2
Clear objectives form a well-defined set of issues	2	Co-ordinating body	1
Effective communication	2	Social preparation and value formation	2

Scores: 1 = fully present; 2 = partially present; 3 = not present

It is evident from the table that the establishment of co-management is still a work in progress, and two fundamental features, property rights and conflict management, are particularly weak.

## 11 Outcomes and performance of co-management arrangements

Patterns of interaction between co-management parties produce outcomes, such as institutional arrangements, that can be evaluated in terms of performance. Outcomes of greatest interest are those concerned with meeting management objectives and their impacts on the coastal and marine resources plus their users. In some, but not all, situations co-management may perform better than more conventional approaches such as centralised or top-down management. The most common evaluation criteria are efficiency, equity and sustainability (Pomeroy and Williams 1994, ICLARM and IFM 1998).

### 11.1 FAC focus group results

One of the participatory project activities undertaken in September 2002 was a focus group comprising past and present members of the Fisheries Advisory Committee. Summary results are presented in this section that describe observations and conclusions of FAC stakeholders. The points are set out as questions and responses.

Legal mandate: *How adequate is the legal mandate of the FAC for it to function as a means of co management?*

- The FAC is mandatory under the Fisheries Act, but is only advisory. Fisheries ministers have rarely sought or accepted FAC advice.
- If it were not provided for in the law, there would be no demand for the FAC to exist.
- The FAC can be okay for consultation but it does not necessarily encourage collaboration.
- The legal mandate of the FAC is too weak for it to function well as a co-management body.

Structure: *How appropriate is the structure of the FAC for it to function as a means of co management?*

- The revised composition of the FAC is okay if supplemented by invited participants.
- Industry members are appointed in personal capacity, but the FAC would be stronger if they functioned more as industry representatives.
- The absence of a written structure for formally reporting to the minister is a weakness.

Operational resources: *How satisfactory are the operational resources available to support the FAC in carrying out its mandate?*

- The FAC needs a suitable secretary, active subcommittees, its own budget and less reliance on the Fisheries Division to act on its behalf.

Relationship with policy-maker: *How would you describe the relationship between the FAC and minister of fisheries?*

- It is a weak relationship with insufficient communication, especially from the ministers.
- Chairman of the FAC should have a direct link to the fisheries minister for communicating and getting feedback for it to do its work.
- The minister needs to delegate follow-up on FAC matters within the ministry through the PS

Relationship with resource users: *How would you describe the relationship between the FAC and the fishing industry?*

- Vague: the industry does not know much about the FAC but sometimes asks questions
- Members are unsure how much of FAC business they can share with fishing industry
- No regular means of communicating the business and concerns of the FAC to the public

Successes and favourable factors: *Name successes of the FAC and the favourable factors that helped them to be achieved.*

- Fisheries Management Plan, Fish Stocks Agreement, fish kill compensation, conditions in some fish markets, revising import duty, training fisherfolk, relevance of National Insurance
- Better rapport especially between Markets and Fisheries Divisions, plus other agencies
- Personal development, sense of unity and purpose, camaraderie, information exchange

Failures and unfavourable factors: *Name failures of the FAC and the unfavourable factors that caused the deficiencies.*

- Bridgetown fish market still problematic, no fishing agreement with Trinidad and Tobago
- Weak relationship with the minister results in little follow-up to advice; frustrates members
- FAC roles and responsibilities are unclear

Conditions for sustaining success: *From your experience, what conditions are most likely to sustain a successful Fisheries Advisory Committee as a means of co management?*

- Minister must be more involved in the FAC
- FAC should report its work to the industry
- Public needs to be told more about the FAC
- Stronger legal mandate for co-management
- Members should represent the industry
- Upgrade to statutory body with own budget
- Clearer mechanisms for the acceptance of FAC advice and implementation of decisions
- Improve support service for follow-up action
- FAC needs to see that it is taken seriously
- Representation from Police, Coast Guard

Other factors for success: *What else is there about the FAC that a person should know in order to increase the chances of it succeeding as a means of co management?*

- Determine the type of co management to be aimed for by the FAC. Collaborative seems to be preferable, however the FAC can work as an advisory committee (consultative).

- Important to understand what would make a minister more inclined to take advice from the FAC and to ensure advice is followed up.

The findings presented above provided ideas for collaborative follow-up action. The newly appointed FAC saw this as the perfect opportunity for co-management demonstration activity. Uptake of the project findings by the FAC included consideration of:

- Production of public information on the FAC
- Requests from the FAC to meet the minister on a regular basis such as quarterly
- Requests for the FAC to have its own budget
- Establishing permanent or temporary special interest subcommittees for critical issues
- Have a regular calendar of public meetings
- Moving membership towards being more representative, especially of the fishing industry through organisation representation
- Strengthening BARNUFO and its members to act more effectively as channels for fishing industry matters and feedback to the FAC
- Strengthening the legal mandate of the FAC to include greater transparency on action or non-action as follow-up to advice tendered
- Comparing the FAC to other statutory and non-statutory government advisory groups so as to learn from both the positive and negative differences
- Setting up, within the FAC, a system for self-monitoring and evaluation that allows better assessment and adjustment of its operations

### **11.2 Resignation of FAC members**

On BARNUFO letterhead, the president of that organisation plus the fisher, boat owner and fish vendor members of the FAC jointly signed and submitted to the Minister a letter of resignation dated 4 February 2002. Reasons for resignation set out in the letter were, in summary:

- ◆ Administrative and logistic problems of FAC meetings, minutes, documents, non-payment
- ◆ FAC proposals and advice not implemented, with continued disregard for the fishing industry
- ◆ Fisherfolk not included in the fisheries access negotiations with Trinidad and Tobago

The members complained that prior to resigning they had tried to resolve their grievances but received no satisfactory response from the Minister or officials. As a protest action, they had expected their resignations to provoke a response from the Ministry, but received none perhaps because their terms of appointment were soon due to end. It was also perceived by officials that the president of BARNUFO had instigated the action taken by the others. Yet, in accordance with the amended composition of the FAC, the president of BARNUFO was reappointed to the third committee that was formed late in 2003. She has not resigned again. The other three fishing industry members who resigned were replaced.

Following general elections on 21 May 2003 the entire Fisheries Advisory Committee was asked to resign. Although the same political party stayed in power, a new minister was appointed. It is customary for statutory boards and other executive committees to resign with the election cycle, but this is the first time the same principle was applied to the Fisheries Advisory Committee. The action was initiated by the administration of the Ministry of Agriculture and Rural Development.

### **11.3 Outputs from strategic planning**

In March 2003 the newly appointed FAC engaged in a strategic planning session as a project activity. This helped to clarify the Committee's perspective on co-management and how it could strengthen its role as an institution of co-management. The major outputs are reported here.



### 11.3.1 The vision

The focus question was: “What is required to make the Fisheries Advisory Committee a (more) successful institution for fisheries (co-)management?”. FAC members collectively developed a vision for their 3-year period of appointment with the elements described in Figure 11.1.

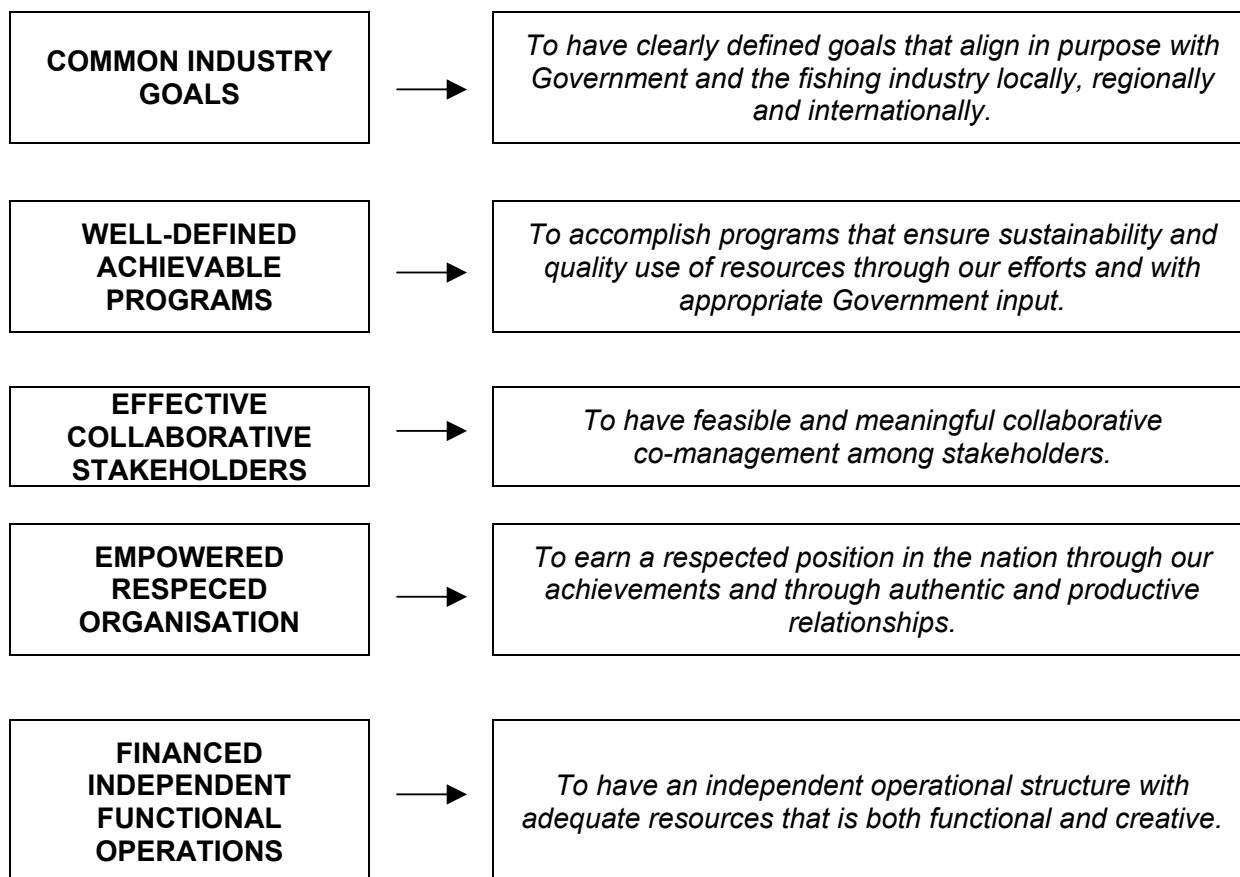


Figure 11.1 Elements of the Fisheries Advisory Committee's vision

The vision illustrates the commitment of the members to co-management, with a strong affinity for collaborative management. The FAC does not want to be kept back in this quest by the ties of having to totally rely on government agencies for support.

### 11.3.2 Interpretation of resisting forces to the vision

The path towards a vision is often strewn with obstacles, and the Fisheries Advisory Committee members considered what forces could work against achieving the vision. These are set out below in Figure 11.2.

The members were quite open about the deficiencies in the industry, amongst themselves as a body, and within government. The last item is of particular interest to the long-term aim of the FAC to evolve into a more collaborative, rather than merely consultative, institution.

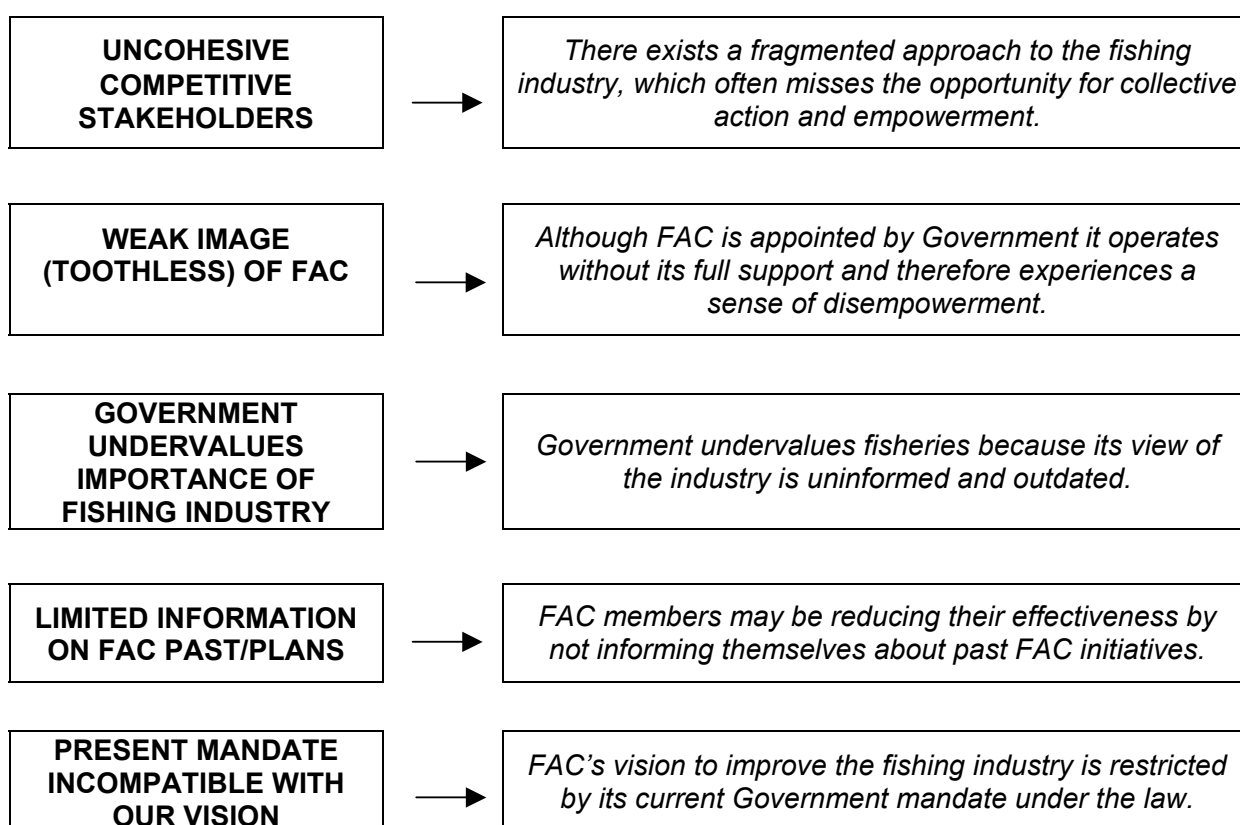


Figure 11.2 Resisting forces to the vision

### 11.3.3 Assisting factors to the vision

Equally important are the conclusions drawn about what factors can assist in the realisation of the vision. Some of the main points are set out in Table 11.1 below. Despite the challenges faced by the FAC to date, members remained optimistic that the demand for new and more responsive approaches to management would facilitate the required transformation of the FAC.

Table 11.1 Assisting factors to the vision

STRENGTHS	OPPORTUNITIES	REASONS TO SERVE
<ul style="list-style-type: none"> <li>◆ The FAC exists</li> <li>◆ Strong group of individuals</li> <li>◆ FAC membership is diverse</li> <li>◆ Growing fisherfolk organisations</li> </ul>	<ul style="list-style-type: none"> <li>◆ There is a long overdue Management Plan for the Industry</li> <li>◆ Professionals and advisors to the Industry are accessible</li> <li>◆ The future of the Industry is a cause of concern</li> <li>◆ Industry people want to be more involved in the management</li> <li>◆ International pressure for management and trade - globalization</li> </ul>	<ul style="list-style-type: none"> <li>◆ Global crisis in fish stocks</li> <li>◆ Urgent need for change in the Industry</li> <li>◆ The public is demanding higher standards</li> <li>◆ Insecurity of marketing and distribution</li> <li>◆ Need for FAC independence</li> <li>◆ Need for information in the Industry</li> <li>◆ Protection of investment</li> <li>◆ Higher capital investment needed in the Industry</li> </ul>



### 11.3.4 Strategies and strategic directions

The conclusions of the planning session were a set of strategic directions containing strategies for moving the FAC towards its goals (Table 11.2).

Table 11.2 Strategic directions and strategies

<b><u>Strategic Direction = Building Capacity And Image</u></b>	
<b>STRATEGIES</b>	
<b><i>FAMILIARIZE OURSELVES ABOUT PAST FAC OPERATIONS</i></b>	<b><i>IMPROVE IMAGE THROUGH INFORMATION</i></b>
<ul style="list-style-type: none"> <li>• Invite CFO to assist in sourcing relevant FAC documents</li> <li>• Research past minutes</li> <li>• Encourage discussions with past FAC members</li> <li>• Ask for such information from relevant sources</li> </ul>	<ul style="list-style-type: none"> <li>• Involve GIS to communicate more with public</li> <li>• Publicise past successes and invite participation</li> <li>• Hold more public meetings to inform on goals</li> <li>• Achieving set goals to rebuild image of FAC</li> </ul>
<b><u>Strategic Direction = Strengthen Unity Of Purpose Through Shared Values</u></b>	
<b>STRATEGIES</b>	
<b><i>PUT AN ACCURATE VALUE ON THE INDUSTRY</i></b>	<b><i>ORGANISE STAKEHOLDERS AROUND SHARED INTERESTS</i></b>
<ul style="list-style-type: none"> <li>• Implement valuation of the fishing Industry</li> <li>• Build accurate database showing contribution of Industry</li> <li>• Pressure Minister through publication of newsletter to recognize the value of the Industry</li> </ul>	<ul style="list-style-type: none"> <li>• Regular stakeholder meetings</li> <li>• Form a co-operative union of all stakeholders</li> <li>• Decentralizing management in favour of stakeholder participation</li> <li>• Organise special interest groups (meetings)</li> </ul>
<b><u>Strategic Direction = Seeking Policy Change To Empower The FAC</u></b>	
<b>STRATEGIES</b>	
<b><i>SEEK MINISTER'S VIEW OF GAPS BETWEEN VISION AND MANDATE</i></b>	<b><i>CHANGE FAC FROM ADVISORY TO EXECUTIVE BODY</i></b>
<ul style="list-style-type: none"> <li>• Meet with Minister to re-examine mandate</li> <li>• Hold discussion with Minister explaining our vision</li> </ul>	<ul style="list-style-type: none"> <li>• Set up a secretariat</li> <li>• Amend mandate of FAC – advisory can become implementing agency</li> </ul>

In a subsequent meeting of the FAC the members developed short-term action plans. They had planned to implement these plans as project research activities, but this was not possible for various reasons. It was encouraging, in this case, to have the research outputs readily taken up and used by the target institution. Several lessons can be learnt from this case as set out below.

## 12 Conditions for successful co-management

The purpose of this project is 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 Fisheries Advisory Committee by legal mandate is clearly consultative. However, the research revealed that the members of the Committee that includes the fisheries authority, fishing industry and coastal management unit are in favour of the body becoming a vehicle for collaborative management in due course. The main criterion for the transition is that it is able to prove itself as an effective and sustainable institution for consultation. There is no suggestion that delegated co-management be institutionalised through the FAC.

### 12.2 Phase of co-management

The Fisheries Advisory Committee is at the stage of co-management implementation. The body was legally established in 1993 and has functioned since 1995. Government, resource users and other stakeholders are trying out the arrangement and making adjustments to improve its efficiency and effectiveness. Given the several deficiencies with its present operation it is likely to remain in implementation for some years to come before it matures into post-implementation.

### 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 respectively add or delete variables that they found to be critical or irrelevant. The Barbados workshop on the critical conditions for successful co-management included the researchers, Fisheries Division, CZMU and BARNUFO. The proceedings of the meeting are summarised in Table 12.1.

*Table 12.1 Stakeholders perceptions of critical conditions for success in Barbados*

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"> <li>• CZM area clearly defined technically</li> <li>• Community less easily defined, especially by outsiders, but done e.g. Weston</li> <li>• Open communities, fishers not exclusionary</li> </ul>	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"> <li>• Strong even before registration of fisherfolk</li> <li>• Now better known by authorities</li> <li>• Less clear for minor fisheries</li> </ul>	3
3. There is shared recognition of a resource use problem that needs to be addressed	<ul style="list-style-type: none"> <li>• Usually shared recognition but some stakeholders feel powerless so participate less in sharing</li> <li>• Access to ice an example of lengthy problem</li> <li>• Often not sure what to do about problem</li> </ul>	3
4. Clear objectives for management can be defined based on the problems and interests	<ul style="list-style-type: none"> <li>• Depends on resource (see FMP) but usually strong</li> </ul>	3
5. Good fit between the scale of the resource and feasible management arrangements	<ul style="list-style-type: none"> <li>• Few exceptions to the good fit</li> <li>• Good for CZMU</li> </ul>	2
6. Management approaches and measures are flexible to suit changing circumstances	<ul style="list-style-type: none"> <li>• FMP calls for 3-year review</li> <li>• Fisheries Act also flexible</li> <li>• Management response too slow generally</li> <li>• Differs by who is to benefit, power exercise</li> </ul>	1
7. Cooperation exists, and is adequate, at the resource user level and in government etc.	<ul style="list-style-type: none"> <li>• High cooperation among CZM stakeholders e.g. Carlisle Bay marine park not officially declared but operating as such due to consensus by negotiation</li> <li>• Okay if problems and perspectives are addressed</li> <li>• Weaker in fisheries due to more personal interests</li> <li>• Low in CZM with the construction industry</li> </ul>	1
8. Leadership exists, and is adequate, at the resource user level and in government etc	<ul style="list-style-type: none"> <li>• Exists but inadequate</li> <li>• Leaders not very active</li> <li>• Diversity in leadership of FFOs</li> <li>• Some powerlessness</li> </ul>	1/2
9. Group cohesion where fishers, managers and others can act collectively within their groups	<ul style="list-style-type: none"> <li>• High variability</li> <li>• CZM unit and stakeholders are internally cohesive</li> <li>• Fairly weak within fisher groups, perhaps occasional and crisis driven</li> </ul>	2
10. There are mechanisms for managing conflicts within and among stakeholder groups	<ul style="list-style-type: none"> <li>• Culture of being relatively docile</li> <li>• Conflicts allowed to just die down over time but remain unresolved</li> <li>• Preference to avoid confrontational conflict leads to buried vendettas</li> <li>• Management through public consultations of information exchange e.g. Speightstown salt pond drainage impacts</li> </ul>	1
11. Communication amongst the stakeholders is effective, and there is adequate networking	<ul style="list-style-type: none"> <li>• Fisherfolk communicate well amongst themselves</li> <li>• Improving between government and resource users but still is deficient</li> <li>• Not really ready yet for co-management as information is withheld by government</li> </ul>	2
12. Coordination between government, local community and other stakeholders is effective	<ul style="list-style-type: none"> <li>• Usually poor across all scales and situations, both government and non-government</li> <li>• E.g. NCC "spring break" on Needhams versus turtle conservation</li> <li>• Lack of coordination within government on sea egg season 2002</li> </ul>	1

CO-MANAGEMENT CONDITION	REMARKS	#
13. Trust and mutual respect characterise the relationships among the key stakeholders	<ul style="list-style-type: none"> <li>Government and users do not trust each other</li> <li>Too many changes in management to build trust</li> <li>Often by one part, not mutual e.g. ice machine?</li> </ul>	0/1
14. Organisational capacity exists for all stakeholders to participate effectively in management	<ul style="list-style-type: none"> <li>Capacity constrained by lethargy caused by powerlessness or disbelief that things will change</li> <li>Does capacity differ by scale?</li> <li>Organisations in fishing industry are weak</li> <li>Powerful stakeholders get their own way</li> <li>Most CZM stakeholders have capacity, e.g. hoteliers, but fishers and jet ski operators are weakest</li> </ul>	2
15. Adequate financial, and hence physical, resources are available for management tasks	<ul style="list-style-type: none"> <li>Finances available to some (often not government agencies) but not used for management purposes</li> <li>Poorest for research in fisheries and enforcement</li> <li>CZMU is well off</li> <li>Budgets are available, but not fully exercised</li> <li>Human resource constraint even if \$ available because of government restrictions on hiring people</li> </ul>	2
16. External agents provide support for management but do not encourage dependency	<ul style="list-style-type: none"> <li>CZMU says support may erode as agency grows</li> <li>Support is fair and lack of dependency is strong</li> <li>Much support for CZM through tourism, less for fisheries as linkages not clear to most people</li> </ul>	3
17. Benefits of participation must exceed costs from the levels of individuals up to larger groups	<ul style="list-style-type: none"> <li>CZMU a clear yes, but less clear for fisheries</li> <li>More a matter of potential for fisheries</li> <li>CZMU sees benefits through tourism</li> <li>Fisheries stakeholders not paying much cost, so not much benefits either</li> <li>More a matter of loss prevention than real gain</li> <li>Much cost in sea eggs but few benefits from management as all left up to nature in the end</li> <li>Question of claiming benefits if no direct cause</li> </ul>	2
18. Individuals, groups affected by management arrangements are included in decision-making	<ul style="list-style-type: none"> <li>Good for CZMU as with coastal infrastructure choice of options workshop</li> <li>Policy and practice of inclusion in decisions at least at technical level</li> </ul>	2
19. Management rules are enforceable by resource users and the management authority	<ul style="list-style-type: none"> <li>Enforceable but not human resources to execute</li> <li>Rules of evidence a problem? Not</li> </ul>	3
20. Legislation gives users some meaningful level of ownership or control over resource use	<ul style="list-style-type: none"> <li>None in law</li> <li>Customary practices defy the existing laws</li> </ul>	0
21. Legislation gives users authority to make management decisions, perhaps shared	<ul style="list-style-type: none"> <li>The FAC comes closest but is weak example</li> <li>Advice tendered but not taken</li> </ul>	1
22. Decentralisation and delegation of authority is part of the policy of resource management	<ul style="list-style-type: none"> <li>Some in FMPs on sea eggs and reef fish</li> <li>May come with MMA for MPAs, but may be FAC-like</li> <li>Graeme Hall near to delegation status</li> </ul>	1

CO-MANAGEMENT CONDITION	REMARKS	#
23. Co-management has a good social and cultural fit to the circumstances of the situation	<ul style="list-style-type: none"> <li>• Bajans expect government to do things on its own for them; that is what they want</li> <li>• Expect levels of bureaucracy also</li> </ul>	1

The sections below elaborate upon the comments in the table above as overall conclusions that may be used to develop guidelines for successful co-management.

### 12.3.1 Boundaries

The sphere of interest of the Fisheries Advisory Committee is very wide, ranging from local to international matters as illustrated by its agenda over the years. There are few fisheries issues that the legal mandate cannot be stretched to cover, although it focuses mainly on the waters of Barbados. These boundaries are quite adequate for national co-management.

### 12.3.2 Membership and stakeholders

The membership of the Committee is legally defined and appropriate. The amendment of the Fisheries Act in 2000 demonstrates flexibility to accommodate additional major stakeholders. The provision to invite other stakeholders to participate in meetings on a regular basis is another device that facilitates efficiency and equity. There is probably no need for change, although the use of sub-committees for harvest, post harvest and research as discussed and agreed to by the FAC at one point, but never implemented, should result in improved performance.

### 12.3.3 Resource use problem

Resource use problems are very clearly identified in the fisheries management plans. Since these plans were formulated through participatory processes one can conclude that problem recognition is shared among stakeholders. However there is little evidence that the plans are referred to, even within the FAC, for decision-making on a regular basis concerning resource use. Conventional fisheries issues of resource exploitation and stock status are not prominent on the FAC agenda. Many of the problems addressed by the FAC are of a more operational nature (fish markets, tax concessions, etc.) that the plans do not adequately cover. If the Fisheries Advisory Committee was to deal mainly with fisheries management instead of operations it is likely that provisions in the current plan would be adequate for co-management.

### 12.3.4 Management objectives

Management objectives are clearly stated in the fisheries management plans, but known only by a handful of people in the fisheries authority because the plans have not been promoted. The Fisheries Division and BARNUFO have jointly developed the current plans, with appraisal and endorsement by the FAC. There is no evidence that either the fisheries authority or BARNUFO is systematically working towards achieving the stated objectives for any fishery. Where progress can be seen, such as in the large pelagic, turtle and sea urchin fisheries, the initiatives have tended to be disjointed and opportunistic. This perhaps reflects that reality that the fisheries authority makes significant progress towards meeting these objectives only when they coincide with the interests of external agencies or other interested parties. For the FAC to improve in the area of meeting management objectives, they need to be better known by all of the stakeholders.

### **12.3.5 Scale of management**

The scales of management in the fisheries plans are appropriate to the resources. In several cases the fisheries are shared regionally or internationally, and neither the FAC nor the state has much impact on these resources. The institutional arrangements for their management are absent or weak except for those in which external interests dominate such as in ICCAT and UN bodies. The Fisheries Advisory Committee is limited, for practical purposes, to national co-management. Its composition is adequate for this scale.

### **12.3.6 Management adaptation**

The FAC has been instrumental in making significant changes to the way in which the fisheries authority approaches management. The body has been effective in drafting or reviewing legal instruments for management that have kept pace with the need for change. Yet this has been insufficient for demonstrating flexibility in management because few of the instruments have come into force for administrative and policy reasons. The outcome is that management is not adaptive, but is very slow to respond. Having concluded that fisheries co-management in Barbados is about the total fishery and not just the resource or harvest sector, adaptation and improvement in response time are urgently needed.

### **12.3.7 Cooperation**

Cooperation in coastal zone management as a whole appears to be situation and subject specific. There is perhaps no less cooperation among fisheries stakeholders than among those involved in other coastal uses, but apart from certain watersport operators, most user groups appear to be more effectively organised than fisherfolk. The fisheries authority and fisherfolk are willing to cooperate, as illustrated by the number of joint projects between BARNUFO and the Fisheries Division. Cooperation will most likely continue to improve through opportunities for sustained positive interaction. Cooperation among the FAC members as individuals is good.

### **12.3.8 Leadership**

The Fisheries Advisory Committee chairman was from government only in the first term. A private sector or NGO chairperson should have more freedom to lead than a public officer. The major weakness is that, since the FAC is a low status technical body, there is no political link between its leadership and the policy-makers. This results in the FAC having little power regardless of how proficient its leader is. Leadership is lacking in the fisherfolk organisations for a number of reasons including skills and the time required to lead while at the same time pursuing a fishing livelihood. Leaders also complain of the high levels of free-ridership prevalent in the industry and do not consider the resulting distribution of work to be equitable. Evidence of good leadership in the government agencies may be suppressed by a limited capacity to perform numerous competing tasks. The low status and power of the fisheries authority within the public service structure and Ministry of Agriculture may also mask the quality of leadership since good or bad leaders appear equally ineffectual.

### **12.3.9 Collective action**

The FAC has so far taken decisions by consensus rather than the voting procedure provided for in its legal rules. Meeting minutes reflect few substantive disagreements among members on most issues. However, while its decisions may be collective, because it is only advisory these do not translate into action taken by the FAC itself. Outside of the FAC, the weaknesses of the fisherfolk organisations suggests that much will have to be done to promote sustained collective action by them if co-management is to be institutionalised.



### **12.3.10 Conflict management**

Barbadian society is renowned for being generally free of aggressive conflicts, although recent commentaries on increasing crime, and public calls for conflict resolution, suggest that this may be changing. Within the Fisheries Advisory Committee there is no evidence of conflict among members. There are no formal mechanisms for conflict management in the fishing industry and it is unlikely that the FAC would be turned to by any stakeholder should conflicts arise. The FAC has shown sensitivity to the need for conflict management, as illustrated by encouragement for harvest and postharvest parties to negotiate mutually agreeable tariff rates for fish imports as a result of trade liberalisation.

### **12.3.11 Effective communication**

Communication has been effective within the FAC, and generally between it and the Fisheries Division. It has not been very effective with either the fishing industry or the Ministry. In the latter case the FAC has responded to top-down directives from the policy level but has consistently reported that upwards communication seldom results in action. In other statutory advisory bodies the law explicitly states that the group can determine what to advise the Minister on and offer the advice even if unsolicited. The FAC members, except public officers, have high expectations that the minister or top ministry officials will play a larger role in setting the agenda for the FAC to ensure that advice is demand-led. This perspective differs from that of government agencies that routinely offer technical advice and see this as the end of their obligation, separating delivery of advice from the use of the advice in decision-making. Communication requires more attention in order for co-management to improve, as shown by the recommended strategic directions of the present FAC members.

### **12.3.12 Effective coordination**

There appears to be willingness to coordinate between the Fisheries Division and BARNUFO as shown in the handling of the fish kill compensation disbursement. The FAC has not had much of a coordinating role since it has no executive powers. In keeping with its mandate it has helped to encourage and facilitate coordination between the Fisheries Division and the Markets Division. It is the only formal forum that these agencies of the Ministry have for interaction. The several policy directives for the FAC to place emphasis on problems at fish markets suggests recognition of this role, but lack of authority results in outcomes being deficient or lacking.

### **12.3.13 Trust and respect**

The participating stakeholders ranked this variable quite low, but the frequency of events and projects in which partnerships are formed for implementation suggests that there is a fair degree of trust and respect. However, with this variable perceptions are particularly important. If stakeholders perceive that there is little trust and respect then they are likely to behave on the basis of this perception. While the ecological knowledge of fisherfolk is respected by the fisheries authority, there is less trust and respect for them as partners in management given their deficiencies in organisation. This is one of the reasons why delegated co-management is unlikely. Members of the FAC share trust and respect amongst themselves, but do not consider the body respected by the Ministry's policy makers and advisers due to the lack of action on advice tendered, and the absence of feedback.

### **12.3.14 Organisational capacity**

Recognising that its resources and capacity for fisheries management are inadequate, the Fisheries Division has sought institutional review and strengthening for itself and the fisheries operations of the Markets Division, but this has proceeded in a fragmented manner over the

past few years. The Ministry of Agriculture is also contemplating institutional changes, but focused on splitting into research and regulatory sections. It is unclear how the Fisheries Division would fit into this future structure. The fisheries authority's capacity is now weakest in scientific research. It lacks human resources for the science required to inform management decision-making on a regular basis. It relies on the fishing industry for assistance in data collection and on a few academic researchers for processing data into information. This causes the Fisheries Division to seek partnerships that exemplify co-management. Organisational capacity is relatively weak amongst the fishing industry stakeholders except the fish processors. The Fisheries Division does not have the capacity to support the structures and operations of fisherfolk organisations. This is a serious constraint that must be overcome. The FAC has excellent capacity to advise, but almost none to act unless members using their own resources undertake tasks voluntarily. The Fisheries Division has acted as secretariat to the FAC in order to improve integration and support, but this relationship has varied over time, and the FAC is quite weak without this support.

### **12.3.15 Financial resources**

The Fisheries Division has a small budget, but there is no evidence that lack of funds seriously hinders fisheries management. The constraint may be that the government's financial system is neither sufficiently quick nor responsive to supply funds when required at short notice or for unplanned purposes. Public sector structure does not allow the Fisheries Division to seek out its own financing. Fisherfolk organisations have minimal financial resources, lack plans for proper capitalisation, and typically do not seek donor financing without external assistance. Their potential, as NGOs, to attract funds has not been realised. These organisations have found it difficult to meet the reporting requirements of funding agencies. Most often they seek in-kind assistance from the local private sector for specific purposes.

### **12.3.16 External agents**

The external agents in this case were funding sources and research institutes. All have been supportive of co-management, but there appears to be no dependency upon them. Interventions by external agents would be most useful in promoting fishery co-management at the policy level since this is an area in which local stakeholders have relatively influence.

### **12.3.17 Net benefits**

Fisheries and coastal management are still new initiatives and participation in them is recent. It is too early to tell whether benefits will exceed costs in the long run. From the government's perspective there is little cost to operating the FAC at the moment compared to the quality of expertise and advice obtained. If members were hired as consultants, their fees would far exceed the budget allocated to the Fisheries Advisory Committee. However, this is not how government generally measures benefits, and the lack of or delays in response to advice suggests that the outputs of the FAC are not highly valued. Members have made it clear that from their perspective the personal outlay exceeds monetary or intangible rewards. Members are willing to forego earnings from their occupations if the products of the FAC are shown to have value. Their levels of satisfaction are low because low value is placed on the FAC. If this feeling is widespread it may become difficult to attract capable and committed members to the committee in the future. The likely consequence will be a decline in the performance of the committee in terms of co-management. The strategic directions developed by the FAC members also stress the need to rally the industry around a more informed sense of its own worth.



### **12.3.18 Representation in decision-making**

There are significant gaps in representation in the formal decision-making structure of the Fisheries Advisory Committee. Fisherfolk have not sought to extensively use the FAC as a vehicle for representation. BARNUFO is a secondary body represented on the Fisheries Advisory Committee. No primary fisherfolk organisation members are recorded as presenting an issue within this structure for the FAC to consider. BARNUFO therefore presents mainly the informal view of individuals in the industry and those of its executive. The industry members of the FAC are selected on individual merit rather than collective representation, although the Fisheries Division has tried to ensure that members are affiliated with fisherfolk organisations. The largest gap in representation, however, is at the policy level since records show that the FAC has seldom been requested to be part of policy decision-making. Typically the Chief Fisheries Officer is called upon by the Ministry to offer advice. Although problems have not yet arisen, the invisibility of the FAC may result in its outputs being ignored, especially if a Chief Fisheries Officer is inclined to present only his or her own advice rather than include that of the FAC which may differ. The FAC has recommended regular policy level meetings on its agenda.

### **12.3.19 Enforcement**

Enforcement is not an issue that has occupied the attention of the FAC. It does not apply to the body itself, and is known to be one of the weakest aspects of fisheries management in Barbados for several reasons including widespread belief that access to fisheries is the right of citizens and not a privilege to be regulated. The enforcement agencies have low individual and collective marine enforcement capacity. Their priorities usually exclude fisheries contraventions since these are not viewed as serious offences. Of particular note is that enforcement agencies have publicly voiced and demonstrated their interest in controlling the operations of fishing vessels since these are often suspected in illegal non-fishing activities, but they have not expressed similar concern over illegal local or foreign fishing activities.

### **12.3.20 Property rights**

No property rights exist in law or customary practice in the fisheries of Barbados. Given the preceding observations it will be difficult to develop property rights to support co-management.

### **12.3.21 Sharing decision-making**

Coincident with representation, decisions are typically not shared in formal structures since the FAC is ineffective as an institution of policy engagement. Relatively few decisions are made at the level of the fisheries authority alone. There appears to be willingness at the Fisheries Division level to share decisions with the industry. Both of these parties perceive that only by combining forces can they develop the power necessary to influence policy. They need to find a mechanism to get more of their joint advice into the public arena where policy-makers tend to pay attention.

### **12.3.22 Decentralisation and delegation**

There is very little decentralisation and no delegation of responsibility and authority by the state to either resource users or the management agency. Limitations in capacity and the legal framework are barriers to decentralisation and delegation. The fisheries regulations need to make provisions for delegation of authority to fisherfolk organisations in order to promote collaboration. These provisions may then be used as leverage to strengthen the organisations provided that there is willingness and leadership to respond. The FAC has recommended a strategic direction for its empowerment that would transform it, through delegation and

decentralisation, from an instrument of consultative to collaborative management. However, if co-management via the FAC remains consultative these requirements will be minimal.

### **12.3.23 Social and cultural fit**

It was felt that there is not yet a very good social and cultural fit for fisheries co-management due to the novelty of civil society participation in governance and the persistence of dependency fostered by patronage politics that followed the colonial period. This outlook is changing as more citizens demand a say in how the country is run via letters to the newspapers, call-in radio programs, town hall meetings and other popular participatory interventions. However, there is still a large gap between the aspirations of the fishing industry for co-management reported in several studies and the actual effort made by the fisherfolk to move in this direction. Co-management initiatives remain largely driven by government and this does not suggest a social and cultural imperative to establish management partnerships at the grassroots level. Persons in the fishing industry who are not on the committee have expressed the view that the FAC is an instrument of government rather than an instrument for their own empowerment and development.

### **12.4 Priority action**

Property rights, perceptions of benefits, development of trust and delegation of responsibility and authority were said by workshop participants to be key areas in which action was urgently needed. The FAC needs to implement its strategic directions in order to improve its image, build capacity, foster collective action and cohesiveness within the industry, and empower itself. Key in this process is building stronger functional linkages with the policy-maker it is intended to serve. Given the evidence of poor people among those in the fishing industry, it would be appropriate for the Fisheries Advisory Committee to forge closer links with the Poverty Alleviation Bureau to ensure that the latter has strategies and actions that target fisherfolk in need.

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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.