

Using Socio-economic Data to Inform Strategies to Mitigate Impacts of Planned Development within the Pitons Management Area (PMA) and Soufriere Marine Management Area (SMMA), St. Lucia

Utilizando los Datos Socioeconómicos para Informar a las Estrategias para Mitigar los Impactos del Desarrollo Planificado en el Área de Gestión de los Pitones (PMA) y la Marina de Soufriere Área de Gestión (SMMA), Santa Lucía

Utilisation de Données Socio-économiques pour Éclairer les Stratégies pour Atténuer les Impacts de Développement Planifié dans la Zone de Gestion des Pitons (PMA) et Soufrière Marine Management Area (SMMA), Sainte-Lucie

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ABSTRACT

The Soufriere Marine Management Area (SMMA) and Pitons Management Area (PMA) are a Marine Management Area (MMA) and Environmental Protection Area (EPA), respectively, both situated on the southwest coast of St. Lucia. The SMMA was legally declared in 1995 and is approximately 11km long, extending to a depth of 75m. It is dominated by nearshore coral reef plateaus that rapidly drop off to deep depths. The PMA was awarded World Heritage Status in 2004. It extends over 29.09 km² and includes the Pitons, the town of Soufriere, nearby coral reefs, sulphur springs and drive-in volcano. The marine zone of the PMA overlaps part of the SMMA. The town of Soufriere, adjacent to both the SMMA and PMA, is considered to be the tourism capital of St. Lucia. As such there is potential for development of the area as tourism has grown significantly over the past 10 years. With a number of physical developments by residents and others currently being planned, both the SMMA and PMA are threatened by coastal development. Therefore through a sub-grant from the CERMES-implemented, *Socio-economic Monitoring by Caribbean Challenge MPA Managers project (CC SocMon)*, the SMMA and PMA conducted a socio-economic assessment to determine perceived threats of planned development within the areas; determine the level and extent of use of the areas by residents and other users and to identify potential management solutions to address impacts identified. The data will be used to inform strategies to mitigate socio-economic impacts of such development within the SMMA and PMA.

KEY WORDS: Socio-economic data, planned development, strategies

INTRODUCTION

Socio-economic Monitoring by Caribbean Challenge MPA Managers Project

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

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

The project involves eight MPAs across three CC countries - Grenada, St. Vincent and the Grenadines, and St. Lucia. Participating MPAs in St. Lucia are the Soufriere Marine Management Area (SMMA), Pitons Management Area (PMA) and Pointe Sable Environmental Protection Area (PSEPA). Each project site was awarded a sub-grant of USD \$2,500 to

conduct a socio-economic assessment or monitoring programme. The project’s duration was 1 September 2011 to 28 February 2013. This paper provides an overview of a joint socio-economic assessment conducted at the SMMA and PMA.

Situation Overview

The Soufriere Marine Management Area (SMMA) was established following an eighteen-month stakeholder consultation process and was formally launched in July 1995. This 11-km near-shore marine protected area (MPA) utilizes a five category zoning scheme to manage users and uses (Figure 1). Five no-take Marine Reserves are established to protect important coral reef areas. Livelihoods of traditional fishers are also protected in designated Fishing Priority Areas. The three other zones are Multiple Use Areas, Yacht Mooring Areas and Recreational Areas. In the early years, a cross-section of agencies with vested interest formed a Technical Advisory Committee (TAC) and a technical working group to manage the SMMA (George 1994). In 2001, following an institutional review, the TAC acted upon the recommendations from this review to strengthen the management body. Subsequently, a non-profit company was registered in Saint Lucia, The Soufriere Marine Management Association Inc. (SMMA Inc.), and was declared the Local Fisheries Management Authority responsible for managing the SMMA in accordance with the Fisheries Act #10 of 1984. Management of this marine protected area has evolved over the past two decades from a project to its legal declaration as a Local Fisheries Management Area (Pierre-Nathoniel 2003, Renard 2001). The SMMA Inc. is governed by a twelve member board of directors which comprises key stakeholders representing the major interest groups in the SMMA. As specified in the Agreement to Manage the SMMA (SMMA 2001), programme activities include monitoring of social and economic impacts of management consultation on all major development initiatives that have an impact on the SMMA (Table 1).

Table 1. Applicable SMMA programme, objectives and activities.

Programme	Objective	Activities Included
Research and monitoring	To provide the scientific basis for the formulation and implementation of all programmes related to the management of the use of the natural resources and the development of socio-economic activities in the SMMA	Monitoring of the status of resources, and of the economic, social and cultural impacts of management
Social and economic development	To derive equitable social and economic benefits from the sustainable use of the natural and cultural resources of the SMMA	Consultation with the SMMA Inc., by relevant agencies and authorities, on all major development initiatives that have an impact on the SMMA

Over the past years, the management of the SMMA Inc. has recognized the need to address anthropogenic activities occurring inland which have adverse impacts on the coastal and marine resources. The SMMA surrounds the town of Soufriere which is the prime tourist attraction on island for the diversity of natural and historical sites which are found in the community. The iconic twin pitons, drive-in volcano, mineral falls, black sand beaches, historic buildings from the French and British colonial period and incredible dive sites are located within the town.

Soufriere is also home to the Pitons Management Area (PMA) which was inscribed as a World Heritage Site in 2004 and is one of only five natural World Heritage Sites in the Caribbean region. The 29.09 km² site encompasses natural volcanic features including Petit and Gros Pitons which are volcanic spires that rise majestically from the sea and the Sulphur Springs, an active volcanic centre with fumaroles and hot springs. The PMA is divided into seven policy areas. Each policy area is subject to varying physical development guidelines including a no-build zone in Policy

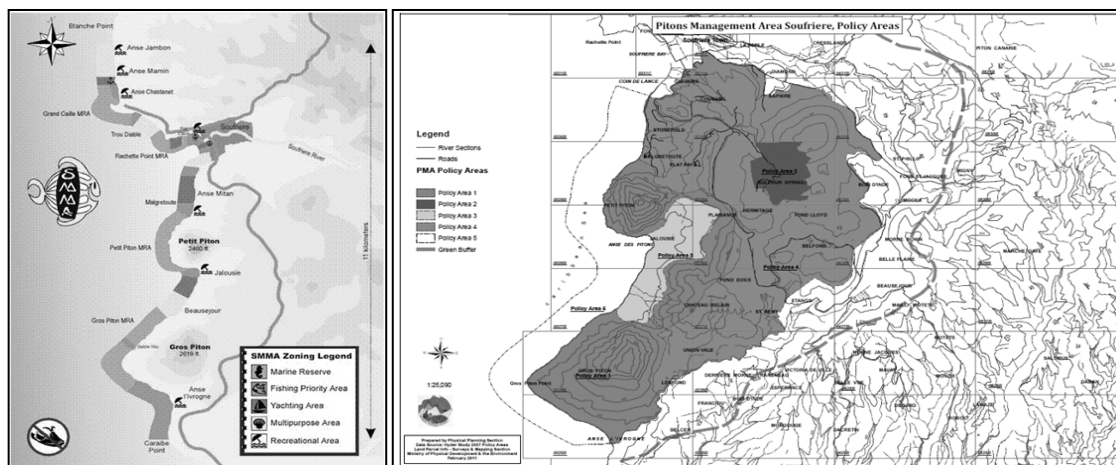


Figure 1. Maps of the protected areas showing left to right: zones of the Soufriere Marine Management Area and policy zones of the Pitons Management Area.

Area 1 (Figure 1). In the past few years the impacts of physical developments on the Outstanding Universal Value have been questioned. In 2012 the World Heritage Committee (WHC) handed down a decision which requested that the State Party, Saint Lucia, issue a stop work order and not approve any additional developments until a Limits of Acceptable Change study, along with development regulations and guidelines, are completed and legally integrated into the development review process. The WHC further requested an updated report to be submitted by 1st February 2013 for examination by the Committee “with a view to consider inscribing the property on the List of World Heritage in Danger if the measures requested by the Committee are not implemented” (UNESCO 2012).

Following the SocMon training in January 2012, the PMA and SMMA agreed to pool resources and conduct a joint research project. At that time, several social issues were coming to the fore with implications for both the SMMA and the PMA including the decision by the World Heritage Committee. The two SocMon project management teams ultimately agreed to monitor perceptions of residents on the impacts of planned development on the SMMA and the PMA.

METHODS

A training workshop on the Caribbean SocMon methodology was held in Saint Lucia in January 2012. One staff member from the SMMA Inc. and the office of the PMA attended this training (Pena and Blackman 2012). Preparatory activities for the monitoring included the formation of a team comprising the workshop participants and a statistician. The monitoring project was designed to gather socio-economic data that would be used to inform strategies and mitigate impacts of planned development in the two areas with the following objectives:

- i) To determine perceived threats of planned development within the SMMA and PMA by residents and other users.
- ii) To determine the level and extent of use of the PMA and the SMMA.
- iii) To identify potential management solutions to address impacts identified.

The study areas chosen were the town of Soufriere where the two protected areas are located and two adjacent villages of Canaries and Choiseul. Ten unemployed youth from the study areas were trained and hired as enumerators. One hundred and fifty-nine random household surveys were conducted in the communities of Soufriere (n = 79), Canaries (n = 32) and Choiseul (n = 48). Enumeration was conducted over a two week period.

Ten survey variables were used to collect the data for this project, six of which were original SocMon Caribbean variables, with one requiring revision, i.e. six original variables and one original variable that was adapted. The

development of four completely new variables was necessary to measure information – such as household MPA livelihoods, knowledge and perceptions of physical development, impacts and negative impact reduction, perceived responsibility for impact reduction, and MPA user frequency and type of MPA use(s) – specifically to address the objectives of this study. Data were entered and analysed in Excel using simple descriptive statistics. A focus group discussion with key stakeholders will be held to gather additional data. A validation meeting will be held to provide feedback of the results of the study to the communities.

RESULTS

An overview of results of the household surveys is presented under headings reflecting the objectives of the study. Details of the results of the assessment may be found in the site monitoring report on the CERMES website:

http://www.cavehill.uwi.edu/cermes/cc_socmon.html.

To determine perceived threats of planned development within the SMMA and PMA by residents and other users and to identify potential management solutions to address impacts identified — In general the overwhelming majority of persons (83%) surveyed believe there is a need for further physical development within and around the SMMA and PMA. The type of development that people would support varied according to protected area. Beach facilities (59%), jetties (45%), and tourism structures (35%) on the water were the top three types of development people would support in and around the SMMA. The top three types of development that would be supported by people in and around the PMA were community parks/playground (41%), a community development centre (40%) and hotels (40%) (Figure 2).

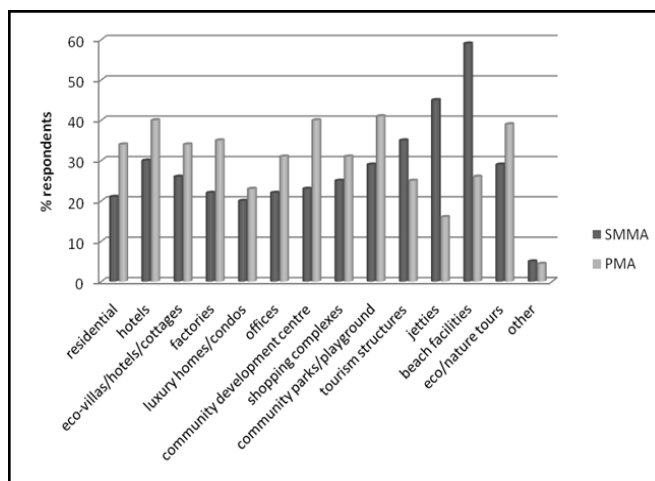


Figure 2. Support for varying types of physical development in and around the SMMA and PMA.

Of the 17% of people who thought there was no need for further physical development in the protected areas, the following reasons were given for this stance:

- i) Soufriere and surrounding areas are St. Lucia's national treasures, its resources should not be destroyed by development.
- ii) We must learn to value and appreciate what we have.
- iii) Development will benefit the 'big people'/foreign investors only, we are not building, we not selling, leave Soufriere alone.
- iv) Enough has been done in the area; some people are employed but small salaries make supporting families difficult.
- v) St. Lucians will not be able to frequent these areas freely if development continues and the chance for making a living from the area will be less.
- vi) The PMA is not safe for development; cutting down trees can lead to landslides and extinction of some of our animal species.
- vii) Soufriere is too crowded.
- viii) Further development in the SMMA area has the potential to disturb habitats in marine areas through for example, pollution.
- ix) Threat of delisting the Pitons as a World Heritage Site.
- x) There was an agreement to protect the PMA, therefore there should be no building in the PMA.

The planned developments to be established within the PMA and SMMA that people were most familiar with were the hotel at Malgretoute, the expansion at Jalousie and Hotel Chocolat at Sulphur Springs. Over half of all respondents were aware of these planned developments (Table 2). Only 3% of respondents were aware of other planned developments to be established.

Other planned developments that respondents were aware of were a marina at Barons Drive and the building of a tunnel at Anse Chastanet (that was stopped) and the selling of the Pitons to foreigners.

Table 2. Knowledge of planned developments to be established in the protected areas.

Planned development	% Respondents
Hotel at Malgretoute	79
Expansion at Jalousie	60
Hotel Chocolat at Sulphur Springs	52
Beach park at Hummingbird	46
Construction of multi-million dollar houses between the Pitons	36
Expansion at Anse Chastanet including multi-million dollar houses	29
Geothermal exploration	26
Hotel development at Anse L'Ivrogne	25
Touristic Development at Diamond	17
Other	3

Similar proportions of persons surveyed (over three-quarters) thought that the planned developments would have impacts both on the ways people make a living from the SMMA and PMA, and the coastal and marine resources of these areas (Figure 3).

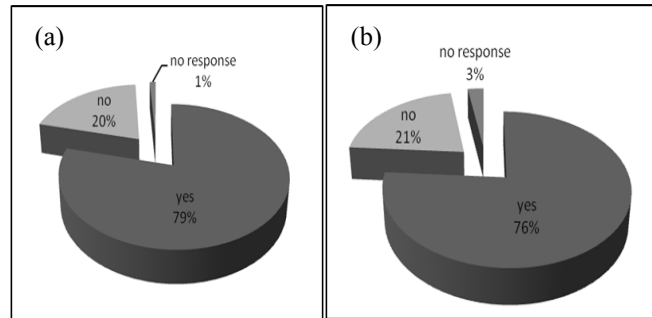


Figure 3. Perceptions of whether planned developments would impact (a) ways in which people make a living from, and (b) the coastal and marine resources of, the SMMA and PMA

Generally, potential positive and negative impacts on income-generating activities, and coastal and marine resources, perceived by respondents were similar across all planned developments. Ten perceived positive impacts on people's income-earning activities in and around the SMMA and PMA were identified by respondents. These were more employment, foreign exchange and revenue generation, more income, increased tourism, development, greater opportunities, more investment, more touristic attractions and higher standard of living. Of these positive impacts of development, 73% of respondents thought that employment would be the most important potential positive impact on income-generating activities. The other positive impacts were identified by a minority of respondents, less than 10%, in each case.

Respondents also identified ten potential negative impacts that the planned developments could have on people's income-earning activities:

- i) Restricted use and access,
- ii) Too much foreign investment,
- iii) Less tourist attractions/appeal,
- iv) Delisting of the Pitons,
- v) Loss of land and space,
- vi) Greater benefit to foreigners,
- vii) Foreign exchange leakage (money not remaining in the country),
- viii) Need for relocation,
- ix) Negative effect on fishing, and
- x) Vendor overcrowding.

Of these, over half of the respondents (65%) thought that restricted use and access to coastal and marine areas was the most important potential negative impact that development would have on income-generating activities in and around the SMMA and PMA. It should be noted

that a fairly significant proportion of persons (15%) felt the developments would have no negative impact on income-generating activities within and around the SMMA and PMA. The other negative impacts were identified by only a minority of respondents, 9% and less, in each case.

Respondents identified nine potential positive impacts developments could have on the coastal and marine resources of the SMMA and PMA:

- i) Recognition/appreciation of the resources and areas,
- ii) Clean, beautiful coastal and marine areas,
- iii) Increase in fish,
- iv) Generation of income to the SMMA,
- v) Protection of marine areas,
- vi) Preservation and enhancement of beaches,
- vii) Preservation of marine life,
- viii) Increase in sustainable development, and
- ix) Decrease in pollution.

Of these, the top three positive impacts identified were recognition/appreciation of the resources and areas (33%), generation of income to the SMMA (26%) and clean, beautiful coastal and marine areas (22%). The other positive impacts were identified by between 6% and 2% of respondents.

Seven negative impacts of planned physical developments on the coastal and marine resources of the SMMA and PMA were identified by respondents. These included destruction and pollution of coastal and marine resources; loss of wildlife and natural scenery; coral harvesting (by tourists and for tourism); sedimentation (due to construction); decrease in fish; loss of habitats, and indiscriminate and improper waste disposal (solid and human waste). Of these negative impacts, the destruction and pollution of coastal and marine resources was thought by the majority of respondents (88%) to be the most important potential impact of the planned developments. This impact includes activities that would destroy beaches, fish, and coral reefs by construction activities and resulting pollution (chemicals, run-off etc.). The other negative impacts were identified by less than 5% of respondents in each case.

Suggestions for ways of reducing the impacts of physical development were varied. The top five solutions recommended included:

- i) Allowed/free access to areas (38%),
- ii) Restriction and prohibition of further development (36%),
- iii) Proper disposal and management of waste (32%),
- iv) Building away from coastal areas (28%), and
- v) Implementation of guidelines and policy (26%) (Figure 4).

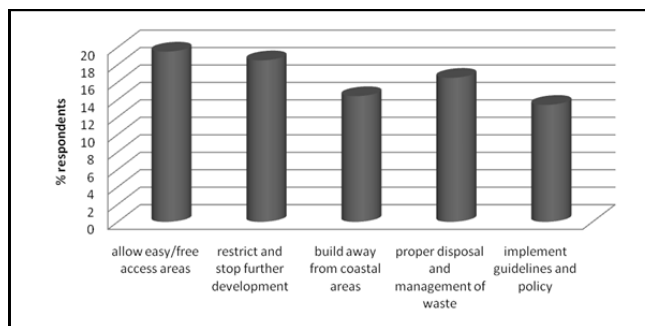


Figure 4. Suggestions for reducing the impacts of physical development.

In terms of responsibility for reducing negative impacts of physical development on socio-economic activities in and around the SMMA and PMA, greater than three-quarters of respondents (77%) believe that the government should be responsible, whereas almost equal proportions of people feel that SMMA management (72%) and the government (71%) should be responsible for reducing impacts of development on coastal and marine resources (Figure 5). It should be noted however that relatively significant proportions of respondents ($\geq 33\%$ of persons surveyed in each case) believe that protected area management, surrounding communities and developers all have a part to play in reducing these impacts. A minority of people surveyed (10%) believe that other people and organisations - everyone, district representatives, professionals from overseas, St. Lucians, the attorney general, the governor general/police and the Soufriere Regional Development Foundation (SRDF) - should be responsible for reducing the impacts of development.

To determine the level and extent of use of the PMA and the SMMA by residents and other users — Similar proportions of respondents and members of their household are either dependent (48%) or not dependent (52%) on the SMMA and/or PMA for their livelihoods. Bathing (69%), beach recreation (47%) and fishing (22%) are the

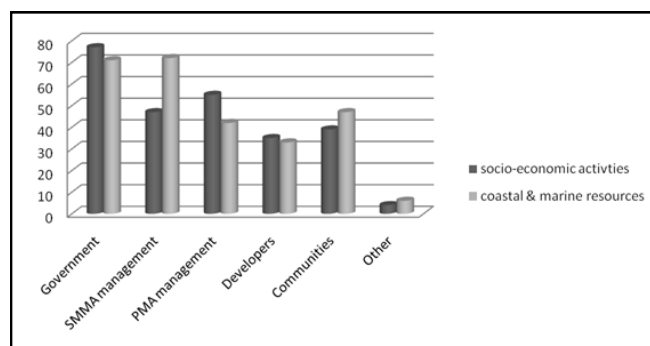


Figure 5. Perceived responsibility for reducing negative impacts of development on socio-economic activities and coastal and marine resources in the SMMA and PMA.

top three ways in which respondents and the members of their household use the coastal resources in the SMMA. Recreation at the Sulphur Springs (62%), waterfalls (36%) and beach (36%), and nature trail hikes (23%) are the most common ways people make use of the PMA resources (Figure 6).

DISCUSSION

The discussion is presented according to the objectives of the project.

To determine perceived threats of planned development within the SMMA and PMA by residents and other users and to identify potential management solutions to address impacts identified

Positive Social and Economic Impacts

Although the majority of respondents felt that there should be further physical development in the study areas, there was concern that developments threaten the integrity of the Pitons Management Area as a World Heritage Site. The majority of positive social and economic impacts related to the benefits typically derived from tourism developments and included creation of jobs and reduction in unemployment. A few responses included spill over benefit from increased tourism such as farmers and fishers having a larger market to sell their produce.

Negative Social and Economic Impacts

Restricted use and access to coastal and marine areas that result in a loss of tradition and culture was the most important potential negative impact of development on socio-economic activities in and around the SMMA and PMA identified by respondents. Prior to construction of hotels at two of the main bays within the SMMA and the PMA, Saint Lucians had open access to beaches and marine resources which were traditionally used for rest and relaxation and religious rituals. Although all beaches

remain public according to law, access to the beach is still restricted and is managed as a private beach. At one property, vehicles are no longer allowed to drive down to the beach. The difficulty in the ease of access by land, restricted use and unwelcoming atmosphere has caused a significant decline in the use of those beaches by residents. The responses from the data collected indicate a collective wariness towards any further loss of access to the remaining beaches. Also, there was a loud call for government intervention to ensure that access is maintained and traditional uses are not restricted.

The negative social and economic impacts identified also indicated a present threat to local ownership of land. The outstanding universal value of the PMA and the designation as a World Heritage Site has also caused the price of land to surge due to demand from foreign investors. Saint Lucians who own property in the area are being offered large sums of money. Some willingly sell. However, a recent development has seen political interference with the Government of Saint Lucia applying "Eminent Domain" and gazetting the acquisition of private lands for a public purpose - a touristic development. Local land owners who went to court to defend their right to keep their inherited lands were forced to sell land to a hotel developer. This threat was raised by a significant number of respondents in the household survey. This value for land in that area is now priced out of the reach of Saint Lucians who wish to purchase property.

Another negative economic impact with social implications raised was the loss of revenue generated in-country from foreign owned tourism business where profits are expatriated. Successive governments have granted and continue to grant concessions to encourage foreign investors. These companies legally change ownership at the end of the concession terms and are granted additional concessions, including tax breaks. Local investors are disadvantaged because they do not benefit from these concessions, whereas their profits remain in-country and

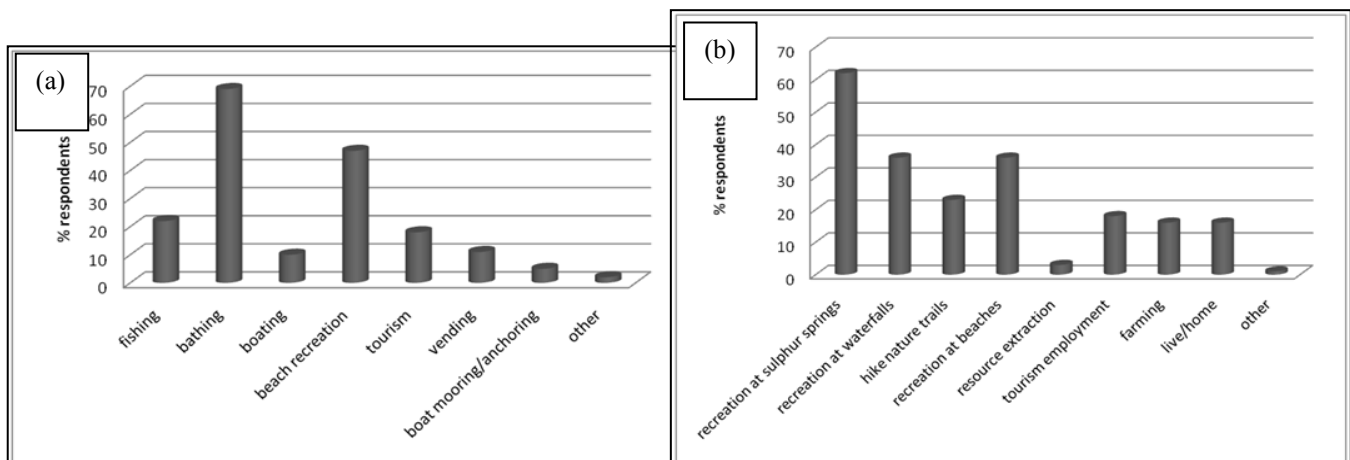


Figure 6. Types of household uses of the coastal resources of (a) the SMMA and (b) the PMA.

are directly injected into the local economy.

Also of grave concern is the threat of destruction of natural resources in the area, particularly fish and coral reefs, which will adversely impact on revenue generated from reef-related tourism and the livelihoods of fishers and their families.

Positive Impacts on Natural Resources

There was a very low response rate from the household survey for positive impacts on natural resources. The responses given indicated that developments adjacent to the beach tend to maintain the beaches, thus planned developments keep the area clean and improve beach aesthetics, and as such would bring recognition and appreciation of the natural resources of the area. Persons also believe that developments would positively impact the natural resources of the areas through income generation to the SMMA in particular presumably through increased visitation by visitors. Increased income to the SMMA could aid management activities within the area therefore benefiting the coastal and marine resources there.

There was overwhelming support for provision of beach facilities and community parks, and a number of responses indicated that these facilities will improve use of beaches and parks, improve hygiene and the quality of water and surrounding resources.

Negative Impacts on Natural Resources

The majority of respondents indicated concern about pollution and sedimentation from physical developments. The threat to the health and potential destruction of fish, coral and beaches was raised indicating relative awareness of those issues.

The landscape of this area is still well covered, however there is a concern that built structures would soon overpower natural vegetation in certain key areas in the PMA contrary to the development guidelines outlined in the Building Design Guidelines from the PMA Management Plan (De Beauville-Scott and George 2003) and again in Soufriere Integrated Development Plan (Webber et al. 2007).

Potential Management Solutions and Responsibility for Impact Reduction

The majority of management solutions from the household survey for reducing development impacts were recommendations that the Government of Saint Lucia (GOSL) should implement policy to ensure that public access to beaches is maintained, there is restriction and prohibition of further development; regulation of waste disposal; and regulation of building in coastal areas. It was noted that by law, all beaches in Saint Lucia are public with the exceptions of a few small sections of the coast where there is no Queens Chain. The study area is surrounded by Queens Chain.

Although people hold the government the most responsible for reducing or mitigating the impacts of physical development on socio-economic activities in and around the SMMA and PMA, it is apparent that persons generally believe that all players – government, protected area management, the developers, and communities – should all be involved in mitigating the effects of development impacts. This also seems to be true for reduction of development impacts on coastal and marine resources. It should be noted however, that in this instance, people believe that both the government and SMMA management are more responsible for mitigation of impacts. This indicates people's fairly good understanding of management responsibility. MPAs and MPA resources are affected by external and internal factors, and management cannot be achieved in isolation. A number of key players including various government sectors and related ministries/agencies, private sector, NGOs etc. - are needed to enhance management of MPAs and achieve stated objectives. The apparent realization of this by people may suggest an appreciation for MPA vulnerabilities and management. If people realize that the reduction of negative impacts of physical development cannot be borne solely by the MPA, people are likely to be supportive of any petitions to government and/or developers made by MPA management.

To determine the level and extent of use of the PMA and the SMMA by residents and other users

Level of Use of the SMMA and PMA

Both of these protected areas seem to be underutilised by households in the communities within these areas. For the SMMA, this fairly low usage appears to be attributed to changing use of the main Soufriere jetties that are now used a primary landing dock for passenger vessels (tourists). Employment was created for dock wardens who now keep recreational users off the jetty during daylight working hours because some engage in tourist solicitation. Apparent low usage of the SMMA could also be due to the fact that a lot of the users of the beaches in particular are residents outside of this project's sample area.

With regards to the PMA, usage should be higher given that "living" and "tourism employment" in the PMA were considered uses. There may be a number of reasons for why household use of the area seems to be low. There may be a lack of awareness of the boundaries of the Pitons Management Area. An education campaign at the community level to sensitize residents and land owners on the boundaries of each zone should be implemented by MPA management. Additionally, the introduction and subsequent increase in the entrance fee for residents to bathe at the Sulphur Springs and a landslip post Hurricane Tomas which is still blocking vehicular and pedestrian access on the road between Malgretoute and Barons Drive could be attributed to low usage. The other access road to Malgretoute is uphill and a much longer walking distance

(approximately 30 minutes). This longer route dissuades persons (families with young children and the elderly) who used to walk only ten minutes to the beach and waterfall at Malgretoute.

RECOMMENDATIONS FOR MONITORING AND ADAPTIVE MANAGEMENT

There is a need for more education to sensitize the entire Saint Lucia population on the impacts of developments with special focus on the surrounding communities. Both management authorities and the Saint Lucia Tourist Board should promote local use of the SMMA and the PMA. The two agencies responsible for managing the two protected areas studied should continue utilizing the SocMon Caribbean methodology to develop a standard set of indicators to conduct sustained monitoring. This can be integrated into the programs of the two agencies (SMMA and PMA) and done every three to five years as recommended by the SocMon methodology. The results of the socio-economic monitoring conducted at these protected areas should be presented to the Board of Directors of the SMMA and the Piton Management Advisory Committee to guide adaptive management of the areas. Many of the recommendations made during this study are applicable to legislative authorities and the Government of Saint Lucia. The information contained in this paper can be cited to prove public support for the World Heritage Site.

LITERATURE CITED

- De Beauville-Scott, S. and S. George. 2003. Pitons Management Area Management Plan. Prepared by Susanna De Beauville-Scott and Sarah George in collaboration with the Saint Lucia World Heritage Committee. 83 pp.
- George, S. 1994. Coastal conflict resolution: A case study of Soufriere, St. Lucia. 14 pp.
- Gombos, M., A. Arrivillaga, D. Wusinich-Mendez, B. Glazer, S. Frew, G. Bustamante, E. Doyle, A. Vanzella-Khoury, A. Acosta, and B. Causey. 2011. A management capacity assessment of selected coral reef marine protected areas in the Caribbean. Commissioned by the National Oceanic and Atmospheric Administration (NOAA) Coral Reef Conservation Program (CRCP), the Gulf and Caribbean Fisheries Institute (GCFI) and by the UNEP-CEP Caribbean Marine Protected Area Management Network and Forum (CaMPAM). 269 pp.
- Parsram, K. 2007. Protected areas planning and management regional training needs assessment. OECS Protected Areas and Associated Livelihoods Project. 73 pp.
- Pena, M and K. Blackman. 2012. Report of the St. Lucia SocMon Caribbean Training Workshop, 16 – 20 January 2012. Socio-economic monitoring by Caribbean Challenge MPA Managers Project Report No. 2. 74 pp.
- Pierre-Nathaniel, D. 2003. Towards the strengthening of the association. The case of the Soufriere Marine Management Area (SMMA), St. Lucia. Prepared for The Second International Tropical Marine Ecosystems Management Symposium (ITMEMS II), 24 – 27 March 2003: Westin Philippine Plaza Hotel, Cultural Centre of the Philippines (CCP) – Complex, Pasay City, Metro Manila, Philippines. 36 pp.
- Renard, Y. 2001. Case of the Soufriere Marine Management Area (SMMA), St. Lucia. Caribbean Natural Resources Institute (CANARI) Technical Report No. 285. 8 pp.
- SMMA. 2001. Agreement to Manage the Soufriere Marine Management Area. 11 pp.
- UNESCO. 2012. Decisions adopted by the World Heritage Committee at its 36th session. Convention concerning the protection of the world cultural and natural heritage. Thirty-sixth session, Saint Petersburg, Russian Federation, 24 June – 6 July, 2012. WCH-12/336.COM/19. 244 pp.
- Webber, G., B. Eaton, J. Galloway and J. Munby. 2007. Pitons Management Area and Soufriere region integrated development plan. Hyder Consulting, Limited, United Kingdom. Report no: 002-NE02672 65 pp.