

Socio-economic Monitoring by Caribbean Challenge MPA Managers
Report No. 8

Perceptions of changes and impacts accompanying the introduction of management planning to the Woburn/Clarke's Court Bay MPA, Grenada

SHAWNALY PASCAL¹, MARIA PENA² AND KATHERINE BLACKMAN²

¹Woburn, Grenada

²CERMES, The University of the West Indies, Barbados



Centre for Resource Management and Environment Studies (CERMES)
University of the West Indies, Faculty of Pure and Applied Sciences
Cave Hill Campus Barbados
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Contact

Maria Pena
Centre for Resource Management and Environmental Studies
University of the West Indies, Cave Hill Campus, Barbados
Phone: (246) 417-4727 Fax: (246) 424-4204
Email: maria.pena@cavehill.uwi.edu
Web site: <http://www.cavehill.uwi.edu/cermes>

1 INTRODUCTION

1.1 Socio-economic Monitoring by Caribbean Challenge MPA Managers

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 (Bunce et al. 2000, Bunce and Pomeroy 2003). Consultation with representatives of the MPA community associated with the Caribbean Challenge Initiative¹ 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 (Parsram 2007, Gombos et al. 2011). 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 63,000 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 by:

- Training approximately 40 MPA managers/staff, from three Caribbean Challenge countries, in the practical use of SocMon Caribbean methods via three country-specific workshops
- Initiation of eight site assessment and monitoring programs for coastal management in each of the countries receiving the training via a small grant of USD 2,500
- Documentation of training and monitoring initiation processes, to make them available to a worldwide audience and CERMES communications for replication, with improvement, in future rounds of SocMon activity
- Submission of compatible data to the Reef Base Socio-Economic global database and CaMPAM database

The project involves eight MPAs across three CC countries - Grenada, St. Vincent and the Grenadines, and St. Lucia. Participating MPAs in Grenada are the Woburn/Clarke's Court Bay MPA (WCCB MPA),

¹ (<http://www.nature.org/ourinitiatives/regions/caribbean/caribbean-challenge.xml>)

Molinière-Beauséjour MPA (MBMPA) and Sandy Island/Oyster Bed MPA (SIOBMPA). This report presents project activities and results of socio-economic monitoring conducted at the WCCB MPA.

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

1.3 Goal and objectives

The project goal and objectives of site monitoring at the Woburn/Clarke's Court Bay MPA are provided below.

Goal: To determine the changes and impacts, particularly those related to yachting, that accompany the introduction of management planning to the WCCBMPA.

Objectives:

1. To determine what changes in the WCCB area are perceived by the major stakeholder groups due to the introduction of management.

2. To determine whether changes are perceived as positive or negative, equitable or not, from a socio-economic perspective.
3. To determine the direct and indirect impacts of the yachting sector to the WCCB and identify socio-economic benefits of marinas.
4. To integrate socio-economic monitoring indicators into the evaluation of management effectiveness during management planning.

1.4 Organization of report

This report is divided into five sections. Section 1 provides a description of the SocMon Caribbean Challenge project, situation overview of the MBMPA and the goals and objectives for monitoring. Section 2 outlines the methods used for gathering the data. The results are provided in Section 3. Discussions and conclusions are in Section 4. The report ends with Section 5, which contains recommendations for monitoring and adaptive management.

2 METHODS

2.1 SocMon training

Twelve participants from the three participating MPAs (WCCB MPA, MBMPA and SIOB MPA), the Fisheries Division, Ministry of Agriculture, Woburn/Woodlands Development Organisation, Royal Grenada Police Force, North West Development Authority Incorporated (NWDAl) and Ministry of Carriacou and Petit Martinique Affairs (MOCAPA), were trained in the SocMon Caribbean methodology via a 5-day training workshop, 6-10 February 2012 at the Grenada Fisheries Division, Melville Street, St. George's. The Woburn/Clarke's Court Bay MPA was used as the demonstration site for the duration of the workshop (Pena and Blackman 2012).

2.2 Preparatory activities

After the training workshop, a SocMon team was developed to plan and conduct the field work for the project (see section 2.3). Preparatory activities are listed in Table 1.

Table 1 SocMon preparatory activities

Activity	What was done
Planning for site monitoring	<ul style="list-style-type: none"> • SocMon team formation • Preparation of site monitoring proposal – determination of monitoring goals and objectives, identification of stakeholders, SocMon budget etc. • Identification of key informants • Purchase of materials for data collection (stationery, equipment etc.)
Secondary data assessment	
Scoping of the study area	<ul style="list-style-type: none"> • Informal meeting with stakeholders • Notification of key informants about upcoming interviews
Key informant interviews	<ul style="list-style-type: none"> • Design of key informant interview guides • Pre-testing of key informant interview

Key informant interview guides were designed to collect the relevant data from four main stakeholder groups -fishermen, business owners, marina operators and yachting anchorage/marina communities - within the study area (Appendices 1 to 4). The interview guides were designed by the CERMES team and reviewed by the WCCBMPA SocMon team. Fourteen key informant variables were used to collect the data for this project, three of which were original SocMon Caribbean variables (Bunce and Pomeroy 2003). Of these three original variables, two were revised and adapted to collect data relevant to the objectives of the project. The development of eleven new variables was necessary to measure and capture additional data such as MPA changes and impacts, management support, activities for management intervention, perception of resource conditions, perceived threats, perceived changes in activities and uses, perceived MPA benefits, MPA knowledge and awareness, business and service provision, types of interactions, best practices (Appendix 5).

2.3 SocMon team

The SocMon team comprised Shawnaly Pascal, Chris Alleyne and Steve Nimrod. Ms. Pascal was SocMon team leader responsible for coordination of the study, data collection, data analysis and reporting. Mr. Alleyne assisted with data collection, particularly associated with the marina sector and Mr. Nimrod assisted with editing and reviewing the key informant interviews.

2.4 Key informants

A total of 31 key informants - seven fishermen, four marina operators, ten business owners and ten yacht anchorage/marina communities - were interviewed by the SocMon team during October and December 2012.

2.5 Data entry and analysis

The data from the key informant interviews were entered into an Excel spreadsheet, analysed and narrative summaries of responses were developed. Charts were produced where possible. The Excel datasheet was sent to Maria Pena, Caribbean Challenge SocMon project manager for further review and analysis.

3 RESULTS

The results of the study are presented under headings according to the monitoring objectives.

3.1 Changes in the WCCB area perceived by major stakeholder groups due to the introduction of management

3.1.1 Changes to coastal and marine resources

All stakeholder groups acknowledged there would be changes to coastal and marine resources due to the introduction of management (Table 2).The majority of key informant stakeholder groups expect there will be cleaner waters within the WCCBMPA after the introduction of MPA management. Fishermen, business owners and marina operators also expect there will be an improvement in the resources with healthier and more resilient ecosystems and the proliferation of marine life.

Only the yacht anchorage/marina communities and marina operators provided their expectations for changes in resource use and activities after management implementation. Business owners and fishers either did not answer the question or their responses were not applicable to this question. Specific expectations were provided by each of the stakeholders, with only one expected change in common among them. Most of the expected changes in resource use and activities in the area were provided by the yacht anchorage/marina communities (Table 3).

Table 2 Expected changes to WCCBMPA coastal and marine resources after introduction of MPA management

Resource changes	Yacht anchorage and marina communities	Marina operators	Businesses	Fishermen
Improvement of resources	-	-	●	-
Reduction in coral bleaching	-	-	●	-
Healthy and resilient ecosystem	-	-	-	●
Cleaner waters	●	●	-	●
Proliferation of marine life	-	●	-	-

● = yes

Table 3 Expected changes in resource use and activities in the WCCBMPA after introduction of management

Resource use and activity changes	Yacht anchorage and marina communities	Marina operators
Restricted fishing*	●	●
Proper waste management	-	●
Introduction of dive tours & walking trails	●	-
Mooring installation	●	-
Yacht fee system (to support area protection)	●	-
Educational material on flora and fauna	●	-
Visitation rights for yachters	●	-

* restricted fishing (in space).

● = yes

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 (Figure 1). The majority of the yacht

anchorage/marina communities key informants (37%) indicated that strategies for dealing with pollution, particularly 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 and waste (sewage) facilities with the implementation of management in the area. With respect to the latter, even though marinas offer services for sewage disposal, yachtsmen are not making use of these available services, instead they choose to anchor in open water. Marina operators would like to see yachts have proper holding tanks to dispose of their waste.

Over half of the fishers (57%) indicated 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. In this regard, one fisherman noted that he hoped for effective management and “not just talk, talk and no action.” 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%).

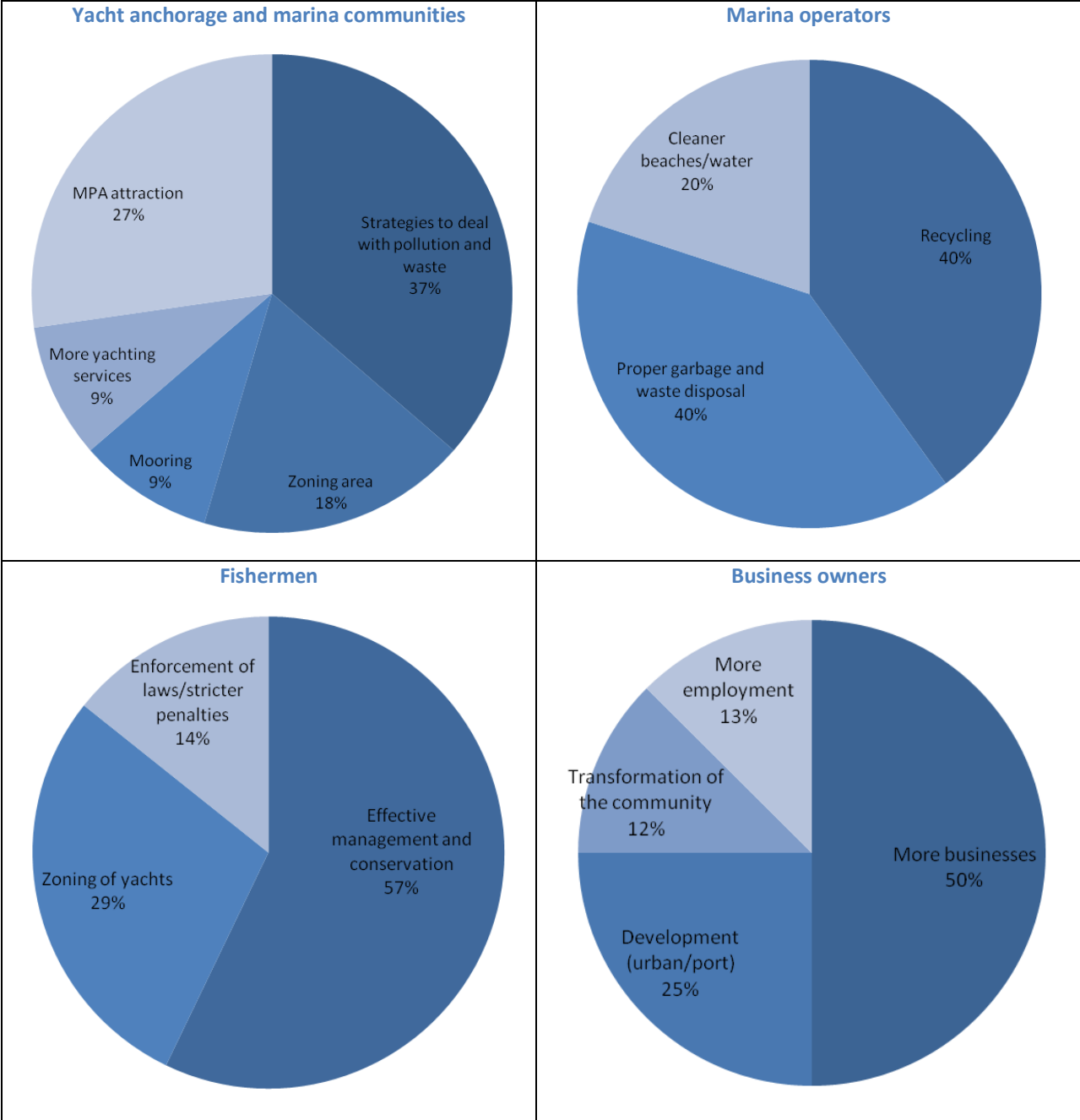


Figure 1 Changes stakeholders would like to see with the implementation of management at the WCCBMPA

3.2 Direct and indirect impacts of the yachting sector to the WCCB and identification of socio-economic benefits of marinas

3.2.1 Interdependence between and among stakeholder groups and WCCB communities

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/monitoring 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 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.” One key informant noted the types of marine resources purchased by these stakeholder groups are local fish, lobster and lambie (conch). The majority of the fishers (86%) indicated that fishermen of different types and ages interacted the same way with yachting communities/marinas.

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 laundry services (17%), yacht repair and maintenance (15%) and local transportation such as taxis and buses (15%). See Figure 2. This was further supported by most business owners (80%) who stated they provided services such as bar, restaurant, taxi and laundry services, to the 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 case (22%), fair support for local bars and patronage of marina restaurants are provided as reasons for this.

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. The quantity and quality of services have improved. 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. Of the business owners who believe there is no need for specific types of businesses in the area targeting the

yachting sector, only one provided a reason for this response which seemed to indicate a reluctance for additional competition – “because I have my bar and restaurant operating.”

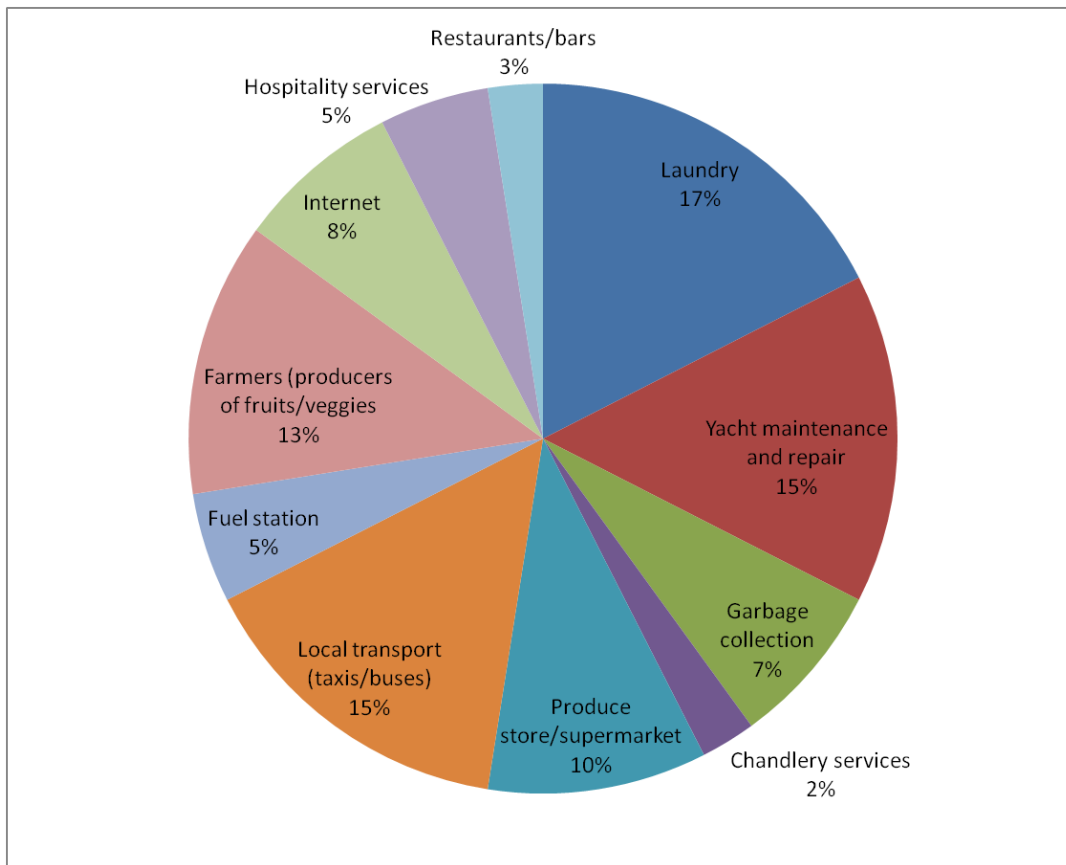


Figure 2 Types of services yachtsmen are dependent on from the WCCB communities

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. Table 4 illustrates the types of services thought to be needed, as indicated by each stakeholder group. 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 (Figure 3).

Table 4 Services not available in communities surrounding WCCB MPA

Services needed	Yacht anchorage and marina communities	Marina operators
Chandlery	●	-
Supermarket/produce store	●	●
Haul out	●	●
Effective garbage collection	●	-
Sewage disposal (grey and black water)	●	●
Fuel provision for yachts/fishing boats	-	●

● = yes

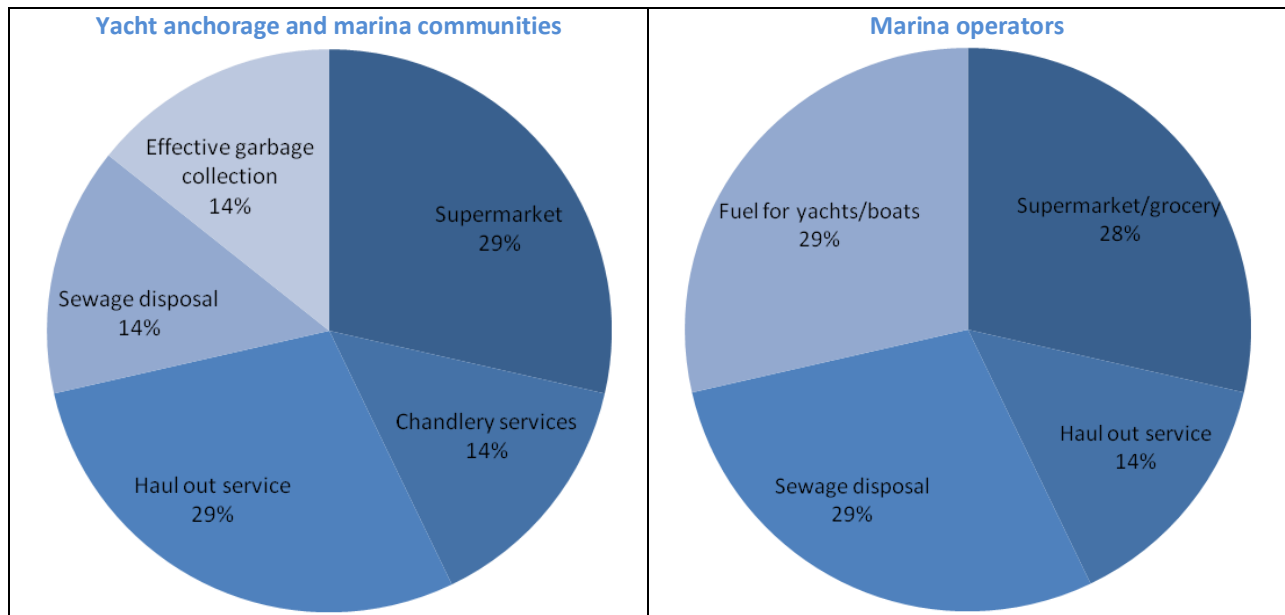


Figure 3 Services currently unavailable from surrounding WCCB communities but thought to be required

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. One key informant noted there was definitely the need for “a better network to source parts to service engines and a machinery shop” for repairs. Another key informant suggested there was a need for the expansion of services offered by Island Water World and Budget Marine. 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%).

3.2.2 Perceived impacts of marinas and the yacht anchorage community on the WCCB MPA

Although all of the marina operators interviewed were aware that marinas have positive and negative impacts on the WCCB MPA, only one individual was able to provide a positive impact – the collection of

trash from yachts. All marina operators stated they have best operating practices/guidelines in place based on globally recognized standards. These include the prohibition of dumping of solid and liquid wastes (e.g. black water and oil lubricants) and spear fishing within the MPA.

Only 28% of fishermen were able to provide information on the types of effects, specific to fishing, the yacht anchorage community and marinas have on the MPA. One individual indicated anchor damage to reefs due to prolonged yacht stays, while another indicated overfishing as effects on the MPA.

Eighty-three percent of business owners realize that the yacht anchorage community and marinas have both positive and negative effects on the MPA. Two key informants noted positive financial benefits to the MPA (administration) and by extension the government through user fees, taxes and licenses, and to local businesses in the surrounding communities through increased support for small businesses.

3.3 Determination of perceived changes from a socio-economic perspective

3.3.1 Support for co-management

All key informants believe that members of each of their stakeholder groups would be supportive of co-management of the WCCB MPA. The yacht anchorage community would support this type of management once the aim of co-management was known and information is provided to allow for participation. Marina operators would be supportive of a co-management arrangement since they believe it will lead to better, more effective and appropriate communication among co-management parties (marinas, businesses, government agencies etc.). Business owners will be supportive of co-management of the WCCB MPA once it is organised properly with accountability and control of resources, and provided it is beneficial to the community.

3.3.2 Perceived changes that could impact stakeholder groups with implementation of management

All stakeholder groups acknowledged there would be changes, due to the implementation of the WCCB MPA, which could impact them positively or negatively. Of all the stakeholder groups, the yacht anchorage community suggested the greatest number and types of changes. Key informants in this group 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.

Of those business owners who provided responses, 50% also 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 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 introduction of effective fishing practices and methods, 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.

3.3.3 Beneficiaries of MPA management

The perceived beneficiaries of the implementation of the WCCB MPA varied; however all key informants indicated that everyone would benefit. In the case of fishermen, 100% of those interviewed believe this to be the case (Figure 4; Table 5). In addition, some believed more specifically, that the tourism sector, adjacent communities, resource users, farmers and the business community would benefit from the introduction of MPA management.

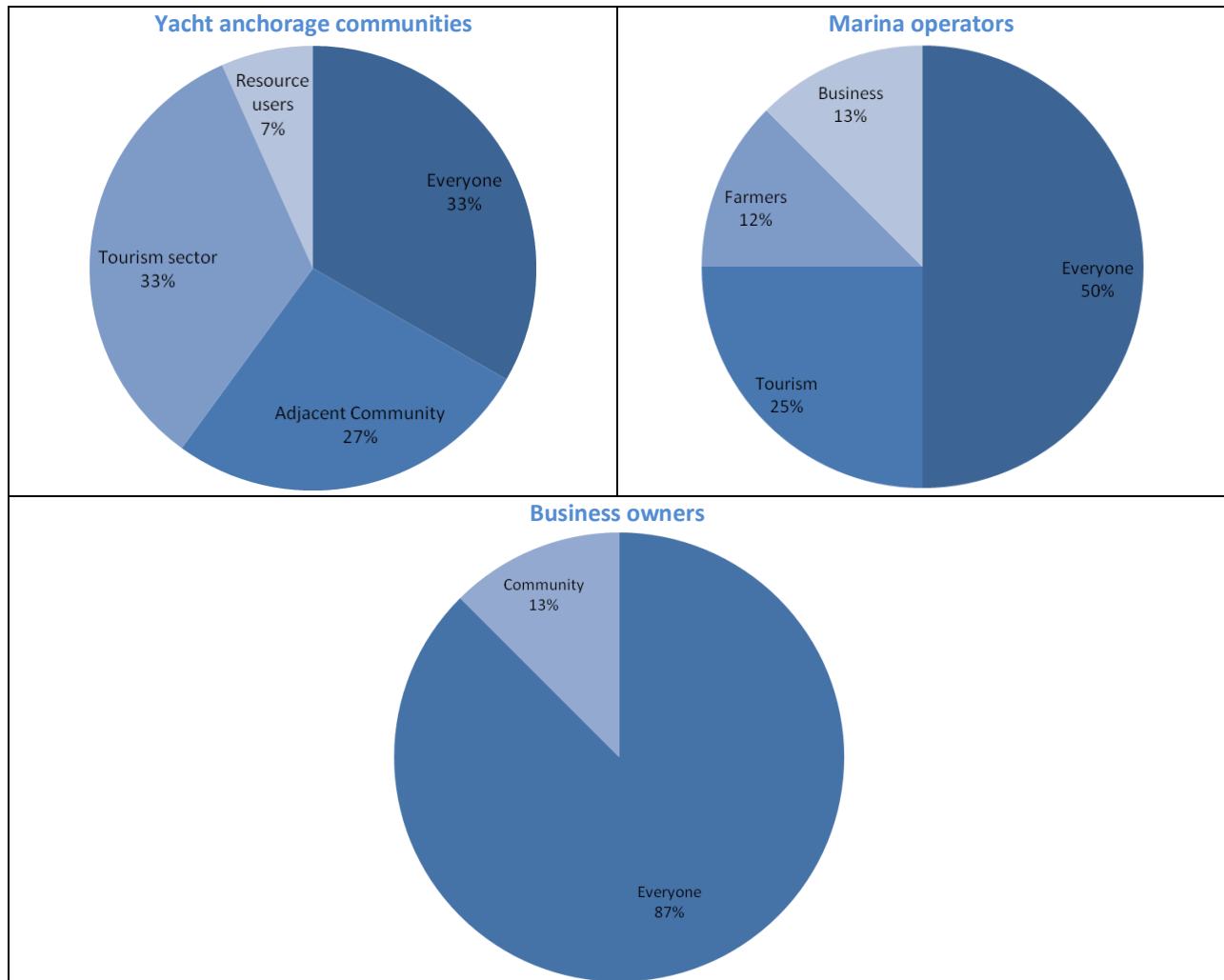


Figure 4 Perceived beneficiaries of MPA management

Table 5 Perceived stakeholder beneficiaries of MPA management

	Yachting anchorage/marina	Marina operators	Business owners	Fishermen
Everyone	●	●	●	●
Tourism sector	●	●	-	-
Business sector	-	●	-	-
Farmers	-	●	-	-
Community	●	-	●	-
Resource users	●	-	-	-

● = yes

For yacht anchorage communities and marina operators, “everyone” extends to the entire country of Grenada. Even though the majority of fishermen indicated that everyone would benefit from the introduction of management to the WCCB MPA, one individual believes even though all stakeholders will benefit, business people stand to profit more through the services offered.

3.3.4 Power to influence changes in the MPA

All of the marina operators, fishermen and business owners interviewed believe their relevant stakeholder group (informal groups) has the power to influence changes in the WCCB MPA. Two marina operators stated this would be achieved through cooperation – “working together with the management and community to address the problem.” One fishermen noted that his stakeholder group has the power to influence changes in the MPA through levels of support. Two business operators believe their stakeholder group can influence changes “if they get an opportunity” and “through education and awareness.”

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 (Figure 5).

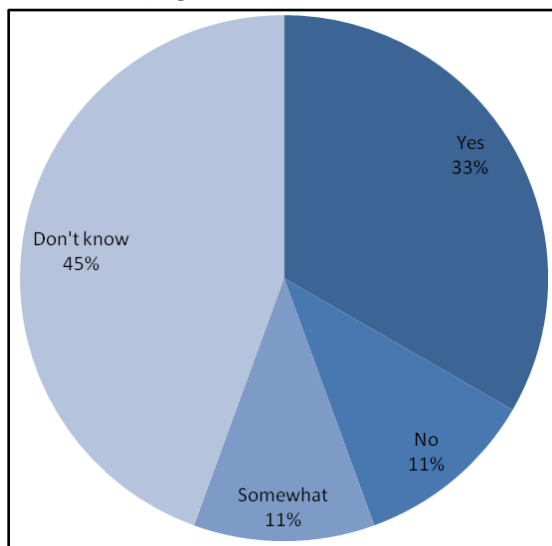


Figure 5 Perception of the power of influence by the yachting community

3.4 Integration of socio-economic monitoring indicators into the evaluation of management effectiveness during management planning

3.4.1 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; 100% for both fishermen and business owners. Twenty-five percent of marina operators believe that this stakeholder group would possibly agree with and support the objectives of the MPA once they are implemented effectively. A small portion (11%) of key informants from the yacht anchorage and marine communities group believe this stakeholder group would not agree with and support the management objectives. No reason was provided for this response. The remaining 11% of the group did not answer the question.

Information on the management objectives that each stakeholder group might support more than others was poor. One fisherman believes that his stakeholder group would support the objective of involvement in MPA planning more. One business owner believes that members of his stakeholder group would most like give more support to the education and awareness objective, while another believes all of the objectives would be supported.

3.4.2 Perception of the main purposes of the MPA

Each group of key informants had different perceptions of what they believe the purposes of the WCCB MPA should be. The importance of the protection and conservation of marine resources and coastal ecosystems was emphasized when key informants were asked to provide additional objectives for managing the WCCB MPA. Marina operators stated that the purpose of WCCB MPA should also include increasing better quality of water, provision of assistance to their stakeholder group, ensuring that yachtsmen comply with laws and implement proper garbage and sewage disposal. One of the yachting anchorage key informants stated that collaboration (in management) should be included and that an objective related to speeding was required. Of the business owners, 80% perceived that the purpose of the MPA should be to encourage public participation and 20% thought the main purposes of the MPA should be beneficial to locals and tourism. The majority of fishers (67%) indicated that joint effort/participation in decision-making (through formation of a co-operative) should be the objective of MPA. Other fishers stated that other objectives should encompass utilization the resources for community building (17%) and community-based management (16%).

3.4.3 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 (Table 6). All of the fishermen and business owners interviewed indicated there had been noticeable changes in resource conditions over time. This is comparison to only 25% and 50%, respectively, of the yacht anchorage community and marina operator key informants had noticed changes. Seventy-five percent of the yacht anchorage key informants did not know if there had been any observable changes. One key informant in this group stated there had been changes in the condition of resources in the MPA but did not elaborate on the types of changes.

The remaining half of the marina operators either had not been around the area for long enough or did not provide an applicable response.

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 (Table 6).

Table 6 Types of changes in coastal and marine resources observed by key informants over time

	Marina operators	Fishermen	Business owner
Deteriorating reefs	-	●	●
Declining fish catch/resources	●	●	●
Struggling/declining mangroves	●	-	●
Less wildlife	●	-	-

● = yes

3.4.4 Major threats to coastal and marine resources in the WCCB MPA

Pollution, either as effluent from the Clarke’s Court 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. Anchor damage to reefs was recognized as a threat to reefs in the WCCB by the yacht anchorage community (22%), business owners (11%) and fishermen (10%). Similar proportions of business owners (11%) and fishermen (10%) cited overfishing as a threat. Erosion and a lack of monitoring, surveillance and security were individually identified by 20% of fishermen and 11% of business owners respectively, as threats to coastal and marine resources of the MPA (Table 7).

Table 7 Major threats to the WCCB MPA

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

● = yes

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.

3.5 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 (Figure 6). 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 (45%) indicated that fishing, specifically within the marine protected area and the use of fish pots within the anchoring area was a problem. Forty-four percent of this key informant group were uncertain about the issues that should be addressed with the introduction of management, while 11% wanted notice prior to garbage collection. The issues of interest to 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 (25%), pollution (25%), the quantity of yachts in the area (13%), anchorage in the MPA (13%), the need for training, a fishing shed and co-operative (12%) and better conservation methods (12%). For business owners, pollution (30%), the number of yachts in the WCCB MPA (20%), bad fishing practices (20%), the need for fee control for yachts (to prevent high fees which could impact on business; 10%), stricter laws (10%) and more public awareness (10%) were identified as issues they would like to see addressed by management.

3.5.1 Participation in WCCBMPA management planning

Only a minority of the yacht anchorage community (11%) were knowledgeable of participation of their stakeholder group in WCCB MPA management planning and decision-making. Only 22% stated this group did not participate in management while the majority, 67% did not know if there was participation. Of the 11% who stated the yacht anchorage community participates in management and decision-making in the MPA, no information was provided on the ways in which they participate. On the other hand, three-quarters (75%) of the marina operators interviewed stated that marinas participate in WCCB MPA management planning. One key informant noted they were on the “team” (WCCB MPA management committee) for the MPA. The majority of business owners (86%) also stated that their stakeholder group participates in WCCB MPA management planning and decision-making with one key informant noting that the group is represented on the committee. Due to an error in the design of the key informant interview, fishermen were not asked if their stakeholder group participates in management planning and decision-making of the MPA but rather if fishermen would be willing to participate in such. All key informants within this group responded in the positive with one fisherman stating, the “local community must participate.” No clues as to how this should happen were given. It

should be noted that in November 2012, a management committee for the MPA was formed comprising representatives from various stakeholder groups – fishermen, yachting community and local community residents.

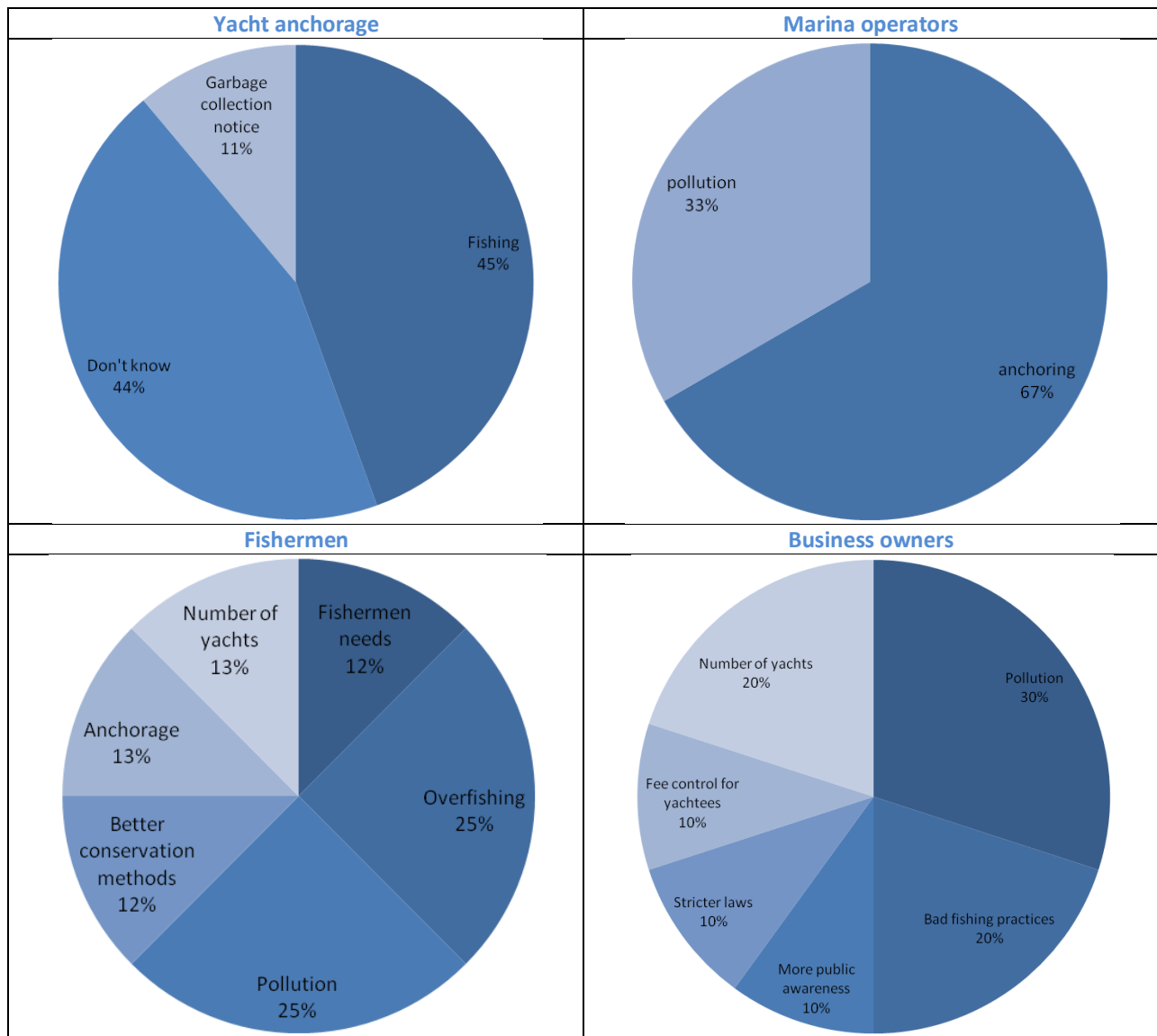


Figure 6 Current issues or activities stakeholders would like addressed with the introduction of management

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 (Figure 7). 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.

None of the key informants interviewed provided insight on ways in which the stakeholders should be involved in the management planning and decision-making processes in order to get useful inputs from each group.

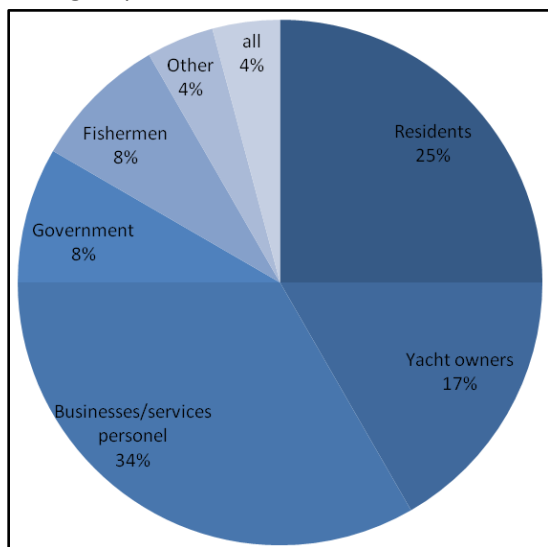


Figure 7 Yacht anchorage community's perception of who should be involved in MPA management planning and decision-making

3.6 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 introduction of the local WCCB MPA management committee and increased frequency of MPA management committee and stakeholder meetings as well as representation on the national committee.

4 DISCUSSION AND CONCLUSIONS

4.1 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 persons perceive positive changes in resource condition, species abundance etc., with the introduction of management over the long term, then this information may be used in support of the MPA. The information is also critical for

developing awareness programs. If stakeholders do not consider there will be positive changes in the health and condition of resources and ecosystems it will be difficult to engage them 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 (Bunce and Pomeroy 2003; Pomeroy et al. 2004).

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 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 – increases in species abundance, changes in species distribution, reduction in coral bleaching, cleaner waters etc. 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.

Information on the types of changes in resource uses expected once management is implemented can be useful for determining stakeholder understanding of management measures, understanding how management measures may impact resource users as well as determining areas that may be of issue to specific stakeholder groups (Bunce and Pomeroy 2003). In the case of the latter, restricted fishing for example was highlighted by both the yacht anchorage and marina operator key informants as a change in the use in the area they expect will occur once management is implemented. However, this seemed to have been suggested as a means of allowing for ease of navigation of yachts in the area (navigation channel), rather than as a means of conservation in the MPA. All of the changes in resource uses relate to the sustainable utilization of the eco-assets of the WCCBMPA for satisfaction of human needs and conservation. This again relates to another overall objective of the MPA and was identified as a management issue that should be addressed by monitoring, control and surveillance measures (Finlay 2012).

Generally, information on expected changes in resource use was provided only by the yacht anchorage community and marina operators. Business operators and fishermen either did not answer the question or confused this question with that of expected changes in resource conditions. Therefore lack of

information on changes in resource use may be attributed to question ambiguity or may indicate a lack of awareness among these stakeholders of the types of changes in resource use that could result from implemented management measures.

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 (Bunce and Pomeroy 2003). Pollution control, in terms of the Grenada Distilleries Ltd. 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 are 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 WCCB MPA 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 distillery. However, Finlay (2012) notes that there is either an inability and/or unwillingness of the sugar factory 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. In terms of disposal of liquid and solid waste, Finlay (2012) notes there is an opportunity for the yacht anchorage community and marina operators to buy services for liquid waste/grey water and solid waste disposal from land-based service providers. Additionally there is interest among the yacht anchorage community and marina operators in a reliable garbage/solid waste disposal facility in the local area and it has been noted that individual vessel owners are interested in using the service (Finlay 2012).

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 management 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.

4.2 Direct and indirect impacts of the yachting sector to WCCB and identification of socio-economic benefits of marinas

4.2.1 Interdependence between stakeholder groups

Grenada has always been an excellent sailing destination and as such has been a favourite for yachts cruising the islands south from Martinique. In 2001, yacht arrivals for Grenada, inclusive of Carriacou, were estimated at 5,610. Although the yachting sector contributes significantly to the local Grenadian economy, insufficient data are collected by government to accurately assess the impact and contribution to government revenue and employment (ECLAC 2003). However, based on certain assumptions outlined in ECLAC (2003) the direct revenue from the yachting sector was estimated at just over XCD 36,000 (USD 13,000). In addition to visiting yacht persons who stay for an average of 21 days, there is a local live-aboard community that continues to grow (ECLAC 2003). 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 WCCB MPA - 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 economic 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 WCCB MPA 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 WCC 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 fishing². Additionally, with the launch of 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 increased 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

²There will be limited livelihood impacts on fishers at the commercial level since the WCCB is not a commercial fishing site (Isaac et al. 2012)

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).

4.2.2 Marina and yacht anchorage community impacts on the WCCBMPA

The environmental impacts of marinas and the yacht anchorage community on ecosystems can be numerous ranging from pollution to anchor damage. Information on perceived stakeholder impacts, both positive and negative, on coastal and marine resources of the MPA and on each other is useful for identifying benefits and threats of stakeholders to each other and to the coastal and marine resources of the MPA. Local knowledge, particularly about threats to resources and stakeholder groups can help guide a scientific agenda, particularly in areas where scientific data is lacking, by identifying priority management focal areas (Pomeroy et al. 2004). By monitoring this information over time management impact on stakeholder activities can be measured. Additionally, the information is critical for developing awareness programs and encouraging stakeholder participation. For example, if stakeholders either do not believe certain stakeholder groups are impacting the MPA resources or each other, it will be difficult to engage them in management of the area. Further if stakeholders cite limited impacts but research shows several other impacts, an awareness program may need to be implemented to increase the understanding of stakeholder impacts on resources and other stakeholder groups.

Awareness among fishermen on impacts, specific to fishing, of marinas and the yacht anchorage community is low. Only two individuals out of seven noted negative impacts specific to anchor damage to coral reefs and overfishing. In terms of the impact of anchor damage, this has been identified by various user groups as an issue of concern during the development of the WCCB MPA management plan. As a response to this issue, it has been recommended that MPA management employ zoning for anchorages and moorings for the placement of vessels (Finlay 2012). With respect to the issue of overfishing by marinas and the yacht anchorage community, this seems to be a new concern that should be investigated by MPA management in order to prevent user conflicts that may arise. Due to the poor response rate to this question on impacts, MPA management should focus education efforts on fishers to improve their understanding of the yachting sector and its impacts, and the effects that management can have on reducing or preventing such impacts.

There was a very high awareness among business operators who recognize the positive and negative effects marinas and the yacht anchorage community can have on the WCCB MPA. The positive financial impacts were identified by this stakeholder group, however no negative impacts were offered. Perhaps this stakeholder group considers impacts of the yachting sector from more of a financial perspective rather than ecological as it is within the former that their interests are vested. MPA management should still make an effort to increase the awareness of businesses about the importance of the MPA to the coastal and marine resources of the area and therefore to other stakeholders.

Globally, the yachting industry is taking the lead in adopting more environmentally friendly practices at marinas (ECLAC 2003). The four marina operators interviewed noted they have best operating practices

or guidelines in place based on globally recognised standards that prevent the dumping of solid and liquid wastes in the MPA. However, as mentioned above, marinas and yacht anchorage key informant stakeholders recognise the need for proper waste management and associated facilities (to deal with sewage for example) in the area. Management and control of pollution and wastes generated by marinas is critical to the environmental health within the MPA and is a strategic policy-based goal/objective outlined in the WCCB MPA management plan. MPA management should collaborate with MAYAG and the relevant regulatory authorities for adopting legal standards and wastewater management practices for marinas. Additionally, MPA management should seek to implement and apply a monitoring, control and surveillance protocol with a set of rules and practices for addressing pollution threats as recommended in the management plan. Management should also try to encourage the development of a code of conduct for marinas that is not currently in place (ECLAC 2003). This code of conduct will address other environmental impacts of marinas during operation.

4.3 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.

4.4 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 one of the overall objectives for the WCCBMPA, that of applying lessons learned and best practices (Finlay 2012). Fourteen socio-economic key informant variables have been used to collect baseline data from key stakeholder groups on levels and types of impact, MPA changes or impacts, management support, MPA awareness, perceptions of resource conditions, perceived threats, perceived changes in activities and uses, activities for management intervention, stakeholder participation, best practices etc.

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.

5 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, 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 WCCB MPA. 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. The WCCBMPA 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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7 APPENDICES

Appendix 1: Yachting anchorage/marina communities key informant interview guide

**Socio-economic monitoring by Caribbean Challenge MPA Managers
Assessing perceptions of changes and impacts that may accompany
the introduction of management planning to the WCCB MPA
Key Informant Interview: Yacht anchorage and Marinas communities**

This interview is being conducted to gather information on what different stakeholders think the changes and impacts, particularly those related to the yachting sector, will be once management is introduced to the Woburn/Clarke's Court Bay Marine Protected Area (WCCB MPA). The information collected will be used to guide management planning of the MPA. You will not be identified in any reports. All reports will be shared with the public. The interview should take between 30-45 minutes.

Interviewer:	Date:
Key informant:	Location:

Monitoring objective 1: To determine what changes in the WCCB MPA are perceived by the major stakeholder groups due to the introduction of management.

For questions 1 and 2, show the key informant the area map of the WCCB MPA. These questions are relevant to the coastline and marine area within the boundaries of the MPA but also extending as far inland as the mangrove and sugar factory and as far seaward to include both Hog Island and Calvigny Island. East-West boundaries are Pt. Egmont and Mt. Hartman Pt., respectively.

1. What types of changes to the coastal and marine resources of the MPA may be expected with the introduction of management at the MPA?

2. What types of changes in coastal and marine resource uses may be expected with the introduction of management at the MPA?

3. What types of changes would the yachting community like to see in the area with the implementation of management at the WCCB MPA? How, if at all, might these changes affect the yachting community in the area?

Monitoring objective 2: To determine the direct and indirect impacts of the yachting sector to the WCCB MPA and identify socio-economic benefits of marinas.

4. Do yachtsmen patronize local community businesses, buy fish and produce from fishers and farmers?

5. What are the main types of services yachtsmen rely on from the surrounding communities?

6. Are there any services not currently available from the surrounding communities that would be beneficial to the yachting community?

7. Are there any services not currently available from marinas that would be beneficial to the yachting community?

Monitoring objective 3: To determine whether changes are perceived as positive or negative, equitable or not, from a socio-economic perspective.

8. Would the yachting community be supportive of co-management of the WCCB MPA?

Co-management can be an arrangement in which government and a group of stakeholders manage the WCCB together for the purpose of conservation and sustainable use of resources.

9. What types of changes, both positive and negative, could impact the yachting community with the implementation of management at the WCCB MPA? Do you think any of the changes will have an effect on the yachting community?

10. Who do you think will benefit the most from the introduction of MPA management? *If possible ask key informant to suggest the top three stakeholders they think will benefit the most.*

11. Does the yachting community have the power to influence changes in the MPA?

Monitoring objective 4: *To integrate socio-economic monitoring indicators in the evaluation of management effectiveness during management planning.*

12. The main purposes for managing the WCCB MPA have been set out in the MPA management plan.

They include:

- Conservation and protection of all coastal ecosystems (resources and habitats) and their use
- Sustainable use of all coastal spaces and ecosystems in the WCCB MPA as eco-assets
- Education and awareness for sharing information on lessons learned about management and adoption of best management practices
- Developing a means of describing roles and functions of relevant government agencies and other stakeholders involved in the MPA network

Would the yachting community agree with and support these objectives for the management of the MPA? Are there any objectives that the yachting community would support more than the others?

13. Besides the objectives mentioned above, what does the yachting community think the main purposes for the MPA should be?

14. Have there been any noticeable changes in the condition of the coastal and marine resources of the MPA during the past five years, during the past 10 years?

15. What are the major threats to coastal and marine resources in the WCCB MPA? How should these threats be addressed?

16. What issues or activities presently occurring in the MPA would the yachting community like to see reduced/prevented or addressed with the introduction of management?

17. Does the yachting community participate in WCCB MPA management planning and decision-making? In what ways does it participate?

If NO, would the yachting community be willing to participate in MPA management planning and decision-making? *If there is no or limited participation, the interviewer should try to get an idea of what is needed to encourage input or participation from the stakeholder.*

18. Which stakeholders should be involved in WCCB MPA management planning and decision-making and how should they be involved to get useful inputs from each group?

THANK YOU FOR YOUR ASSISTANCE

Appendix 2: Marina operators key informant interview guide

**Socio-economic monitoring by Caribbean Challenge MPA Managers
Assessing perceptions of changes and impacts that may accompany
the introduction of management planning to the WCCB MPA
Key Informant Interview: Marina operators**

This interview is being conducted to gather information on what different stakeholders think the changes and impacts, particularly those related to the yachting sector, will be once management is introduced to the Woburn/Clarke's Court Bay Marine Protected Area (WCCB MPA). The information collected will be used to guide management planning of the MPA. You will not be identified in any reports. All reports will be shared with the public. The interview should take between 30-45 minutes.	
Interviewer:	Date:
Key informant:	Location:

Monitoring objective 1: To determine what changes in the WCCB MPA are perceived by the major stakeholder groups due to the introduction of management.

For questions 1 and 2, show the key informant the area map of the WCCB MPA. These questions are relevant to the coastline and marine area within the boundaries of the MPA but also extending as far inland as the mangrove and sugar factory, and as far seaward to include Hog Island and Calvigny Island. East-West boundaries are Pt. Egmont and Mt. Hartman Pt., respectively. The WCCB MPA will be launched in early 2013 and management will be implemented.

1. What types of changes to the coastal and marine resources of the MPA may be expected with the introduction of management at the MPA?

2. What types of changes in coastal and marine resource uses may be expected with the introduction of management at the MPA?

3. What types of changes would marinas like to see in the area with the implementation of management at the WCCB MPA? How, if at all, might these changes affect marinas in the area?

Monitoring objective 2: To determine the direct and indirect impacts of the yachting sector to the WCCB MPA and identify socio-economic benefits of marinas.

4. Are marinas of socio-economic importance to the communities surrounding the MPA? In what way(s)?

5. Do marinas rely on any types of services from the surrounding MPA communities (Woburn, Woodlands and Clarke's Court etc.)? Please explain.

6. Are there any services not currently available from the surrounding communities (Woburn, Woodlands and Clarke's Court) that would complement the marinas' operation?

7. What positive and negative environmental impact(s) do you think marinas currently have on the WCCB MPA?

8. With the official introduction of management of the WCCB MPA how are these environmental impacts likely to change?

9. Do marinas in the area have any best operating practices/guidelines/code of conduct in place based on globally recognized standards? Please list them.

Monitoring objective 3: To determine whether changes are perceived as positive or negative, equitable or not, from a socio-economic perspective.

10. Would marinas in the area be supportive of co-management of the WCCB MPA?

Co-management can be an arrangement in which government and a group of stakeholders manage the WCCB together for the purpose of conservation and sustainable use of resources.

11. What types of changes, both positive and negative, could impact marinas in the area with the implementation of management at the WCCB MPA? Do you think any of the changes will have an effect on marinas in the area?

12. Who do you think will benefit the most from the introduction of MPA management? *If possible ask key informant to suggest the top three stakeholders they think will benefit the most.*

13. Do the marinas in the area have the power to influence changes in the MPA?

Monitoring objective 4: *To integrate socio-economic monitoring indicators in the evaluation of management effectiveness during management planning.*

14. The following objectives for managing the WCCB MPA have been set out in the MPA management plan. They include:

- Conservation and protection of all coastal ecosystems (resources and habitats) and their use
- Sustainable use of all coastal spaces and ecosystems in the WCCB MPA as eco-assets
- Education and awareness for sharing information on lessons learned about management and adoption of best management practices
- Developing a means of describing roles and functions of relevant government agencies and other stakeholders involved in the MPA network

Would marinas agree with and support these objectives for the management of the MPA? Are there any objectives that the marinas would support more than the others?

15. Besides the objectives mentioned above, what do marinas think the main purposes for the WCCB MPA should be?

16. Have there been any noticeable changes in the condition of the coastal and marine resources of the MPA during the past five years, during the past 10 years?

17. What are the major threats to the coastal and marine resources within the WCCB MPA? How should these threats be addressed?

18. What issues or activities presently occurring in the MPA would marinas like to see reduced/prevented or addressed with the introduction of management?

19. Have there been any changes in marina operation practices due to the MPA?

20. How well informed are yachtsmen and marina guests about the MPA? What information is there to tell now compared with before (5 years ago)?

21. Do marinas participate in management planning and decision-making for the WCCB MPA? In what ways do the marinas participate?
If NO, would marinas be willing to participate in MPA management planning and decision-making? *If there is no or limited participation, the interviewer should try to get an idea of what is needed to encourage input or participation from the stakeholder.*

22. Which stakeholders should be involved in WCCB MPA management planning and decision-making and how should they be involved to get useful inputs from each group?

THANK YOU FOR YOUR ASSISTANCE

Appendix 3: Business owners key informant interview guide

**Socio-economic monitoring by Caribbean Challenge MPA Managers
Assessing perceptions of changes and impacts that may accompany
the introduction of management planning to the WCCB MPA
Key Informant Interview: Business owners**

This interview is being conducted to gather information on what different stakeholders think the changes and impacts, particularly those related to the yachting sector, will be once management is introduced to the Woburn/Clarke's Court Bay Marine Protected Area (WCCB MPA). The information collected will be used to guide management planning of the MPA. You will not be identified in any reports. All reports will be shared with the public. The interview should take between 30-45 minutes.	
Interviewer:	Date:
Key informant:	Location:

Monitoring objective 1: To determine what changes in the WCCB MPA are perceived by the major stakeholder groups due to the introduction of management.

For questions 1 and 2, show the key informant the area map of the WCCB MPA. These questions are relevant to the coastline and marine area within the boundaries of the MPA but also extending as far inland as the mangrove and sugar factory and as far seaward to include both Hog Island and Calvigny Island. East-West boundaries are Pt. Egmont and Mt. Hartman Pt., respectively.

1. What types of changes to the coastal and marine resources of the MPA may be expected with the introduction of management at the MPA?

2. What types of changes in coastal and marine resource uses and activities may be expected with the introduction of management at the MPA?

3. What types of changes would small businesses like to see in the area with the implementation of management? How, if at all, might these changes affect businesses in the area?

Monitoring objective 2: To determine the direct and indirect impacts of the yachting sector to the WCCB MPA and identify socio-economic benefits of marinas.

4. Do businesses in the area provide any services to the yacht anchorage community and marinas in the area (Woburn, Woodlands and Clarke's Court Bay)? What kinds of services are provided?

5. Have there been any changes in the services provided to the yacht anchorage community and marinas over the past 10 years? *It may be possible through this question to get an idea of whether there has been a change in (1) the types of services provided, (2) reasons for this, (3) number of local businesses supplying particular services etc. Services include food provision, entertainment, recreation, hospitality, repairs etc.*

6. Is there a need for specific types of businesses or services in the area because of the yachting sector? What types? Do opportunities exist for small entrepreneurs in the area?

7. Do you think the economic relationship between small businesses in MPA communities (Woburn, Lower Woburn and other relevant communities), and yacht anchorage and marina communities in the area are getting stronger? In other words, has the interdependence between businesses in the MPA communities and the yacht anchorage community and marinas grown over the years?

8. What types of effects, specific to small businesses, do the yacht anchorage community and marinas have on the MPA?

Monitoring objective 3: To determine whether changes are perceived as positive or negative, equitable or not, from a socio-economic perspective.

9. Would small businesses in the area be supportive of co-management of the WCCB MPA?

Co-management can be an arrangement in which government and a group of stakeholders manage the WCCB together for the purpose of conservation and sustainable use of resources.

10. What types of changes, both positive and negative, could impact small businesses in the area with the implementation of management at the WCCB MPA? Do you think any of the changes will have an effect on businesses and provision of services in the area?

11. Who do you think will benefit most from the introduction of MPA management? *If possible ask key informant to suggest the top three stakeholders they think will benefit the most.*

12. Do small businesses in the area have the power to influence changes in the MPA?

Monitoring objective 4: *To integrate socio-economic monitoring indicators in the evaluation of management effectiveness during management planning.*

13. The main purposes for managing the WCCB MPA have been set out in the MPA management plan.

They include:

- Conservation and protection of all coastal ecosystems (resources and habitats) and their use
- Sustainable use of all coastal spaces and ecosystems in the WCCB MPA as eco-assets
- Education and awareness for sharing information on lessons learned about management and adoption of best management practices
- Developing a means of describing roles and functions of relevant government agencies and other stakeholders involved in the MPA network

Would the small business community agree with and support these objectives for the management of the MPA? Are there any objectives that the small business community would support more than the others?

14. Besides the objectives mentioned above, what does the small business community think the main purposes for the MPA should be?

15. Have there been any noticeable changes in the condition of the coastal and marine resources of the MPA during the past five years, during the past 10 years?

16. What are the major threats to coastal and marine resources in the WCCB MPA? How should these threats be addressed?

17. What issues or activities presently occurring in the MPA would small businesses like to see reduced/prevented or addressed with the introduction of management?

18. Does the small business community participate in WCCB MPA management planning and decision-making? In what ways does it participate?

If NO, would small business owners be willing to participate in MPA management planning and decision-making? *If there is no or limited participation, the interviewer should try to get an idea of what is needed to encourage input or participation from the stakeholder.*

19. Which stakeholders should be involved in WCCB MPA management planning and decision-making and how should they be involved to get useful inputs from each group?

THANK YOU FOR YOUR ASSISTANCE

**Socio-economic monitoring by Caribbean Challenge MPA Managers
Assessing perceptions of changes and impacts that may accompany
the introduction of management planning to the WCCB MPA
Key Informant Interview: Fishermen**

This interview is being conducted to gather information on what different stakeholders think the changes and impacts, particularly those related to the yachting sector, will be once management is introduced to the Woburn/Clarke’s Court Bay Marine Protected Area (WCCB MPA). The information collected will be used to guide management planning of the MPA. You will not be identified in any reports. All reports will be shared with the public. The interview should take between 30-45 minutes.	
Interviewer:	Date:
Key informant:	Location:

Monitoring objective 1: To determine what changes in the WCCB MPA are perceived by the major stakeholder groups due to the introduction of management.

For questions 1 and 2, show the key informant the area map of the WCCB MPA. These questions are relevant to the coastline and marine area within the boundaries of the MPA but also extending as far inland as the mangrove and sugar factory and as far seaward to include both Hog Island and Calvigny Island. East-West boundaries are Pt. Egmont and Mt. Hartman Pt., respectively.

1. What types of changes to the coastal and marine resources of the MPA may be expected with the introduction of management at the MPA?

2. What types of changes in coastal and marine resource uses and activities may be expected with the introduction of management at the MPA?

3. What types of changes would fishermen in the area like to see with the implementation of management at the WCCB MPA? How, if at all, might these changes affect fishermen in the area?

Monitoring objective 2: To determine the direct and indirect impacts of the yachting sector to the WCCB MPA and identify socio-economic benefits of marinas.

4. Does the yacht anchorage community and marinas buy fish from fishers in the area? *The interviewer should try to get a sense of the main types of fish/marine resources bought by the yacht anchorage community, frequency of purchasing, and if possible, value in dollars of amount purchased per week/month.*

5. Do fishermen of different types (who fish for different species) and ages interact in the same way with the yacht anchorage community and marinas? Explain different types of interaction. *CERMES was previously told that interactions vary among fishers of different types or different ages. It may be useful to venn diagram these interactions.*

6. What types of effects, specific to fishing, do the yacht anchorage community and marinas have on the MPA?

Monitoring objective 3: To determine whether changes are perceived as positive or negative, equitable or not, from a socio-economic perspective.

7. Would fishermen be supportive of co-management of the WCCB MPA?

Co-management can be an arrangement in which government and a group of stakeholders manage the WCCB together for the purpose of conservation and sustainable use of resources.

8. What types of changes, both positive and negative, could impact fishermen in the area with the implementation of management at the WCCB MPA? Do you think any changes in the MPA due to the introduction of management will have an effect on fishing activities in the area? What types of effects do you think may occur?

9. Who do you think will benefit the most from the introduction of MPA management? *If possible ask key informant to suggest the top three stakeholders they think will benefit the most.*

10. Do fishermen have the power to influence changes in the MPA?

Monitoring objective 4: *To integrate socio-economic monitoring indicators in the evaluation of management effectiveness during management planning.*

11. The main purposes for managing the WCCB MPA have been set out in the MPA management plan. They include:

- Conservation and protection of all coastal ecosystems (resources and habitats) and their use
- Sustainable use of all coastal spaces and ecosystems in the WCCB MPA as eco-assets
- Education and awareness for sharing information on lessons learned about management and adoption of best management practices
- Developing a means of describing roles and functions of relevant government agencies and other stakeholders involved in the MPA network

Would fishermen agree with and support these objectives for management of the MPA? Are there any objectives that fishermen would support more than the others?

12. Besides the objectives mentioned above, what do fishermen think the main purposes for the WCCB MPA should be?

13. Have there been any noticeable changes in the condition of the coastal and marine resources of the MPA during the past five years, during the past 10 years? Have there been any changes in fish catch, composition, fish abundance, health of reefs, etc.)

14. What are the major threats to coastal and marine resources in the WCCB MPA? How should these threats be addressed?

15. What issues or activities presently occurring in the MPA would fishermen like to see reduced/prevented or addressed with the introduction of management?

16. Do you think fishermen would be willing to participate in WCCB MPA management planning and decision-making? In what ways do they participate?
If NO, would fishermen be willing to participate in MPA management planning and decision-making?
If there is no or limited participation, the interviewer should try to get an idea of what is needed to encourage input or participation from the stakeholder.

17. Which stakeholders should be involved in WCCB MPA management planning and decision-making and how should they be involved to get useful inputs from each group?

THANK YOU FOR YOUR ASSISTANCE

Appendix 5: Key informant SocMon Caribbean variables selected for monitoring

Variable no.	Variable name
K20	Levels and types of impacts
K23* (revised)	Stakeholders
K31* (revised)	Stakeholder participation
NEW	MPA changes or impacts
NEW	Management support
NEW	Activities for management intervention
NEW	Perceptions of resource conditions
NEW	Perceived threats
NEW	Perceived changes in activities and uses
NEW	Perceived MPA benefits
NEW	MPA knowledge and awareness
NEW	Business and service provision
NEW	Types of interactions
NEW	Best practices

Appendix 8: Graphs from key informant interview analysis

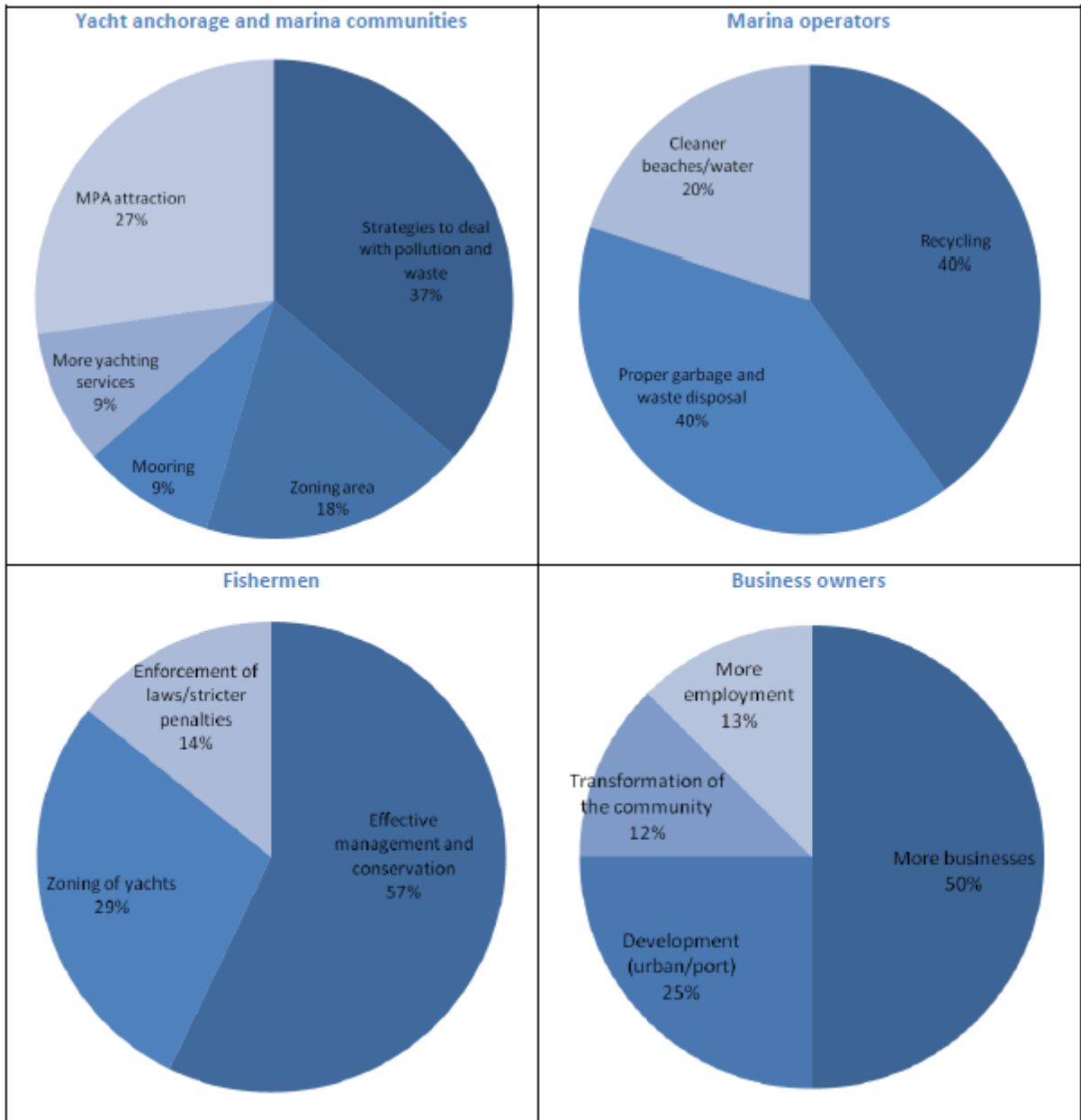


Figure 1 Changes stakeholders would like to see with the implementation of management at the WCCBMPA

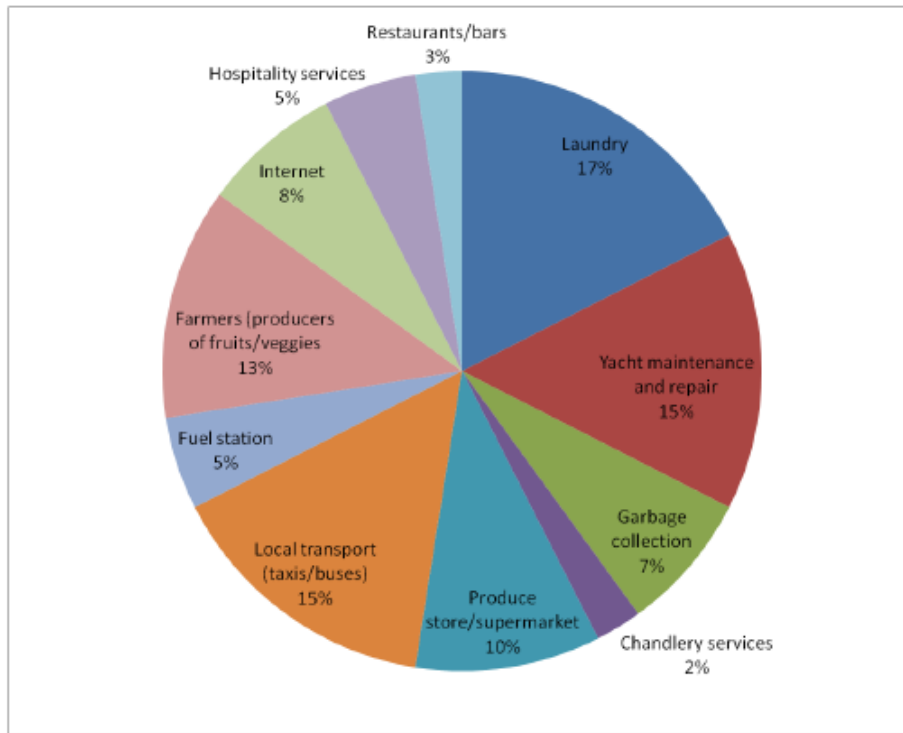


Figure 2 Types of services yachtsmen are dependent on from the WCCB communities

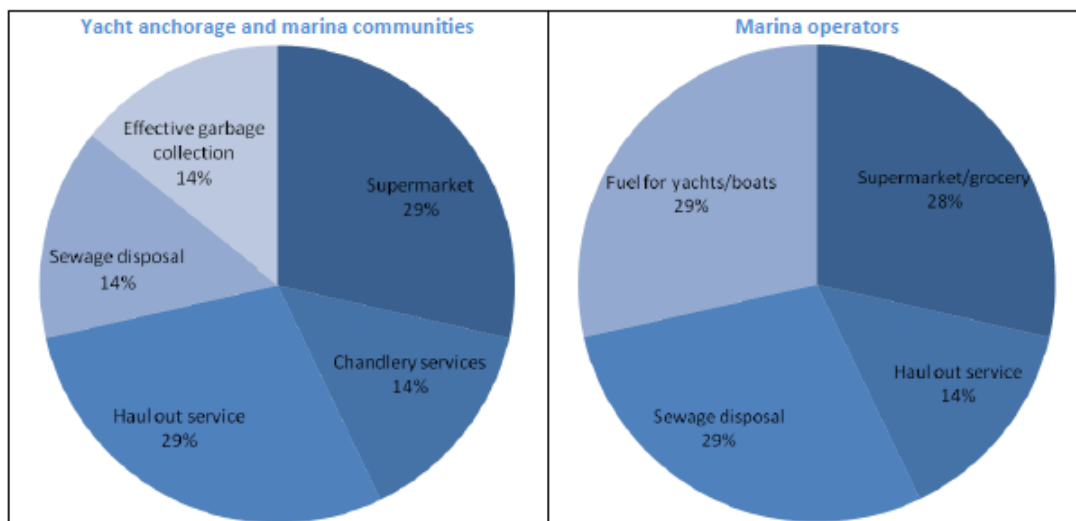


Figure 3 Services currently unavailable from surrounding WCCB communities but thought to be required

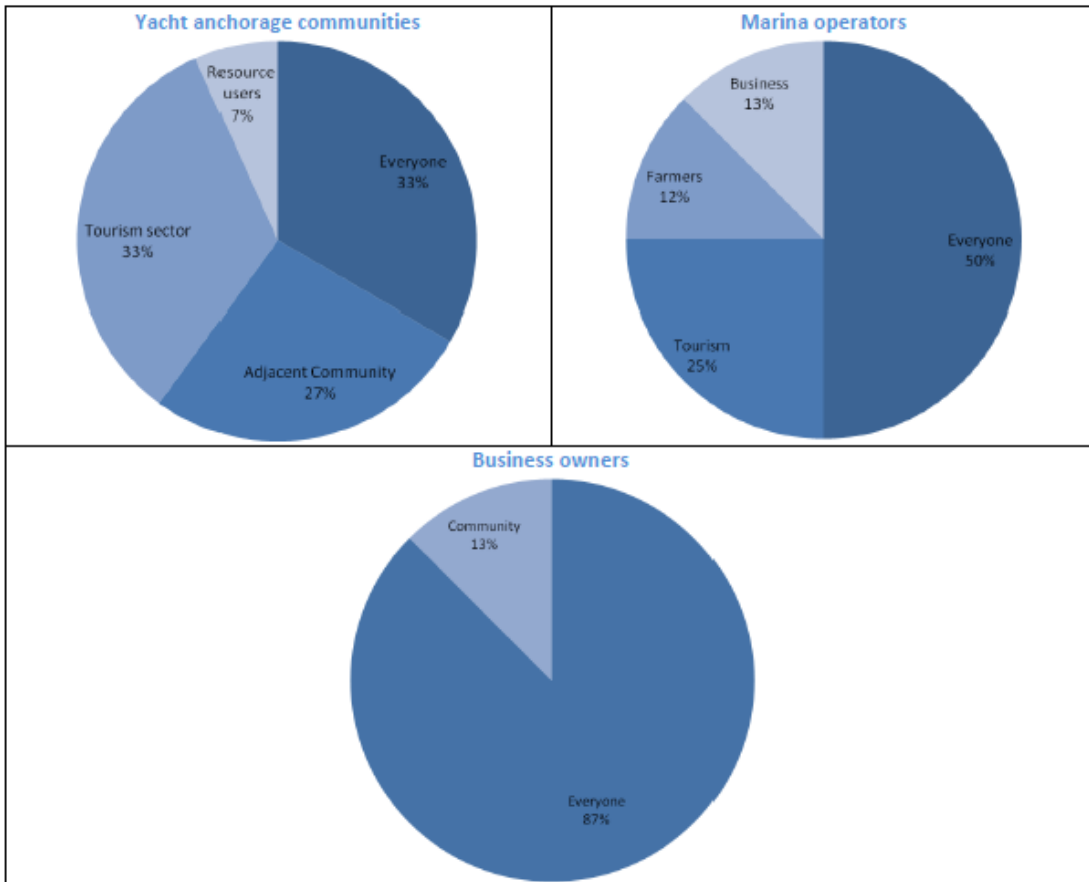


Figure 4 Perceived beneficiaries of MPA management

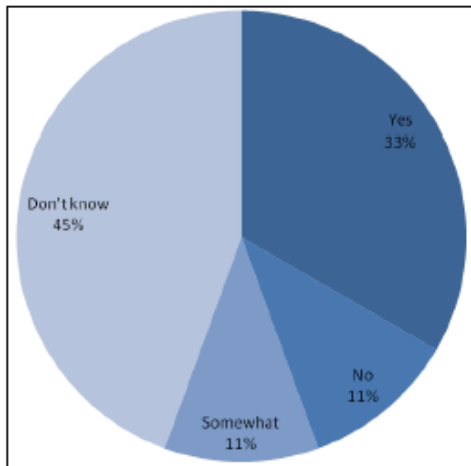


Figure 5 Perception of the power of influence by the yachting community

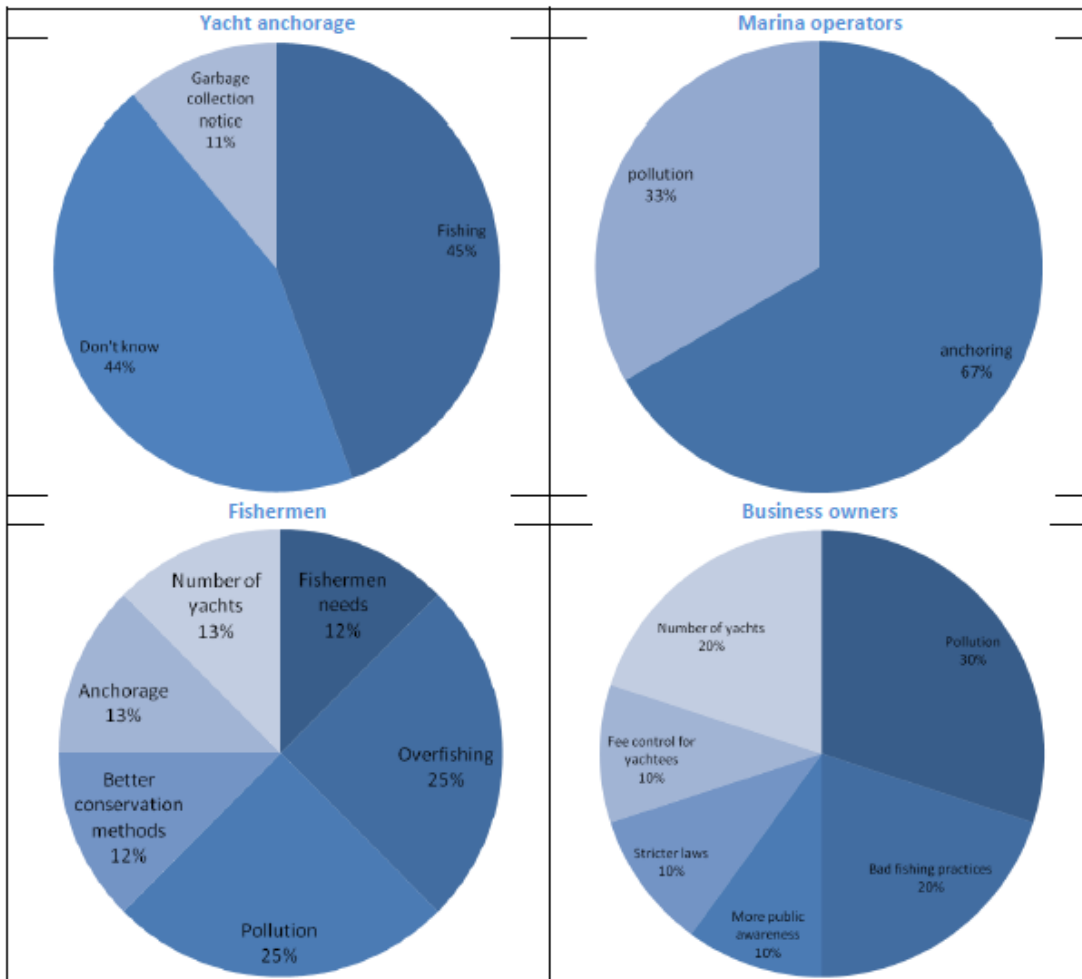


Figure 6 Current issues or activities stakeholders would like addressed with the introduction of management

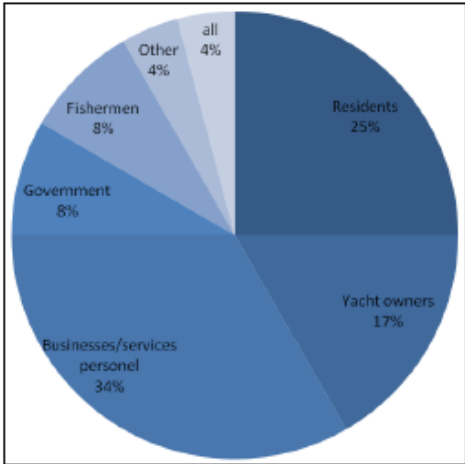


Figure 7 Yacht anchorage community's perception of who should be involved in MPA management planning and decision-making