

# Socio-economic Monitoring by Caribbean Challenge MPA Managers

Report No. 9

## Socio-economic data for informing management planning at the South Coast Marine Conservation Area, St. Vincent and the Grenadines

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# 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 Initiative<sup>1</sup> 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 St. Vincent and the Grenadines are the South Coast Marine

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

Conservation Area (SCMCA) and the Tobago Cays Marine Park. This report presents project activities and results of socio-economic monitoring conducted at the SCMCA.

## 1.2 Situation overview

In 1987, the Government of St. Vincent and the Grenadines (GoSVG) established ten Marine Conservation Areas (MCAs) to specially protect critical near-shore habitats, preserve and enhance the beauty of these areas, and promote scientific study and research. Eight of the legally declared MCAs and one marine park are located throughout the Grenadines Islands, while the South Coast Marine Conservation Area (SCMCA) is the only MCA on mainland St. Vincent (Fisheries Regulations 1987, Marine Parks (Tobago Cays) Regulations, 1998). The SCMCA encompasses five communities in one of the largest constituencies in SVG and lies within the main tourist hub on the island of St. Vincent. The SCMCA includes four bays, coral reefs, sea-grass beds and mangroves; historical and cultural sites and popular recreational beaches. One of the most productive fisheries landing sites in St. Vincent and the Grenadines is located in Calliaqua.

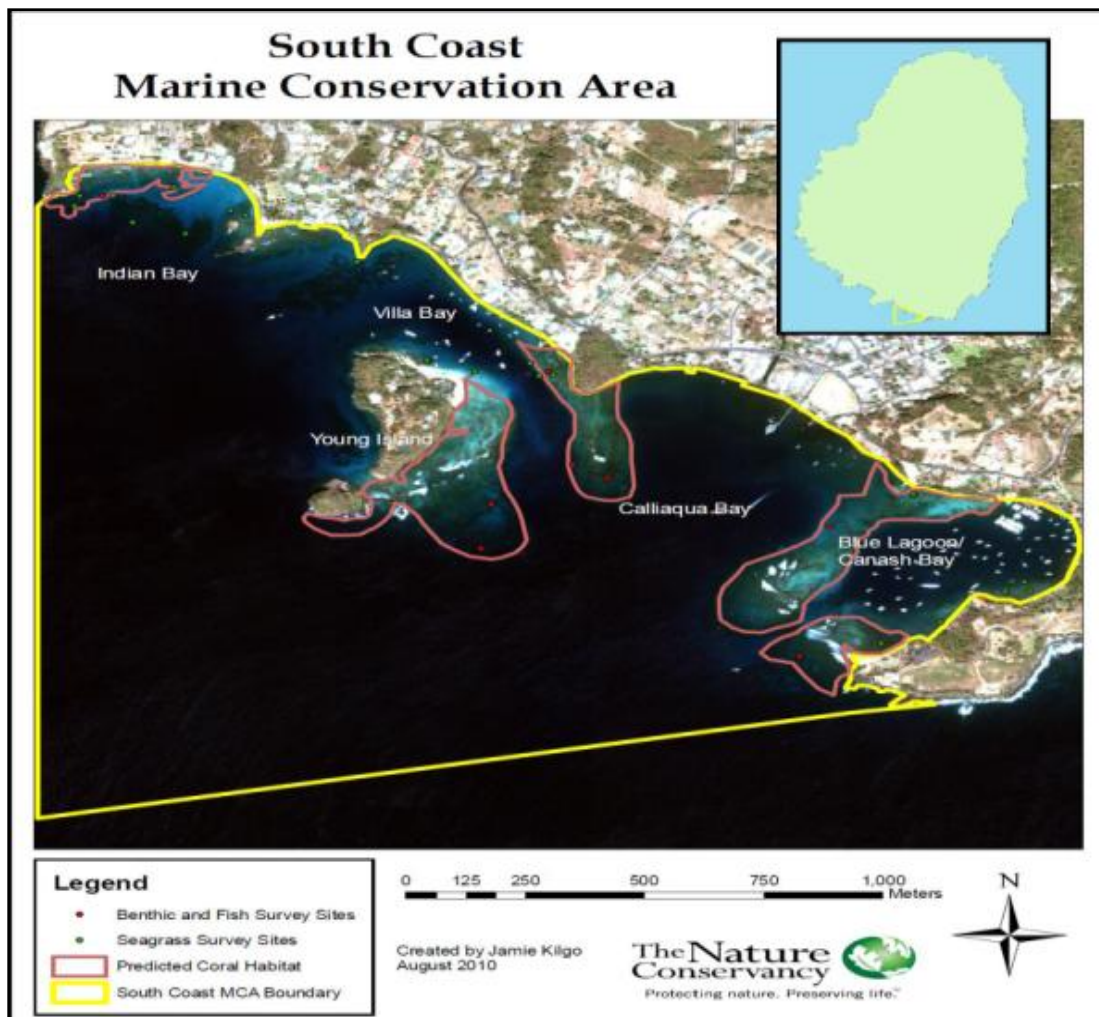


Figure 1 Map of the South Coast Marine Conservation Area

Given the importance of the SCMCA to tourism, recreation and fisheries there have been recent developments to upgrade the conservation area to full marine park status under the aegis of the *St. Vincent and the Grenadines National Parks and Protected Areas System Plan 2009-2014*. The drafting of a park development plan for the area was set to begin in late 2011 but has been delayed. This plan is one of the outputs under the CaMPAM-funded project: *“Management Planning for the Proposed South Coast Marine Park.”* The Government of St. Vincent and the Grenadines is keen to upgrade the SCMCA as a fully functional MPA as per its commitment to the *Caribbean Challenge Initiative (CCI)*. Under the CCI, several OECS and other regional states have committed to protecting at least 20% of near-shore marine and coastal habitats by 2020.

Since little or no socio-economic assessment has been conducted on the area, the time is opportune for the collection of such information.

### 1.3 **Goals and objectives**

The project goal and objectives of site monitoring at the South Coast Marine Conservation Area (SCMCA) are provided below.

*Goal:* To collect socio-economic data to inform management planning of the South Coast Marine Conservation Area.

*Objectives:*

1. To identify a core set of socio-economic indicators for assessing change in resource conditions and patterns of use over the next 3-5 years
2. To identify a range of socio-economic uses/use patterns in the SCMCA
3. To determine stakeholders awareness, attitudes and perceptions of the coastal and marine resources in the SCMCA
4. To measure the impact of management arrangements on stakeholders livelihoods and the area’s natural resources

### 1.4 **Organization of report**

This report is divided into seven sections. Section 1 provides a description of the SocMon Caribbean Challenge project, situation overview of the SCMCA and the goals and objectives for monitoring. Section 2 outlines the methods used for gathering the data. The results of are provided in Sections 3 to 5. Discussions and conclusions are in Section 6. The report ends with section 7 which contains recommendations for monitoring and management.

## **2 METHODS**

### 2.1 **SocMon training**

Eight participants from the two participating MPAs, National Parks, Rivers and Beaches Authority (NPRBA), Fisheries Division, Forestry Department and Ministry of Tourism, were trained in the SocMon Caribbean methodology via a 5-day training workshop, 17-21 October 2011 at the Sunset Shores Beach



Hotel in St. Vincent. The South Coast Marine Conservation Area (SCMCA) was used as the demonstration site for the duration of the workshop (Pena and Blackman 2011).

## 2.2 Preparatory activities

Planning for the SCMA SocMon Project began in October 2011 and extended to January 2013. Preparatory activities included drafting, reviewing and finalizing the site monitoring plan, which *inter alia* encompass identifying the objectives of the study; compiling a budget; formulating the survey instruments (household surveys and key informant interviews), determining the number and type of key informants and hosting of a community validation meeting.

The planning process was met with several challenges. These included competing activities at the level of the various agencies which participated in the SocMon Project and delay in the transfer of the first tranche of sub-grant funds to initiate site monitoring.

In keeping with the training received, it was intended that the entire SCMCA SocMon team would have conducted the actual surveys, entered and analyzed the data, facilitated a community validation meeting and compiled the final site monitoring report. However, some of the same challenges that pervaded the planning process also caused the team to engage the services of two interviewers/enumerators to administer the household surveys and conduct data entry. One of the interviewers, Ms. Kristelle Francis (past CERMES graduate) was recommended by CERMES and engaged by the SocMon team.

## 2.3 SocMon team

The SocMon team was identified during the training workshop. Table 1 shows the composition of the team.

**Table 1 SocMon team composition**

Team member	Position	Affiliation
Andrew Lockhart	Superintendent of Marine and Terrestrial Parks	National Parks, Rivers and Beaches Authority
Sternley Walker	Park Ranger	National Parks, Rivers and Beaches Authority
Bradford Latham	Forestry Officer III	Forestry Department Ministry of Agriculture, Forestry, Fisheries, Rural Transformation and Industry
Bernard John	Administrative Cadet	Ministry of Tourism, Sports and Culture
Lucine Edwards	Fisheries Officer- Conservation	Fisheries Division Ministry of Agriculture, Forestry, Fisheries, Rural Transformation and Industry

## 2.4 Surveys of households

A household survey was designed and conducted to collect socio-economic data to inform management planning to assist with the upgrade of the SCMCA to a marine park (Appendix 1). To expedite initiation of site monitoring at the SCMCA, the SocMon team requested that CERMES assist with the design of the survey. Once designed, the survey was forwarded to the SocMon team for review and editing after

which it was submitted to CERMES for final approval. Fourteen survey variables were used to collect the relevant data, eight of which were original SocMon Caribbean variables (Bunce and Pomeroy 2003). Of these eight original variables, two were revised and adapted to collect data relevant to the objectives of the project. The development of six new survey variables was necessary to measure and capture additional data required such as MPA knowledge and awareness, types of and changes in MPA livelihoods, MPA changes or impacts, perceived management responsibility, perceived MPA benefits and use patterns (Appendix 2).

The survey focused on perceptions of resource conditions and patterns of use, stakeholder awareness, attitudes towards and perceptions of the SCMCA, impacts of management arrangements on stakeholder livelihoods, and population demographics. Two interviewers conducted surveys in communities within the SCMA: Blue Lagoon/Canash/Ratho Mill, Calliaqua, Indian Bay, Young Island and Villa. According to the SocMon Caribbean guidelines (Bunce and Pomeroy 2003), the estimated sample size for the area was determined to be 100 persons. However, due to illness of one of the interviewers and time constraints, only 63 households were surveyed throughout the communities during the period 28 January to 4 February, 2013.

## **2.5 Key informants**

A key informant interview was designed and conducted by the SocMon team following review and approval by CERMES. Twenty-nine key informants were interviewed from 4-8 February, 2013. These key informants included government officials, business owners, hoteliers and a member of the Calliaqua Fisherfolk Cooperative (Appendix 3). Eleven key informant variables were used to collect the relevant data, six of which were original SocMon Caribbean variables (Bunce and Pomeroy 2003). Of the six original variables, two were revised and adapted to collect relevant data. The development of five new key informant variables was necessary to measure and collect additional data required on MPA changes or impacts, perceptions of resource conditions, perceived threats, perceived changes in activities and uses and MPA knowledge and awareness (Appendix 4).

## **2.6 Data entry and analysis**

The data were entered into Excel by Ms. Kristelle Francis (CERMES) and then analysed using simple descriptive statistics and narrative summaries by Ms. Katherine Blackman and Ms. Maria Pena (CERMES). A data review meeting was held with the SocMon team on 7 February 2013 to discuss the results.

## **2.7 Validation**

A validation meeting was held at the pavilion of the Calliaqua playing field on 15 February 2013 at 6:30PM to present the results of the survey to the community. A public service announcement on the various radio stations, flyers and word-of-mouth were used to invite key stakeholders, householders and the general public to the forum. Mr. Andrew Lockhart, Superintendent of Marine and Terrestrial Parks, NPRBA, and CC SocMon team leader, presented the results of the household surveys to members of the community via a PowerPoint presentation (Appendix 5). Mr. Lockhart and Ms. Lucine Edwards engaged stakeholders in discussion about the survey results after the presentation was made. Approximately 20

persons from a wide cross-section of the community were in attendance. Key informant interview results could not be presented since data analysis had not been completed at the time.

### 3 HOUSEHOLD SURVEY RESULTS

#### 3.1 Identification of core socio-economic indicators for assessing change in resource conditions and patterns of use over the next 3-5 years

##### 3.1.1 Awareness of the SCMCA

Less than half of the respondents (41%) were aware of the SCMCA. Of those who were aware, most considered Young Island (19%), Fort Duvernette (18%), coral reefs (18%) and Calliaqua (17%) to be components of the SCMCA. Some persons also considered Long Island (12%) and Mangroves (12%) as a part of the SCMCA. Interestingly, 4% of the household survey respondents indicated that the Argyle International Airport is part of the SCMCA, even though this is not the case. Sixty-three percent of respondents indicated that they were not aware of plans for the upgrade of SCMCA to a marine park. The 37% who were aware of the upgrade, received this knowledge through various means; the majority of which included radio (27%), television (18%) and word of mouth (18%). Other means of receiving information on the upgrade included the Internet (9%), community groups (9%), newspapers (9%), flyers (5%) and others (5%). In the latter case, one individual indicated having received the information at work (Figure 2).

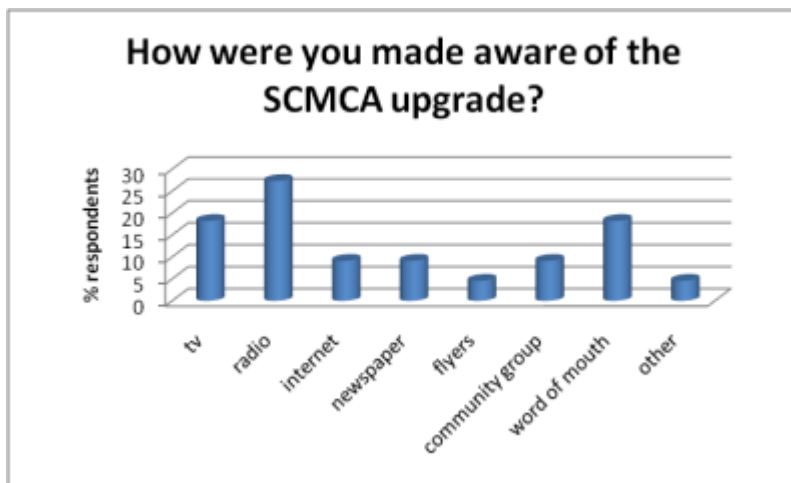


Figure 2 Means by which people were made aware of the upgrade of the SCMCA to a marine park

Many of the respondents (76%) were aware of particular rules and regulations that applied within the SCMCA. The majority of the known rules/regulations were those related to littering (24%) and sand mining (22%) (Figure 3).

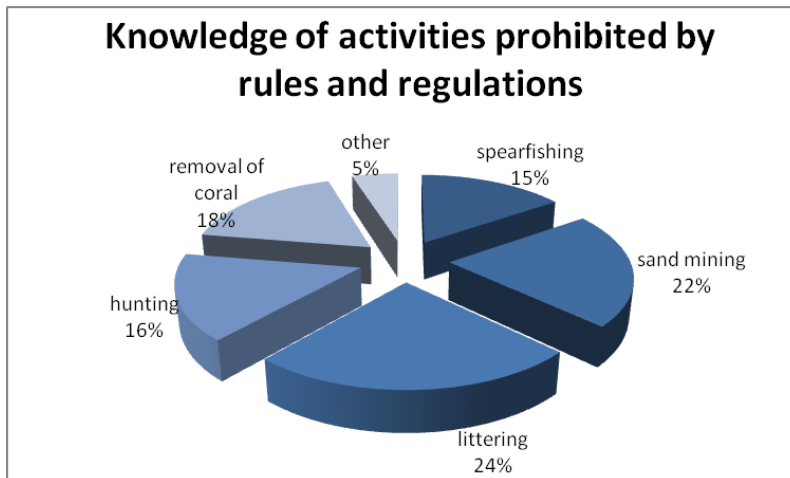


Figure 3 Knowledge of prohibited activities in the SCMCA

### 3.1.2 Conditions of coastal, marine, cultural and wildlife resources

Most of the individuals (64%) indicated that they noticed changes in the condition of SCMCA resources in the last five years. Generally, people perceived that the condition of Fort Duvernette, the beaches and coral reefs in the SCMCA have improved during the last five years whereas a slight deterioration had been noted in fisheries in the area. Fort Duvernette, the beaches and coral reefs scored highly in terms of resource condition with 80%, 61% and 46% of persons, respectively, believing that they are currently in very good and good condition. Perceptions of the past and current conditions of these resources indicated that there was a significant number of persons who believed that Fort Duvernette is in very good or good condition compared with its condition five years ago (39% in the past, 80% in the present). Perceptions of past and current healthy conditions (very good and good) of coral reefs and beaches showed a positive change - 40% in the past, 46% in the present for coral reefs; 54% in the past, 61% in the present for beaches. See Figure 4.

Equal percentages of persons believed that mangroves were and still are in good condition (25% past and present). Further, a greater number of respondents (47%) believed that mangroves are currently in neither good nor bad condition as against 40% of persons who felt that was the case five years ago. See Figure 4.

Most respondents perceived that wildlife reserves in the SCMCA remain in very good to good condition, with equal percentages indicating that these conditions persisted over the last five years (56% in the past, 56% at present). Shifting negative perceptions of beach condition is apparent, where a very small percentage of persons perceive the current condition of beaches to be very bad as opposed to five years ago, where this was not the case (five years ago – 16% bad, 0% very bad; current – 8% bad, 3% very bad). See Figure 4.

A slightly larger percentage (61%) of persons believed fisheries in the area were in very good or good condition in the recent past as compared to those (56%) who feel this is the current situation. Thirty-one percent of respondents believe fisheries are currently in neither good nor bad condition in comparison to those persons (22%) who perceived this to be the situation five years ago. See Figure 4.

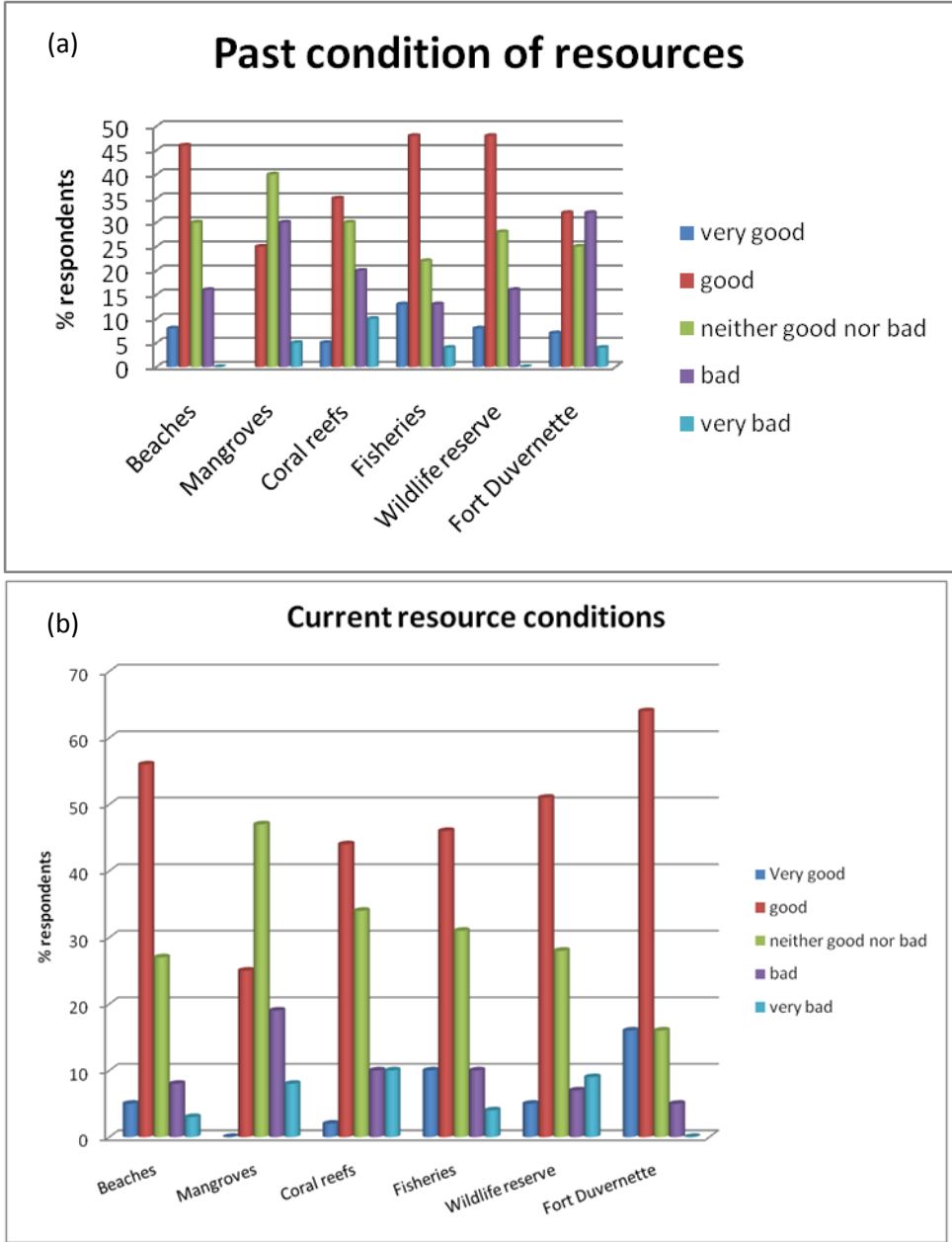


Figure 4 Perceptions of (a) past and (b) current conditions of SCMCA resources

3.1.3 Perceived threats and solutions

Respondents were asked to state the top three threats to coastal and marine resources in the SCMCA. The three main threats were pollution (e.g. littering, and run off from hotels), followed by natural resource harvesting (including sand mining) and degradation due to erosion and removal of coral (Figure 5). The recommended solutions to the top three threats identified were the establishment and implementation of liquid and solid waste disposal systems; enforcement of rules and regulations, and imposition of penalties; and public education, outreach and awareness in the area (Figure 6).

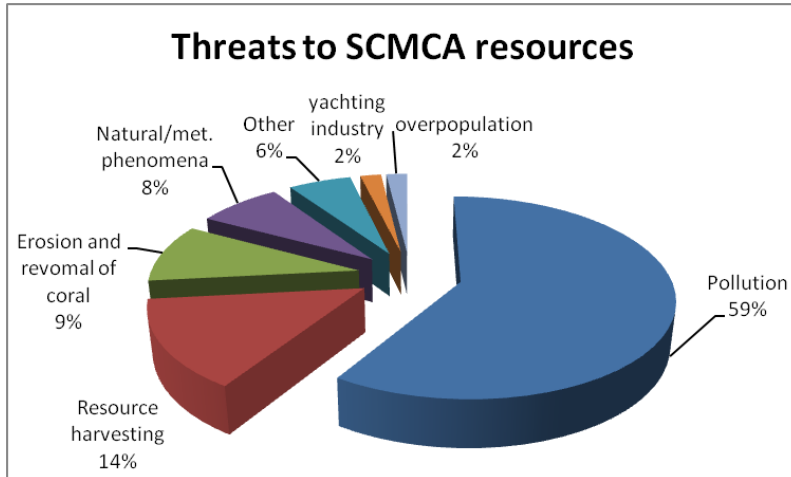


Figure 5 Perceived threats to the coastal and marine resources of the SCMCA

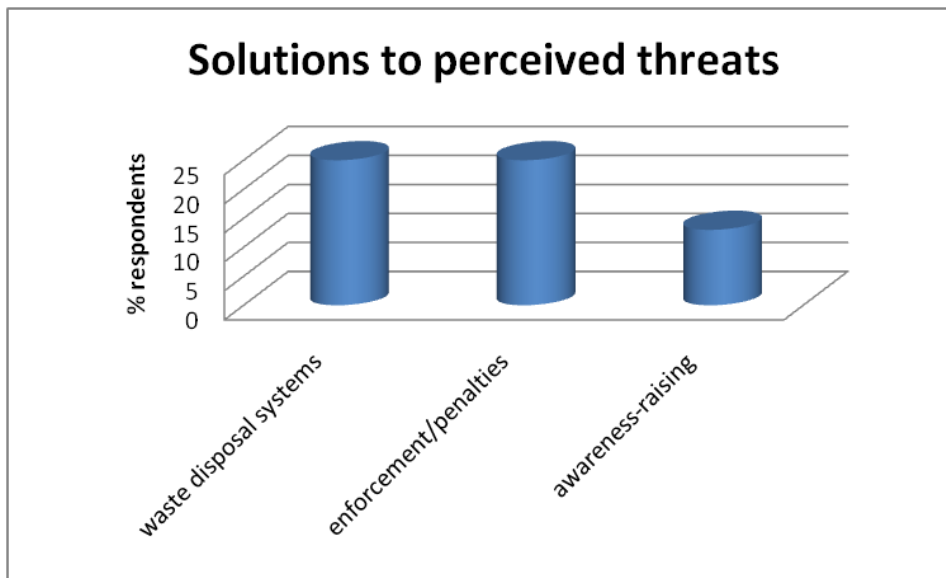


Figure 6 Recommended solutions to the top three perceived threats to SCMCA resources

### 3.2 Identification of the range of socio-economic uses/use patterns in the SCMCA

Figure 7 illustrates the various activities householders participate in within the SCMCA. The most popular activities were sea bathing (30%) and walking (20%). Other activities included picnicking, fishing, diving, vending and 'other' (i.e. social activities, exercise, beach clean-ups).

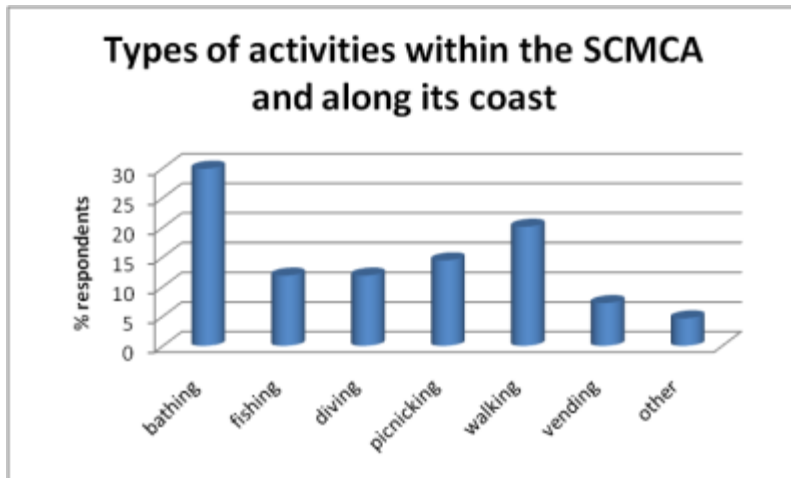


Figure 7 Types of activities along SCMCA

Most of the individuals indicated that they mainly used the areas of Villa Bay (45%) and Indian Bay (28%). Other areas utilised by individuals included Calliaqua Bay (13%) and Canash (7%). A small percentage (4%) indicated that they utilised the entire area, while 3% indicated that they did not use the area. As illustrated in Figure 8, many of the respondents stated their area of choice was due to the close proximity of the specific location to their home (44%).

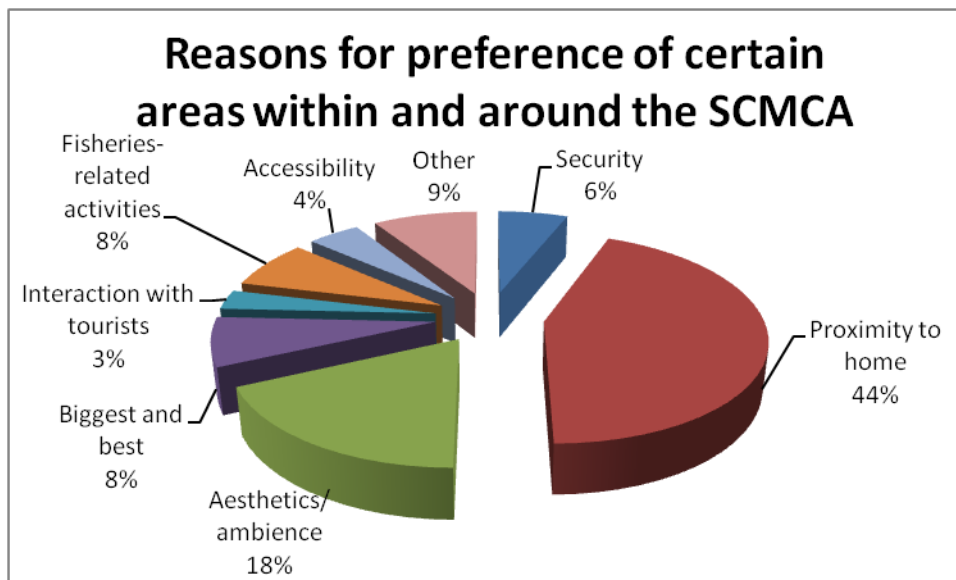


Figure 8 Reasons for preference for using certain areas within the SCMCA

Persons identified 12 activities or uses within the SCMCA that should be stopped (Table 2). It should be noted that some of the activities people would like to see prohibited in the area are already deemed to be illegal, for example pollution and illegal activities such as sand mining, drug trafficking and spearfishing. Respondents also identified eight activities or uses that should be implemented within the SCMCA (Table 3). The top uses or activities that should be considered are infrastructural development (36%), i.e. upgraded fishing area/facilities, bathroom facilities, road access; improved beach

management (25%), i.e. increased security, designated areas/controlled usage, safety/lifeguards; and improved environmental conditions (23%), i.e. proper waste disposal, clean-ups and tree planting.

**Table 2 Activities within the SCMCA that should be prohibited**

<b>Activities</b>	<b>Percentage (%) (n = 35)</b>
Pollution	49
Vending	5
Illegal activities (sand mining, drug trafficking)	15
Environmental degradation	7
Harrassment of tourists	2
Spearfishing	2
Sports on beach	7
Cooking on beach	2
Pets on beach	2
Beach parties	2
Limited beach access	2
Misbehaviour on beach	2

**Table 3 Activities that should be considered within the SCMCA**

<b>Activities</b>	<b>Percentage (%) (n = 38)</b>
Infrastructural development	36
Improved beach management	25
Improved environmental conditions	23
Enforcement	2
Recreational activities	7
Youth involvement	2
Vending	2
Share water quality information	2

### **3.3 Determination of stakeholders awareness, attitudes and perceptions of the coastal and marine resources in the SCMCA**

The protection of coastal and marine resources in the SCMCA was important to 94% of individuals surveyed. Reasons provided for this included: environmental preservation (31%); tourist attraction (17%); and national pride (17%). Other reasons included importance to income or livelihood (9%), importance to St. Vincent and the Grenadine’s development or economy (8%), security/safety and love of the area (6%), residency [member of the community] (4%) and food source [fish] (2%).

Most of the respondents (97%) opined that people in the community were inadequately educated about the SCMCA and its resources. Forty-one percent indicated that an awareness campaign is needed. The respondents also thought that the media (26%) and community drives (15%) could be used for



awareness-raising (Figure 9). The top three best methods to inform people about the SCMCA were television (21%), newspaper (17%) and radio (16%) (Figure 10).

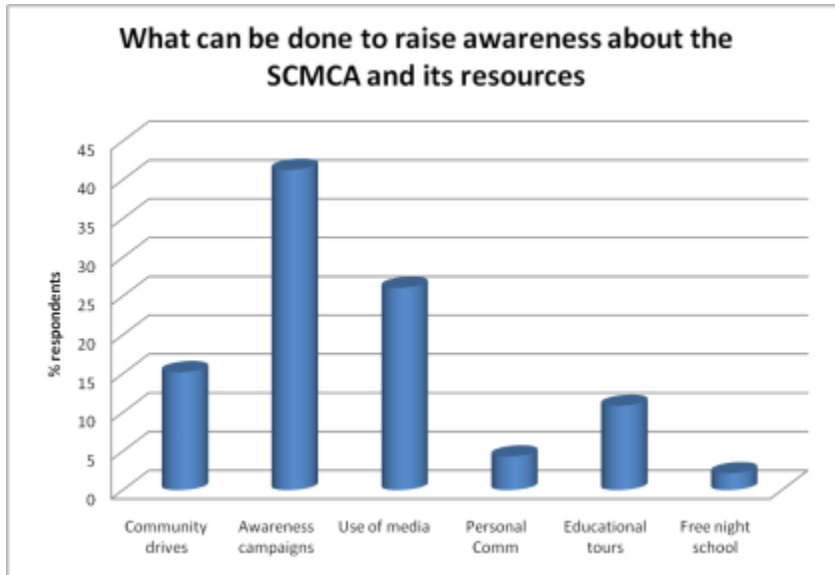


Figure 9 Methods of raising awareness

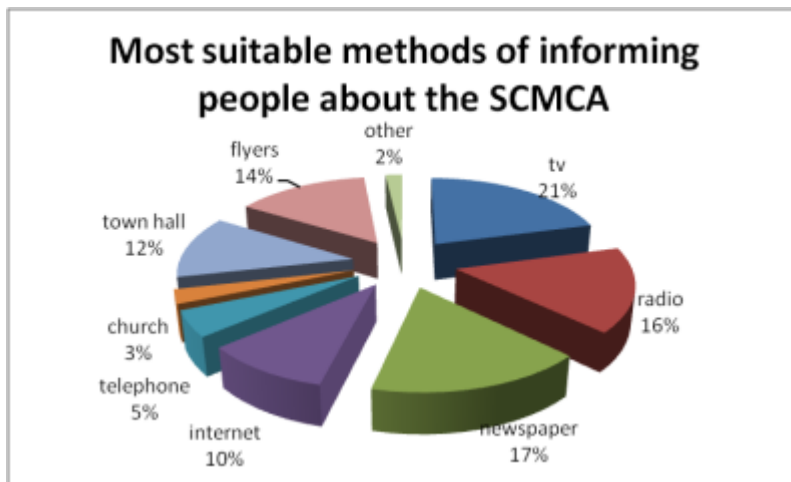


Figure 10 Best methods to inform persons about the SCMCA

### 3.4 Measuring the impact of management arrangements on stakeholder livelihoods and the area's natural resources

Sixty-four percent of the respondents thought that their livelihoods will not be affected by the upgrade of the SCMCA to a marine park, while 36% believed livelihoods will be affected. Of the persons who stated they would be impacted, the majority of them (45%) indicated that they would be positively affected. Some positive impacts included increased knowledge and income, and aid in St. Vincent and the Grenadines' development. Eighteen percent of respondents who indicated that they would be impacted, were unsure whether the impact would be positive or negative. To this latter group, the impact would depend on the rules and regulations that may be implemented. Thirty nine percent of the

respondents indicated that everyone would benefit from the upgrade of SCMCA to a marine park (Figure 11).

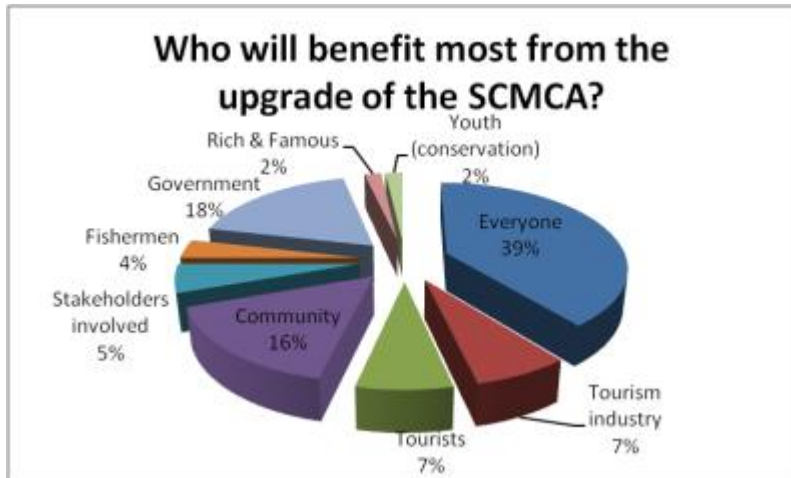


Figure 11 Those who would benefit from the upgrade of the SCMCA to a marine park

Responses for question 15 regarding the changes in the condition of coastal and marine resources in the SCMCA that people would hope to see five years after the upgrade of the conservation area to a marine park (Appendix 1) were not applicable. Responses related more to the uses and activities people would like to see in the area once the upgrade has occurred. This question therefore had to be discarded from the data analysis. It may be of note however, that a small percentage of persons stated overarching and broad hopes of improved environmental resources (10%) and improved aesthetics (22%).

Most individuals (47%) believed that a joint effort between the Government and community was needed for responsible management of the SCMCA (Figure 12).

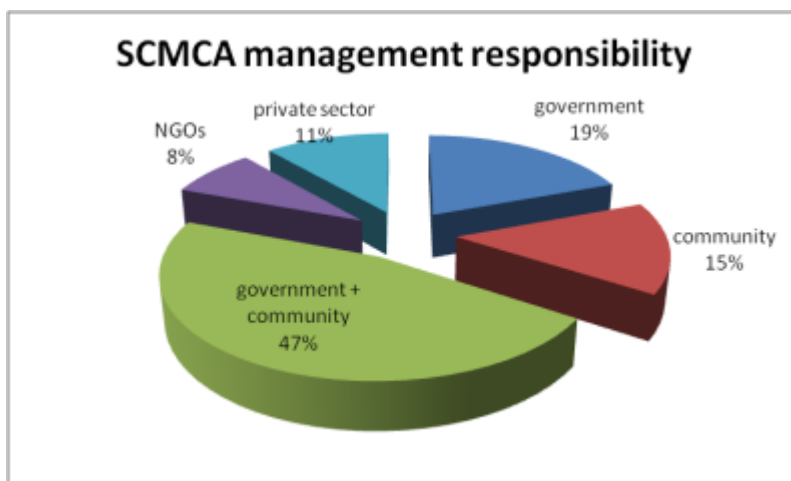


Figure 12 Management responsibility

### 3.5 Household demographics

Of the 63 persons interviewed, 56% were male and 44% were female. The level of education varied among participants: primary (28%), secondary school (29%), University (28%),

professional/technical/vocational (5%) and A-level college (10%). Most of the respondents (37%) were between ages 45-64 while 27% were over 65; 17% were 15-29 years and 19% were 30-44 years. The majority of the respondents were pensioners (25%). Of those who worked, 19% were service/sales workers (e.g. shop keepers, manicurists and pedicurists, bartenders, chefs, baby sitters, customer service representatives, medical workers); 8% were elementary workers (e.g. domestic workers, beach attendants and vendors); 12% were fishermen; 19% were managers (includes self-employed persons); 3% were clerical support workers (e.g. clerical officer and secretary); 7% were professionals (e.g. teachers, soil conservationists and IT administrators) and 2% were technicians.

## **4 KEY INFORMANT INTERVIEW RESULTS**

The results in this section are based on the analysis of 27 of 29 key informant interviews. Two interviews had to be discarded as more than one person was interviewed in each. As for the household surveys, the results of the key informant interviews are presented according to monitoring objective.

### **4.1 Identification of core socio-economic indicators for assessing change in resource conditions and patterns of use over the next 3-5 years**

#### **4.1.1 SCMCA awareness**

Combined, 48% of key informants believe that people are very aware and fairly aware of the SCMCA. Just over half of persons interviewed (52%) feel that people have no awareness at all of the SCMCA. Key informants suggested that most people would know that the SCMCA is a conservation area, its general location and the fact that it is a tourist hub on St. Vincent. They further noted that people would know what a marine conservation area is and that the area is governed by conservation regulations. People may not know the details of these regulations however. For example, it was stated that stakeholders such as some fisherfolk may be aware of regulations governing fishing in the area - types of fishing practices allowed (size limits and no use of spearguns) and the general boundaries - however detailed knowledge of these regulations would be limited. It was thought that the general public would mostly know that the SCMCA is a popular recreation area. Additionally, it was thought that people would be aware that the SCMCA is used during the hurricane season or storm surge events for boat anchorage, and that coral reefs are present.

The majority of key informants interviewed (81%) do not believe that people in the area know that the SCMCA will be upgraded to the status of a marine park. Key informants provided a number of reasons for this including the lack of publicising the information through awareness programmes or campaigns via the media or otherwise; discussion of the upgrade with only key stakeholders and agency personnel and those persons who participated in survey workshops for an economic evaluation study; and the fact that some people neglect or ignore key information. One key informant noted this was the first time (during the interview) they had heard about the intended upgrade of the SCMCA.

Fifteen percent of the key informants who believe people are knowledgeable about the upgrade of the SCMCA to a marine park, think this may be due to provision of information by the Fisheries Division and the National Parks, Rivers and Beaches Authority as well as preliminary work done in the area by the

Fisheries Division. Additionally, one person noted that plans for the upgrade were mentioned in the most recent (January 2013) debate on the Estimates and Budget in Parliament.

#### 4.1.2 Observed changes in SCMCA resources

All key informants noticed changes in the condition of coastal and marine, heritage and wildlife resources in the SCMCA over the past five years. Both positive and negative changes were observed by the informants. Positive changes were noted by eleven informants, while twenty of them had observed negative changes in resources. In some instances there was overlap between a few observed positive and negative changes (Table 4).

**Table 4 Positive and negative changes in resource conditions in the SCMCA over the last five years**

<b>Positive changes</b>	<b>Negative changes</b>
1. Improvement in general sanitation of coastal area with the implementation of a beach cleaning programme resulting in less debris from the sea and household waste on beaches. Generally, hotels in the area are more involved in its general upkeep.	1. Reduction of seagrass
2. Fort Duvernette has been upgraded with repair to steps and other visitor facilities for safety and education. It is now in very good condition	2. Significant changes in beach width - notable narrowing of beach width and apparent changes in colour of sand to a darker colour. Black volcanic sand is beginning to predominate.
3. Sand accretion at Young Island	3. Serious degradation, bleaching and sedimentation of the reef. Less visible live corals due to sedimentation, land-based sources of pollution and anchorage.
4. Improvement in terrestrial and marine life (seeing birds, sea turtles, lots of iguanas and agouti)	4. Less or reduction in mangrove area (it is a waste area)
5. Increase in seagrass	5. Some noticeable land changes at Fort Durventte
6. Regrowth in coral reefs and re-emergence of marine life	6. Reef and sea eggs not easily observed as in past years
	7. Overfishing and depletion or scarcity of fish stocks - less coastal pelagic species, robins and jack are harvested
	8. Deterioration in water quality
	9. Heavy siltation at the mouth of the Calliaqua River and intrusion onto some important beaches
	10. Increased sewage disposal from businesses
	11. Increased land-based sources of pollution (solvents, fuel)
	12. Fewer iguanas are seen compared to the past/illegal hunting of iguanas on Young Island
	13. Beach erosion- as much as 40ft of land and beaches lost, particularly in Villa/Indian Beach area
	14. Increase in other species such as lionfish and sharks

Positive changes	Negative changes
	15. Reduction in quality and diversity of marine plants- change from green to brown algae

#### 4.1.3 Threats to coastal and marine resources in the SCMCA

Key informants identified fifteen issues they consider to be major threats to coastal and marine resources in the SCMCA (Table 5). The top three threats were pollution from land-based sources (including improper garbage disposal) and sewage (52%); illegal, unregulated and unsustainable fishing practices (10%); and changing weather events, natural disasters and climate change and their impacts (including sea level rise and beach erosion; 10%). Solvents and agrochemicals were mentioned as pollutants. One key informant noted that an oil sheen can be seen in the Calliaqua River days after heavy rains. Additionally, wastewater discharged from businesses, commercial activities, hotels in the area; seepage of sewage from yachts with no holding tanks and soak-aways close to the beach; and human faeces on beaches are thought to be major sources of pollution. One key informant noted that wastewater is killing the reefs. Key informants identified 11 solutions to the threats identified (Table 6).

**Table 5 Perceived major threats to coastal and marine resources in the SCMCA**

Threat	%
Pollution (land, sewage and garbage)	52
Unregulated and unsustainable fishing	10
Climate and weather events and associated impacts	10
Sedimentation and siltation	7
Irresponsible recreational activities	3
Derelict boats on beach; deforestation; illegal and unregulated activities; sand mining; careless mooring; invasive species; Calliaqua below sea level; unregulated use of marine space; lack of education; physical development	2 (each)

**Table 6 Suggested ways of addressing and solving threats to coastal and marine resources in the SCMCA**

Solution	%
Public education and awareness-raising	32
Proper garbage disposal	14
CWSA-led sewage plan and wastewater treatment requirements	9
Policy formation/legal framework	9
Management of upland farming and implementation of land-based conservation projects	9
Stringent physical planning guidelines; artificial reefs and gabion baskets; address illegal fishing; law enforcement; address pollution	5 (each)

Key informants believe that people need to be educated about the coastal and marine resources in the SCMCA, sustainable use of these resources and therefore protection of the environment. Public education about proper garbage disposal is thought to be also required. Key informants also feel that

there is a need to implement standards and guidelines, and infrastructure for the treatment of wastewater especially from hotels, restaurants, yachts, businesses and households. Such initiatives should be spearheaded by the Central Water and Sewage Authority (CWSA). Conservation projects to address reforestation, water conservation and soil stabilisation are also thought to be needed.

#### 4.2 Identification of the range of socio-economic uses/use patterns in the SCMCA

##### 4.2.1 Activities and areas of high use and socio-economic importance

The SCMCA is used for a number of activities. The top three activities identified by key informants as occurring most regularly within the area are: bathing or swimming (20%); yachting, boating and anchorage (13%); and fishing (11%) (Figure 13). In addition to bathing or swimming, other recreational activities combined - ball games, sailing, diving, picnicking, snorkelling, sightseeing, photography, surfing, sunbathing and exercising - account for 44% of activities in the SCMCA. A small percentage of persons noted the area is used for meetings, business (such as vending), cultural events, sand mining and sex.

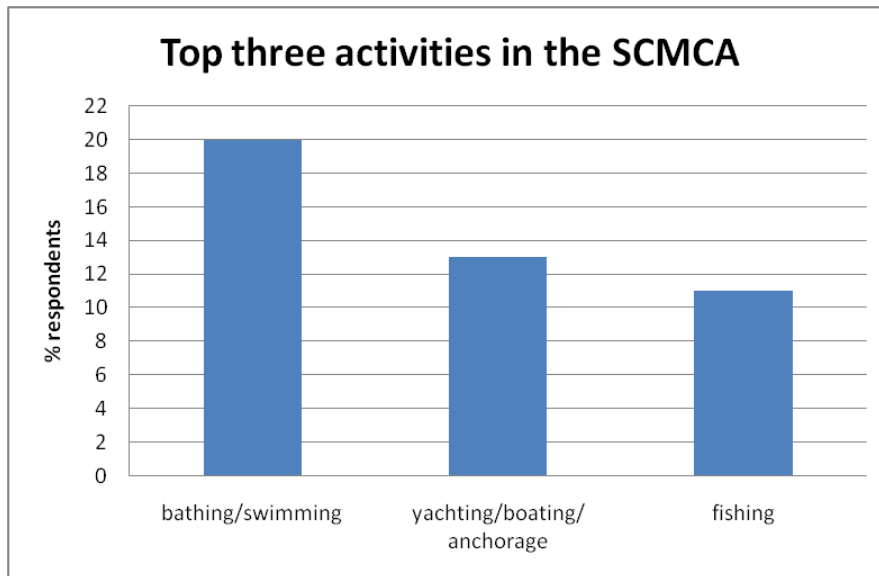


Figure 13 Activities that occur most regularly within the SCMCA

Villa, Indian Bay, Calliaqua, Young Island, Fort Duvernette, Canash/ Blue Lagoon were identified by key informants as the areas in the SCMCA that are considered to be highly used and of socio-economic importance for a number of reasons. Villa and Indian Bay are thought to be most highly used by tourists and locals alike. Key informants noted that the area is the main tourism and recreation zone on St. Vincent with numerous hotels, restaurants, night spots and complimentary businesses located along aesthetically pleasing beaches. These areas are believed to be highly used due to their ease of accessibility which encourages the pursuit of numerous activities - recreational and commercial (including vending and water taxis). It was noted that Villa has facilities for tourists such as hotels, restaurants and allied businesses. Indian Bay is popularly used by locals for recreation and seine-fishing for bait fish. These two areas together with Canash/Blue Lagoon are frequented by tourists on cruiseship calling days.

Calliaqua is a major landing site for fishermen. This town has its own fisheries complex which is equipped with ice making machines, a chill room and retail stalls. Most of the fishermen who operate there are from the area.

#### 4.2.2 Types of changes in coastal and marine uses and activities people would hope to see after the upgrade of the SCMCA to a marine park

Key informants identified 18 changes in coastal and marine resource uses and activities they would hope to see in the area after the upgrade of the SCMCA to a marine park (Table 7). Changes most popular with key informants included monitoring and regulation of activities (15%); management, monitoring and reduction in pollution (11%); improved safety and security (11%); and zoning of areas, uses and activities (9%).

Key informantssuggested that a number of activities need to be monitored and regulated. There should be - a ban on all fishing in the area, and use of certain fishing gear, especially seine and gill nets; regulation of ball games; prevention of illegal activities; an end to the burning of trash on beaches; regulation of speedboats in the area; and monitoring of yachting activities.

The control of and reduction of pollution, both land-based and from boats and yachts (sewage and wastewater), is a change that a few key informants would like to see. One person suggested, “impose fines for pollution”, i.e. enforce existing fines. Additionally, key informants would like to see standards and guidelines developed and implemented for the yachting sector including the requirement that boats and yachts have holding tanks.

**Table 7 Changes in resource use and activities that people would hope to see with the upgrade of the SCMCA**

Type of change	%
Monitoring and regulation of activities	15
Management, monitoring and reduction in pollution	11
Improved safety and security	11
Zoning of areas, uses and activities	9
Proper garbage disposal	8
Better infrastructure and facilities	7
Removal of derelict/abandoned boats	7
Active and participatory management	5
Improved accessibility	5
Laws and regulations	5
Effective patrolling, compliance and enforcement	4
Cleaner beaches	3
Cleaning of Calliaqua River	3
Sustainable use of marine park	1
Boundary markers	1
Resource monitoring	1
Signage	1
Increased abundance and diversity (fish and marine life)	1

#### 4.3 **Determination of stakeholder awareness, attitudes and perceptions of the coastal and marine resources in the SCMCA**

##### 4.3.1 **Protection and conservation importance of the SCMCA to people**

All key informants interviewed believe that the protection and conservation of coastal and marine resources in the SCMCA is important to people in the area.

Explanations for why key informants believe persons in the area think protection and conservation of coastal and marine resources are important were varied and are listed below:

- For enhanced aesthetics of the area
- Livelihood dependency - fisherfolk, hotels and businesses. Fisherfolk will benefit from increased catches, more healthy habitats and protection of breeding areas.
- Provision of ecosystem services such as coastal protection
- Understanding the SCMCA is a major tourism and recreation area
- Encouragement of more users (local and tourists) which will boost tourism and revenue earnings
- Building of national pride
- Achieving sustainable development
- Employment creation

##### 4.3.2 **Education of stakeholders about the importance of protecting habitats and managing SCMCA resources**

The majority of key informants (93%) think that enough is not being done to educate stakeholders about the importance of protecting habitats and managing coastal and marine resources in the SCMCA.

Key informants stated, "there is no active education program in the SCMCA"; "too many persons still don't know what is happening in the area and some are not aware that the area is a designated conservation area"; and "we see people breaking the law all the time, e.g. we see people spearfishing." One key informant noted that the importance of protecting the habitats and coastal/marine resources can never be over-emphasised.

Generally, people believe much more can be done to educate and raise awareness of stakeholders through various media. On the whole, key informants feel that more is needed to engender stakeholder ownership and stewardship of the area. They suggested that this could be done by: engaging stakeholders more in community meetings, consultations and workshops; encouraging stakeholder participation in decision-making and "shaping the way forward"; implementation of a planned and sustained comprehensive program or campaign targeting the diverse range of stakeholders and residents; developing a culture of peer learning where the rapport among users can be developed to share information on "do's and dont's"; and enforcement of fines on offenders. Suggested media for communicating information to stakeholders and the general public included colourful posters and flyers, educational signs, television and radio programmes. It was suggested that education of this type should be introduced into school curricula and programs such as "Camp Off the Grid Summer Programme". It was recognised by one key informant that the SCMCA SocMon is a step in the direction of informing stakeholders about the area.



### 4.3.3 Stakeholder interest and involvement in management

Key informants identified fifty-three stakeholders and/or organisations within SCMCA communities who would be interested or would like to become involved in the management of the upgraded SCMCA. Stakeholders were categorised into five groups – government; NGOs and non-profit organisations; community organizations and national service clubs; businesses; and individuals (Table 8). From the suggestions provided by the key informants, twelve stakeholders were common among those who would be interested or would like to become interested in the management of the upgraded SCMCA.

Generally, based on the numbers of stakeholders by category, key informants perceived that government agencies, community organizations and national service clubs may have more of an interest in management of the upgraded SCMCA than other stakeholders. For example, 10 out of 12 government agencies were suggested by key informants as those that would be interested in management versus five that probably would like to be involved in management. Similarly, key informants perceived that businesses and individuals in the area would more likely become involved in management of the SCMCA, rather than simply having an interest in its management. For example, 17 out of 19 businesses were suggested by key informants as those they thought would like to become involved in management of the area. Key informant suggestions imply that NGOs and non-profit organisations would be equally likely to be interested in and become involved in management.

**Table 8 Interest and involvement in management of the upgraded SCMCA**

<b>Stakeholder/organisation</b>	<b>Interested</b>	<b>Involved</b>
<b><i>Government</i> (n=12)</b>		
Fisheries Division*	+	+
National Parks, Rivers and Beaches Authority*	+	+
Forestry Department*	+	+
The Central Water and Sewage Authority	+	-
Ministry of Health Wellness and the Environment	+	-
Public Health Department	+	-
Bureau of Standards	+	-
SVG Port Authority	+	-
SVG Coast Guard	+	-
SVG Maritime Administration	+	-
Ministry of Agriculture, Rural Transformation, Forestry, Fisheries and Industry	-	+
Ministry of Tourism, Sports and Culture	-	+
<b>Total</b>	<b>10</b>	<b>5</b>
<b><i>NGOs and non-profit organisations</i> (n=5)</b>		
SVG National Trust*	+	+
SVG Hotel and Tourism Association*	+	+
Chamber of Industry and Commerce	+	-
South East Development Inc.*	+	+
St. Vincent and the Grenadines Marine Recreation Association	-	+
<b>Total</b>	<b>4</b>	<b>4</b>
<b><i>Community organizations and national service clubs</i> (n=8)</b>		
CARDO – Calliaqua Area Development Organisation	+	-
CALFICO – Calliaqua Fisherfolk Cooperative*	+	+

<b>Stakeholder/organisation</b>	<b>Interested</b>	<b>Involved</b>
Calliaqua Police Youth Club	+	-
St. Vincent Yacht Club*	+	+
Environmental groups	+	-
Lion's Club	+	-
Rotary Club	+	-
Sugar Mill Academy	+	-
<b>Total</b>	<b>8</b>	<b>2</b>
<b><i>Businesses</i> (n=19)</b>		
KP Marine Ltd	+	-
Howard's Marine	+	-
Barefoot Yacht Charters*	+	+
Dive St. Vincent*	+	+
Fantasy Dive Tours*	+	+
Sunsail Yacht Charters*	+	+
TMM Yacht Charters	-	+
LIAT	-	+
National Lotteries Authority	-	+
Digicel	-	+
LIME	-	+
Grenadines Air	-	+
Tony's Supermarket	-	+
Karib Kable	-	+
Sky Blue Apartments	-	+
Paradise Inn	-	+
X-Cape Restaurant	-	+
Mariner's Hotel	-	+
Canash Beach Hotel	-	+
<b>Total</b>	<b>6</b>	<b>17</b>
<b><i>Individuals</i> (n=9)</b>		
Merton Sandy	+	-
Dr.Reynold Murray	+	-
Ms. Marlon Mills	-	+
Mr.Sandford Mofford	-	+
Ms. Joan Thomas (UPC Office)	-	+
Mr. Ronald John (boat business)	-	+
Mr. Keith Howard (K.P. Marine Ltd)	-	+
Mr. Kelly Glass (Karib Kable)	-	+
Mr. Jimmy Grecia (Charlie Tango Taxi)	-	+
<b>Total</b>	<b>2</b>	<b>7</b>

\* stakeholders key informants believe would be interested and involved in management of the upgraded SCMCA

#### 4.3.4 Stakeholder impacts on coastal and marine resources of the SCMCA

The impacts of seven different types of stakeholders – fishermen, dive operators, yachtsmen, hoteliers, businesses, households and beach users- were provided by key informants. Key informants noted that the main impacts of various stakeholders on coastal and marine resources of the SCMCA are negative and include stock depletion through overfishing, illegal fishing and use of illegal gear; illegal speeding; anchor damage to reefs; pollution from land-based sources such as oil from abandoned boats and boat engine repair, solvents, paint fouling, wastewater discharge, and inadequate/poor sewage systems; improper garbage disposal; and hotel encroachment on the beach (Figure 14). Divers and dive operators

were the only stakeholders thought to have positive impacts on the coastal and marine resources of the SCMCA. Key informants see them as important stakeholders to engage in biological monitoring of coral reefs for assessing reef damage and marine species such as lionfish. They are thought to be important in the stewardship of the area in terms of educating tourists about best practices - not taking anything off the reefs and being guided when diving.

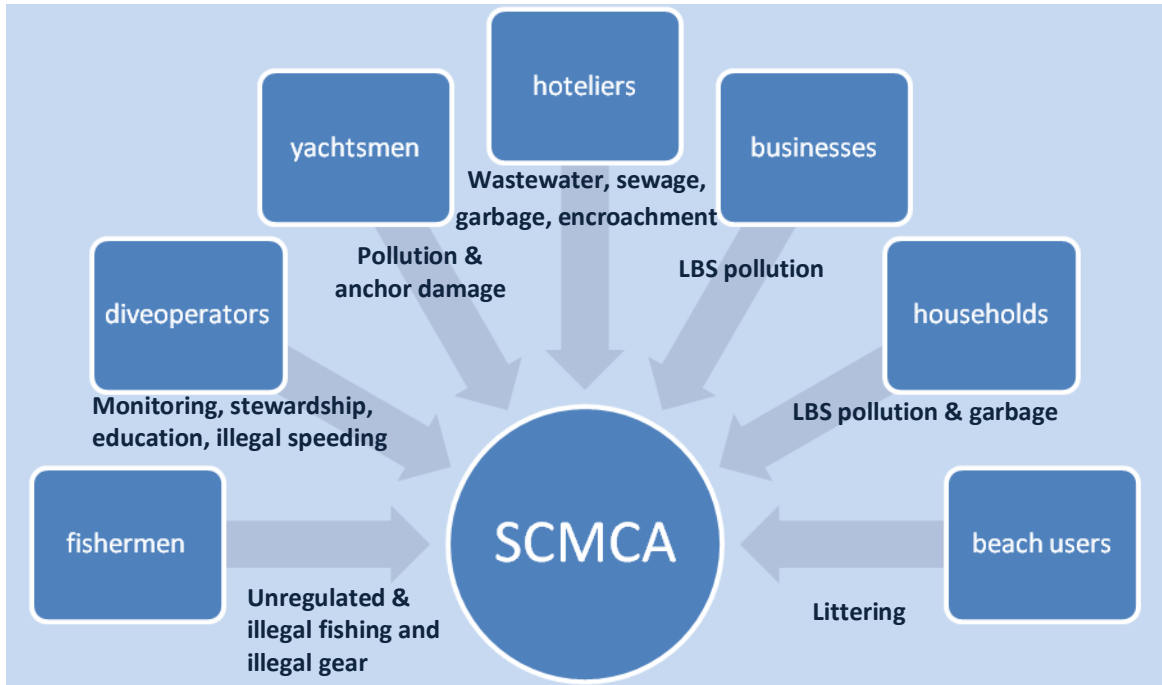


Figure 14 Main impacts on coastal and marine resources of the SCMCA by stakeholder

#### 4.4 Measuring the impact of management arrangements on stakeholder livelihoods and the area's natural resources

More effective management or sustainable use of resources (24%); increased business or more revenue opportunities (22%); attraction of more visitors (16%); and better or healthier environment and ecosystems (16%) were offered as ways in which the upgrade of the SCMCA to a marine park would positively impact the income-generating activities of people in the area (Figure 15).

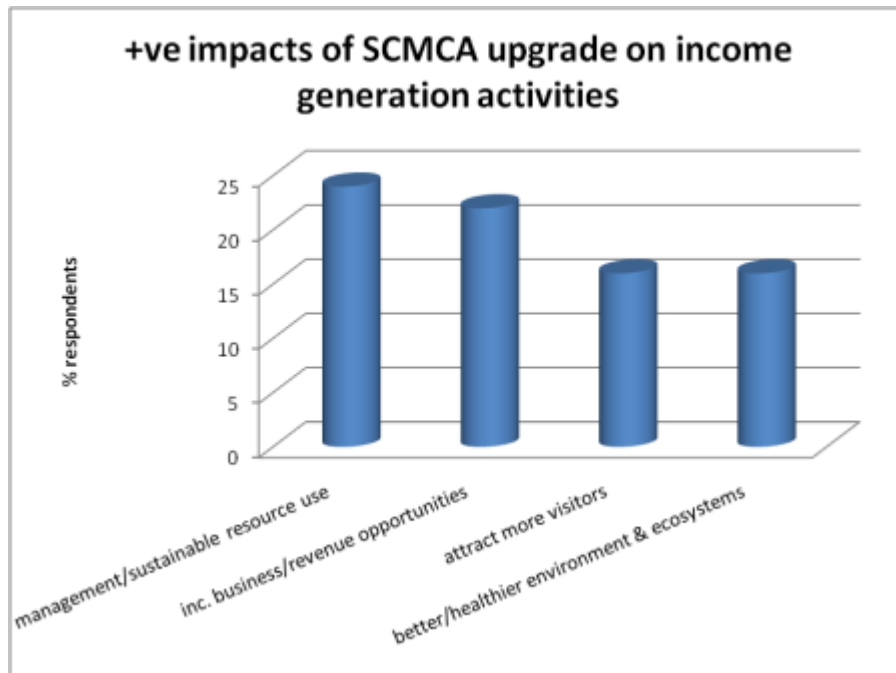


Figure 15 Positive impacts of SCMCA upgrade on the ways people make a living

Displacement of some resource users and restriction of activities, particularly fishers and fishing, were noted by a minority of key informants (18%) as ways in which the upgrade of the SCMCA to a marine park could negatively impact their livelihoods. The majority of key informants did not answer this question.

##### 4.4.1 Changes in resource conditions people would hope to see five years after the SCMCA upgrade

A cleaner environment with improvement in water quality through reduction in pollution; better beach quality including width and colour; healthier corals and habitats; and an increase in fish stocks are the changes in the condition of coastal and marine resources key informants hope to see five years after the SCMCA is upgraded to a marine park and management is implemented.

During the interview, key informants mentioned that in order for there to be such changes in resource condition they envisaged higher levels of protection, conservation and sustainable use of resources. Stricter control and management of the area in terms of compliance with rules and regulations was viewed as necessary. One key informant further suggested that non-compliant persons, organisations

and businesses should be excluded from using the area. Controlled mooring was also mentioned as a necessity for management of the area.

#### 4.4.2 Management responsibility

Greater than two-thirds (67%) of the key informants feel that management responsibility for the upgraded SCMCA should be shared between the Government and the community. Only four percent of persons believe that the Government only should have management responsibility. A fairly significant proportion of key informants (29%) believe that responsibility for management should comprise various arrangements - public participation with the private sector taking the lead; private sector 'leased' from the Government; community and private sector; NGOs and government; private sector only; and a combination of government, community and the private sector (Figure 16).

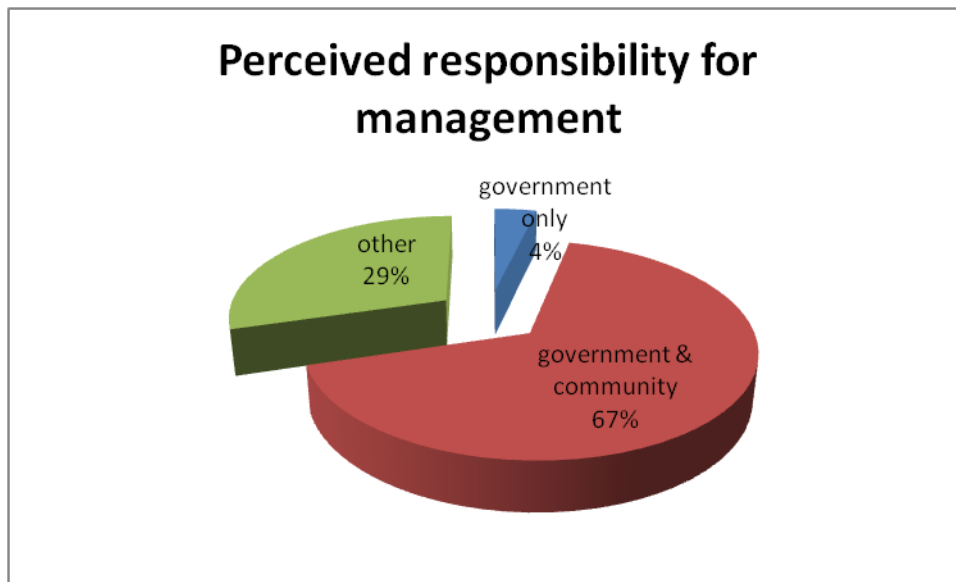


Figure 16 Responsibility for management of the upgraded SCMCA

## 5 VALIDATION

Twenty (20) householders, key informants and other members of the community and general public attended the validation meeting held at the Calliaqua Playing Field on Friday 15<sup>th</sup> February 2013. Hon. Cecil McKie, Minister of Tourism, Sports and Culture, and Mrs. Laverne Grant, Permanent Secretary in said ministry received written briefs on the SCMCA SocMon Project to date. While both officials were invited to the validation meeting, competing engagements prevented them from attending.

### 5.1 Questions and discussion

A number of questions, comments and discussions arose from the validation meeting on issues of vending, pollution, amenities and infrastructure, park boundaries, beach access, management and governance.

### 5.1.1 Vending

Persons were assured that as the SCMA is upgraded to a marine park, activities including vending would be zoned and regulated by certain standards and guidelines

### 5.1.2 Pollution control

Persons were very concerned and disgusted about the compromised aesthetic quality of the SCMCA consequent upon indiscriminate littering and improper waste disposal in the Calliaqua River, in the drains and on the beaches within the SCMCA. Mention was made of the eye-sore created by the derelict and abandoned boats in Canash Bay/beach. Besides land-based sources (LBS) of pollution, concerns were also expressed about liquid waste and chemical spills in the form of grey water, excreta, oils, solvents and paint from yachts and other crafts that ply the waters of the area. Essentially, there was widespread agreement that pollution control, both on land and at sea, has to be given priority on the way forward to developing the proposed South Coast Marine Park.

### 5.1.3 Ammenities and infrastructure

Participants were also in support of protected area agencies collaborating with local fishermen and other seafarers on the siting and maintenance of moorings. Occasionally, moorings are installed by private businesses and individuals without due process and at the exclusion of the authorized agencies and competent personnel. This situation is untenable. Mention was also made of the need for ammenities such as restrooms, changing rooms and picnic benches especially in Villa/Indian Bay. A case was made to make garbage disposal bins available specifically for yachtsmen given the fact that the Government collects fees from this stakeholder group. Access by road to some of the beaches has been a limiting factor for local people who wish to use such public spaces. While all beaches are State property, in several instances, the routes leading to and from the beaches are private holdings.

### 5.1.4 Park Boundaries

On the question of park boundaries, these are undemarcated and not well known. This knowledge gap must be closed since errant sea-farers can engage in illegal or unauthorized activities in zones which are not conducive to such use(s). Persons are also keen to know the size of the SCMCA and the length of the coastline involved.

### 5.1.5 Management and governance

Given the prevalence of unsustainable uses of the SCMCA, persons were unhappy about the limited presence of protected areas agency personnel in the marine conservation area. One person commented that while many of the concerns are focused on the coast, there is need for meaningful consultation with the fisherfolk in the area. Respondents expressed the need for a workable governance/management structure to be established to guide the daily operations of the proposed park.

### 5.1.5 5.1.6 Fishing

One participant enquired whether fishing was illegal in the SCMCA and was informed that spearfishing is illegal in the marine conservation area but is weakly enforced.

## **6 DISCUSSION AND CONCLUSIONS**

### **6.1 Assessing change in resource conditions**

#### **6.1.1 Awareness of the SCMCA**

It was interesting to note that a relatively large number of individuals were indeed aware of the SCMCA despite limited public awareness campaigns. Most of these awareness campaigns include radio and television jingles which focus on the closed and open-seasons for conch, lobsters and sea turtles; anti-litter campaigns focused on recreation and tourism sites including beaches; and the need to protect and conserve the biodiversity, heritage and cultural resources of Fort Duvernette. These outreach programmes were spearheaded chiefly by the Fisheries Division, the National Parks, Rivers and Beaches Authority, and the St. Vincent and the Grenadines National Trust, respectively. As plans progress towards the upgrade of the SCMCA to a marine park, there is need for more public education and awareness-raising. The current level of awareness among respondents particularly as it relates to the fisheries regulations is a good platform on which to build future public awareness and outreach programmes. Having the area demarcated and zoned according to use, and complemented by appropriate and adequate signage are all possible means to foster greater awareness about the SCMCA and plans for its upgrade to a marine park.

#### **6.1.2 Resource conditions**

Most respondents to the household survey felt that some resources particularly are in a very good to good condition. This is contrary to the popular view of the key informants. This difference of opinion was based on the relative degree of awareness and the angle of perception among each group of respondents. For instance, householders associated very good and good resource conditions with the infrastructural improvement of Fort Duvernette and beach and coral reef resources, while the key informants saw the negative changes from the standpoint of sustainability, such as the reduction in water quality, changing colour of beach sand and reduction in beach width. These contrasting views among the two groups of subjects highlight the need for on-going communication, education and public awareness, research, monitoring and evaluation of the coastal and marine resources of the SCMCA.

#### **6.1.3 Perceived threats and solutions**

Pollution was identified as the major threat to the SCMCA by both households and key informants. People are now recognizing the need for proper waste disposal and sewage treatment. Enforcement of penalties was identified as a means of aiding the reduction of this perceived threat.

### **6.2 Uses and use patterns in the SCMCA**

The sheer diversity in the uses and patterns of use identified points to the need for a more effective management regime which includes zoning. Both householders and key informants bemoan several illegal, unregulated, unauthorized, unsustainable and incompatible practices which all threaten or compromise the ecological integrity, aesthetic quality, and the recreational and touristic value of the SCMCA. The findings reinforce the opinion that the area is highly used for recreational and tourism purposes (mainly bathing). Given that the area is popular for the activities identified above also cements the importance of curbing illegal activities through enforcement and compliance to regulations; proper

waste disposal and reduction of littering; zoning; and infrastructural development (washroom facilities, etc), all of which are expected by persons interviewed once the SCMCA has been upgraded to a marine park.

### **6.3 Stakeholders' awareness, attitudes and perceptions of the SCMCA coastal and marine resources**

#### **6.3.1 Importance of the SCMCA**

Respondents recognise the critical importance of the SCMCA as an ecological unit to their overall socio-economic well-being. This recognition has bred a collective desire for a cleaner, healthier environment which is resilient and robust to provide the ecosystem goods and services to support sustainable livelihoods. Most persons indicated that protection of coastal and marine resources in the SCMCA was important to them from the standpoint of environmental preservation; as a tourism and recreational attraction; and as a symbol of local and national pride. This has cemented the need to enhance the environmental quality of the area whether in the form of tree planting and beautification projects, coastal cleanup, or the implementation of standards and guidelines for industry stakeholders among others.

#### **6.3.2 Stakeholder education about the importance of habitat protection and managing SCMCA resources**

The overwhelming majority of persons interviewed believe that much more needs to be done to educate and raise the awareness of stakeholders about SCMCA resource protection and management. During management planning and management implementation, communication and awareness-raising should be earmarked as a priority for the area. Any communication plan that may developed during management planning should take into consideration the most appropriate means suggested by persons interviewed. Improved and increased stakeholder knowledge will lead to the increased support for, as well as, management effectiveness and success of the marine park.

#### **6.3.3 Stakeholder interest and involvement in management**

Key informants suggested a wide range of stakeholders who they believe would either be interested in or would like to be involved in management of the upgraded SCMCA. Efforts to engage and encourage participation from a range of stakeholders during management planning and implementation is critical to gaining buy-in for the upgrade of the marine conservation area and effective management of the marine park. Management planning for the marine park must take into consideration the views and concerns of a wide cross-section of stakeholders.

### **6.4 Potential impact of management on livelihoods and SCMCA resources**

#### **6.4.1 Livelihood impacts**

Householders and key informants both believe their livelihoods will be positively affected by the upgrade of the SCMCA with benefits going to most. However there is a level of uncertainty among both groups as to the type of livelihood impact that might be expected. Fishers were singled out as those that would be most negatively impacted by the SCMCA upgrade through displacement. Management



planning should therefore take vulnerable groups into consideration when designing management interventions and consult with these stakeholders early in the process to determine feasible alternatives in terms of livelihoods or current practices. If potentially vulnerable groups are not considered, the upgrade of the marine conservation area could be met with resistance by some.

#### 6.4.2 Perceived changes in resource conditions

Key informants generally expect overall improvement in ecosystems and resources over time with the upgrade of the SCMCA. This would be made possible through strong enforcement of and compliance with rules and regulations. Emphasis was placed on stringent enforcement and penalties for non-compliant persons, businesses and organisations. Enforcement of rules and regulations to achieve positive changes in resource conditions should therefore be a governance priority for the marine park.

#### 6.4.3 Support for co-management

Both householders and key informants were of the view that the management responsibilities of the area should be shared by government and the community. This shows a certain level of stewardship, ownership and buy-in by the community, and in essence, has bolstered support for a participatory process envisioned as per the upgrade of the SCMCA to a marine park. The reception of the householders and key informants to the planned upgrade of the SCMCA to a marine park, and the fact that people are not averse to the idea of more formal management especially co-management of the area between government and the community should auger well for future marine park management planning in St. Vincent and the Grenadines.

## 7 RECOMMENDATIONS FOR MONITORING AND MANAGEMENT

Given the heightened interest shown by various entities for the upgrade of the SCMA to a marine park, the following recommendations should prove most useful in this regard.

### 7.1 Management planning

Management planning for the SCMCA should include zoning, research, monitoring and evaluation, enforcement and compliance, public education and outreach, infrastructural development and sustainable financing.

### 7.2 Communication, education, public awareness and outreach (CEPA)

There is need for ongoing public awareness and education campaigns particularly in regards to the boundaries of the park, rules and regulations. The issue of public awareness and education was highlighted as necessary means to counter illegal activities in the area. Reports on sanctions for infringement of requisite laws and regulations for the protection and conservation of the area's coastal and marine resources need to be publicized so that individuals would gain a better appreciation for enforcement of and compliance with such regulations.

### 7.3 Standards and guidelines

Development of industry standards and guidelines for hotels, restaurants, mariners, yachters, boat repair shops, garages, fisherfolk, construction companies and other relevant sectors and key stakeholder groups to be identified through a participatory process between all relevant stakeholders and

competent authorities. The idea is to promote best practices. The process should include a certification programme to promote compliance, as well as mechanisms for sanctioning non-compliant parties.

#### 7.4 Enforcement and compliance

A more proactive approach is needed to enforce the relevant laws to protect and conserve the coastal and marine resources of the SCMCA. This should include the recruitment, training and deployment of a cadre of personnel throughout the area, especially in strategic locations where the likelihood of infraction against the rules governing the use of the area's resources is greatest. An effective enforcement programme can be bolstered by a strong CEPA programme that *inter alia* focuses on increasing compliance among the various user groups.

#### 7.5 Monitoring and evaluation

Given the divergent views on the condition of the coastal and marine resources of the SCMCA, the broad range of uses/use patterns, and the perceived threats to those resources, and plans for upgrading the area to a marine park, it is imperative that monitoring and evaluation (M&E) be continued every three to five years in keeping with the SocMon Caribbean methodology using and building on the core SocMon variables measured in this study. A cadre of persons that represent protected area management agencies, community-based and non-governmental organisations, businesses, and educational and conservation institutions should be trained to conduct ecological and socio-economic monitoring. This should stimulate community buy-in and ensure continuity of an effective M&E programme. It is crucial that the results of monitoring and research be communicated to the constituents within the SCMCA and to the wider public. As the results from this SCMCA SocMon 2013 shows, persons had indicated several media through which information can be channeled to them. Further, the findings and recommendations from this study should be used to guide future management decisions and interventions in the area. The decision as to who should be responsible for the coordination and facilitation of M&E; conduct surveys; enter, store and analyse data; and compile and present results and report should be done within a collaborative and participatory framework.

#### 7.6 Governance

Planning for the establishment and management of the proposed South Coast Marine Park (SCMP) is envisaged to be a very engaging affair. It would require rigorous, objective negotiations, effective and efficient coordination, and the mobilization of human, material and financial resources. The availability of relevant documents and data is key to this process. Clearly, the preference is for a co-management governance framework. Accordingly, it is recommended that every effort be made to select an interim steering committee to analyze the SCMCA SocMon Report 2013 with a view to advise on priority areas of focus and action as per management planning for the proposed SCMP. Given the relatively large number of private businesses that operate in the SCMCA, the diverse uses/use patterns and the relatively high population density of the area, it is vital that private-public partnerships be explored as part of the process to upgrade the area to a marine park.

#### 7.7 Summary

The initiation of site monitoring at the SCMCA through this project occurred at a time of heightened interest by multi-party agencies and institutions to support the establishment of the proposed South

Coast Marine Park. The authors are satisfied that the study has achieved the goal to provide substantive baseline data to inform management planning for the SCMP. Limited delivery of and the need for an on-going communication, education, public education and outreach programme in the area have been a recurring theme throughout the study. The relatively high degree of variances on some aspects of the way stakeholders perceive the area's coastal and marine resources and the threats to those resources makes it imperative that such programmes be scaled-up alongside on-going research, monitoring and evaluation, enforcement and compliance as part of the management planning and operational regime of the proposed South Coast Marine Park. Perhaps the most poignant lesson learned from the study is that relevant stakeholders aspire towards a cleaner, healthier environment that is resilient and robust to provide the ecological goods and services so vital to their socio-economic well-being and livelihoods. This aspiration has stirred a sense of urgency to have the SCMP become a reality and for the community to co-manage the SCMP within the realms of stewardship and national pride, and within a sustainable livelihood and sustainable development framework.

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## 9 APPENDICES

### Appendix 1: Household survey

ID# \_\_/\_\_/\_\_ Q# \_\_/\_\_/\_\_

#### South Coast Marine Conservation Area Household Survey

This survey is being conducted to collect socio-economic data to inform management planning to assist with the upgrade of the South Coast Marine Conservation Area to a Marine Park. By having the area declared a marine park, the intention is to manage the area in ways that will optimize the benefits to all users, minimize conflict, and maintain the integrity and resilience of the park and its resources. Your participation will be a valuable contribution to the process. Your responses will be strictly confidential and you will not be identified in any reports. You will be invited to a meeting where the results of the interview will be presented. After a few years you may be asked the same questions again to see if things have changed within the area.

Identification of core socio-economic indicators, assessing change in resource conditions and patterns of use

1. Show all respondents the map of the SCMCA. Tell respondents that you would like to ask them a few questions about the area on the map. Then ask them part (a).

- a) Do you know of this area as the South Coast Marine Conservation Area (SCMCA)?  
 Yes  No

*If YES, follow-up with part (b) to verify respondent's understanding is correct. Then go to question 2. If NO, the interviewer must show the respondent the map of the SCMCA again and provide a description of the area. The South Coast Marine Conservation Area is one of ten Marine Conservation Areas (MCAs) established in 1987 by the Government of St. Vincent and the Grenadines. The SCMCA boundary runs south eastwards from Villa Point in Indian Bay to Johnson's Point in Canash Bay, and includes all that body of water 3.7 miles (6.0km) out to sea. Further to this, it includes three bays; coral reefs, seagrass beds and mangroves; historical and cultural sites; and popular recreational beaches. It is the location of the second most productive fisheries landing facility on St. Vincent. The SCMCA is important to tourism, recreation and fisheries. As a result, there have been recent developments to upgrade the conservation area to full Marine Park status to support the effective management of the proposed park.*

*If NO, skip to question 3.*

- b)  
If YES, which of the following make up the SCMCA? Tick ALL that apply.

<input type="checkbox"/> Fort Duvernette
<input type="checkbox"/> Young Island
<input type="checkbox"/> Mangroves
<input type="checkbox"/> Argyle International Airport
<input type="checkbox"/> Coral reefs
<input type="checkbox"/> Long Island [Rock]
<input type="checkbox"/> Calliaqua

Other, please specify \_\_\_\_\_

*The South Coast Marine Conservation Area will soon be upgraded to the South Coast Marine Park. The upgrade of the area to a marine park means that the area may be zoned for various uses (swimming, diving, anchorage, mooring, fishing etc.) Management will be implemented in order to protect and conserve coastal and marine resources within the area. Management responsibility may comprise government agencies, the private sector and community groups.*

2.

a) Before this survey, were you aware that the SCMCA would be upgraded to the status of a marine park?

Yes       No

*If NO, go to question 3.*

b) If YES, how were you made aware of it?

TV

Radio

Internet

Newspaper

Flyers

Community group

Word of mouth

Other, please specify \_\_\_\_\_

3.

a) To the best of your knowledge do particular legal rules and regulations apply within the SCMCA?  Yes       No       Don't know

b) If YES, which of the following are prohibited by rules and regulations in the SCMCA? Tick ALL that apply.

<input type="checkbox"/> Spearfishing
<input type="checkbox"/> Sand mining
<input type="checkbox"/> Littering
<input type="checkbox"/> Hunting
<input type="checkbox"/> Removal of coral
<input type="checkbox"/> Other, please specify _____

4. The coastal and marine, heritage and wildlife resources of the area include beaches, mangroves, reefs, fisheries and wildlife reserves. How would you describe the current conditions of the following resources? Tick the appropriate rating for each type of resource.

Resource	Very good	Good	Neither good nor bad	Bad	Very bad
Beaches					
Mangroves					
Coral reefs					
Fisheries					
Wildlife reserves					
Fort Duvernette					

5.

- a) Have you noticed any changes in the condition of these resources in the last 5 years?     Yes         No

*If YES, go to part (b). If NO, go to question 6.*

- b) How would you describe the condition of coastal and marine, heritage and wildlife resources of the area (beaches, mangroves, reefs, fisheries and wildlife reserves) in the SCMCA 5 years ago? Tick the appropriate rating for each type of resource.

Resource	Very good	Good	Neither good nor bad	Bad	Very bad
Beaches					
Mangroves					
Coral reefs					
Fisheries					
Wildlife reserves					
Fort Duvernette					

6.

- a) What are the top three threats to coastal and marine resources in the SCMCA?
- b) What are the three main solutions that you recommend to solve the three threats?  
*Complete the table below for each part.*

[Q6a] Threat	[Q6b] Recommended solution
1	
2	
3	

Uses and use patterns in the SCMCA
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7. What activities do you and others in your household do within the South Coast Marine Conservation Area and along its coast? Tick ALL that apply.

- Bathing/swimming
- Fishing
- Diving/snorkeling
- Picnicking
- Walking
- Vending
- Other, please specify \_\_\_\_\_

8. Which areas in the SCMCA do you use the most and why? *Ask this question using the map of the area for more accuracy.*

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9. What uses and activities would you like to see done or stopped in the SCMCA?

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**Stakeholder awareness, attitudes and perceptions**

10.

a) Is the protection of coastal and marine resources in the SCMCA important to you?  
 Yes  No

b) Explain your answer.

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11.

a) Do you think enough is being done to educate people in the community about the SCMCA and its resources?  Yes  No

b) If NO, what do you think could be done to raise awareness about the area and its resources?

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12. What is the best method to inform you about the SCMCA? Tick ALL that apply.

- |                                    |  |
|------------------------------------|--|
| <input type="checkbox"/> TV        | <input type="checkbox"/> Church                |
| <input type="checkbox"/> Radio     | <input type="checkbox"/> Town hall meeting     |
| <input type="checkbox"/> Newspaper | <input type="checkbox"/> Flyers/posters        |
| <input type="checkbox"/> Internet  | <input type="checkbox"/> Other, please specify |
| <input type="checkbox"/> Telephone |  |

**Impact of management arrangements on stakeholder livelihoods and SCMCA's natural resources**

13.

- a) Do you think your livelihood will be affected by the upgrade of the SCMCA to a marine park? (i.e. to a marine park similar to the Tobago Cays)
- Yes  No

b) Explain your answer.

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14. Who do you think will benefit most from the upgrade of the SCMCA to a marine park and implementation of management? [i.e the implementation of something similar to the Tobago Cays Marine Park]

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15. What changes in the *condition* of coastal and marine resources in the SCMCA would you hope to see five years after the area is upgraded to a marine park and management is implemented?

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- 
16. Who do you think should be responsible for management of the South Coast marine park?  
Tick ALL apply.

<input type="checkbox"/> Government	<input type="checkbox"/> NGOs
<input type="checkbox"/> Community	<input type="checkbox"/> Private sector
<input type="checkbox"/> Government and community	<input type="checkbox"/> Other, please specify

Population demographics
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17. Gender  Male  Female
18. Age:  15-29  30-44  45-64  over 65
19. What is your highest level of formal education?
- Primary
- Secondary
- A Level College
- University
- Professional, Technical and Vocational School
20. What is your main source of income/occupation? \_\_\_\_\_

Thank you for your participation

Appendix 2: SocMon Caribbean survey variables selected for monitoring

<b>Data collection instrument</b>	<b>Variable no.</b>	<b>Variable</b>
Survey	S1	Age
	S2	Gender
	S4	Education
	S7	Occupation
	S10 (revised)	HH activities (and location of activities)
	S16 (revised)	Perceptions of resource conditions
	S17 (revised)	Perceived threats
	S18 (revised)	Awareness of rules and regulations
	NEW	MPA knowledge and awareness
	NEW	Types of and changes in MPA livelihoods
	NEW	MPA changes or impacts
	NEW	Perceived management responsibility
	NEW	Perceived MPA benefits
	NEW	Use patterns
	NEW	Education efforts

Appendix 3: Key informant interview guide

Date: \_\_\_\_\_

Name of Key Informant: \_\_\_\_\_

Interviewer: \_\_\_\_\_

**Key informant interview for the South Coast Marine Conservation Area (SCMCA)**

This interview is being conducted to collect socio-economic data to inform management planning to assist with the upgrade of the South Coast Marine Conservation Area to a Marine Park. By having the area declared a marine park, the intention is to manage the area in ways that will optimize the benefits to all users, minimize conflict, and maintain the integrity and resilience of the park and its resources. Your participation will be a valuable contribution to the process. Your responses will be strictly confidential and you will not be identified in any reports. You will be invited to a meeting where the results of the interview will be presented. After a few years you may be asked the same questions again to see if things have changed within the area.

<p><i>Monitoring objective 1: To identify a core set of socio-economic indicators for assessing change in resource conditions and patterns of use over the next 3-5 years</i></p>
<p>1. How aware are people about the SCMCA? <i>Very aware, fairly aware, not aware at all.</i></p> <hr/> <hr/> <hr/> <hr/>
<p>2. What would most people know about the SCMCA? <i>(Trying to measure general knowledge about the area on things such as SCMCA boundaries, relevant regulations, included sites etc.)</i></p> <hr/> <hr/> <hr/> <hr/>
<p>3. Do you think people in the area know that the SCMCA will be upgraded to the status of a marine park? Explain your answer.</p> <hr/> <hr/> <hr/> <hr/>

Date: \_\_\_\_\_

Name of Key Informant: \_\_\_\_\_

Interviewer: \_\_\_\_\_

4. Have you noticed any changes in the condition of coastal and marine, heritage and wildlife resources (mangroves, beaches, fisheries, reefs, wildlife reserves, Fort Duvernette) in the SCMCA over the past 5 years? If yes, what changes have you observed? *(Compare past with current conditions)*

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5. What are the major threats to coastal and marine resources, in the SCMCA? How should they be addressed or solved?

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*Monitoring objective 2: To identify a range socio-economic uses/use patterns in the SCMCA*

6. What are three main activities that occur most regularly within the SCMCA?

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7. Which areas in the SCMCA are considered highly used and of socio-economic importance to people in the area? Explain your answer.

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Date: \_\_\_\_\_

Name of Key Informant: \_\_\_\_\_

Interviewer: \_\_\_\_\_

8. What types of changes, if any, in coastal and marine resource *uses and activities* would you hope to see in the area after the SCMCA is upgraded to a marine park?

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*Monitoring objective 3: To determine stakeholders awareness, attitudes and perceptions of the coastal and marine resources in the SCMCA*

9. Do you think the protection and conservation of coastal and marine resources in the SCMCA is important to people in the area? Explain your answer.

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10. In your opinion, is enough being done to educate stakeholders about the importance of protecting habitats and managing coastal and marine resources in the SCMCA? Explain your answer. Is there anything else that could be done?

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Date: \_\_\_\_\_

Name of Key Informant: \_\_\_\_\_

Interviewer: \_\_\_\_\_

11. Which stakeholders and/or organizations within the SCMCA communities would be interested in or would like to become involved in management of the upgraded SCMCA?

Interested:

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Involved:

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12. What are the main impacts of various stakeholders (*fishermen, dive operators, hoteliers, yachtsmen etc.*) on coastal and marine resources in the SCMCA?

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*Monitoring objective 4: To measure the impact of management arrangements on stakeholders livelihoods and the area's natural resources*

13. In what ways, if at all, will the upgrade of the SCMCA to a marine park affect the ways in which people earn a living in the area? (*Positive and negative ways should be identified*)

Positive:

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Negative:

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Date: \_\_\_\_\_

Name of Key Informant: \_\_\_\_\_

Interviewer: \_\_\_\_\_

14. What changes in the *condition* of coastal and marine resources would you hope to see five years after the SCMCA is upgraded to a marine park and management is implemented?

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15. Who do you think should be responsible for management of the upgraded SCMCA (*government only, government and community, community only etc.*)? Why?

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Thank you for participating!



Appendix 4: SocMon Caribbean key informant variables selected for monitoring

<b>Data collection instrument</b>	<b>Variable no.</b>	<b>Variable</b>
Key informant	K14	Activities
	K17	Value of goods and services
	K19	Use patterns
	K20	Levels and types of impacts
	K23 (revised)	Stakeholders
	NEW	MPA changes or impacts
	NEW	Perceptions of resource conditions
	NEW	Perceived threats
	NEW	Perceived changes in activities and uses
	NEW	MPA knowledge and awareness
	NEW	Perceived management responsibility

Appendix 5: Validation meeting slides



Socio-economic Monitoring by Caribbean Challenge MPA Managers

**Socio-economic data for informing management planning at the South Coast Marine Conservation Area, St. Vincent and the Grenadines**

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*Community Meeting*

*15 February 2013*

## Goal

- to collect socio-economic data to inform management planning of the South Coast Marine Conservation Area





## Objectives

- To identify a core set of socio-economic indicators for assessing change in resource conditions and patterns of use over the next 3-5 years
- To identify a range of socio-economic uses/use patterns in the SCMCA
- To determine stakeholders awareness, attitudes and perceptions of the coastal and marine resources in the SCMCA
- To measure the impact of management arrangements on stakeholders livelihoods and the area's natural resources



## What is SocMon?

- Socio-economic monitoring (SocMon) can provide us with social and economic information that helps us to understand human interactions with and dependence on coastal resources by various stakeholders.



## Methods/Tools

- Household surveys**
  - 63 households interviewed
  - 29<sup>th</sup> Jan – 4<sup>th</sup> Feb 2013
  - Communities targeted
    - Canish
    - Calliaqua
    - Glen
    - Golden Vale
    - Ratho Mill
    - Ville

- Key informant interviews**
  - 29 KIs interviewed
  - 29<sup>th</sup> Jan-7<sup>th</sup> Feb 2013
  - Type of KIs
    - Governmental agencies
    - Resource users
      - Fisherfolk
      - Dive operators
    - Hotelier/Resort owners
    - Business owners/self-employed

## Results

Assessing change in resource conditions and patterns of use

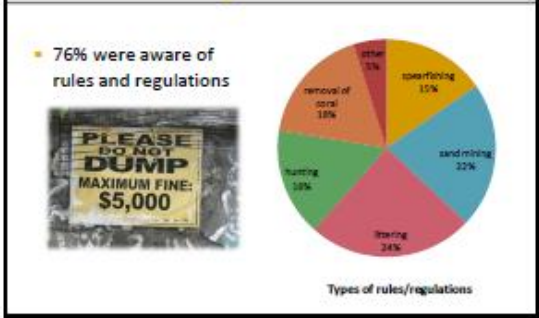


## Awareness of SCMCA

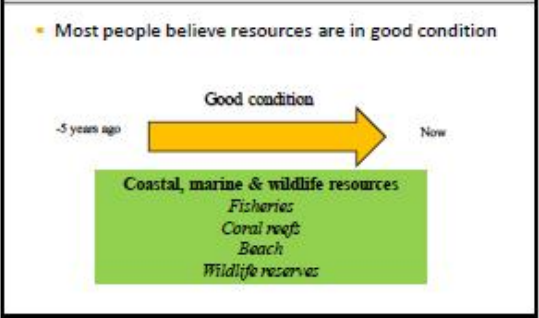
- 59% were aware of the SCMCA
- Only 37% were aware of the upgrade of SCMCA to a marine park
- Three top strategies used to spread awareness:
  - Radio (27%)
  - TV (18%)
  - Word of mouth (18%)
  - Others included internet, community groups, newspaper & flyers



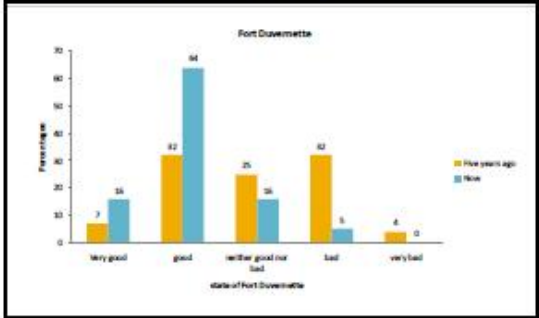
## Activities prohibited by rules & regulations



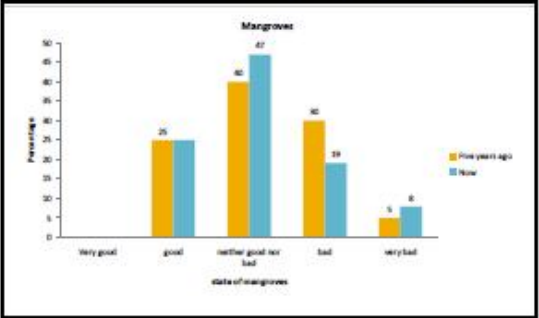
## Resource conditions



## Resource conditions and changes



## Resource conditions and changes



## Threats and solutions

The main threat to coastal and marine resources was pollution (e.g. littering and run-off from hotels).



- **Other threats**
  - Crime
  - Resource harvesting
  - Environmental degradation
  - Natural/meteorological phenomena
  - Sand mining
  - Yachting industry
  - Overpopulation

## Threats and solutions

- The main solution was the establishment of liquid and solid waste facilities.



- **Others**
  - Enforcement/penalties
  - Clean-up activities
  - Designation/controlled usage
  - Awareness
  - Security
  - Sea defense mechanism
  - Chlorination of water by hotels
  - Professional assistance
  - Nothing

## Results

Uses and use patterns in the SCMCA



## SCMCA activities & usage

- Top two popular activities within the SCMCA:
  - Bathing (30%)
  - Walking (20%)
- Top three areas most frequently used:
  - Villa Bay (45%)
  - Indian Bay (28%)
  - Calliaqua (13%)
- Top two reasons for usage
  - Proximity to home (44%)
  - Aesthetics/Ambience (18%)



## Uses and activities you would like to see stopped

- The two major activities to be stopped are
  - Pollution (49%)
  - Illegal activities [sand mining/drug trafficking] (15%)



- **Others**
  - Environmental degradation
  - Sports on the beach
  - Vending
  - Harassment of tourists
  - Spear fishing
  - Cooking on beach
  - Beach parties
  - Misbehaviour on beach
  - Limited beach access
  - Pets on the beach

## Uses and activities you would like to see done

- The top three major activities to be done:
  - Infrastructural development (37%)
    - E.g. beach/bathroom facilities, upgrade fishing area, road access
  - Improved beach management (25%)
    - E.g. increased security, designated areas, safety (lifeguards)
  - Improved environmental conditions (23%)
    - E.g. clean-ups, proper waste disposal, tree planting activities


### Uses and activities you would like to see done

- Others
  - Youth involvement
  - Vending
  - Share water quality info
  - Enforcement
  - Recreational activities



### Results

Stakeholder awareness, attitudes and perceptions of the coastal and marine resources in the SCMCA



### Protection of coastal & marine resources


Yes, it is important to me! (94%)

WHY?

<ul style="list-style-type: none"> <li>Environmental Preservation (31%)</li> <li>National pride (17%)</li> <li>Tourist attraction (17%)</li> <li>Income or livelihood (9%)</li> </ul>	<ul style="list-style-type: none"> <li>Aid development/economy (8%)</li> <li>Love of the area (6%)</li> <li>Security/safety (6%)</li> <li>Residence (4%)</li> <li>Food source [fish] (2%)</li> </ul>
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### Adequate education

- Almost all persons (97%) indicated that not enough has been done to educate people of the community.
- The main method identified to educate persons were awareness campaigns (41%).




**Other methods:**

- Community drives
- Media
- Educational tours
- Free night school
- Personal communication

### Best method to inform persons of SCMCA

- Television was the best method to inform persons (21%).




**Other methods:**

- Radio
- Newspaper
- Internet
- Telephone
- Church
- Town hall meeting
- Flyers/posters

### Results

Impact of management arrangements on stakeholder livelihoods and SCMCA natural resources



## Impact of management on livelihoods

- 36% believed their livelihood would be affected by the upgrade of SCMCA
- Level of impact
  - Positively (46%)
  - Negatively (36%)
  - Unsure (18%)



## Impact of management on livelihood

Of those who would be impacted:

### Positive impacts

- Increased income
- Increased knowledge
- Aids development

### Negative impacts

- Restriction of beach activities e.g. vending and watersports
- Negatively impacts fishing

Four persons indicated that the impact would depend upon rules & regulations

## Impact of management on livelihood

- 64% stated that they would not be impacted
- The top three reasons for this:
  - Their livelihood is not in the area (37%)
  - They were retired persons (19%)
  - The development would help protect the environment (15%)



## Who will benefit?

- Most persons (39%) believed that everyone will benefit.

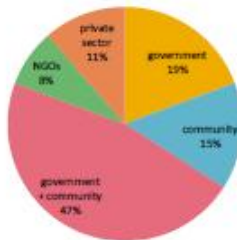


### Others

- Tourism industry
- Tourists
- Community
- Stakeholders involved
- Fishermen
- Government
- Rich & Famous
- Youth (conservation)

## SCMCA Management responsibility

Who should manage area?



## What have we learned?



## Key learning

Communities believe that more must be done to increase their awareness of the SCMCA

Pollution from various source is a significant issue



## Key learning

- Need to balance the livelihood impacts
- They are aware of the types of impact after the establishment of the SCMCA
- The communities are calling for joint management of the SCMCA (government & communities)



## Acknowledgements

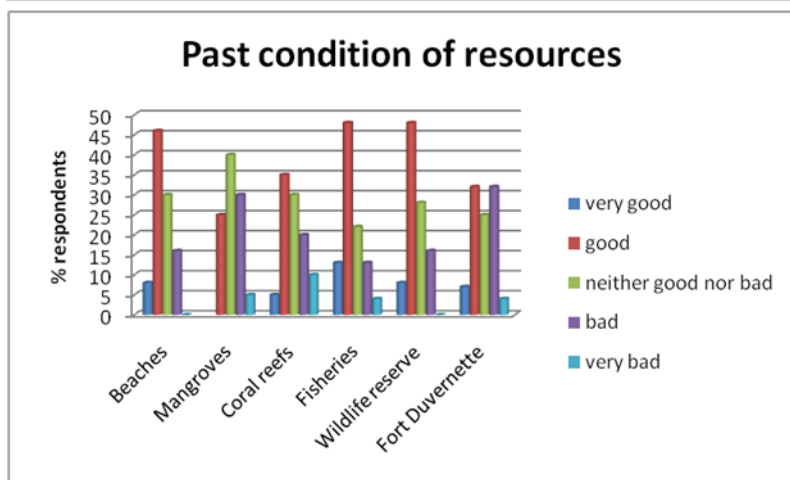
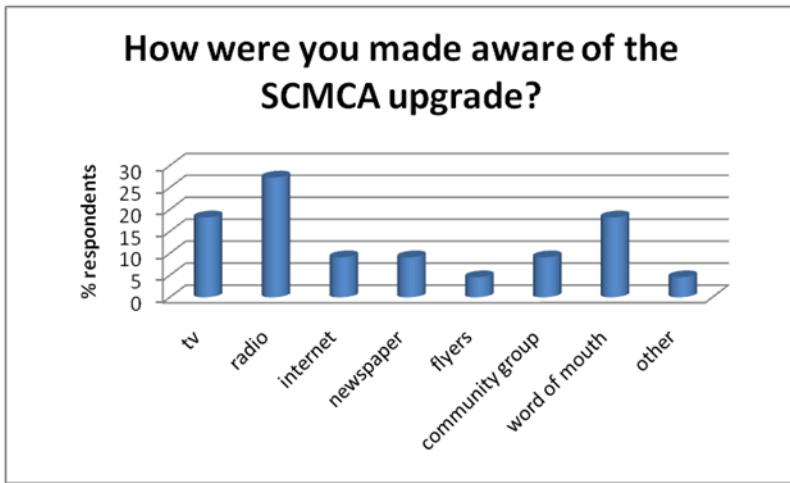
We would like to thank the following:

- US National Fish and Wildlife Foundation (NFWF)
- Centre for Resource Management and Environmental Studies (CERMES), UWI
- Foster Hannibal, Ministry of Transport & Works/CARDO
- Stemley Walker, Park Ranger
- Community respondents & key informants
- Noretta John and Kristelle Francis
- National Lotteries Authority
- National Sports Council
- Winfield Tannis Abbott, CALFICO

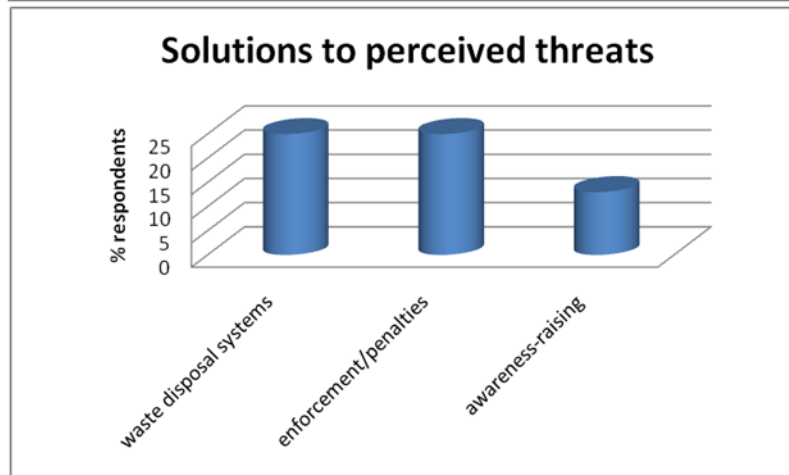
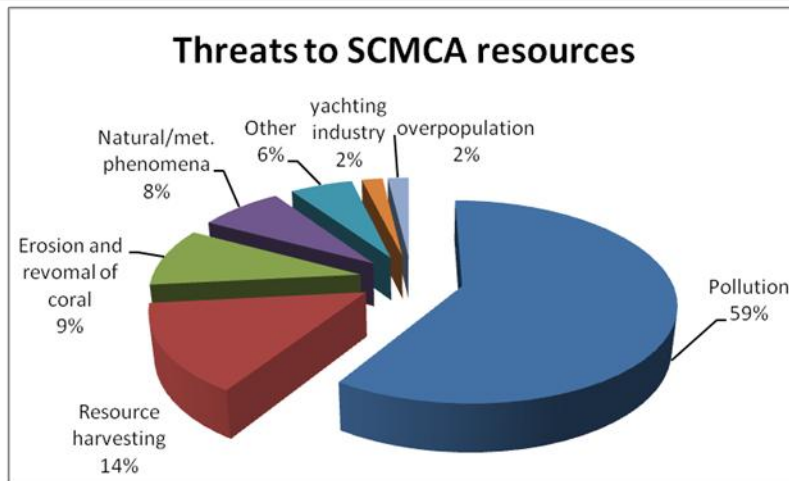
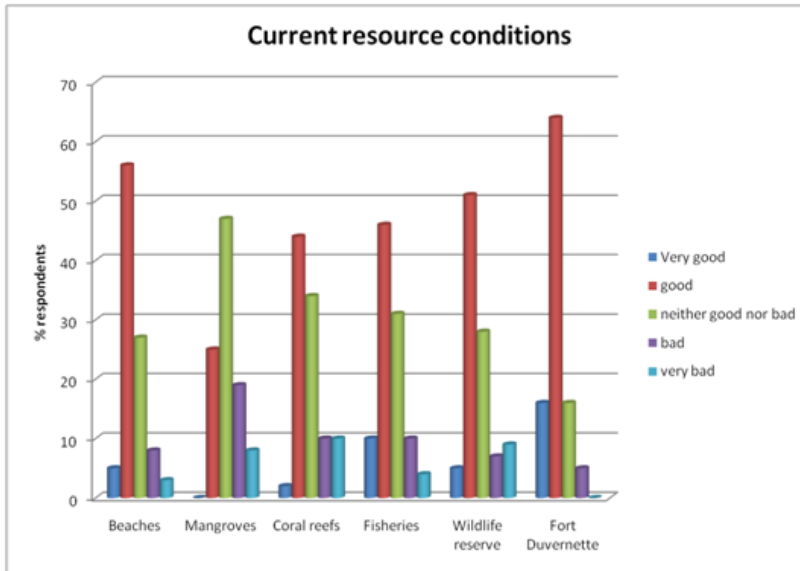
Thank you!!

Comments? Questions ?

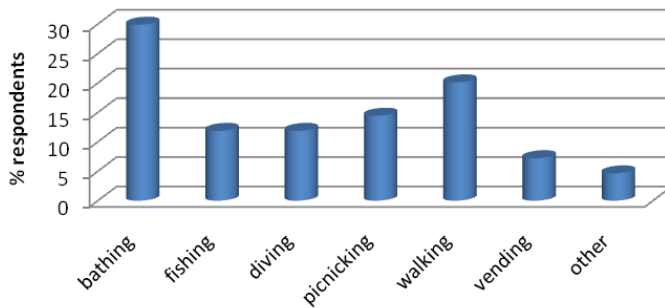
Appendix 6: Graphs from survey data analysis



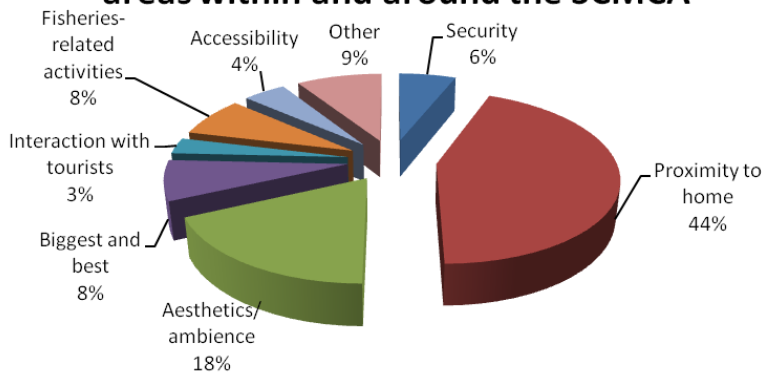




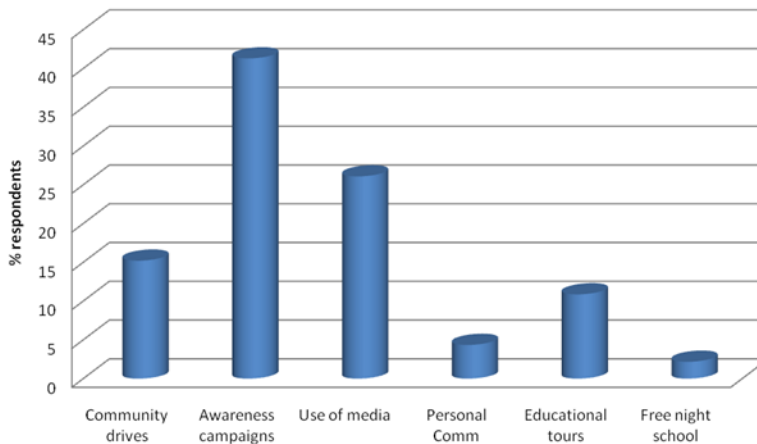
### Types of activities within the SCMCA and along its coast



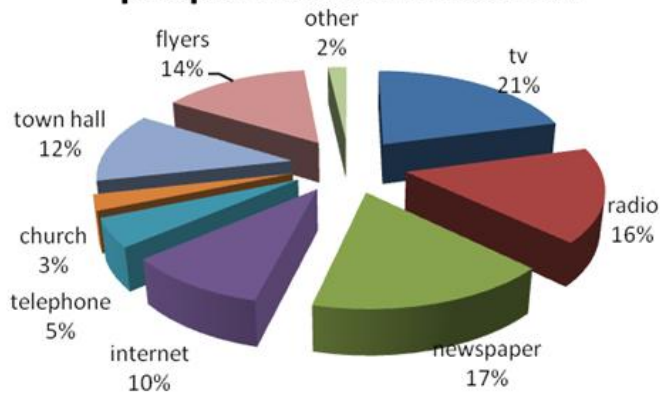
### Reasons for preference of certain areas within and around the SCMCA



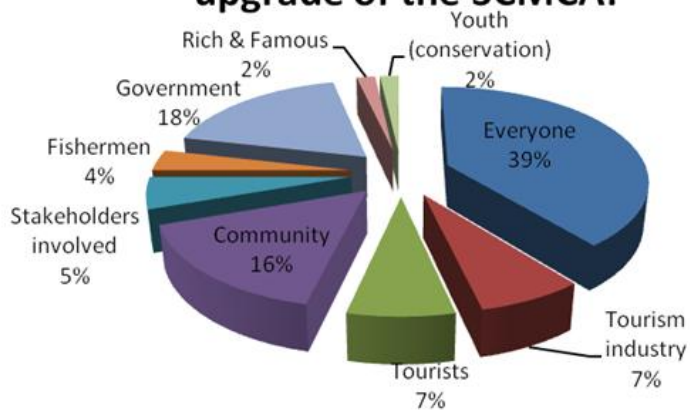
### What can be done to raise awareness about the SCMCA and its resources



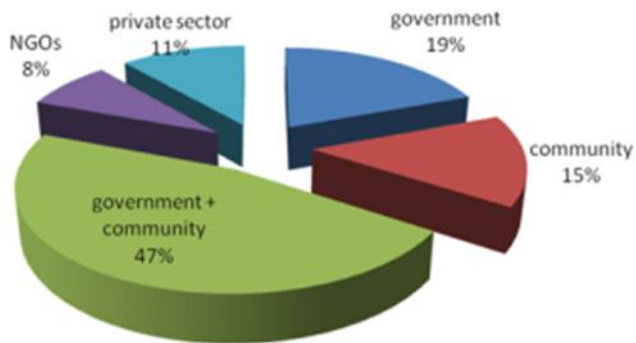
### Most suitable methods of informing people about the SCMCA



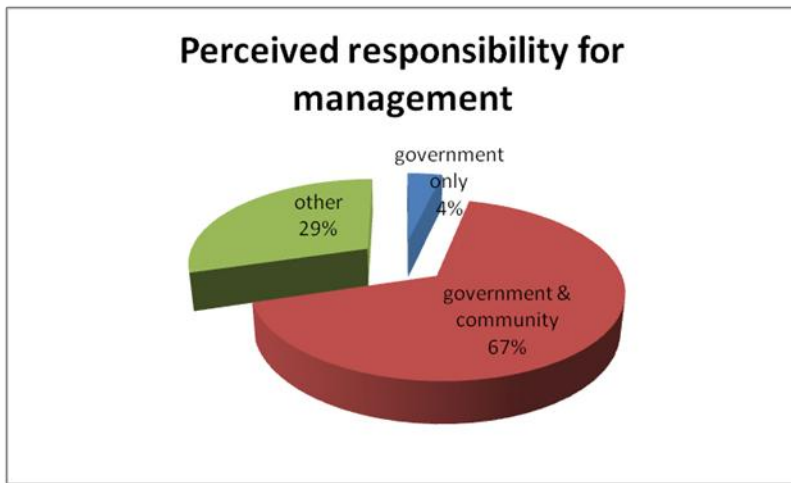
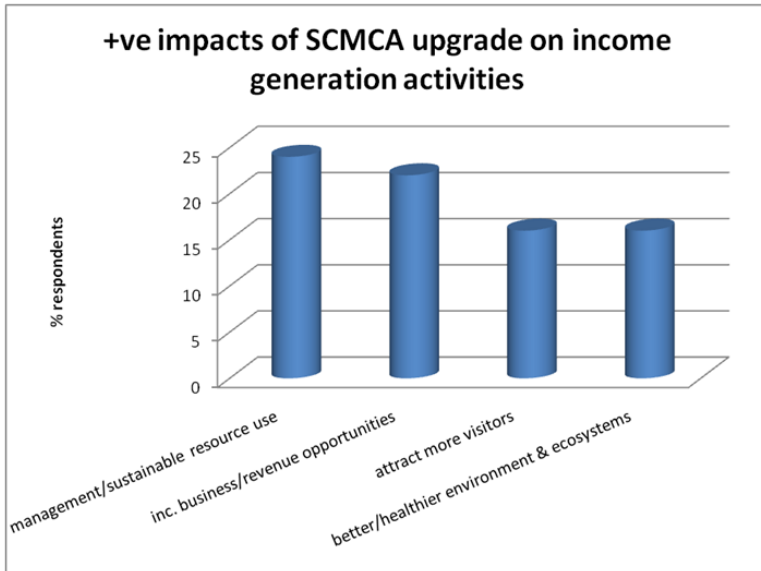
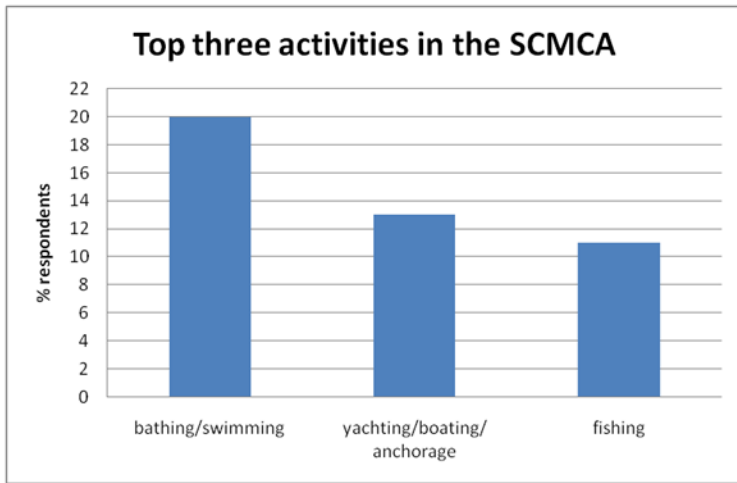
### Who will benefit most from the upgrade of the SCMCA?



### SCMCA management responsibility



Appendix 7: Graphs from key informant interview analysis



Appendix 7:SocMon project cost

<b>Description of expense</b>	<b>Expenditure (XCD)</b>
<i>Data collection assistance (K. Francis)</i>	
Airfare (BGI to SVG return)	717.15
Accommodation: 9 nights@USD 72/night	1,730.16
Per diem: USD 30 x 10 days	810.00
<i>Field work fees</i>	
Fieldwork and data entry (K. Francis)	1620.02
Fieldwork assistance (Ms. John)	771.45
<i>Office supplies</i>	
100 copies of 7-pg document	175.00
25 copies of 5-pg document	31.25
<i>Other expenses – Validation meeting</i>	
Soft drinks, water	70.32
Ice	23.00
Light bulbs	29.70
<b>Total expenditure</b>	<b>5,978.05</b>
<b>Available balance</b>	<b>767.21</b>