

Perceptions of Changes and Impacts Accompanying the Introduction of Management Planning to the Woburn/Clarke's Court Bay MPA, Grenada

Las Percepciones de los Cambios e Impactos que Acompañan a la Introducción de la Planificación de la Gestión de la Woburn/Clarke's Court Bay AMP, Granada

Perceptions des Changements et des Impacts qui Accompagnent l'Introduction de Planification de la Gestion de la MPA Woburn/Clarke's Court Bay, la Grenade

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ABSTRACT

The Woburn/Clarke's Court Bay Marine Protected Area (WCCB MPA) legally declared in 2001 was chosen as a site for MPA designation solely due to fisheries priority since the area is an important nursery area for many species given its extensive mangroves. The MPA was not actively managed and by the end of the 2000s, had changed into a multi-use area with emphasis placed on resource utilisation. The WCCB MPA is demonstrative of both competition and conflicts among a variety of stakeholders and has attracted considerable attention from environmentalists and developers. With the upcoming launch of the MPA set for early in 2013, management planning is progressing. A management plan has been prepared and budget for the first year of implementation has been developed. Other supporting initiatives such as socio-economic studies are considered supplemental to the plan. Baseline socio-economic data exist but need to be increased to guide management planning for the area. As such, through a sub-grant from the CERMES-implemented, *Socio-economic Monitoring by Caribbean Challenge MPA Managers project (CC SocMon)*, monitoring to determine perceived changes and impacts of stakeholders, particularly those related to yachting, accompanying the introduction of management planning to the WCCB MPA was initiated via key informant interviews. The data collected serve to validate information in the management plan as well as provide additional information that may be useful to inform management.

KEY WORDS: Socio-economic monitoring, Caribbean Challenge, management planning

INTRODUCTION

Socio-economic Monitoring by Caribbean Challenge MPA Managers Project

Socio-economic monitoring for coastal management in the Caribbean (SocMon Caribbean) is a globally networked, regionally adapted, practical methodology of socio-economic monitoring for coastal management. Consultation with representatives of the MPA community associated with the Caribbean Challenge Initiative indicated the need for capacity building in socio-economic monitoring for the development of an effective regional system of MPAs. This need for MPA capacity building in socio-economic assessment and monitoring has also been identified in various training needs and capacity assessments (Gombos et al. 2011, Parsram 2007). The Caribbean Challenge Initiative and regional training in SocMon provide a major opportunity for uptake of SocMon for achieving improved MPA management capacity and therefore conservation of coastal resources. With strengthened capacity for management through socio-economic monitoring, MPA managers, authorities and field staffs will also increase their capacity for adaptive management through learning-by-doing.

The Centre for Resource Management and Environmental Studies (CERMES) at the University of the West Indies, Cave Hill Campus was awarded a grant of just over USD \$68,000 by The National Fish and Wildlife Foundation (NFWF) to support Socio-economic monitoring by Caribbean Challenge MPA managers. The project's long-term conservation outcome is increased capacity for effective MPA management among Caribbean Challenge (CC) countries through the use of social and economic monitoring data in MPA decision-making. The goal of this project is to build capacity for improved and effective MPA management among Caribbean Challenge countries by promoting the use of social and economic data in MPA management.

The project involves eight MPAs across three CC countries - Grenada, St. Vincent and the Grenadines, and St. Lucia. Participating MPAs in Grenada and the Grenada Grenadines are the Molinière/Beauséjour Marine Protected Area (MBMPA) and Woburn/Clarke's Court Bay Marine Protected Area (WCCBMPA) in Grenada, and Sandy Island/Oyster Bed Marine Protected Area (SIOBMPA) in Carriacou. Each project site was awarded a sub-grant of USD \$2,500 to conduct a socio-economic assessment or monitoring programme. The project's duration was 1 September 2011 to 28 February 2013. This paper provides an overview of a socio-economic monitoring conducted at the WCCB MPA.

Situation Overview

The Woburn/Clarke's Court Bay Marine Protected Area (WCCB MPA), legally declared in 2001, was chosen as a site for MPA designation solely due to fisheries priority since the area is an important nursery area for many species given its extensive mangroves. The MPA was not actively managed following its declaration and by the end of the 2000s had changed into a multi-use area with emphasis placed on resource utilization. The WCCB MPA is demonstrative of both competition and conflicts among a variety of stakeholders and has attracted considerable attention from environmentalists and developers. (Finlay 2012). The area comprises a small fishing community at Woburn, two small islands (Hog Island and Calvigny Island), a dove sanctuary on Hog Island, mangroves, seagrass beds, and coral reefs. There are three existing marinas within the area, Whisper Cove, Clarke's Court Bay and Le Phare Bleu, with open unregulated yacht anchorage. Another marina, Roger Sponk, is being developed within the area.

With the upcoming launch (administrative and public launch) of the MPA set for 2013, management planning has been progressing. A management plan has been prepared, and budget for the first year of implementation has been developed. Other supporting initiatives such as socio-economic studies are considered supplemental to the plan. Baseline socio-economic data exist but need to be increased to guide management planning for the area. For example, in 2011, data were collected on fishers in the area to develop a stakeholder profile to inform the development of the management plan. Fishers are considered to be a major and vulnerable stakeholder group within the community with shifts in their activities expected with the official launch of the MPA.

Through a sub-grant from the CERMES-implemented, *Socio-economic Monitoring by Caribbean Challenge MPA Managers project (CC SocMon)*, monitoring to determine perceived changes and impacts of stakeholders, particularly those related to yachting, accompanying the introduction of management planning to the WCCB MPA was initiated via key informant interviews. The four objectives of the SocMon study were:

- i) To determine what changes in the WCCB area are perceived by the major stakeholder groups due to the introduction of management,
- ii) To determine whether changes are perceived as positive or negative, equitable or not, from a socio-economic perspective,
- iii) To determine the direct and indirect impacts of the yachting sector to the WCCB and identify socio-economic benefits of marinas, and
- iv) To integrate socio-economic monitoring indicators into the evaluation of management effectiveness during management planning.

The data collected serve to validate information in the management plan as well as provide additional information that may be useful to inform management.

METHODS

Following an assessment of secondary data and a reconnaissance survey, interviews were conducted with 31 key informants - seven fishermen, four marina operators, ten business owners and ten yacht anchorage/marina communities (live-aboards and visiting yachtsmen). Fourteen key informant variables were used to collect the data for this project, three of which were original SocMon Caribbean variables. Two of these were revised and adapted to collect the required data for the study. The development of eleven new variables was necessary to measure information - such as changes or impacts due to the MPA, support for MPA management, critical activities requiring management interventions, perceptions of resource conditions, perceived threats, knowledge and awareness of the MPA, business and service provision, types of interactions and best practices - specifically to address the objectives of the study. The data were analysed using simple descriptive statistics and narrative summaries were compiled.

RESULTS

An overview of results of the key informant interviews is presented under headings according to the monitoring objectives of the study. The results presented in this paper are only a selection of those obtained from the key informant interviews. Details of the results of the study may be found in the site monitoring report on the CERMES website: http://www.cavehill.uwi.edu/cermes/cc_socmon.html.

Within the text of this paper, "stakeholder group(s)" refers to informal groups of stakeholders within the WCCB communities that were interviewed.

Changes in the WCCB Area Perceived by Major Stakeholder Groups due to the Introduction of Management

Changes to coastal and marine resources — All stakeholder groups acknowledged that there would be changes to coastal and marine resources due to the introduction of management. The majority of key informant stakeholder groups expect there will be cleaner waters within the WCCB MPA after the introduction of MPA management. Fishermen, business owners, and marina operators also expect that there will be an improvement in the resources with healthier and more resilient ecosystems and the proliferation of marine life.

Key informants suggested a number of varied types of changes they would like to see in the area with the implementation of management at the WCCB MPA. The majority of the yacht anchorage/marina communities' key informants (37%) indicated that strategies for dealing with pollution, particularly rum distillery effluents and garbage, were needed. This stakeholder group would like to see the implementation of recycling and proper garbage disposal to

prevent plastics, bottles, and trash getting into the water. Zoning of the area, installation of moorings and increased availability of yachting services were all changes this group would like to see. It was suggested that these changes would result in more yachts visiting the WCCB MPA and staying for longer periods. In general 27% of this stakeholder group would like to see increased attraction of the MPA (27%) through park designation and the specific targeting of yacht owners to visit the area more frequently.

Similar to the yacht anchorage and marina communities, the overwhelming majority of marina operators (80% combined) would like to see the implementation of a recycling programme and proper garbage facilities and waste (sewage) disposal with the implementation of management in the area. In the case of the latter, marina operators would like to see regulations for yachts to have proper holding tanks to dispose of sewage.

Over half of the fishers (57%) indicated that they would like to see the introduction of effective tools for management and conservation and therefore proper management of fishery resources once management is implemented in the WCCB MPA. A fairly large proportion of this stakeholder group (29%) would like to see the zoning of yachts “to place them in another area” to fishermen. The enforcement of laws and stricter penalties is a change some fishermen would also like to see.

An increase in the development of businesses in the area, especially in the areas of car rentals and tours, is the type of change half (50%) of business owners would like to see once management is implemented in the MPA. This was followed by urban and port and harbour development (25%), increased employment (13%), and a general transformation of the community (12%).

Direct and Indirect Impacts of the Yachting Sector to the WCCB and Identification of Socio-economic Benefits of Marinas

Socio-economic importance of yachting sector to WCCB communities — All marina operators agreed that marinas are of socio-economic importance to the communities surrounding the MPA through the provision of information (e.g. presence of new marine life), employment opportunities (e.g. taxi drivers and tour operators), and provision of essential docking services, entertainment and food. All of the yacht anchorage and marina communities indicated that they regularly patronized the local WCCB communities. Fish and lobster are purchased on a weekly basis as well as fresh fruits, vegetables and ground provisions. All of the fishermen interviewed noted that the yacht anchorage community and marinas buy fish from fishers in the area. Frequency of purchasing varied from “sometimes” to “on a regular basis.”

Yachting sector dependency on services provided by WCCB communities — Only two out of the four marina operators interviewed believed that marinas rely on

services from the surrounding MPA communities. Such services include laundry, yacht supplies and equipment, and garbage collection and drinking water delivery provided by fishermen at a charge.

The types of services yachtsmen depend on from the surrounding communities are varied. The majority of these services included the laundry services (17%), yacht repair and maintenance (15%) and local transportation such as taxis and buses (15%) (Figure 1). This was further supported by most business owners (80%) who stated they provided services such as bar, restaurant, taxi and laundry services, to yacht anchorage communities and marinas. Seventy-eight percent of these business owners believe the economic relationship between businesses and yacht anchorage communities and marinas is getting stronger. For those business owners who believe this is not the case (22%), fair support for local bars and patronage of marina restaurants are provided as reasons for this.

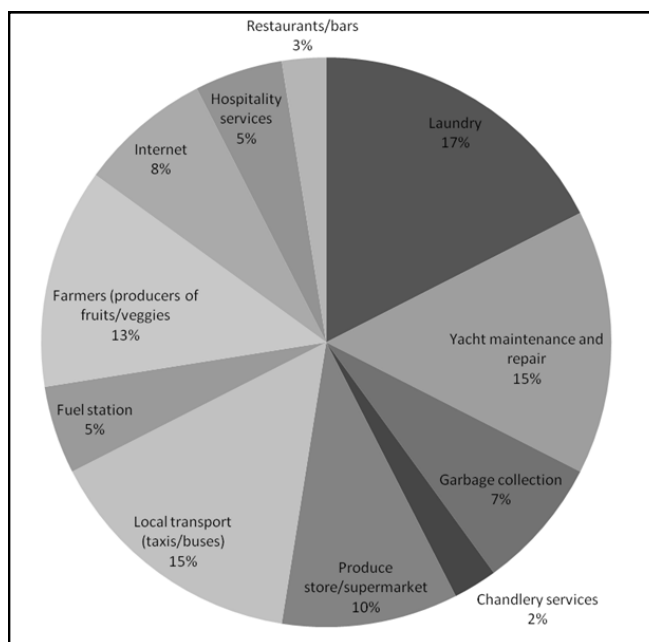


Figure 1. Types of services yachtsmen are dependent on from the WCCB communities.

The overwhelming majority (90%) of business owners interviewed stated that there have been changes in the services provided to the yacht anchorage community and marinas over the past 10 years. Increases in the number of bars, restaurants, guesthouses and cottages, and activities in the area were noted. Fifty-six percent of business owners noted the need for specific types of businesses or services in the area as a result of the yachting sector. Twenty-two percent of the key informants provided suggestions on the types of services needed which included opportunities for a mini-mart or supermarket, ice machine and fuel station for boats.

Types of services not currently available but which would be of benefit to the yachting sector — Marina operators, and the yacht anchorage and marina communities indicated there were a number of services not currently available from the surrounding MPA communities that would complement marina operation and would be beneficial to the yachting community. A supermarket/produce store and haul out were services the majority of key informants (29% in each case) from the yacht anchorage and marina communities stakeholder group believe would be beneficial to the yachting community. Key services for the removal of sewage (specifically grey and black water) and provision of fuel for yachts/fishing boats (29% in each case) as well as a supermarket (28%) were suggested by marina operators as those that would complement their marina operations.

The majority of the yachting anchorage/marina communities key informants (67%) indicated that marinas needed a yachting supply and maintenance service as it was difficult to source parts on island for yacht repair. The two other services not currently provided by marinas but which the yachting community felt would be beneficial to them included a sewage pumping station (22%) and haul out (11%).

Determination of Perceived Changes from a Socio-economic Perspective

Perceived changes that could impact stakeholder groups with implementation of management — All stakeholder groups acknowledged that there would be changes, due to the implementation of the WCCB MPA, which could impact them positively or negatively. Key informants of the yacht anchorage community speculated that they would be impacted by environmental protection of the area (40%), zoning/demarcation of the MPA (30%), increased awareness (10%), improved growth in business leading to employment opportunities (10%), and improvements in water quality of the MPA (10%). One possible change identified by a marina operator was that of increased business and benefit. With the official introduction of the WCCB MPA, one marina operator stated that one environmental change would be an improvement in water quality.

Fifty percent of the business owners who responded believe that growth and improvements in certain service areas and businesses is the main type of positive change that could impact small businesses once management is implemented in the area. Sixteen percent believe that the removal of yachts from the area due to management interventions could possibly negatively impact small businesses in the area.

Only 43% of fishers interviewed could provide suggestions on the types of changes that could affect their stakeholder group once management is implemented in the WCCB MPA. Perceived changes included the more responsible fishing practices, changes in fishers attitudes

towards fishing and the MPA, and changing fishing locations resulting in them having to go further out to fish. One fisherman believes there will not be much of a difference with the introduction of management

Power to influence changes in the MPA — All of the marina operators, fishermen and business owners interviewed believe their relevant stakeholder group has the power to influence changes in the WCCB MPA. The perception of influence over changes in the MPA were divided for key informants of the yacht anchorage community with the majority of key informants (45%) not knowing, 33% believing they do, 11% thinking they don't, and 11% feeling their stakeholder group has some power to influence changes in the MPA.

Integration of Socio-economic Monitoring Indicators into the Evaluation of Management Effectiveness during Management Planning

Agreement with and support for MPA objectives — The majority of the key informants believed that their stakeholder group would support the objectives for managing the MPA as set out in the management plan – 75% for marina operators, 77% yacht anchorage and marina communities, and 100% for both fishermen and business owners.

Changes in resource conditions — All of the key informants had observed changes in the condition of the coastal and marine resources in the WCCB area during the last five to ten years. According to 62% of the fishermen, 50% of marina operators, and some business owners (11%), there has been a decline in fish catch/scarcity of resources. A decrease in lambi (conch) was pointed out by one fisherman. Marina operators have generally also noticed a decline in wildlife. Deteriorating or dying reefs and struggling or declining mangroves have been observed over time by marina operators, fishermen and business owners.

Major threats to coastal and marine resources in the WCCB MPA — Pollution, either as effluent from the Clarke's Court Rum distillery or garbage, was the major threat to the WCCB MPA identified by all key informant stakeholder groups. This was acknowledged by all of the marina operators - 78% of the yacht anchorage community, 60% of the fishermen and 67% of the business owners. Other threats identified by smaller proportions of key informants included, anchor damage to reefs, overfishing, erosion, and a lack of monitoring/surveillance (Table 1).

Although key informants were asked to recommend ways of addressing the threats identified, only a small proportion of them provided responses. Two yacht anchorage key informants suggested the installation of moorings to reduce the impact of anchoring on reefs. In terms of addressing pollution from the rum distillery, one of these key

informants stated that drastic action needs to be taken with the company. In order to address the threats of pollution and reef damage by anchoring, one business owner suggested that yachts should either be retained in marinas or they should be zoned to a particular area in the MPA. Marina operators and fishermen provided no recommendations for addressing the threats they had identified.

Issues or activities that should be addressed by MPA management — The key informants highlighted a number of current issues or activities occurring in the MPA that they would like addressed by the introduction of management. These included overfishing/bad fishing practices, anchoring in the MPA, pollution and too many yachts in the area. For the yacht anchorage community, half of the key informants (50%) indicated that fishing, specifically within the marine protected area, and the use of fish pots within the anchoring area was a problem. The other half of this key informant group were uncertain about the issues that should be addressed with the introduction of management. The issues of interest for marina operators, were illegal anchoring of yachts in the WCCB MPA (67%) and pollution particularly from runoff from the rum distillery and the dumping of garbage (33%). Main issues for fishermen, were overfishing (33%), pollution (33%), the quantity of yachts in the area (17%), and anchorage in the MPA (17%). For business owners, pollution (43%), the number of yachts in the WCCB MPA (29%) and bad fishing practices (28%) were identified as issues they would like to see addressed by management.

Participation in WCCBMPA management planning — All of the key informants interviewed noted that there should be wide stakeholder involvement in WCCB MPA management planning and decision-making. All of the business owners, the majority of fishermen (86%) and 50% of the marina operators suggested broadly that all stakeholders should be involved whereas the yacht anchorage community and marina operators specified particular stakeholder groups. Residents/community and businesses were considered as equally important stakeholders (29% each) for involvement in management by the yacht anchorage community. Half of the marina operators indicated that businesses, NGOs and fishermen be involved. Fourteen percent of the fishermen thought that villagers and taxi drivers should be involved.

Changes in marina operation practices, yachtsmen and marina guest awareness — There have been no changes in marina operation practices due to the MPA. Marina operators apparently believe that yachtsmen and marina guests are relatively well-informed about the WCCB MPA. One operator stated however that more information is needed. Two marina operators believe that there is now more information available on the area as there has been an increase in surveys that have been conducted, the formation of a management committee (comprising representatives from fishermen, the yachting and marina communities, and local community residents), and increased frequency of committee and stakeholder meetings as well as representation on the national MPA management committee.

DISCUSSION

Types of Changes in the WCCB MPA Perceived by Major Stakeholder Groups Due to the Introduction of Management

Information on stakeholder perception of the types of changes in the condition of coastal and marine resources with the introduction of management at an MPA is important in determining stakeholder awareness of the current condition of and understanding of the importance of healthy ecosystems and coastal and marine resources as well as perceived benefits of management. If changes are perceived as positive, then the information may be used in support of the MPA and assist in the development of awareness programs. If changes are perceived as negative, then this will pose some difficulty in engaging stakeholders in management. Stakeholder perception of changes in resource conditions is also critical in identifying the resources considered by stakeholders to be most at risk and by extension the resources that they may be most dependent on. People's perceptions of changes in resource conditions with the implementation of management are also useful for developing biophysical research and monitoring programs guided by stakeholder knowledge and for measuring management effectiveness.

The stakeholder key informant groups all expect positive changes in the coastal and marine resources of the WCCB with the implementation of management at the MPA. This indicates stakeholder knowledge, and possibly confidence, that management can effect change in the area. All expectations provided by the stakeholder groups are conservation issues reflected in one of the overall objectives of the WCCB MPA, that is, conservation of all coastal ecosystems goods and services (Finlay 2012). In

Table 1. Major threats to the WCCB MPA by stakeholder group.

	Yachting community	Marina operators	Business owners	Fishermen
Pollution				
Anchor damage		X		
Erosion	X	X	X	
Overfishing	X	X		
Monitoring/surveillance	X	X		X

general, conservation of eco-assets (coastal and marine resources, spaces and ecosystems) has been identified as a management issue in the WCCB MPA management plan. The management options outlined in the management plan in response to this issue involve the adoption and implementation of a protocol of appropriate monitoring, control and surveillance measures (Finlay 2012). Monitoring programs/protocols are applicable to measuring all of the changes in resource conditions expected by stakeholders. It should be noted that the most common expected change shared among the yacht anchorage community, marina operators and fishermen was cleaner waters in the MPA. The mention of this specific change by three of the four stakeholder groups could indicate an issue that needs to be specifically addressed as a priority once management is implemented. Therefore, in addition to the cost-effective data collection program to monitor stocks and habitats within the MPA (Finlay 2012), management should implement a sustained water quality monitoring program in the MPA.

Data on the types of changes stakeholders would like to see in the WCCB MPA with the implementation of management are also critical to identifying threats to the local community, MPA resources, current coastal management problems, and issues critical for scientific study. Pollution control, in terms of the rum distillery effluents, and garbage and sewage disposal, was identified by the majority of yacht anchorage and marina operator key informants as a change they would like to see in the MPA. The data collected here is comparable to issues identified by these stakeholders in the WCCB MPA management plan. Mitigation of pollution was found to be the second most important shared stakeholder concern with regard to vested interests identified in the WCCB MPA (Finlay 2012).

As stated in the WCCBMPA management plan, all communities, including the yacht anchorage community and marina operators, have a shared interest in and need for applying economically and ecologically safe strategies for disposal of point-based sources of pollution mainly from industrial waste from the rum distillery, Grenada Distillers Ltd. However, Finlay (2012) notes that there is either an inability and/or unwillingness of the distillery to apply appropriate mitigation measures for reducing or preventing pollution impacts.

Due to the large yacht anchorage community within the MPA, the absence of any obligation to unhook and dispose of liquid and solid waste could be posing a serious pollution threat to the area (Finlay 2012). As a management response option to mitigating this type of pollution, Finlay (2012) suggests that MPA management adopt a marine liquid/solid waste pollution regime and disposal compliance control mechanism.

Effective management and conservation of the MPA, zoning of yachts, increased enforcement of rules and regulations, and stricter penalties for non-compliance are the types of changes fishermen would like to see once manage-

ment is implemented in the WCCB MPA. All of these changes were also identified in the WCCB MPA management plan as core issues for management (Finlay 2012). The majority of business owners would like to see the development of more businesses with the introduction of management at the WCCB MPA.

Direct and Indirect Impacts of the Yachting Sector to WCCB and Identification of Socio-economic Benefits of Marinas

Grenada has always been an excellent sailing destination and as such has been a favourite for yachts cruising the islands south from Martinique. Finlay (2012) notes that the lower Woburn community has been steadily solidifying an economic relationship with the offshore communities – yacht anchorage and marina – mostly as service providers and as such depend less on farming and fishing as main occupations. He further notes that, *the lower Woburn community...welcome, albeit with reservation, the new economic order*. Finlay (2012) states that over the past 10 – 15 years, the local community has become increasingly linked in terms of vested interest and in a trade relationship with the maritime community using the WCCBMPA - the local community (as the service providers) and the long-stay yacht persons (as service recipients). The marinas have the role of both service providers and recipients in some cases.

Information on interdependence between stakeholder groups, particularly the yacht anchorage and marina operators, and fishermen and business owners is beneficial in determining existing and potential economic relationships within the MPA community and strength or importance of such relationships to the local community. The information is useful for determining the potential or overall impacts of management on the local community, determining the resources under the most harvesting pressure as well as identifying dependent or vulnerable stakeholder groups.

Based on the key informant interviews, both the yacht anchorage community and marinas are of socio-economic importance to local communities in the WCCB area. Marinas provide opportunities for employment, mainly for taxi drivers and tour operators in the area. Both the yacht anchorage community and marinas regularly support local fishermen and farmers through the purchase of fish and vegetable/ground provision produce. Data on the dollar value of quantities of goods bought were not collected even though interviewers were asked to try to get a sense of this information. In addition, the yacht anchorage community depend on a number of services from local businesses. This is confirmed by Finlay (2012) who notes that the “economic and social relationships between the yacht anchorage community and landside resident community are strong and can provide greater client opportunity for local area service providers and greater supply and quality of services for service recipients.” Marina operators are not as dependent on local service providers as are the yacht anchorage community. No data on the economic value of

these services provided by local communities to these stakeholder groups was collected.

Although there is significant interdependence between stakeholder groups, the economic value of this relationship has not yet been estimated. This information is important to capture especially since business owners note that the economic relationship between the yachting sector and local businesses is getting stronger. An economic valuation of these stakeholder relationships should be conducted. With the launch of the WCCBMPA in the near future, it is more than likely that there will be an increase in yacht visitors to the area. The economic potential and benefit of the MPA to local communities and the national economy should therefore be determined to strengthen local community and national support for management of the area, and by extension other MPAs in Grenada.

As mentioned above, there has been a steady shift away from traditional to service provider livelihoods in communities surrounding the MPA. This is confirmed by the business owner key informants who note changes in the services provided to yacht anchorage and marina stakeholders in the past 10 years. Generally, there has been an increase in hospitality services offered, however, business owners believe there is a need for specific types of businesses and services offered to the yachting sector. In addition, the yacht anchorage and marina operator stakeholder groups require a number of services that would be beneficial to their sector and in turn to the local communities. Therefore, opportunities exist within local communities for the development and provision of such services. As exemplified in both this study and the WCCB MPA management plan, there is a need for the provision of liquid and solid waste disposal services to the yacht anchorage and marina communities.

With the introduction of management at the WCCBMPA, restrictions may be placed on traditional and subsistence fishing. Additionally, with the launch on the MPA in the near future, it is likely that the area will become more attractive to yacht visitors (as well as other visitors). Therefore, the need for alternative livelihood options and provision of yachting-specific services will increase. The information collected here is a useful baseline for measuring trends in livelihoods and service provision with implementation of management measures. Additionally, MPA management can use this information to lobby support for training programmes and incentives for entrepreneurial endeavours.

The marinas in the WCCB MPA provide a number of services to their visiting yacht guests and to the yacht anchorage community. However, the latter believe there are additional services that could be provided. The ECLAC (2003) report states that yachting is identified as a growing niche market within the tourism framework in Grenada; hence, there is the need for greater support facilities in the delivery of service to a growing client base. An expansion in the services offered by marinas could lead to an in-

creased attraction for the area which will lead to increases in revenue for the MPA in terms of user fees which can be channelled into conservation and management efforts. On the other hand, an expansion of services at marinas similar to those offered by local communities could result in conflicts among marina operators and local business owners. As Finlay (2012) points out, there is the potential for conflict to arise if marina clients buy services from local community businesses versus buying them from formal facilities at marinas. Cooperation between stakeholder groups to match goods and services required at marinas with those available from local communities within the area is therefore a management issue. In order to solve this issue and ensure equitable economic benefits, the application of a *small business incentive-based regime for enhancing the supply of quality goods and services by local and other small entrepreneurs* should be a management strategy of the MPA (Finlay 2012).

Determination of Whether Changes are Perceived as Positive or Negative, Equitable or not, from a Socio-economic Perspective

Generally, stakeholder groups perceive changes that will occur with the introduction of management to be mostly positive in nature with all stakeholders benefitting from management and having the power to influence changes in the MPA. With this perception of equitability in changes, benefits, and influence among stakeholders, the implementation of management at the WCCB seems to have gained buy-in from key stakeholder groups. Therefore, support for and participation in management should be high. This may be attributed to past and current efforts of the Fisheries Division in holding consultations and raising awareness about the WCCB along with the formation of the WCCB stakeholder committee for management planning. As a demonstration site for the Fisheries Division MPA programme under the Caribbean Challenge Initiative, the area has received growing attention from many externally funded projects such as CERMES-implemented MPA Governance and Caribbean Challenge SocMon projects, as well as TNCs At the Water's Edge project, among others. These projects have engaged a wide array of stakeholders and have served to raise awareness about the WCCB and its coastal and marine resources, and management of the area.

Integration of Socio-economic Monitoring Indicators into the Evaluation of Management Effectiveness during Management Planning

The evaluation of the effectiveness of MPA management is critical to determining the successes and failures of management, for learning-by-doing and therefore for adapting management. Evaluation is based on indicators or variables that measure the effectiveness of management in achieving goals and objectives that are specific to the MPA, the coastal and marine resources, the communities, and stakeholders. Generally, the indicators or variables

measure the outputs and outcomes of MPA management. These represent tangible benefits associated with the MPA. Learning from the results of the indicators or variables can help to improve MPA management and secure resources and support (funding, stakeholder support etc.). It has been recognised that MPA managers need to be more systematic in using MPAs to improve conservation learning and create a set of best management practices. It is generally agreed among conservation practitioners that the evaluation of MPA management effectiveness will improve MPA practice (Pomeroy et al. 2004).

This monitoring objective of integrating socio-economic monitoring indicators or variables into the evaluation of management effectiveness during management planning is particularly relevant to another of the overall objectives for the WCCB MPA, that of applying lessons learned and best practices (Finlay 2012). The data collected for this objective of site monitoring at the WCCB provide a baseline for comparison of stakeholder awareness, perceptions and support for the MPA, and its management pre- and post-implementation of management at the MPA.

RECOMMENDATIONS FOR MONITORING AND ADAPTIVE MANAGEMENT

With the exception of focus group meetings with, and some surveys of, key stakeholders during the development of the management plan for the WCCB MPA, this study has been the first detailed socio-economic assessment of key stakeholders in the WCCB area. This Caribbean Challenge SocMon project has provided valuable insight into stakeholder perceptions of changes and impacts that may accompany the introduction of management at the WCCBMPA. Although the management plan provides basic one-year plans of action according to specific strategic objectives for management, it fails to include the need for socio-economic monitoring for adaptive management and how the latter would happen (e.g. institutions set up for learning and experimenting with changes). The WCCB MPA should include socio-economic monitoring and the adoption of the SocMon Caribbean methodology which could be included in any research, monitoring and evaluation framework developed for the MPA. Such monitoring will allow the examination and determination of, among other things, stakeholder attitudes and perceptions, stakeholder awareness and participation in management and socio-economic conditions within the MPA in order to inform and adapt management. New SocMon variables have been developed specifically for this study and can be used with other SocMon variables to build a core of socio-economic variables that can be regularly measured and monitored.

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