

# Case Study: A Comparative Analysis of Different Approaches to Fisheries Co-management in Antigua and Barbuda

## Caso de Estudio: Un Análisis Comparativo de los Diferentes Enfoques de la Gestión Pesquera Cooperación en Antigua y Barbuda

## Étude de Cas: Une Analyse Comparative des Différentes Approches de la Cogestion des Pêches à Antigua et Barbuda

IAN HORSFORD<sup>1</sup> and MITCHELL LAY<sup>2</sup>

<sup>1</sup>*Fisheries Division, Point Wharf Fisheries Complex, St. John's, Antigua, West Indies.*

<sup>2</sup>*Caribbean Network of Fisherfolk Organisation – Coordinating Unit.*

### ABSTRACT

Over the past decades there have been gradual shifts in fisheries governance in the Caribbean from one that is “top-down” and centralised to one that is “participatory” and devolved. This shift in governance comes from the recognition of the potential benefits to be gained from greater involvement of stakeholders in the decision-making and management regime. This study examines three approaches to fisheries co-management or participatory management in Antigua and Barbuda, from the perspective of a fisheries manager and a fisherfolk leader. The approaches identified with respect to co-management were: consultative (where government consult but have the final decision), collaborative (where government and stakeholders share decisions) and delegated co-management (where government delegate powers to stakeholders to make decisions). Case studies were used to: 1) identify the most appropriate governance approach based on the nature of the fishery; 2) identify the necessary conditions for successful implementation of a co-management system; and 3) examine the effectiveness and cost efficiency (where possible) of the various approaches. Some of the main lessons learned were: 1) the absence of strong fisherfolk cooperatives or associations makes it difficult for the central management authority to devolve its power; 2) general decline in community structure and institutions of local governance (e.g., village councils) create serious challenges to the implementation of a co-management system; and 3) the size of a community has implications for cost efficiency and effectiveness (in terms of compliance with management decisions), in the implementation of a delegated co-management system.

KEY WORDS: Co-management, participatory, Antigua and Barbuda, fisherfolk, governance

### INTRODUCTION

In Antigua and Barbuda, the Fisheries Division is the lead governmental agency responsible for fisheries management and development. The Division is headed by the Chief Fisheries Officer, who reports directly to the Permanent Secretary of the Ministry of Agriculture, Lands, Housing and the Environment. The mission of the Division is *to ensure that development in the fisheries sector occurs in a manner which is sustainable and capable of contributing its full potential to the overall development of the national economy.*

Whilst the Fisheries Division is the primary management authority, the *Barbuda Local Government Act (1976)*, gives the local council of the island of Barbuda, authority to manage its fisheries. Barbuda Fisheries is the implementing arm of the Barbuda Council with regards to fisheries management and development. The *Fisheries Act, No.14 of 1983* and the *Fisheries Regulations, No.10 of 1990*, are currently the primary legislative basis for fisheries management and development. The Act also makes provision for the designation of local fisheries management authority. These pieces of legislation are expected to be repealed shortly with the coming into force of new legislation; the substantive legislation, the *Fisheries Act, No. 22 of 2006*, has been passed by Parliament and will be enacted along with the draft amended Fisheries Regulations (2012) shortly. The provisions for devolution of governance to local council or local fisheries management authority are also enshrined in the new legislation.

Over the past decades there have been gradual shifts in fisheries governance in Antigua and Barbuda from one that is “top-down” and centralised to one that is “participatory” and devolved. The term fisheries governance is used since “management” of fisheries is increasingly being replaced by the broader concept of “governance” (Jentoft 2006), which incorporates the social and political sciences in addition to the traditional, natural sciences. This shift in governance comes from the recognition of the potential benefits to be gained from greater involvement of stakeholders in the decision-making and management regime. Some of the potential benefits include: increase understanding of management decisions; improve compliance by user groups; mitigate user conflicts; improve relationship with stakeholders; and increase effectiveness of fisheries governance.

The participation of stakeholders in fisheries governance is fundamental to the concept of co-management. While it has been decades since Jentoft (1989) introduced the concept of co-management and define it as *a meeting point between overall government concerns for efficient resource utilisation and protection, and local concern for equal opportunity, self-determination, and self-control*, the concept is relatively new in the Caribbean region. One exception is the island of Barbuda, where the inhabitants have practised a community-based form of co-management dating back to the 1970s.

## METHODS

This study examines three approaches to fisheries co-management or what the Caribbean Natural Resources Institute (2011) may term *participatory management* in Antigua and Barbuda, from the perspective of a fisheries manager and a fisherfolk leader. The co-management approaches identified (according to definitions by Pomeroy et al. 2003) were:

- i) Consultative – where government consults but have the final decision,
- ii) Collaborative – where government and stakeholders share decisions, and
- iii) Delegated co-management – where government delegate powers to stakeholders to make decisions.

Case studies were used to:

- i) Identify the most appropriate governance approach based on the nature of the fishery,
- ii) Identify the necessary conditions for successful implementation of a co-management system, and
- iii) Examine the effectiveness and cost efficiency (where possible) of the various approaches.

The following sources of data were used to evaluate the various co-management approaches with respect to the fore mentioned: annual budget reports from the Ministry of Finance; work programmes of the various fisheries management authorities; and compliance rates regarding fisheries regulations.

## RESULTS AND DISCUSSION

### Case Study (Consultative Co-management): Fisheries Advisory Committee (FAC) in Antigua and Barbuda

Under Section 4(3) of the *Fisheries Act, No.14 of 1983*, the Chief Fisheries Officer is lawfully required to consult with stakeholders in the preparation and review of fisheries management and development plan. The Act also makes provision for a Fisheries Advisory Committee (FAC) to advise the Minister on the management and development of fisheries. It should be noted that the establishment of the FAC is not mandatory; the legislation merely empowers the Minister to appoint one. The general consensus in the fisheries sector is that this provision should be mandatory and not left to the discretion of the Minister. A series of local fishfolk meetings (three in Antigua and one in Barbuda), held under the theme “fishers participation in sustainable governance” reaffirmed this position (Lay 2012). While certain legal luminaries have argued that under the Westminster system of government under which Antigua and Barbuda operates, certain powers of the Minister is discretionary, legislation from other islands that operate under the same Westminster system contradict this line of argument. For example, Barbados *Fisheries Act (1993)* states that “the Minister shall by

instruction in writing, appoint a committee to be called a Fisheries Advisory Committee to advise him on the development and management of fisheries”. While some may argue that the Chief Fisheries Officer is still legally required to consult with stakeholders, thereby ensuring stakeholder participation, the Coordinator of the Caribbean Network of Fisherfolk Organisation (Lay 2012) considers it crucial to have a dedicated legal mechanism (or space) for fisherfolk participation in the governance process. A dedicated mechanism is also important to serve as a repository for institutional memory given the importance of hindsight to the development of institutions. Note in contrast to Antigua and Barbuda and other sovereign Member States of the Organisation of Eastern Caribbean States (OECS), the Chief Fisheries Officer under the Barbados *Fisheries Act (1993)* is not legally required to consult with stakeholders in the preparation and review of fisheries management and development schemes (the provision states *may*).

The first FAC was established in Antigua and Barbuda in 1985 and appointed members served for a period of normally two years. The first Committee was chaired by the Permanent Secretary of the Ministry of Agriculture since it was felt that this would raise the status of the FAC and facilitate a more effective communication with the Minister. Between 1985 and 1990, the composition of the FAC varied widely (at one time 12 members), due to the problem of finding legitimate representation of professional fisherfolks; the local cooperatives or associations lacked sufficient membership to legitimise their views as the views of the majority of fisherfolks. For this reason, fisherfolk nominees on the FAC were not limited to the membership of such organisations. With the passage of the *Fisheries Regulations, No.10 of 1990*, the composition and the functioning of the FAC was elaborated. According to Section 3(2) of the Regulations, the FAC shall consist of the following:

- i) A Chairman, who shall be appointed by the Minister,
- ii) A Deputy Chairman, who shall be appointed by the Minister,
- iii) The Chief Fisheries Officer or his representative, who shall be the Secretary,
- iv) Three persons nominated by professional fishermen and appointed by the Minister to represent the views of professional fishermen, and
- v) Two other persons, one of whom shall be a woman to be appointed by the Minister.

With a membership of eight and quorum of four (including the Chairman or in his absence the Deputy Chairman and the Secretary), decisions made by the FAC was based on consensus-building (Fisheries Division 1998). It was felt that voting was counter-productive to the harmony of the Committee in the long run.

The functioning of the FAC under Section 4 of the Regulations include advising the Minister on: fisheries management and development (including review of any plan); the need for any amendment to the Act or any Regulations; any proposals for access agreements, joint venture or development projects; any initiative for regional harmonisation of fisheries regimes; coordination of the policies and activities with respect to any of the fore mentioned; conditions to be imposed and the fees to be paid for any licence under the Regulations; and any other matter the Minister may assign. Since the formation of the Committee in 1985, its greatest achievement to-date is that it successfully presided over the passage of the *Fisheries Regulations (1990)*. The work done by a Technical Advisory Committee (TAC) of the FAC, in reviewing the piece of legislation, was instrumental to its enactment. The FAC has the option of establishing, maintaining and appointing members of a TAC to advice on fisheries management and development (Fisheries Division 1998).

The FAC functioned until the 31 December 1995, when the last set of appointments expired. Over the years, there has been a lack of political will to revive the FAC despite several attempts by the Chief Fisheries Officer and various fisherfolks organisations (Cheryl Jeffrey-Appleton, Antigua and Barbuda Fisheries Division, Personal communication). The Antigua and Barbuda Fishermen's Alliance, an umbrella organisation comprised of members from various cooperatives, associations, informal groups and businesses, strongly recommended that the Government re-establishes the Committee following its General Meeting of 27th March, 2001 (Mitchell Lay, Antigua and Barbuda Fishermen's Alliance, Personal communication). This recommendation was reiterated in 2004 following a change in Government (Mitchell Lay, Antigua and Barbuda Fishermen's Alliance, Personal communication).

Despite the fore mentioned legal achievement, the FAC did not function as an effective mechanism for consultative co-management during its existence. Possible reasons for the failure of this legal space for fisherfolks to participate in decision-making include:

- i) Weak legislative mandate for the FAC existence (i.e., its establishment is *discretionary*),
- ii) The perception of patronage politics with respect to representation on the FAC (i.e., perceived political allegiance have delegitimise stakeholder representation in certain cases),
- iii) Inadequate accountability and transparency in the operations of the FAC (the FAC generally did not seek consensus from industry or provide regular feedback to stakeholders),
- iv) Inadequate accountability and transparency by fisherfolk representatives (this may be related to the fact that members are appointed in a personal capacity), and
- v) The relative low status of the FAC in relation to other government advisory bodies (this is possibly

a reflection of the status of fisheries in the overall economy and perhaps the agriculture sector).

If re-established, the FAC could function better as a mechanism for stakeholder participation if the following actions are taken:

- i) Mandatory establishment of the FAC enshrined in law,
- ii) Incorporate a provision to consult with stakeholders in the FAC legal mandate,
- iii) Transition stakeholder membership to representation by organisation as the first option for selection,
- iv) Incorporate provisions related to accountability and transparency in the FAC legal mandate, and
- v) Ensure members of the FAC are adequately trained in areas such as consensus decision-making and participatory planning to better facilitate the participatory process.

These steps could also transition the FAC towards a collaborative co-management mechanism.

In the absence of a formal and dedicated mechanism for advocacy on the part of fisherfolks since 1995, various fishfolk organisations and informal groups have filled the void in addressing critical issues that affect the sector. For example, an informal group called the Concerned Fishermen of Antigua and Barbuda was formed in 1996 in response to:

- i) Increase illegal fishing by foreign vessels (mainly vessels from Guadeloupe) in Antigua and Barbuda's waters,
- ii) The possibility that the Government may enter negotiations with France concerning the granting of fishing rights to Guadeloupean fishermen in Antigua and Barbuda's waters, and
- iii) The possible negative impact additional fishing effort would have on the status of the fishery resources and ultimately their livelihood. A petition bearing the signatures of 418 fishers (about 50% of the active fishers in Antigua and Barbuda) was sent to the Minister of Fisheries and the Honourable Prime Minister, in protest of the proposed negotiations. The Government followed the directives of the fishers and the possibility of an access agreement as the solution for illegal fishing by foreign vessels was withdrawn.

In January of 1997, members from the Concerned Fishermen of Antigua and Barbuda, the Antigua and Barbuda Fishermen's Association, the St. John's Fishermen's Co-operative, the Antigua and Barbuda Sports Fishing Association, the Antigua Commercial Fishing Divers, and various SCUBA dive shops, united under a voluntary organisation called the Antigua and Barbuda Fishermen's Alliance. Some of the main aims of the

Alliance (Lay and Price 1997) were: to represent its members and member organisations at the national level on all matters pertaining to the fishing industry of Antigua and Barbuda; to present a unified approach in all matters affecting fisheries and the livelihood of fishermen; to encourage and aid localised fishing organisations in order to achieve unity of purpose, provide support and representation at a local level; and to fully cooperate with the Fisheries Department on all fisheries matters, including conservation, resource management, fisheries policy, safety at sea, etc. Two main issues the Alliance have provided advocacy on were the dredging project for St. John's Harbour (the main seaport in Antigua) and price control on fish. The issue concerning the proposed dredging of St. John's Harbour in 2001 related to the possible negative impact dumping of dredged silt at sea would have on the marine environment, fisheries and the dive sector. The Alliance was somewhat successful in influencing the selection of the marine site for dumping by identifying important fishing grounds; originally, the Alliance lobbied for a land-based disposal of the dredge material. The Alliance also monitored the disposal process at sea (Fishermen raise concerns 2001). In terms of price control on fish, the Alliance was successful in convincing the Government that market forces should dictate the ex-vessel price for fish after the Government proposed re-introducing price control (Lay 2001). Since that time various fisherfolk organisations, such as the Antigua and Barbuda Fishermen Co-operative Society Ltd. (formerly the St. John's Fishermen Co-operative), have let market forces such as changes in fuel price dictate the ex-vessel price of fish (Consumers pay more for fish 2007). In 2012, Government entered into negotiations with the Antigua and Barbuda Fishermen Co-operative Society Ltd., in an attempt to keep the cost of seafood down given its importance to national food security. It was negotiated that the West Indian Oil Company (a company that the Government has 25% shares) would sell fuel to Co-operative members at a cost that does not include the Government's consumption tax provided that members agree to abide by fisheries policies outlined by the Fisheries Division and members' contribution to national schemes (social security, medical benefits and educational levy) were current (Barnes 2012).

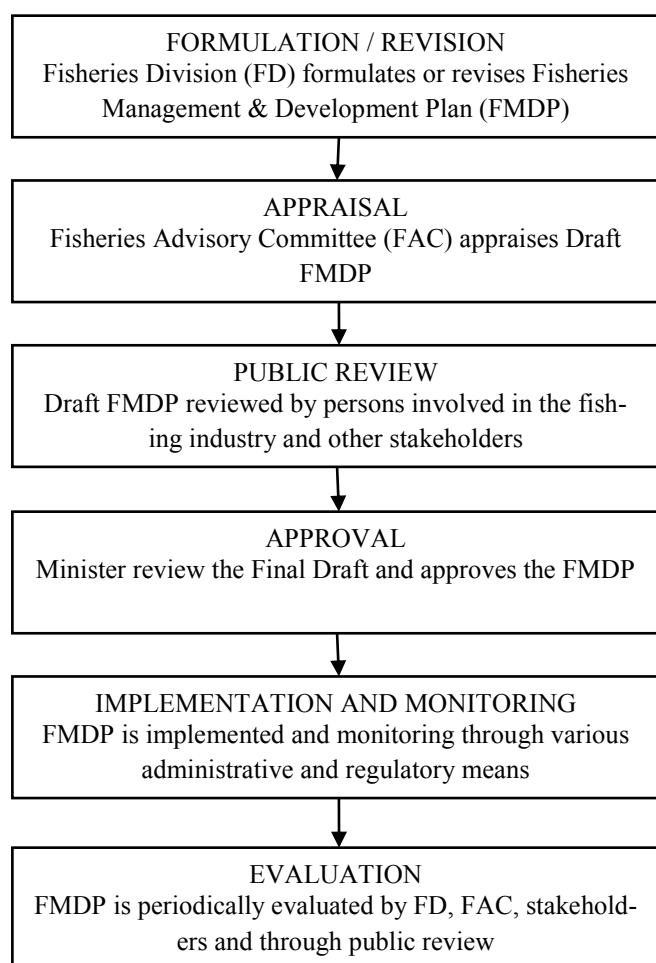
Figure 1 summarises the decision-making process with respect to fisheries management and development during the existence of the FAC. In the process, the FAC served a crucial role at the appraisal stage, prior to public review of fisheries management or development plans. The FAC was also responsible for periodic evaluation of approved fisheries management or development plans. In the absence of the FAC as a formal mechanism for stakeholder participation, the Chief Fisheries Officer was legally obligated to look at other avenues to consult with stakeholders. This ranged from town-hall meetings to annual fisheries symposiums (an annual feedback mechanism for

the department work). In 2004, the decision-making process was formally modified (Figure 2) to support the United Nations Food and Agriculture Organization (FAO) sponsored review of draft fisheries legislation. In the absence of the FAC for appraisal, fisherfolk organisations, environmental non-governmental organisations (NGOs) and other key stakeholders appraised the draft legislation (Figure 2). This process represented the first time that stakeholder participation in the process formally extended beyond that of fisherfolks, in the case of the environmental NGOs. An additional stage, final review, followed the public sessions whereby nominees from the public sessions were selected to an ad hoc fisheries focus group (Figure 2) for final review of the draft before submission to the Minister. This was considered important towards ensuring that the final draft was "balanced" and represented the views of all stakeholders through their active participation in the final review. While this process of decision-making was longer than under the FAC, it appears to be favoured more by fisherfolks and their organisations, in that input is sorted earlier in the process (at appraisal as oppose to public review), and it allowed for greater consultation at the grass-root level and within fisherfolk organisations. The process was also considered more "open" and less rigid than that of the FAC, in that nominees for the fisheries focus group came directly from the fisherfolk organisations and the general attendees at the public sessions, without the requirement of approval and appointment by the Minister. As with the FAC, decisions were based on consensus-building. The review of the draft legislation also marked the first time that the Web was used as a feedback mechanism for the wider community (i.e., both current and proposed legislation were posted on the Fisheries Division's website). In terms of the future of the current process, any re-establishment of the FAC mechanism should incorporate the best practises of the current process.

#### **Case Study (Collaborative Co-management): Fisheries Division and Conch Fishers from the South Coast of Antigua**

The queen conch (*Strombus gigas*) is considered one of the most valuable and important fishery resources in the Caribbean region. This is due to export earnings, consumption within the tourism sector, employment, and income generated from local sales. Throughout the region management measures for queen conch include minimum size restrictions, close seasons, closures, harvest quotas, gear / vessel restrictions, and limited entry. Despite these measures, fear of depleted conch resource has prompted the queen conch to be included under Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1992. Hence international trade in queen conch or parts thereof (meat, souvenir shells, etc.) are regulated by CITES and subject to the provisions of the Convention.

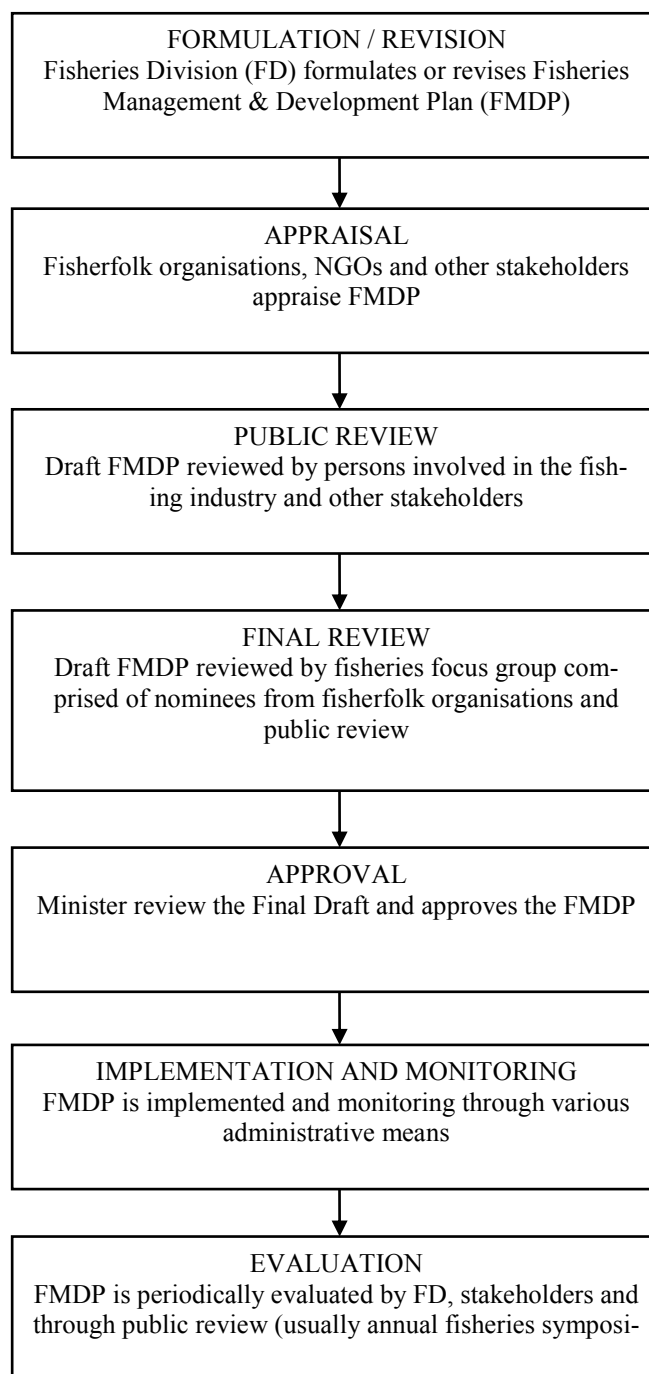
Antigua and Barbuda acceded to the Convention in 1997. The first CITES Review of Significant Trade of queen conch in 1995 resulted in a 1999 recommendation by the CITES Standing Committee to suspend imports of conch from Antigua and Barbuda, Trinidad and Tobago, Barbados, Dominica and St. Lucia (CITES 1999, Theile 2001). This was the direct result of Parties failing to respond to the recommendations of the CITES Animals Committee (basically a committee of experts that provide advice on species subject to CITES trade controls). Against this milieu, the shift towards collaborative co-management started in 1999 in an effort to improve overall governance of the conch fishery as well as fulfil CITES obligations. Originally, the governance approach was “consultative”, however as CITES obligations grew as a result of the declining status of the resource regionally, it was realised that only through collaboration could all parties (fisheries managers and conch fishers) achieve the desired goal of sustainability (in terms of resource status and international trade).



**Figure 1.** Former fisheries management and development decision-making process for Antigua and Barbuda (Fisheries Division 1998).

The need for collaboration was paramount due to:

- i) The small nature of the fishery (in 1999 the fishery supported about 40 fishers from the south coast of Antigua), and
- ii) The limited human and financial resource of the fisheries department.



**Figure 2.** Current fisheries management and development decision-making process for Antigua and Barbuda since 2004.

With CITES sanctions in effect, the collaborative process started first in the areas of:

- i) Data collection, where the majority of fishers readily provided data (catch and effort, conch biological, traditional knowledge, etc.), and
- ii) Compliance with regulations, in 1999 the noncompliance rate was 1.3% based on random sampling of conch meat from registered vessels (Horsford 2004).

Despite these improvements, the second (2001) CITES Review of Significant Trade resulted in Antigua and Barbuda listed as a range State of “possible concern” along with 12 other countries (CITES 2003); hence trade suspension for conch remained in effect.

In 2004, collaborative co-management was first achieved by consensus with a negotiated two months closed season for conch during the United Nations Food and Agriculture Organization (FAO) sponsored review of draft fisheries legislation. Initially, the Fisheries Division proposed a four-month closed season, in line with other regulations in the region, however only two months were supported due to the relative good health of the stocks (Horsford 2004) and the impact of a concurrent closed season for the Caribbean spiny lobster (the alternate target species for conch divers). Hence the draft amended Fisheries Regulations (2012), to be enacted shortly, states that the closed season shall commence from 1st July to 31st August of every year until otherwise declared by the Minister in the *Gazette*. In May 2006, the collaborative approach *bore fruit*, with CITES notifying the international trade community that Antigua and Barbuda had satisfied CITES requirements, and the trade sanctions for conch were lifted (CITES 2006).

In 2011 and 2012, the collaboration extended to include the active participation of conch fishers in fisheries research. This was in response to the rising costs associated with managing a CITES Appendix II species. The results of the two studies were presented at the 64th and 65th Gulf and Caribbean Fisheries Institute conferences and were used to guide conch management regime. The active participation of fishers in the research allowed for greater “buy-in” with respect to management decisions regarding measures such as limited entry, minimum shell lip thickness and closed season.

The shift in governance to collaborative has led to: increase understanding of management decisions; improve compliance by conch fishers; and increase effectiveness and cost efficiency of fisheries governance. For the past decade, the mean rate of compliance regarding conch size restrictions was 88% (Horsford 2010). Other factors that possibly contributed to the success of this governance approach included: the small and homogenous nature of the fishery (this reduced the likelihood of user conflicts related to gear or *insider-outsider* perception); and fishers came from communities with a history of social and

environmental activism (in 2001, residents of the Old Road Village community barricaded streets in an effort to stop the construction of a multi-million dollar tourism project that threatened a mangrove system).

The success of collaborative co-management with conch fishers has nurtured other partnerships arrangements between Fisheries Division and other fisherfolk organisations. For example, the Fisheries Division has collaborated with the Caribbean Network of Fisherfolk Organisation (CNFO) in the area of educating fishers on the FAO Code of Conduct for Responsible Fisheries and the Ecosystem Approach to Fisheries. This *fisher teaching fisher* initiative aimed at improving fisheries governance at the grass-root level was supported by FAO. The Fisheries Division is also currently in collaboration with the CNFO and FAO in the area of research, to support the assessment of the need for a national plan of action in regards to sharks (NPOA-Sharks).

#### **Case Study (Delegated Co-management): Barbuda Local Council**

The legislative framework for delegated co-management (in this case at the community level) was established in Barbuda with the passage of the *Barbuda Local Government Act of 1976*, prior to Antigua and Barbuda gaining independence from the United Kingdom in 1981. These legal provisions were maintained after independence. According to the *Barbuda Local Government Act*, the elected Council of nine members and two parliamentary representatives (one for the Upper House and one for the Lower House of Parliament) have the authority: to administer fisheries (Part V, Section 4c); and powers to make by-laws concerning fishing and fish intended for human consumption (Part V, Sections 19[1] [xxxii] and [viii]). Barbuda has a long history of community-based natural resource management dating back to the communal land rights of the *Barbuda Act of 1904*. Land in Barbuda is held in trust by the Council and subject to their by-laws, thus individuals may not hold title to any land in Barbuda. By-laws gazetted shall have full force and effect in Barbuda and shall only operate in addition to and not in derogation of any other law of Antigua and Barbuda. In term of the marine jurisdiction, the *Barbuda Shooting and Fishing By-Law of 1959* states that it extends from inland waters, creeks and lagoons in the island of Barbuda and from waters surrounding the island extending one maritime league (3 nautical miles or 5.56 km) from the shores at low water ordinary spring tide.

In Barbuda, the Council administers the local fisheries through a subcommittee comprised of representatives of the Council and other relevant stakeholders, with Barbuda Fisheries serving as the implementing arm of the Council. Major decisions concerning fisheries are made in open house sessions which may include voting if the issue is contentious. Two major issues the Council addressed in recent times include the review of the draft fisheries

legislation in 2004 and the proposed development of a Japanese-funded artisanal fisheries complex in Barbuda in 2006. In terms of the legislative review, the Council lobbied for a position on the national Fisheries Advisory Committee (FAC) as well as for the nomination of a professional fisher from Barbuda. Hence the draft amended Fisheries Regulations (2012), to be enacted shortly, states that the FAC shall comprise of: a Chairman, who shall be appointed by the Minister; a deputy Chairman, who shall be appointed by the Minister; the Chief Fisheries Officer or his representative, who shall be the Secretary; three persons nominated by professional fishers and appointed by the Minister, one of whom shall be from Barbuda; a person to be appointed by the Minister; and a person to be nominated by the Barbuda Council. If the FAC is re-established (it is still subject to the Minister's discretion), it will be the first time that the island of Barbuda has such a significant representation on the FAC (at least 25% of the membership).

In terms of the fisheries complex, the main issue had to do with the location of the facility. Originally the sites proposed by the technicians (included Fisheries Division), was for a large fish landing facility (dock and multipurpose building) located at River Wharf, outside of the main community, and a small landing facility (slipway, administration building, ice making and chill storage facilities) located in Codrington, where most individuals reside. Because Codrington, is bounded inside a lagoon with a narrow entrance that excludes large vessels and the ecological importance of the lagoon as a nursery area for fish and a breeding colony for birds, it was considered important to have facilities to accommodate larger fishing vessels elsewhere. However, after a number of town hall meetings organised by the Council in collaboration with the Fisheries Division, the general consensus of the attendees was that the entire facility should be housed in Codrington, despite the implications for large vessels. Construction of the Barbuda Fisheries Complex started in Codrington in March 2010 and the facility was formally opened in August 2011.

Van der Meerin (1998) in her assessment of management and the decision-making process in Barbuda highlighted that although open house sessions were regularly held by the Council, management decisions should involve more active consultation with the residents through a series of village meetings. She is of the view that resource management is likely to meet with most success if it has the full understanding and backing of the relevant resource users and stakeholders. Other critical issues affecting co-management in Barbuda include insufficient local technical capability and the short length of appointment of council members (under the *Barbuda Local Government Act of 1976*, every two-years four or five members of the Council is retired from office but eligible for re-election). With a resident population of only 1,810 in 2011 (Statistics Division 2012) and few individuals trained in fisheries

management or related fields, the Council is reliant on the Fisheries Division to provide additional technical expertise. The Council has been addressing the problem through attachments to build capacity as well as scholarship opportunities in the areas of fisheries and environmental management. The biennial election term of council members can impact on the continuity of policy and perhaps affect political will with respect to making difficult decisions (i.e., council member may be wary of making decisions that may affect their re-election in two years). Current Chairman of the Barbuda Council, Kelvin Punter, indicated that a biennial election term is no longer working out in the interest of the island and that a four-year term would be more suitable (Francis 2011a). He is of the opinion that two years is not enough time to complete projects you have started. Member of Parliament for Barbuda, Trevor Walker, sees the restructuring of the Council as being important towards improving its performance and highlighted that the Council was operating in the 21st century with a 1970s Act (Walker says new model needed 2011). He is of the view that 11 council members is too large a number for governing approximately 2,000 persons. Despite the fore mentioned, perhaps the most critical issue for effective delegated co-management and good governance overall, is the active participation of stakeholders. The somewhat limited participation of Barbudans in open house sessions and village meetings held by the Council is cause for concern. This is highlighted by the fact that the most contentious issue that the Council has addressed in recent times, a US\$100 million tourism project earmarked for the island's south-east coast, saw only a turnout of 300 of the 1,143 registered voters (Francis 2011b), with only 102 participating in the voting process associated with approval of the project (More controversy over proposed Barbuda project 2011). This is in contrast to the Barbuda Council election of that year when 892 residents voted (Francis 2011b), a turnout of 78%. In the case of consultation on the draft fisheries regulations in July of 2012, 30 fishers attended, despite the fact that there are 120 registered fishers in Barbuda and 25.5% of the population is directly dependent on fishing (Horsford 1999). While residents are empowered in Barbuda, if they don't exercise their rights through active participation, this power is meaningless. The challenge for the Council is getting the residents interested in governance beyond the election process.

#### **Cost Efficiency and Effectiveness of various forms of Fisheries Co-management**

Table 1 compares various forms of co-management in Antigua and Barbuda in terms of cost efficiency and effectiveness. The Barbuda Council, which has the most devolved approach to co-management and perhaps the most democratic (i.e., natives can determine the direction of management or development by indicting to the Council through show of hands), spent five times more than the

national authority on fisheries management per vessel. The cost of fisheries management per fisher in Barbuda was also eight times that of Antigua, despite having a more artisanal fishery. While management costs per vessel and per fisher were greater in Barbuda, it did not translate into higher levels of compliance with fisheries management measures, even with a more empowered citizenry. For example, the level of compliance with respect to licensing of local vessels in Barbuda was only about a third of that of Antigua (62% in Antigua as opposed to 23% in Barbuda). Under the *Barbuda Local Government Act (1976)*, the Barbuda Council has the right to raise and collect revenues to meet its expenses (this includes fees from local fishing licences and lobster exports).

Reasons for the relatively high management cost per unit in Barbuda include:

- i) The high cost of interisland travel and other expenses related to fisheries administration (i.e., certain fisheries services require oversight by the national authority),
- ii) The high cost of living as a result of the fact that all goods bear additional transportation costs (fishing inputs have to be shipped from Antigua), and
- iii) With limited local technical capability in areas such as fisheries management, services have to be sought from Antigua.

For Barbuda, enforcement of fisheries rules have been problematic due to:

- i) Individuals tend to be related (family, friend or neighbour),

- ii) Limited revenue stream for enforcement due to the small size of the community (resident population only 1,810 in 2011 (Statistics Division 2012)), and
- iii) Conflict of interest (fisheries officers and enforcement personnel are likely to have a *vested interest* in fishing or fisheries related activities).

With fishing being the highest per capita earner in Barbuda (Van der Meer 1998) and 25.5% of the population directly dependent on fishing (Horsford 1999), it is difficult to avoid a conflict of interest. These results raise further questions about the effectiveness of enforcement by stakeholders in small, close-knit communities and the impact community size has on cost efficiency (in terms of economics of scale) in a community-based co-management system.

Note in 2011, the compliance rate for local licensing in Barbuda improved to levels similar to Antigua due to external factors governing lobster exports to neighbouring French overseas territories. This was the direct result of implementing a *catch certification* programme for fishery exports (Horsford 2010); European Council Regulations (*EC 1005/2008 and EC 1010/2009*) requires all fishing products entering the European Union to be certified by the Flag State as having been caught legally. To improve compliance overall, *Antigua and Barbuda Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated fishing* was implemented in 2010 following a consultative process with stakeholders (Horsford 2010).

**Table 1.** Cost efficiency and effectiveness of various forms of fisheries co-management in Antigua and Barbuda (Fisheries Division Unpublished data, Budget Department 2012, Barbuda Council 2012). Note the cost of fisheries surveillance and enforcement by the coast guard was not included since activities covered the entire marine jurisdiction.

	Fisheries Co-management Approach	
	Consultative (exceptions include management of marine protected areas and conch fishery)	Delegated and community based
Management authority	Fisheries Division	Barbuda Council
Scope of governance	National (Antigua and Barbuda)	Local (Barbuda)
No. of active fishing vessels in 2010	357	31
No. of active fishers in 2010	894	50
Cost of fisheries management in 2010	EC\$491,030 (US\$181,863)	EC\$228,909 (US\$84,781)
Cost of fisheries management per active vessel in 2010	EC\$1,375 per vessel (US\$509 per vessel)	EC\$7,384 per vessel (US\$2,735 per vessel)
Cost of fisheries management per active fisher in 2010	EC\$549 per fisher (US\$203 per fisher)	EC\$4,578 per fisher (US\$1,696 per fisher)
Level of compliance with respect to licensing of local vessel in 2010	62.2%	22.6%



## CONCLUSION

In the review of the various forms of co-management in Antigua and Barbuda, the main lessons learned were as follows:

- i) The absence of strong fisherfolk cooperatives or associations makes it difficult for the central management authority to devolve its power or capitalise on the resources of these institutions to improve overall fisheries governance. Hence strengthening of the governance of these institutions is vital for a successful co-management system.
- ii) A general decline in community structure, community “spirit” and traditional institutions of local governance (such as village councils) has created serious challenges to the implementation of a co-management system. This is due to the fact that these traditional community structures provide the ideal nexus and foundation to support a co-management system. With the shift to centralised governance following Antigua and Barbuda gaining independence in 1981, citizens have grown accustomed to delegating their responsibilities to elected officials as oppose to being active participants in the governance process. This is illustrated by the somewhat limited participation of Barbudans in village meetings held by the local council, despite having an empowered citizenry (i.e., natives can determine the fate of contentious management or development issues by voting).
- iii) The size of a community has implications for cost efficiency (i.e., economics of scale) and effectiveness, in terms of compliance with management decisions. In the case of the conch fishers from the south coast of Antigua, cost efficiency and effectiveness of fisheries governance was improved through the active participation of the stakeholders in the governance process from research to decision-making.

In terms of future development of co-management systems in Antigua and Barbuda greater emphasis will have to be placed on fostering the critical skills required by fisheries managers and fisherfolk leaders to facilitate the co-management process. While training in the natural sciences is an important aspect of traditional fisheries management, co-management requires equivalent focus on the social sciences (including political science) since it actively seeks consensus on management decisions as well as “empower” stakeholders (Jentoft 2005). The importance of social values, interests and power, as well as the procedural aspects, such as the representation and participation of stakeholders in the fisheries management process have been highlighted by Jentoft (2006). Hence training in areas such as consensus decision-making, conflict

mediation, stakeholder identification and analysis, and participatory planning (including monitoring and evaluation) is becoming vital. Institutions such as the Centre for Resource Management and Environmental Studies (University of the West Indies) and the Caribbean Natural Resources Institute have been filling the knowledge gap in the Caribbean by training resource managers and fisherfolk leaders in these skills.

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