

**Socio-economic monitoring by National Marine Parks in the Turks and Caicos Islands  
Report No. 2**

**SOCIO-ECONOMIC MONITORING AT THE  
PRINCESS ALEXANDRA LAND AND SEA NATIONAL PARK  
PROVIDENCIALES, TURKS AND CAICOS ISLANDS**



*PREPARED BY THE DEPARTMENT OF ENVIRONMENT AND MARITIME AFFAIRS*



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## EXECUTIVE SUMMARY

The Princess Alexandra Land and Sea National Park (PALSNP), located along the northeastern shoreline of Providenciales, Turks and Caicos Islands, has experienced an exponential increase in use, over the past two decades.

Grace Bay beach, which borders the PALSNP, was completely devoid of buildings until the 1980's. Since that time, a tourism development boom has resulted in the construction of multi-story, high-density hotel and condominium development in a continuous band along the coastal zone. Consequently, most management objectives are related to user impacts. Due to the fact that guests staying in hotels along Grace Bay beach are stay-over guests, the PALSNP receives more visitor use than any other Protected Area within the Turks and Caicos Islands. Common activities in the PALSNP include diving, snorkelling, swimming, aquatic sports, such as pull-behind floats, water skiing and events such as weddings and birthday celebrations. While the PALSNP is a no-take MPA, some illegal fishing activities also take place. Each of these activities has related risks and impacts.

Stakeholder interviews and key informant interviews were used to determine stakeholder perceptions of resource health, management effectiveness and stewardship roles. Key informants were asked a series of nine questions, and their responses guided the stakeholder interviews.

Throughout the process, prevalent themes regarding the four SocMon objectives arose, primarily based on issues related to the lack of training, resources and funding available for the Department of Environment and Maritime Affairs (DEMA), the management authority of the PALSNP.

## ACKNOWLEDGEMENTS

The SocMon team of the Turks and Caicos Islands would like to offer our heartfelt gratitude to all the individuals and organisations that facilitated this assessment. Emma Doyle of the Gulf and Caribbean Fisheries Institute (GCFI) was instrumental in the securing funding, which was generously donated by the US National Oceanic and Atmospheric Administration (NOAA) Coral Reef Conservation Program (CRCP). Maria Pena of the Centre for Resource Management and Environmental Studies (CERMES) at the University of the West Indies gave tirelessly of her time and expertise to train, instruct and manage the team. Don Stark and the Turks and Caicos Reef Fund (TCRF) managed the grant and provided additional support throughout the process.

We are equally indebted to the individuals and organisations within the Turks and Caicos Islands, who participated in the assessment process. Key informants, including key government officials from the Departments of Planning and Environmental Health, private business owners, watersports operators, marina managers, restaurant owners, hoteliers, wastewater treatment specialists and golf course managers provided invaluable insight into the issues surrounding the PALSNP.

Finally, we are most grateful to the 80 individuals who participated in the stakeholder interviews. The honesty and openness with which the interviewees participated provided thoughtful insight into all facets of the management of the PALSNP and has been the primary base upon which this study has been developed.

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# 1 INTRODUCTION

The following report represents an initial socio-economic study of the Princess Alexandra Land and Sea National Park (PALSNP), located in Providenciales, Turks and Caicos Islands.

## 1.1 SOCIO-ECONOMIC MONITORING AT NATIONAL MARINE PARKS IN THE TURKS AND CAICOS ISLANDS

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 and Pomeroy 2003, Bunce et al. 2000). SocMon aims to facilitate community-based socio-economic monitoring, while building regional capacity to sustain socio-economic monitoring programs through training of coastal managers. The Centre for Resource Management and Environmental Studies (CERMES) at the University of the West Indies, Cave Hill Campus is the regional SocMon node for English-speaking Caribbean countries. The program is co-ordinated by NOAA, in partnership with the Global Coral Reef Monitoring Network (GCRMN) and is funded through NOAA Coral Reef Conservation Grants, and the US State Department, among others.

CERMES was awarded a grant of just over USD 22,000 to support *Socio-economic monitoring at national marine parks in the Turks and Caicos Islands*. The grant was funded by the Coral Reef Conservation Program (CRCP) of the National Oceanic and Atmospheric Administration (NOAA) and administered by the Gulf and Caribbean Fisheries Institute (GCFI). The project's long-term conservation outcome is that of increased capacity for effective marine protected area (MPA) management in the Turks and Caicos through the use of social and economic monitoring data in MPA decision-making achieved via:

- Training approximately 10 MPA managers/staff and stakeholders from the Turks and Caicos, in the practical use of SocMon Caribbean methods via one 'learning-by-doing' local 7-day workshop. Extension of the opportunity for capacity building in SocMon for one representative of the British Virgin Islands National Parks Trust to participate in the training workshop.
- The initiation of three site assessment and monitoring programs at the Princess Alexandra Land and Sea National Park (PALSNP), Columbus Landfall National Park (CLNP), and West Caicos Marine National Park (WCMNP) for coastal management with technical assistance and advice provided by CERMES.
- Provision of sub-grants to help support SocMon assessments at CLNP and WCMNP as follow-up activities to the initial training and assessment at PALSNP.
- Documentation of training and monitoring processes, making them available to a worldwide audience and CERMES communications for replication, with improvement, in future rounds of SocMon activity
- Submission of data to the Reef Base Socio-Economic global database and to the CaMPAM MPA database for uptake.

This report presents project activities and results of socio-economic monitoring conducted at the Princess Alexandra Land and Sea National Park. The PALSNP was the first Protected Area in the Turks and Caicos Islands to implement monitoring using SocMon techniques.

## 1.2 SITUATION OVERVIEW

The Department of Environment and Maritime Affairs (DEMA) is charged with the management and stewardship of Protected Areas in the Turks and Caicos Islands (TCI). In recent years, political instability and the global economic downturn have resulted in a drastically reduced operating budget and staff reductions of more than 60%. The end result being that DEMA struggles to stretch scarce resources to adequately fulfil its mandate.

The PALSNP occupies an area of 6,532 acres along the northern coast of Providenciales extending from the high water mark to the reef wall, due north of Blue Mountain, along the reef wall to a point approximately due north of the most westerly point of Water Cay, approximately due south to a point about 1,000 feet away from the most westerly point of Water Cay, east 500 feet along the southern coast of Water Cay, and along the shoreline of Mangrove Cay to Leeward-Going-Through Point, along the high water mark to the starting point. Within the northeast sector of the park are three cays - Little Water, Mangrove and Donna (Figure 1; Homer 2000).

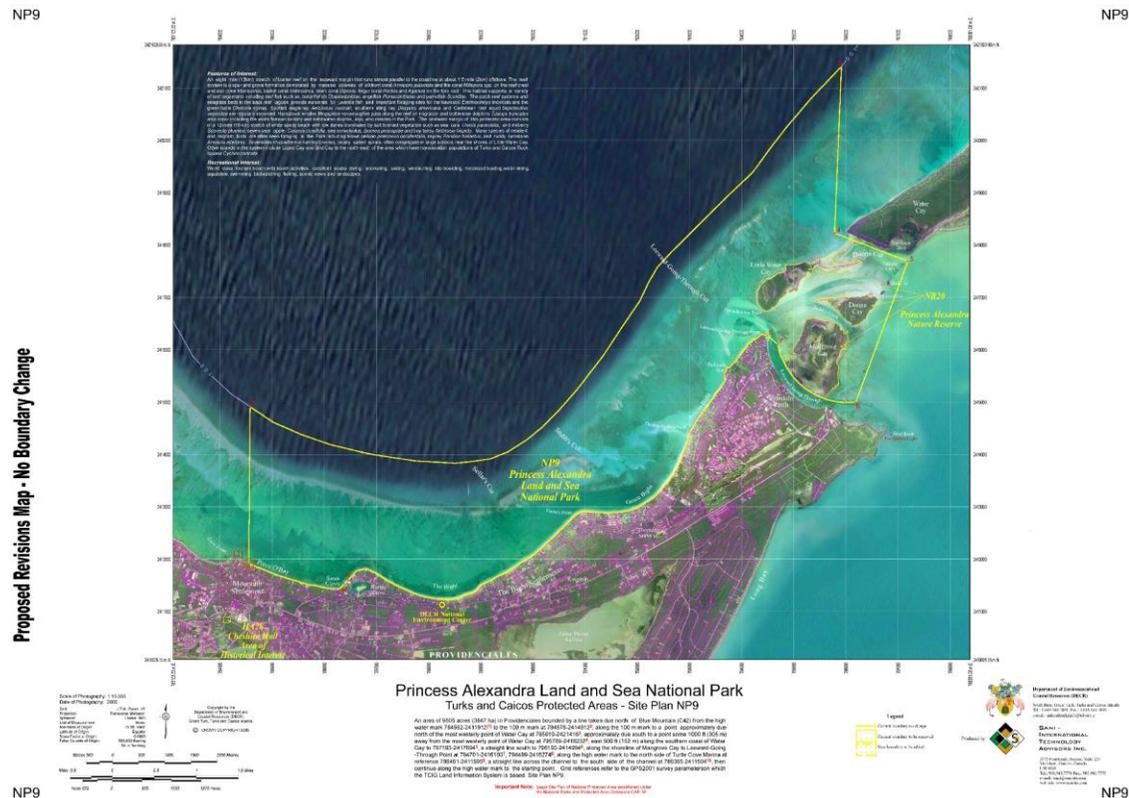


Figure 1 Map showing the boundaries of the Princess Alexandra Land and Sea National Park

The area is used mainly for recreation, tourism and ecosystem protection. The primary habitats represented in the Protected Area are seagrass beds, barrier and patch coral reefs, sand banks, fringing mangroves, beach and low dunes, and seaside vegetation.

According to the PALSNP Management Plan (Homer 2000), a ten year 'Providenciales Physical Development Plan' was approved in 1987 to guide commercial and residential development on Providenciales. National parks, reserve lands and recreational areas were also proposed to safeguard the requirements of the tourism industry. Providenciales accounted for 75.6% of the estimated population of the Turks and Caicos in the 2012 Population and Household Census. Although recent data for the population distribution bordering the PALSNP is not available, it can be said that the PALSNP is the most visited (by locals and tourists), most heavily developed and most intensively used Protected Area within the Turks and Caicos Islands, primarily because of easy access to some of the better beaches and near shore coral reefs on the island. Most of the hotels are located along the beach, providing good ocean views and convenient access to watersports and beach activities. Since 1990 there has been a rapid development of tourism infrastructure in the Grace Bay area, including the construction of hotels, and the refurbishment and expansion of a few existing hotels (Homer 2000).

The Department of Environment and Maritime Affairs (DEMA) is currently conducting a compilation of hotels and condominiums on the island with the most recent estimate at 12 from Seven Stars moving eastwards. There has been a significant increase in the number of estimated hotel rooms since the estimate provided by Homer (2000) in the 2000–2004 PALSNP management plan with numbers thought to be at approximately 3,000 rooms. Additionally, development of The Marriott is on stream and at the Environmental Impact Assessment (EIA) stage with an increase of 1,000 rooms expected.

Due to the heavy use of and demand for the area there are many competing interests in the PALSNP that include watersports and new developments. As a result there are a number of issues and concerns in the area relating to illegal fishing (recreational and for domestic consumption and souvenir sales); lack of compliance with zoning in the past several years; anchoring in non-designated areas; non-compliance with the 15mph speed limit outside of the aquatic sports or water-ski zone; pollution from the watershed; waste management; erosion; dredging outside the area; unauthorized restriction of beach access; lack of awareness of the park frequently used as an excuse by users to conduct activities; inadequate mooring; and invasive marine and terrestrial species (lionfish, Casuarina trees).

This project is therefore useful in providing baseline socio-economic data that may be used to guide management of the PALSNP.

### 1.3 GOALS AND OBJECTIVES

The goal and objectives for monitoring at the PALSNP are outlined below.

Goal	Objectives
To ensure the regular and ongoing contribution of socio-economic data and information to decisions for effective management.	1. To assess uses of the National Marine Park and identify threats and problems to the natural resources.
	2. Evaluate stakeholder awareness of, and compliance with, regulations and policy and their enforcement.
	3. To determine stakeholder capacity and willingness for collaboration in National Marine Park (NMP) stewardship and management, and promote participatory monitoring and evaluation as part of stewardship and management.
	4. To assess trends in the extent to which PALSNP management bodies are contributing to the achievement of NMP goals (objectives).

### 1.4 ORGANISATION OF REPORT

This report is divided into six sections. Section 1 provides a description of the Turks and Caicos SocMon project, situation overview of the PALSNP sites where monitoring was conducted and the goals and objectives for monitoring. Section 2 outlines the methods used for gathering the data. The results from secondary sources of information, key informant interviews and household surveys are presented in Section 3. Discussions and conclusions are in Section 4. Recommendations for monitoring and adaptive management are provided in Section 5.

## 2 METHODS

### 2.1 SOCMON TRAINING

During the period 5-13 August 2013, 14 individuals, including staff members from DEMA, representatives from the Turks and Caicos Reef Fund (TCRF) and the private sector and one individual from the British Virgin Islands (BVI), were trained at the DEMA conference room on Providenciales in SocMon Caribbean methods. The workshop was facilitated by Maria Pena and Katherine Blackman of CERMES (Pena and Blackman 2013).

### 2.2 PREPARATORY ACTIVITIES

Goals and objectives for monitoring at the three sites associated with the project were drafted during the SocMon training workshop (week of August 12). These goals and objectives and the draft site monitoring plan were later refined for the PALSNP subsequent to the workshop by the TCI SocMon team and the project manager, Maria Pena. The study area was defined as all land and sea

areas contained within the PALSNP watershed, and the SocMon team was determined (Appendix 1). It should be noted that some changes to the site monitoring plan such as variables selected for monitoring were made during initiation of monitoring.

For the purposes of this study, the site was defined as all land and marine areas contained within the watershed and/or boundaries of the PALSNP, including all of Turtle Cove, Leeward, the Bight and Grace Bay. This includes all land areas north of the primary ridge on Providenciales and east of Blue Mountain.

### 2.3 SocMON TEAM

The following table outlines the SocMon team for the assessment of the PALSNP. Throughout the analysis period, the responsibilities for various team members changed, in order to adapt to other work-related obligations and other variables as they arose.

<b>Role on team (or skill requirement)</b>	<b>Specific tasks</b>	<b>Proposed team member</b>
Manager/coordinator	Coordination of project activities	Kathleen Wood
Primary data collectors	Field data collection	Maggie Wisniewski Zev Cariani Duval Clare Naqqi Manco Amy Avenant Eric Salamanca
Secondary data collectors	Collect and acquire secondary data	Eric Salamanca Naqqi Manco Kathleen Wood
Key informant interviews	Field data collection for key informants	Don Stark Kathleen Wood Naqqi Manco
Data collection coordinator	Coordinate field data collection	Eric Salamanca
Translator	Translates when required	Jean Kenol Joseph
Data entry	Compile data	Eric Salamanca Zev Cariani Amy Avenant Maggie Wisniewski
Data analysis and	Analyze and interpret data	Eric Salamanca

<b>Role on team (or skill requirement)</b>	<b>Specific tasks</b>	<b>Proposed team member</b>
interpretation		Maggie Wisniewski Zev Cariani Amy Avenant
Reporting	Report compilation	Kathleen Wood Amy Avenant
Public Relations	Communicating results	All team members
Coordinator for public relations	Coordination of public relations	Kathleen Wood

## 2.4 SECONDARY DATA

Secondary data for the PALSNP were collected from a variety of sources and included reports, articles, management plans and legislation. Main references included the PALSNP Management Plan (Homer 2000) and the National Parks Ordinance (TCIG 2009). A comprehensive list of secondary sources appears within the Bibliography for this report.

## 2.5 KEY INFORMANT INTERVIEWS

A key informant interview was designed and conducted by the SocMon team following review and approval by CERMES. Fourteen key informants were interviewed for this study and included hoteliers, developers, marina operators, representatives of home owner associations, Government officials, watersports operators, restaurateurs, landscapers and golf course managers. Key informants were asked a series of nine questions relating to the four objectives of the study (Appendix 2). Four variables were used to collect the data using this means of data collection, one of which was an original SocMon Caribbean key informant variable (Stakeholder Participation), two of which were survey variables (Awareness of Rules and Regulations; Enforcement) adopted as key informant variables to measure the data required (Bunce and Pomeroy 2003), and one variable recently developed during the Caribbean Challenge SocMon project (Critical Activities for Management Intervention; see Pena, McConney and Blackman 2013; Appendix 3).

## 2.6 HOUSEHOLD SURVEYS

A household survey was designed and conducted by the SocMon team following review and approval by CERMES. A total of 80 household surveys were conducted at four sites (Grace Bay, Leeward, the Bight and Turtle Cove) bordering the PALSNP. Respondents included tourists, residents, watersports operators, hoteliers, restaurateurs, landscapers, and others (Appendix 4). Twenty-three survey variables were used to collect the relevant data, 14 of which were original SocMon Caribbean variables (Bunce and Pomeroy 2003). Of these fourteen variables, recommendations have been made for the revision of one variable for collection of data specific to the objectives of the study. Four variables developed during the Caribbean Challenge SocMon project (see Pena, McConney and Blackman 2013) were adopted for use in this study. The development of five new variables was necessary to measure and capture additional data required

on perceptions of management capacity and capability, sense of stewardship, perceptions of responsibility for impact reduction, origin and number of years living in the area (Appendix 5).

## 2.7 DATA ENTRY AND ANALYSIS

The data from the key informant interviews and household surveys were entered into Excel spreadsheets and then analyzed using narrative summaries and simple descriptive statistics.

The following limitations were encountered during data analysis:

- The sample size for tourists and residents for surveys was less than ideal for this assessment. Although the sample size is still valid, it was not statistically representative;
- Key informants were not representative. Selection was based purely on the willingness to participate in the study, therefore key informant bias was assumed;
- Assumption bias in determination of variables for assessment;
- Some selection bias in survey respondents.

## 2.8 VALIDATION

A validation meeting to provide stakeholders with feedback on the SocMon site assessment was held on 2 October 2013 at 6:00 pm at the DEMA office. The turnout was extremely disappointing as only two people attended.

# 3 RESULTS

The results in this section are based on data collected from key informant interviews and surveys and are presented according to the objectives for monitoring.

## 3.1 ASSESS USES OF THE NATIONAL MARINE PARK AND IDENTIFY THREATS AND PROBLEMS TO NATURAL RESOURCES

### *3.1.1 AWARENESS OF THE PRINCESS ALEXANDRA LAND AND SEA NATIONAL PARK*

Although the park is used by a number of people, the survey assessed to what extent users of the PALSNP were aware of its boundaries. Alarming, 40% of respondents had no knowledge of the extent of the boundaries at all. Of those persons who were aware of the boundaries, the majority (94%) were rated as 'good' or 'fair' at being able to show their extent on a map of the area. Only six percent of persons who said they were aware of the boundaries of the PALSNP were rated as 'poor' in identifying boundary extent.

### *3.1.2 ACTIVITIES AND WAYS OF MAKING A LIVING WITHIN THE PARK*

The park is used by a diverse group of people for a number of activities which include beach use (82%), swimming (77%), snorkelling (61%), working (56%), boating (53%) and scuba diving

(34%). A minority of respondents (10% combined) stated they use the area for kayaking, kitesurfing, sailing, partying and fishing (Figure 2). The latter was identified by only one individual.

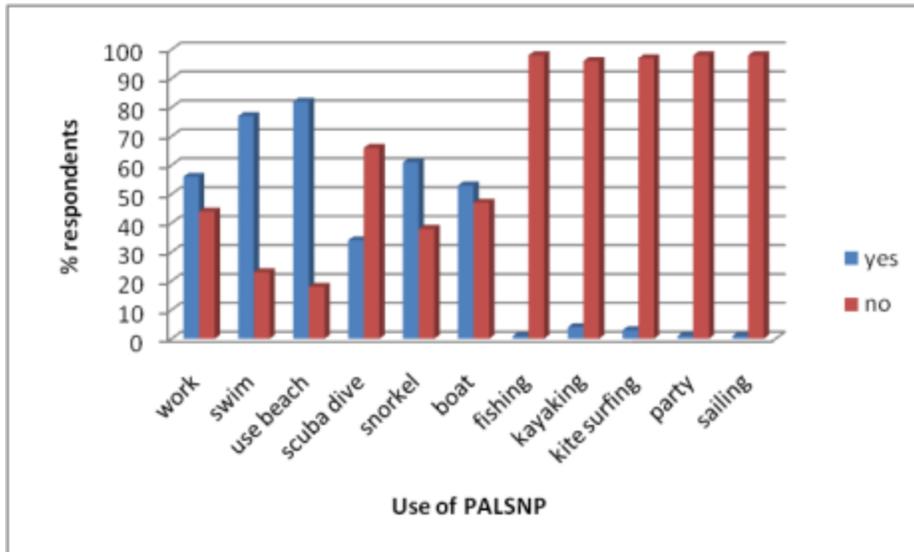


Figure 2 Activities within PALSNP boundaries

Once or twice per week (48%) or six to seven days a week (31%) are the most common frequencies with which people take part in these activities in the Park. There is a lower frequency of usage of the area three to five days a week (21%).

People make a living in the PALSNP in a number of ways with the majority (54%) being involved in watersports. Diving (13%) and the operation of hotels and resorts (11%) are the second and third most common ways in which people make money in the area. It should be noted that even though fishing is illegal in the Park, it was mentioned by one individual as one way of earning money in the area (Figure 3).

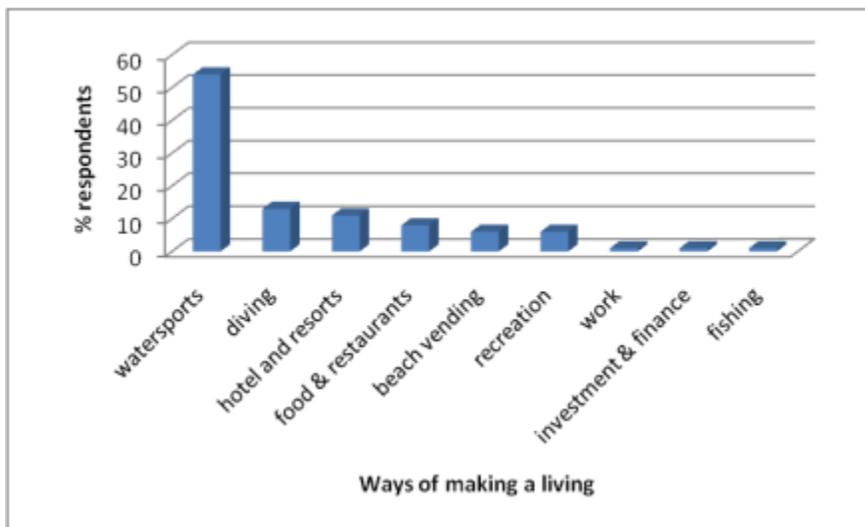


Figure 3 Ways in which people earn a living in the PALSNP (n = 211)

Positive and negative impacts of physical development along the PALSNP were noted by the overwhelming majority of persons surveyed and interviewed (98%, n = 75; and 100%, n = 14, respectively). Respondents noted that the most positive result of physical development on ways people make a living has been with regard to job creation (74%) followed by better business/higher income (25%). Negative impacts have been as a result of destruction of natural resources upon which people are economically dependent (43%), less economic diversity (28%) and overpopulation (28%).

### 3.1.3 PERCEPTIONS OF CONDITIONS OF, AND THREATS, TO NATURAL RESOURCES

The survey indicated that greater than half of people believe the resources of the PALSNP are in either 'good' or 'very good condition'. Water quality (91%), beaches (87%), mangroves (86%) and seagrass beds (70%) are considered to be the healthiest ('good' and 'very good' condition) by the majority of persons surveyed. Other marine life (66%), coral reefs (61%) and fish populations (60%) although thought to be in 'good' or 'very good' condition were ranked so by smaller proportions of respondents. Fairly large proportions of people were indecisive regarding the current condition of coral reefs (29%), other marine life (28%) and fish populations (22%) rating them to be in 'neither good nor bad' condition. Resources were thought to be in 'bad' condition by less than 20% of respondents in all cases. It should be noted that none of the resources were perceived to be in 'very bad' condition (Figure 4).

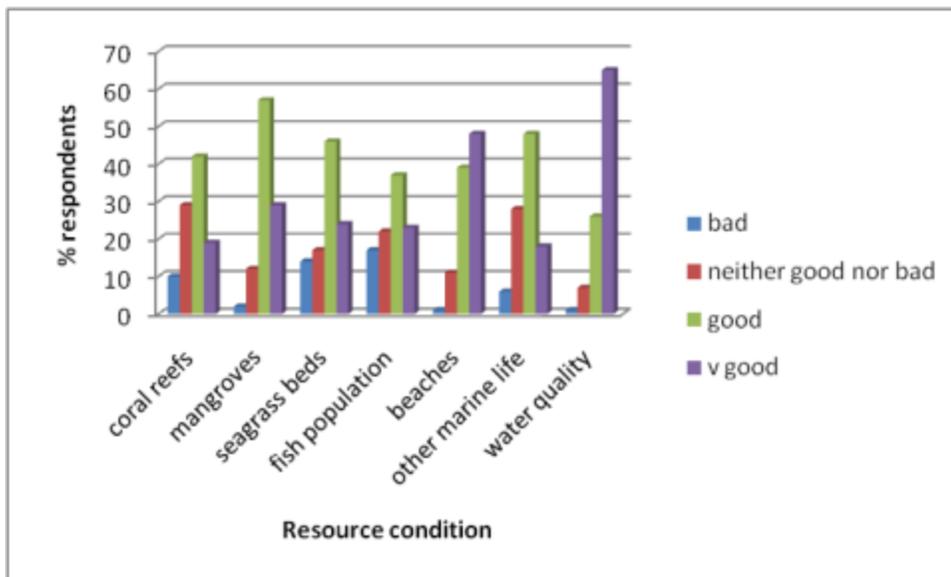


Figure 4 Perceptions of current conditions of resources

It was perceived that pollution (19%), over development (18%), and illegal fishing (15%) pose the greatest threats to the resources in the national park (n = 229). Hurricanes and storms, and dredging (10%) were also accredited with adverse effects on the national park. Invasive species, overuse of the area, beach erosion, climate change, restricted beach access and beach restoration were only mentioned by a minority of persons interviewed (less than 10% in all cases) as potential threats to natural resources in the Park.

### 3.1.4 PERCEIVED COMMUNITY PROBLEMS

Improper trash (90%) and sewage disposal (75%), overuse of chemicals (71%) and illegal development (65%) were rated by the majority of respondents as being ‘very significant’ and ‘significant’ issues to users and communities within and next to the PALSNP, whereas overpopulation and illegal vendors were thought to be so by less than half (40 and 42%, respectively) of those interviewed. Almost equal proportions of people believe these two issues to be either of little importance (‘insignificant’ or very insignificant’) or are indecisive as to their importance (‘neither significant nor insignificant’). See Figure 5.

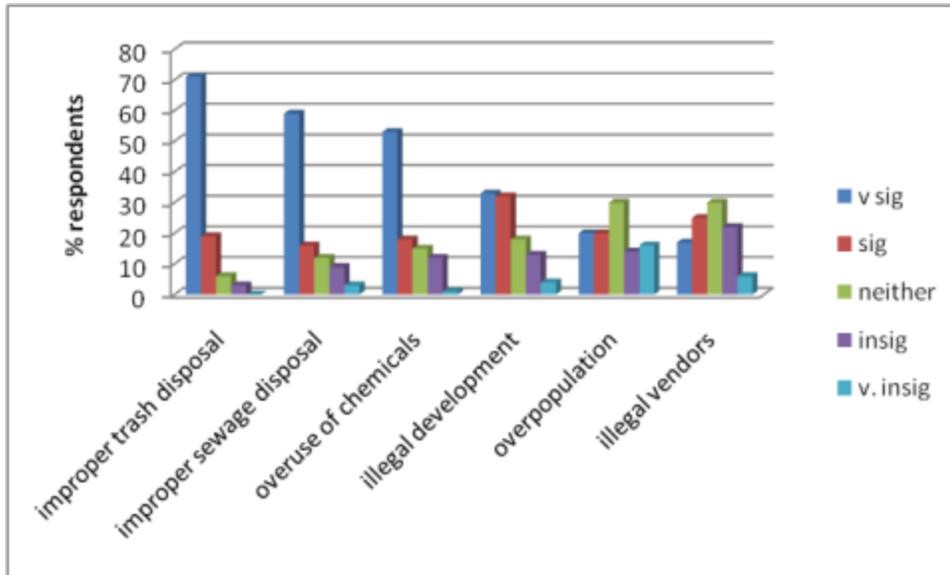


Figure 5 Perceived significance of user and community problems

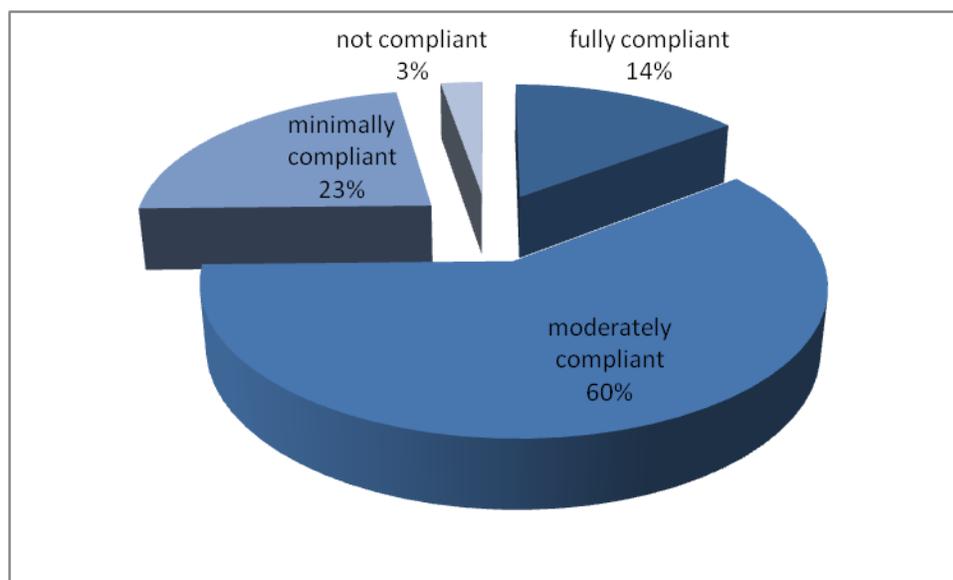
### 3.2 TO EVALUATE THE LEVEL OF STAKEHOLDER AWARENESS AND COMPLIANCE WITH PARK REGULATIONS AND THE ENFORCEMENT OF THEM

Key informants believe that stakeholders are aware of basic laws and regulations of the PALSNP, particularly pertaining to prohibition of fishing and restricted development. It is generally thought that stakeholders tend to be familiar with the regulations that are most related to their own activities but are not familiar with other regulations. All key informants believe more public awareness is needed and that the general public and visitors are not as aware as they should be of environmental policies and regulations. This is similar to the results from the survey in which respondents generally had only fair knowledge of the existence of regulations and policy to various activities within the Park. This is with exception to knowledge of regulations and policy relating to fishing which was high among the most persons (70%). Just over half of those surveyed know there are regulations and policy governing watersports (58%), boating (58%) and hotel development (56%) in the area. A fairly significant proportion of individuals (37%) were not aware of regulations and policies regarding mangrove use (Table 1). A minority of persons noted non-existence of regulations and policies relating to specified activities in the Park.

**Table 1 Knowledge of regulations and policies relating to specified activities in the PALSNP**

Activities	% Awareness of existence of regulations and policy (n = 80)		
	Yes	No	Don't know
Fishing	70	2	8
Hotel development	56	2	22
Watersports	58	8	14
Mangrove use	35	8	37
Boating	58	3	19

Most respondents believe that people are only moderately compliant with regulations and policies relating to the PALSNP. A fairly significant proportion (just over one quarter) think people are minimally or not compliant whereas only a minority believe there is full compliance with regulations and policies (Figure 6).



**Figure 6 Perceived compliance with regulations and policy (n = 75)**

It is perceived by most people (71%) that there is some enforcement of regulations and policies in the PALSNP (Figure 7). The primary reason offered for rating enforcement as such was low or poor enforcement visibility (e.g. no enforcement officers are seen). All key informants concur that while there may be some effort to enforce laws and regulations by DEMA, the Department is woefully understaffed, underfunded and does not have sufficient resources for adequate or full enforcement. More resources must be dedicated to this purpose. All would like to see more public awareness and greater public participation and ownership of resources and their management.

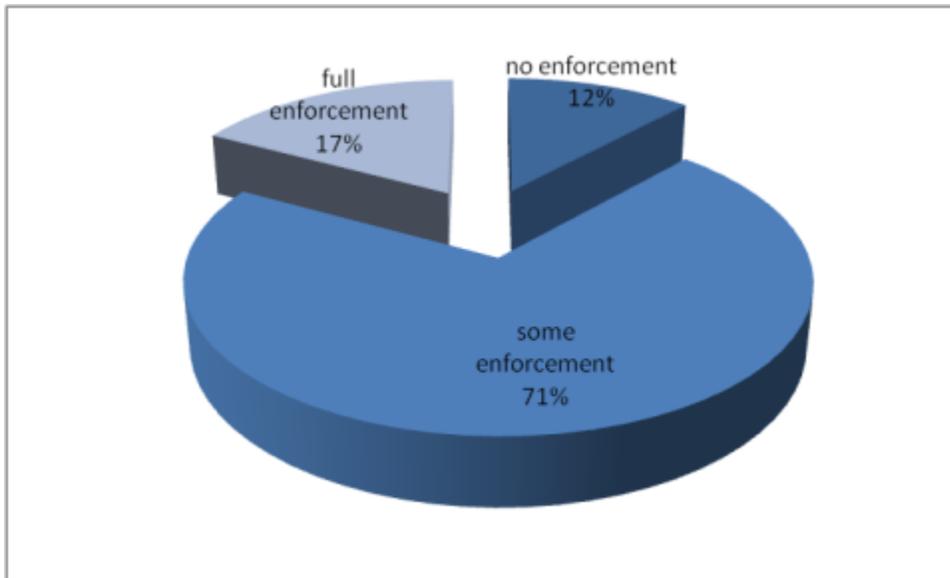


Figure 7 Perceptions of level of enforcement of rules and regulations (n = 76)

### 3.3 TO DETERMINE STAKEHOLDER CAPACITY AND WILLINGNESS FOR COLLABORATION IN PALSNP STEWARDSHIP AND MANAGEMENT

When asked to assess the capability of a number of stakeholders and organisations at managing the Park, most persons surveyed rated the Department of Environment and Maritime Affairs as being the ‘most capable’ (66%). Fairly significant and similar proportions of respondents (ranging from 50% to 41%) thought that all organisations (with the exception of DEMA due to higher rating) were ‘somewhat capable’ of managing the area (Figure 8).

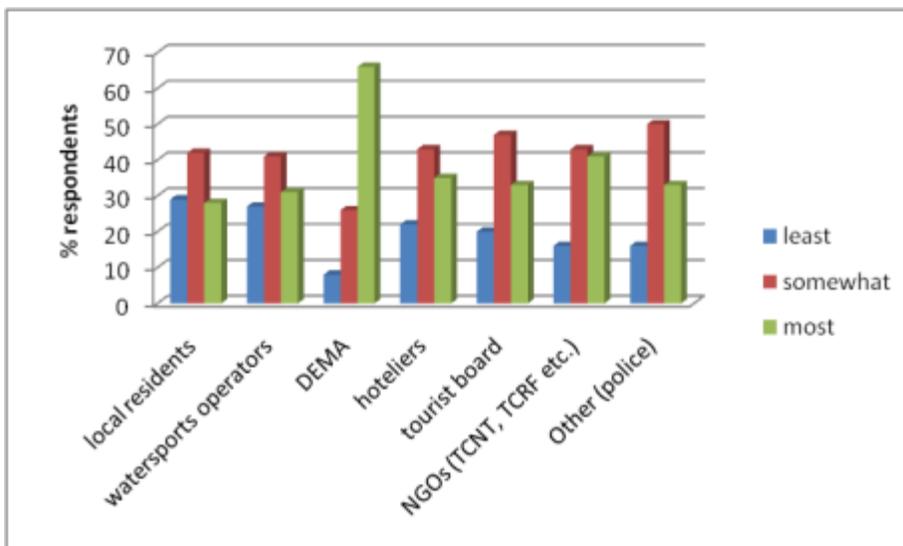
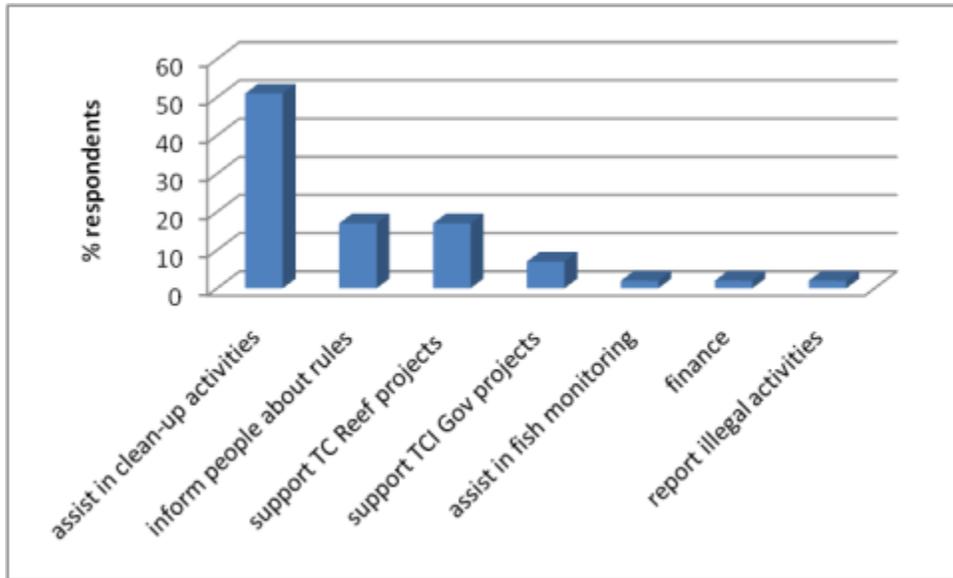


Figure 8 Perceived management capability of TCI stakeholders and organisations

The overwhelming majority of people (92%, n = 78) surveyed feel a sense of stewardship of the PALSNP yet only 54% of those interviewed participate in stewardship activities such as area clean-

ups, awareness-raising, biological monitoring, project support and assistance, financial support and reporting of illegal activities. The top three stewardship activities people engage in the area are assistance in clean-up activities (51%), informing people about Park rules (17%) and supporting Turks and Caicos Reef Fund projects (such as mooring and swim zones projects; 17%). See Figure 9.



**Figure 9 Stewardship activities in the PALSNP (n = 41)**

Key informants all felt a sense of stewardship for the PALSNP and individually engaged in clean-up activities, invasive species (casuarina) control, fundraisers, and raising public awareness.

Eighty-two percent (n = 71) of persons would be willing to increase their personal stewardship of the Park. Of these, 81% would like to further develop their current level of stewardship or participation in management by being involved in volunteer for activities (43%), education and awareness-raising (34%) and doing whatever is asked for (23%).

Key informants would be willing to work with DEMA to prepare public awareness materials, such as brochures and booklets, to participate in volunteer warden programs and to organize more clean-up activities.

Overall the highest proportions of respondents believe that stakeholders interact ‘well’ with DEMA with the dive operator-management body interaction rating the highest (55%) for this category of interaction. Interactions between DEMA and national service clubs (Rotary, Kiwanis, PRIDE, Soroptomist), hoteliers and statutory bodies (National Trust) were also thought to be good by significant proportions of persons surveyed. From the results, it seems as if the watersports operators-DEMA interaction could be improved (Table 2).

**Table 2 Perceived stakeholder interaction with DEMA (% respondents)**

<b>Interaction with DEMA</b>	<b>Very poorly</b>	<b>Poorly</b>	<b>Satisfactory</b>	<b>Well</b>	<b>Ideally</b>
Watersports operators	5	22	34	38	2
Dive operators	3	5	18	55	19
Hoteliers	5	9	26	47	13
National service clubs	2	4	25	49	19
Statutory bodies	4	2	22	42	30
other	0	30	10	10	50

All stakeholder groups have an ‘important role’ or responsibility to play in reducing the negative impacts of activities on the natural resources of the Park. Other government organisations (such as the Department of Planning, Environmental Health and the Tourist Board) and dive operators were perceived by the majority of persons interviewed to have this type of role. Although national service clubs were rated as being highly responsible for reducing impacts in the Park, they were considered to be less responsible overall than the other groups (Table 3).

**Table 3 Perceived responsibility for impact reduction in the PALSNP**

<b>Role in impact reduction</b>	<b>No role</b>	<b>Moderate role</b>	<b>Important role</b>
Watersports operators	0	14	87
Dive operators	1	9	90
Hoteliers	1	13	86
National service clubs	1	33	65
Statutory bodies	0	18	82
Other government organisations	0	0	100
Park users	0	13	87

### 3.4 TO ASSESS TRENDS IN THE EXTENT TO WHICH PALSNP MANAGEMENT BODIES ARE CONTRIBUTING TO THE ACHIEVEMENT OF NATIONAL MARINE PARK GOALS

A fairly significant majority of people perceive a lack of resources (36%) and lack of public stewardship (20%) to be the two major problems facing management of the PALSNP. Suggested solutions to these management problems include increasing public awareness and education efforts (30%) and increasing management capacity (28%). Table 4 provides the complete list of perceived problems and suggested solutions.

**Table 4 Perceived coastal management problems and suggested solutions**

<b>Problems (n = 128)</b>	<b>%</b>	<b>Solutions (n = 116)</b>	<b>%</b>
Lack of (management) resources	36	Increased public awareness/education	30
Lack of public stewardship	20	Increase capacity	28
Lack of education/awareness	18	Increase government funding	17
Locals don't respect rules and regulations	16	Improve management	11
Poor management	6	Engage public participation	6
Public safety	2	Infrastructure maintenance	5
Environmental impact	2	Implement park user fee	2

Overall the management effectiveness of DEMA and the Turks and Caicos National Trust was rated as 'good' and 'very good' by the majority of respondents (greater than 50% combined in all cases) in achieving management objectives of the Park as outlined in the management plan (Table 5).

Managing and protecting fishery stocks (66%), keeping the park in as natural a state as possible (65%) and protection of naturally and culturally significant areas (62%) were the management objectives thought to be the most effectively achieved by the management bodies. It should however be noted that a fairly significant proportion of persons surveyed perceived management effectiveness to be 'neither good nor bad' across all goals (ranging from 25-33%).

**Table 5 Rating of perceived management effectiveness of DEMA and the Turks and Caicos National Trust**

<b>Management effectiveness</b>	<b>v. bad</b>	<b>bad</b>	<b>neither good nor bad</b>	<b>good</b>	<b>v. good</b>
Protection of naturally & culturally significant areas	0	4	33	40	22
Keeping the park in as natural a state as possible	1	8	25	46	19
Managing and protecting the fishery stocks	5	3	26	43	23
Managing the way in which visitors use the park	4	7	32	44	13
Prevention of inappropriate uses or activities in the park	4	15	26	44	10

Illegal fishing (19%), boating (15%) and improper garbage disposal/littering (15%) were provided as the main activities people would like to see addressed in the PALSNP. Key informants identified swimmer safety, solid waste management, wastewater and watershed management, public education and awareness, general governance, dune maintenance, reckless vessel operation, beach erosion, coral reef and mangrove conservation, management of events and illegal sand mining as issues that they would like to see addressed.

### 3.5 DEMOGRAPHIC INFORMATION

Survey respondents were classified into seven categories namely tourists, residents, water sports operators, landscapers, contractors, hoteliers and 'others'. These categories were determined by identifying the stakeholders that make use of, or reside within the PALSNP. Key persons were

suggested according to who could provide information about the larger population. The communities where SocMon took place were primarily dependent on the stakeholders involved in coastal management. As indicated in Figure 10, residents (20%) and water sport operators (17%) constituted the majority of respondents, with tourists (9%) the least. The sample for tourists and residents was not considered to be statistically representative (although still valid) of the demographic of those living within and making use of the PALSNP. Twenty-five percent of respondents were female and 75% were male. The majority of respondents (n = 78) were between the ages of 21 and 50.

Most persons interviewed were Turks & Caicos Islanders. The number of Haitian respondents is not representative of the true demographic as Haitians constitute a large number of the population of Providenciales.

Exactly half of the respondents' highest level of education completed was a Bachelor's Degree or higher. Twenty-six percent of persons interviewed had completed a technical/vocational qualification, with the rest either primary or secondary school education.

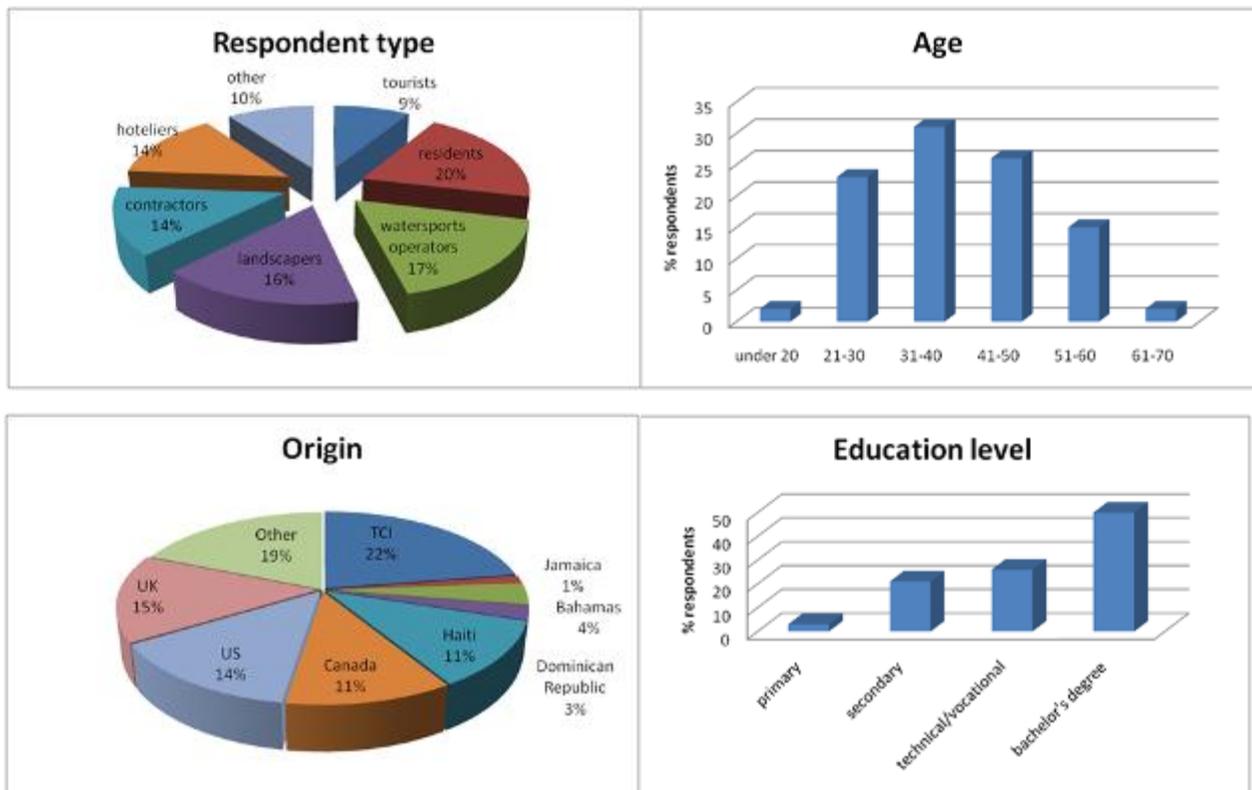


Figure 11 Demographic information

## 4 DISCUSSION AND CONCLUSIONS

### 4.1 ASSESSING THE USES OF THE NATIONAL MARINE PARK AND IDENTIFICATION OF THREATS AND PROBLEMS TO NATURAL RESOURCES

Overall people have fair knowledge of the PALSNP, specifically in terms of the extent of park boundaries. This is perhaps an area of priority that DEMA and the TCI Natural Trust should focus their efforts on. Education efforts about the Park should be increased and the need for signage delimitating the extent of the area should be examined. A heightened awareness about the PALSNP will aid management initiatives in the area.

The National Park is used regularly up to seven times a week primarily for recreation and as a means of earning a living by a diverse group of people. Those who earn a living from the Park do so mainly through watersports and diving activities, and tourism. Due to this high dependency on the area, management interventions have the potential to significantly impact a fairly significant number of persons in Providenciales. It should be noted that even though fishing is illegal in the PALSNP, it was mentioned by a minority of persons as a means of earning a living.

Physical development has been perceived by most as having both positive and negative impacts on the area. It has been seen as a means of job creation on the one hand and has led to the destruction of natural resources on the other. Development in the area, particularly of hotels, has increased over the years and continues to do so. DEMA should work with relevant regulating bodies to ensure that a balance between development and sustainable management of natural resources is maintained.

Conditions of natural resources in the Park are generally perceived as being good or very good. There did however seem to be some uncertainty regarding the health of coral reefs and fish populations within the Park which although rated as being good or very good were thought to be so by smaller proportions of respondents. A recent Future of Reefs in a Changing Environment study of TCI coral reef health indicated that compared with other coral reefs in the Caribbean region, TCI's reefs are lower than average in terms of percent coverage; however, they rank highly based on limited algal overgrowth and presence of keystone fish species such as parrotfish and grouper.

For those individuals who have been working and residing in TCI for more than 10 years, declines in coral reef health and fish abundance was noted during key informant and stakeholder interviews. The overall impression that coral reefs are in good or very good health is relatively true when compared with other regions; however, compared with their historic baseline, they are in decline.

Stakeholder perception is that pollution, overdevelopment and illegal fishing pose the greatest threats to the natural resources of the PALSNP. Improper trash and sewage disposal as well as an overuse of chemicals were main community problems identified by persons. Anecdotal evidence suggests that the bulk of environmental degradation in the PALSNP is a result of inappropriate or heavy visitor use. Most snorkelling reefs that are in easy proximity to guests have visibly

deteriorated, while those that are not as easily accessible remain in good health (Cangialosi 2011;Pardee<sup>1</sup>pers comm.).

#### 4.2 EVALUATION OF LEVEL OF STAKEHOLDER AWARENESS AND COMPLIANCE WITH PARK REGULATIONS AND THE ENFORCEMENT OF THEM

Generally key informants believe that persons tend to be aware of laws and regulations governing the PALSNP but more so those relating to their own activities within the area. These perceptions are supported by the survey results which indicated that people generally had fair knowledge of existing regulations and policy relating to activities in the Park. Knowledge that fishing is prohibited in the Park was very high among all respondents. Although this was the case, fishing was noted as a means of earning a living and illegal fishing was seen as a threat to the Park.

DEMA responds to reports of illegal fishing in the PALSNP and individuals are charged and convicted with related offences. Chronic, repeat offenders are often penalized with confiscation of equipment and jail time but are often undeterred. Fortunately, these instances are rare. Frequently illegal fishing is a matter of public awareness. DEMA Officers are instructed to inform first-time offenders of the rules and regulations. Subsequent infractions are followed-up with charges.

Compliance with Park regulations is generally perceived to be moderate as there is thought to be only some enforcement of such regulations due to limited enforcement visibility. While it was noted that there has been some effort by DEMA to enforce laws, the department is thought to lack sufficient resources to achieve adequate enforcement.

DEMA is limited by a lack of Conservation (enforcement) Officers and aging equipment. Six Conservation Officers stationed on Providenciales are responsible for patrolling all of Providenciales, West Caicos, North Caicos, Middle Caicos and the Leeward Cays, an area including a total of 16 protected areas, in addition to having jurisdiction over the entire fisheries limits in these areas. Frequently, the department does not have a patrol vessel that is operational. The department is further constrained by inadequate fuel allocations.

More management resources must be dedicated to enforcing Park regulations and engaging the public in management of the area in order to improve compliance.

#### 4.3 DETERMINATION OF STAKEHOLDER CAPACITY AND WILLINGNESS FOR COLLABORATION IN PALSNP STEWARDSHIP AND MANAGEMENT

DEMA is seen as being the most capable organisation at managing the PALSNP. It is important to note however that fairly significant proportions of persons think that all organisations are somewhat capable of playing a role in management of the area and reducing the impacts of negative activities. People therefore believe these organisations have some level of responsibility and stewardship for the Park. DEMA should therefore examine the potential for engaging groups of stakeholders such as watersports operators, hoteliers, the Tourist Board and NGOs in decision-making and management of the Park.

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<sup>1</sup>Marsha Pardee, 21 March 2014. MerAngel Ecological Services.

Although there is a high level of sense of stewardship for the PALSNP, only some people participate in activities such as beach clean-ups, educational efforts and support of TCRF projects. Most people indicated they would be willing to increase their personal level of stewardship of the area and its resources through volunteer work, and involvement in education and awareness-raising activities. DEMA therefore should try to increase public participation and engagement in management of the area in order to give people a sense of ownership of the area.

In January 2014, DEMA launched a Community Conservation Partner Program. The program offers a “green” certification to individuals and organisations that commit to performing stewardship activities in protected areas. Community groups have committed to weekly trash clean-ups in coastal areas, lionfish control and other activities.

Interaction between DEMA and stakeholder bodies is generally perceived to be good, although the interaction between watersports operators and the management body could be improved. Regular and good interaction with stakeholders is important in achieving management objectives and should be sustained to improve and adapt management.

#### 4.4 ASSESSMENT OF TRENDS IN THE EXTENT TO WHICH PALSNP MANAGEMENT BODIES ARE CONTRIBUTING TO THE ACHIEVEMENT OF NMP GOALS

PALSNP management is thought to be hampered by a lack of resources and lack of public stewardship of the area. It was noted that efforts at increasing public awareness of the Park and increasing management capacity are critical to achieving management objectives.

The government of TCI continues to be constrained by a lack of financial resources, additionally, the Conservation Fund, funded by a 1% tax on accommodation and established to finance conservation efforts in TCI, has been absorbed into the general fund to cover the day-to-day operating expenses of the country, without any replacement for conservation funding being made. Given this scenario, it is unlikely that adequate resources will be made available for protected areas management in the near future. The only possible remedy for inadequate management is therefore to engage stakeholders in the community to undertake necessary stewardship roles.

DEMA and the Turks and Caicos National Trust were rated highly in terms of management effectiveness. It should be noted however, that there is still a significant proportion of persons who rate the effectiveness of management at achieving management plan objectives as neither good nor bad.

As noted above, DEMA’s management effectiveness is greatly hampered by a lack of human and other resources. The department has been very effective in partnering with private sector interests and non-governmental organisations to help fill in needed management gaps. For example, DEMA and the Turks and Caicos Reef Fund (TCRF) have partnered to ensure that dive moorings are adequately maintained; however, much necessary work remains undone. The Community Conservation Partner Program is seen as a possible solution for many of the continuing management gaps.

## 5 RECOMMENDATIONS FOR MONITORING AND MANAGEMENT

Although dependent on DEMA structure and capacity at the time, it is recommended that the SocMon process is repeated in three years. In the meantime, it has been recognised that improved and increased capacity of the community is crucial in supporting sustained monitoring. In order to do this, community awareness is to be created and possible private sector financial support and collaboration for sustained monitoring is to be developed.

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# APPENDIX 1 SITE MONITORING PLAN

## Socio-economic Monitoring at National Marine Parks in the Turks and Caicos Islands (TCI SocMon) 5-13 August 2013



### Site monitoring plan for MPA follow-up study

#### 1. Goal and objectives guiding socio-economic monitoring

Monitoring must have a goal and specific objectives for being undertaken. These are often based on management plans (e.g. fisheries, MPA, tourism) or other expressions of policy.

<b>Monitoring goal</b>
To ensure the regular and ongoing contribution of socio-economic data and information to decisions for the effective management of the Princess Alexandra Land and Sea National Park (PASLNP)

#### SMART objectives for socio-economic monitoring (please be as specific as possible)

<b>Monitoring objectives (Smart, Measurable, Attainable, Realistic and Time-bound)</b>
1. To assess uses of the National Marine Park and identify threats and problems to the natural resources
2. Evaluate stakeholder awareness of, and compliance with, regulations and policy and their enforcement
3. To determine stakeholder capacity and willingness for collaboration in NMP stewardship and management, and promote participatory monitoring and evaluation as part of stewardship and management
4. To assess trends in the extent to which PASLNP management bodies are contributing to the achievement of NMP goals (objectives).

#### 2. Defining the study area

Using the information on issues and stakeholders, define the geographic area appropriate for the study site (contains all or most critical activities/issues and stakeholders). Document the specific selection criteria that you used. Clearly identifying the study area is important in identifying use patterns and potential threats to resources. The study area should include where the stakeholders live and work.

Study area selection criteria	Study area description (or attach area map)
National Park boundaries including Donna Cay, Mangrove Cay and Little Water Cay	Thompson Cove to Water Cay three hundred feet beyond the reef edge encompassing Leeward Highway
Fringing reef	

Study area selection criteria	Study area description (or attach area map)
Surrounding communities and businesses	
Watershed	

### 3. Stakeholder identification

Stakeholder identification and selecting the boundaries for the study site are iterative processes. Start by identifying the activities in the area and then determine who the likely stakeholders are. Name their organisation, if any.

Study area activity or issue	Primary stakeholder [and organisation]	Secondary stakeholder [and organisation]
Tourism	Tourists, hoteliers	Hoteliers, residents
Physical development	Developers/contractors	Residents, tourists, merchants
Residential communities	Full-time residents	Household staff
Recreational activities	Locals and tourists, watersports operators	Support services
Marinas	Marina managers, yachtmen, watersports operators, fishing boats, Department of Environmental Health	Support services
Run off and pollution	Hoteliers, yacht owners, residents, golf course, landscapers, agriculture (conch farm), Department of Environmental Health	Residents, fishermen
Invasive species	Land owners, Department of Agriculture, DEMA, watersports operators, fishermen	Fishermen, tourists, residents

### 4. Stakeholder locations and key informants

The communities where SocMon will take place will depend primarily on the stakeholders involved in coastal management. Suggest key persons who can talk about the larger population. The communities where SocMon will take place will depend primarily on the stakeholders involved in coastal management. Suggest key persons who can talk about the larger population.

Stakeholders (1° and 2°)	Location of stakeholder	Key informants for stakeholders
Hoteliers	Grace Bay and The Bight	TCHTA – Michel Neutelings,
Developers/Contractors	Leeward Highway	BengtSoderqvist
Marinas	Turtle Cove	Carole Klinko

Stakeholders (1° and 2°)	Location of stakeholder	Key informants for stakeholders
	Leeward (Blue Haven) Walkin Marina	
Tourists	The Bight	Ralph Higgs (Tourist Board)
Residents	Haitian Consulate	Donald Metelus Leeward Homeowners Association
DEMA	The Bight	Kathleen Wood Leroy Brooks
EHD	Leeward Highway	Kenrick Neely
Watersports operators	Turtle Cove Walkin Marina Leeward Marina	Art Pickering Ed Missick Mark Parrish
Fishermen	Turtle Cove The Bight	Gamefishers – Arthur Dean
Golf course	Leeward	Jason Bailey – Grounds and waterplant
Support services (restaurants, souvenir stores etc)	Grace Bay  The Bight and Turtle Cove	Ted Bayley (Somewhere)
Department of Agriculture	Downtown	Mark Butler
Conch farm	Heaving Down Rock	Richard Burke
Landscapers	Grace Bay	Mike Giese (Sunshine) Catherine Dyer
HODs (government)	Provo and Grand Turk	DainerLightbourne (Planning)  Ethlyn Gibbs Williams (TCNT)

## 5. SocMonteamand tasks

Although an initial study or monitoring can be done by a single person (e.g. MSc student), the process is intended to be undertaken by an interdisciplinary team, the size and the required talents of which partly depend on the goal and objectives of the study or monitoring program. What types of expertise do you need and where from?

<b>Role on team (or skill requirement)</b>	<b>Specific tasks</b>	<b>Proposed team member name and affiliation</b>
Manager/coordinator	Coordination of project activities	Don Stark
Departmental coordinator	Liaise with SocMon coordinator and organize daily activities of DEMA	Kathleen Wood
Primary data collectors	Field data collection	Maggie Wisniewski Zev Cariani Duval Clare NaqqiManco Jasmine Parker Amy Avenant
Secondary data collectors	Collect and acquire secondary data	Eric Salamanca NaqqiManco Kathleen Wood Carey Skippings Henry Wilson
Key informant interviews	Field data collection for key informants	Don Stark Kathleen Wood Judith Campbell Henry Wilson
Data collection coordinator	Coordinate field data collection	Henry Wilson
Translator	Translates when required	Kenol Joseph Luc Clerveaux
Data entry	Compile data	Jodi Johnson Eric Salamanca Don Stark Zev Cariani Amy Avenant Maggie Wisniewski
Data analysis and interpretation	Analyze and interpret data	Eric Salamanca Don Stark Kathleen Wood Jodi Johnson Zev Cariani Amy Avenant

Role on team (or skill requirement)	Specific tasks	Proposed team member name and affiliation
Reporting	Report compilation	Henry Wilson NaqqiManco Kathleen Wood Jodi Johnson Judith Campbell Amy Avenant
Public Relations	Communicating results	All team members
Coordinator for public relations	Coordination of public relations	Jasmine Parker

## 6. Work plan schedule

A SocMon study should take no more than one month, however duration varies between 3 -8 weeks, so you need to schedule your work accordingly, remembering the SocMon stages including validation. Set out tasks under each heading

Activity / task	Time unit → (wks)	12 Aug	19 Aug	26 Aug	2 Sept	9 Sept	16 Sept	23 Sept	25 Nov – 2 Dec
<b>Preparatory activities</b>									
Define goals and objectives		✓							
Establish study area boundaries		✓							
Determine SocMon team		✓							
<b>Secondary data collection</b>									
Compile and review secondary data									
Identify gaps in knowledge									
<b>Primary data collection and observation</b>									
Develop key informant interview guide									
Pre-test key informant interview									
Administer KI (also focus on govt HODs)									
Determine sample size (survey)									
Develop survey									
Pre-test survey									

Activity / task	Time unit → (wks)	12 Aug	19 Aug	26 Aug	2 Sept	9 Sept	16 Sept	23 Sept	25 Nov – 2 Dec
Administer survey									
<b>Data analysis and interpretation</b>									
Develop coding sheet and data table									
Compile and enter KI and survey data									
Analyze and review data (SocMon results and key learning)									
<b>Validation, communication, adaptation</b>									
Draft site monitoring report									
Validation meeting (provide feedback to stakeholders)									
Finalize site monitoring report & submit draft to CERMES for review									
Submit final report to management bodies and relevant government agencies									
Communicate findings with media to the public									

✓ Tasks already completed during training workshop

### 7. Critical research resources required (budget and non-budget)

Many resources will be used in the research, but there are usually just a few that are so critical the assessment may not be able to proceed without them. You must know early what these are.

Resource description	Use of resource	Comments on availability
Travel funds (Maggie and Zev)	Ground transportation	Sub-grant
Travel funds - TCI ferry (Naqqi)	Inter-island transportation	Sub-grant
Travel funds – Jodi and Luc	Inter-island transportation	Sub-grant
Fuel for DEMA vehicles	Ground transportation	Sub-grant
Printer cartridges	KIs and surveys	Sub-grant
Stationery	KIs and surveys	Sub-grant
Photocopying	Surveys and validation material	Sub-grant

6

Refreshments (validation)	Validation meeting	Sub-grant
Press release	Communication of results	DEMA
Computers and printers	SocMon research	DEMA

## 8. Budget

The SocMon methodology is intended to be affordable so that monitoring can be sustained. Pay close attention to what are realistic costs, including in-kind contributions that may be available. Use the work plan schedule to estimate the monitoring costs, broken down by SocMon stage in order to provide information on required cash flow based on the schedule. Critical resources can be skills (communication specialist, visual artist etc.).

Description of expense	No. of units	Unit cost*	Total cost*
<b>Preparatory activities</b>			
No associated costs	-	-	-
<b>Secondary data collection</b>			
Photocopying expenses			10.00
<b>Interviews and observation</b>			
Travel funds (Maggie and Zev)	10 days	40.00	400.00
Travel funds - TCI ferry fare (Naqqi)	3 round trips	50.00	150.00
Travel funds – Luc	2 round trips	100.00	200.00
Fuel for DEMA and TCRF vehicles	2 tanks of gas	100.00	200.00
Printer cartridges	2	50.00	100.00
Stationery	2	10.00	20.00
Photocopying (toner cartridge and costs)	1	100.00	100.00
Audio recorders	2	50.00	100.00
Memory cards	2	25.00	50.00
Batteries	2 packs	10.00	20.00
Clip boards	5	10.00	50.00
<b>Validation, communication, adaptation</b>			
Information packet (folder, handouts + DVD)	50	5.00	250.00
DEMA conference room (validation meeting)	1	In-kind	In-kind
Refreshments (validation)	50	5.00	250.00
Press release	1	In-kind	In-kind
<b>Administrative costs TCRF</b>			100.00
<b>Sum total of SocMoncosts</b>			<b>2000.00</b>

\* = currency used [USD]

## 9. Key variables to be monitored

Based on the goal and objectives of the monitoring, you need to determine which (if not all) of the SocMon Caribbean variables need to be measured, sources of secondary information to consult before interviewing (key informant or household), and practical considerations for each variable. The practical considerations include levels of difficulty in acquiring information, issues, error or uncertainty, challenges in implementing fieldwork, links to data sources that are desirable, etc.

*\*Remember the three types of variables: Key informant interview/secondary sources variables (K), survey variables (S) and climate change (CC) variables.*

*Also remember that if a variable specific to your purposes of monitoring is not available among the 70 SocMon Caribbean variables, you can add new variables.*

KEY INFORMANT INTERVIEW/SECONDARY SOURCES VARIABLES (N = 25)			
Var. No.	Variable to be monitored	Obj. 1, 2, 3...	Secondary sources of information & practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork
K1.	Study area	1	Information on this variable is usually collected from existing secondary data. KI interviews will be conducted to fill gaps in knowledge.
K2.	Population		
K3.	Number of households		
K 4.	Migration rate		
K5.	Age		
K6.	Gender		

<b>KEY INFORMANT INTERVIEW/SECONDARY SOURCES VARIABLES (N = 25)</b>			
<b>Var. No.</b>	<b>Variable to be monitored</b>	<b>Obj. 1, 2, 3...</b>	<b>Secondary sources of information &amp; practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork</b>
K7.	Education		
K8.	Literacy		
K9.	Ethnicity		
K10.	Religion		
K11.	Language		
K12.	Occupation	<b>1-4</b>	
K13.	Community infrastructure and business development	<b>1, 3</b>	<b>Collected from observation, secondary sources.</b>
K14.	Activities	<b>1-4</b>	<b>Collected from observation, secondary sources.</b>
K15.	Goods and services	<b>1, 3, 4</b>	<b>Secondary sources</b>
K16.	Types of use	<b>1 - 4</b>	<b>Secondary sources.</b>
K17.	Value of goods and services	<b>1, 3</b>	

<b>KEY INFORMANT INTERVIEW/SECONDARY SOURCES VARIABLES (N = 25)</b>			
<b>Var. No.</b>	<b>Variable to be monitored</b>	<b>Obj. 1, 2, 3...</b>	<b>Secondary sources of information &amp; practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork</b>
K18.	Goods and services market orientation		
K19.	Use patterns	1, 2	Objective 2 in terms of determining compliance
K20.	Levels and types of impact	1– 4	KI interviews. Link with responses on threats obtained via surveys.
K21.	Level of use by outsiders	1, 3	Secondary sources
K22.	Household use		
K23.	Stakeholders	1, 3, 4	
K24.	Tourist profile	1, 3, 4	Use KI interviews to fill in any gaps in knowledge
K25.	Management body	4	Obtain from secondary data. Relevant to management agencies with a mandate for management of the area
K26.	Management plan	4	Secondary sources and KI interview (with Kathleen, Henry and any other relevant management personnel)
K27.	Enabling legislation	4	Obtain from secondary sources and KI interviews (with Kathleen, Henry and any other relevant management personnel)
K28.	Management resources	4	Obtain from secondary sources and KI interviews (with Kathleen, Henry and any other relevant management personnel)

<b>KEY INFORMANT INTERVIEW/SECONDARY SOURCES VARIABLES (N = 25)</b>			
<b>Var. No.</b>	<b>Variable to be monitored</b>	<b>Obj. 1, 2, 3...</b>	<b>Secondary sources of information &amp; practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork</b>
K29.	Formal tenure and rules		
K30.	Informal tenure and rules, customs and traditions		
K31.	Stakeholder participation	3, 4	Use this variable to also measure degree of interaction between managers and stakeholders. Determine the number of regularly scheduled meetings between NMP managers, staff and stakeholders to discuss compliance with the management plan etc. Use meeting minutes to gather information such as number and location of meetings per year, agendas, topics of discussion, conflicts, solutions and those in attendance. A review of these records could provide information on problems and issues related to compliance and enforcement.
K32.	Community and stakeholder organizations	3	
K35	Critical activities for management intervention	1, 4	
K36	Perceptions of resource conditions	1, 3, 4	
K42	Stakeholder interactions	3, 4	

KEY INFORMANT INTERVIEW/SECONDARY SOURCES VARIABLES (N = 25)			
Var. No.	Variable to be monitored	Obj. 1, 2, 3...	Secondary sources of information & practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork
[New]	Defined enforcement procedures	2, 4	This is a measure of the existence and description of guidelines and procedures developed for staff charged with enforcement responsibilities and how they are to act depending on the type of offence encountered. Collect the data for this variable by reviewing the monitoring, control, surveillance and enforcement section for the NMP for information on the enforcement programme and its structure. This is covered on pgs 25-26 of the PALSNP management plan. Additionally interviews with the Director and enforcement staff may be undertaken to identify the monitoring, control, surveillance and enforcement programme.
[New]	Enforcement coverage	2, 4	This variable could measure the number of surveillance and monitoring patrols undertaken by NMP staff during a given time period and in a specified area. The information is used to review the consistency of patrol activities. This is necessary for assessing trends in violations or non-compliance since the latter is generally measured as the number of violations per patrol effort. The information will be useful in determining how well NMP management is meeting its management activities.
[New]	Information dissemination or outreach and community support	1 - 4	The variable can measure the number and effectiveness of capacity-building efforts for stakeholders on the objectives and benefits, rules, regulations and enforcement arrangements of the NMP.

SURVEY VARIABLES (N = 25)			
Var. No.	Variable to be monitored	Obj. 1, 2, 3...	Secondary sources of information & practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork

SURVEY VARIABLES (N = 25)			
Var. No.	Variable to be monitored	Obj. 1, 2, 3...	Secondary sources of information & practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork
S1.	Age	1 - 4	
S2.	Gender	1 - 4	
S3.	Ethnicity	1 - 4	Will not use the term ethnicity
S4.	Education	1 - 4	
S5.	Religion		
S6.	Language		
S7.	Occupation	1 - 4	
S8.	Household size		
S9.	Household income		
S10.	Household activities		
S11.	Household goods and services		

SURVEY VARIABLES (N = 25)			
Var. No.	Variable to be monitored	Obj. 1, 2, 3...	Secondary sources of information & practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork
S12.	Types of household uses		
S13.	Household market orientation		
S14.	Household uses		
S15.	Non-market and non-use values	1 - 4	
S16.	Perceptions of resource conditions	1, 3, 4	
S17.	Perceived threats	1, 3, 4	
S18.	Awareness of rules and regulations	2, 3, 4	
S19.	Compliance	2, 4	
S20.	Enforcement	2, 4	
S21.	Participation in decision-making	3, 4	
S22.	Membership in stakeholder organizations	3	

<b>SURVEY VARIABLES (N = 25)</b>			
<b>Var. No.</b>	<b>Variable to be monitored</b>	<b>Obj. 1, 2, 3...</b>	<b>Secondary sources of information &amp; practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork</b>
S23.	Perceived coastal management problems	1, 2, 4	
S24.	Perceived coastal management solutions	1, 2, 3	
S25.	Perceived community problems	1	
S26.	Success in coastal management	3, 4	
S27.	Challenges in coastal management	3, 4	
S28.	Material style of life		
S 34	Perceived management responsibility	3	
S35	Management priorities	1, 2, 4	
S37	Knowledge and perceptions of physical development impacts and negative impact	1	

SURVEY VARIABLES (N = 25)			
Var. No.	Variable to be monitored	Obj. 1, 2, 3...	Secondary sources of information & practical considerations, constraints and challenges with secondary data sources and carrying out fieldwork
S38	Perceived responsibility for impact reduction	1, 4	
S41	MPA user frequency and type of MPA use	1, 3	
[S44]	Length of residence in TCI	1, 3	
[S45]	Length of time in current occupation	1, 3	

## 10. Interview sample design

Depending on many factors ranging from the objectives of monitoring to area demographics, you need to determine 'how' and 'how many' for selection of key informants and households.

a. Key informants	b. Households
<b>Critical information areas</b>	<b>Estimated number of households in study area and means of obtaining estimate</b>  Approx. 3000/week – tourists Approx. 4,200 residents Approx. 500 watersports staff
<b>No. of informants:20</b> Hoteliers Developers Marinas Govt Watersports operators Tourism related services (restaurants, golf clubs) Other users Landscapers NGOs	<b>Approx. sample size:</b>  Tourists: n = 75 Residents: n = 75 Watersports: n = 50

a. Key informants	b. Households
Vendor (beach)	
<b>Selection process:</b> Critical information areas/issues of concern	<b>Sample selection method:</b> Tourists < 10% due to time constraints Residents < 10% due to time constraints Watersports 10% sample

## 11. Visualization techniques

The GCRMN manual describes several visualization techniques that are useful for collecting, displaying and communicating socio-economic data informatively to document or assist decision-making. Many methods may be used simultaneously or sequentially. The means of presenting socio-economic monitoring results is critical in showing relationships among the data. Which methods will you use?

Technique and page in manual	Variable and objective nos.	Notes on application of the technique to the variable and objectives (e.g. for all or some stakeholders? Issues?)
Maps – 113	K1, K19, K20 Obj 1 - 4	
Transects - 119	K14, K19 Obj 1 – 4  S 41 Obj 1 - 2	
Timelines - 121		
Seasonal calendars - 125		
Historical transects - 129	K36, K37 Obj 1 - 4	
Decision trees - 131	K16, K26, K31, K37 Obj 1 - 4	
Venn diagrams - 133	K14, K15, K19, K42 Obj 1- 4  S21, S34 Obj 3	
Flow charts – 136	K13, K20 Obj 1 – 4  S23, 24, 37 Obj 1	
Ranking - 138	K20, 21, 36, 37, 46, Obj 1 -4  S16, 17, 35, Obj 1, 2	

Technique and page in manual	Variable and objective nos.	Notes on application of the technique to the variable and objectives (e.g. for all or some stakeholders? Issues?)
Pie charts		
Tables	S1- 4, 7, 44, 45 Obj 1, 3	
Bar graphs		

## 12. Key points to consider in data analysis and interpretation

Depending on the nature of the study site and your monitoring process there are often special points to consider as you analyse and interpret data. These may be assumptions, constraints or expertise required. You will need to know these beforehand and to write them up with results.

1 Sample size for tourists and residents for surveys is less than ideal for this assessment. Will be valid but not statistically representative.
2 Key informants will not be representative. Selection based on willingness to participate, therefore there will be key informant bias.
3 Assumption bias in determination of variables for assessment
4 Some selection bias in survey respondents

## 13. Communication plan and issues in arrangements for communication and validation

Communication and validation of results and key learning is often done in workshops, but other means are used to supplement this and ensure that various audiences receive the outputs. However done, there will always be some practical matters to address, i.e. issues in arrangements for communication and validation.

Target audience	Communication product(s)	Communication pathway(s)	Practical matters
Residents	Presentation	Meeting	Possible low turn out Refreshments necessary Translation into Spanish and Kreyol
	Press release	Media	
Watersports	Presentation e-brochure	Meeting Email	
Hoteliers	Presentation	TCHTA meeting (piggy-back)	Piggy-backing
	e-brochure	Email	
Tourists	e-brochure	Email	Low response Privacy
Landscapers	Presentation e-brochure	Meeting Email	
Government & NGOs	Presentation	Meeting	Invite HODs & NGOs

Target audience	Communication product(s) (abbreviated)	Communication pathway(s)	Practical matters
			to stakeholder meeting but hold separate meeting specifically for them
Service sector (vendors, restaurateurs, golf club)	Presentation	Meeting	Stakeholder meeting

#### 14. Plans for sustaining monitoring over the next five years

A socio-economic monitoring program is usually repeated every 2-5 years. The frequency of monitoring depends on the site situation and data needs for the site. List plans for sustained monitoring five years from now.

1 Possibility for repeating SocMon process in three years but this is dependent on DEMA structure and capacity at the time
2 Improved and increased capacity of community will support sustained monitoring
3 Possible private sector financial support and collaboration for sustained monitoring in the future

#### 15. Challenges of implementing a sustained monitoring program at your site

Implementing a SocMon monitoring program at coastal sites may be challenging for a number of reasons including lack of human and financial resources, lack of fully functional integrated coastal management, etc. Provide a list of challenges, if any, for your site.

1 Sustained monitoring dependent on institutional memory
2 Funding
3 Limited human resources for monitoring
4 Stakeholder fatigue
5 Recommendations from TCI SocMon project may conflict with other government priorities

**16. Initiatives/projects that may impact on SocMon at the site and future use of SocMon for socio-economic monitoring**

It is important to know if there are any on-going or planned initiatives or projects at your site to determine relevance to the SocMon study, possibility for synergy; prevent duplication and intrusion in communities. List any initiatives or projects that are on-going or slated for your site.

Initiative/project	Impact on SocMon study
FORCE project	Stakeholder fatigue Synergy and corroboration of SocMon data
Watershed management plan (to be implemented)	Synergy – SocMon data may be incorporated into plan
Possible alterations to PAs legislation	Potential for changing threats and priority of threats
Possible socio-economic assessment of watersports sector (TCIG)	Possible synergy with TCI SocMon Stakeholder fatigue
National Physical Development Plan	Synergy – SocMon data may be incorporated into plan

**17. Informing MPA management and/or policy decisions in the Turks and Caicos Islands**

SocMon is a very useful methodology that may be used for guiding management of coastal resources and informing policy decisions. List a few areas where SocMon may be used for such.

1 Useful for informing government in review of PAs legislation. Review pending.
2 Useful for informing DEMA re: pending watershed management plan implementation
3 Useful for informing the National Physical Development Plan
4 Useful for building stakeholder capacity to collaborate and willingness for NMP stewardship and management

**18. Potential for adaptive management using SocMon**

SocMon can be especially useful in adaptive management in order to improve management, planning, impacts, accountability etc. List a few areas which will have the greatest potential for adaptive management if SocMon is used for monitoring in MPAs in the Turks and Caicos Islands.

1 Encouraging and building stakeholder participation in stewardship and management
2 Identifying gaps in current policy and management
3 Establishing a time-series for socio-economic baseline
4 Improving public and private sector awareness of the PALSNP and rules and regulations

**19. Any additional notes (optional)**


## APPENDIX 2 KEY INFORMANT GUIDE

### Key Informant Questions

Int# \_\_\_\_\_ / Q# \_\_\_\_\_

Thank you for giving your time to help us collect this important information. This survey is intended to identify perceptions of management of Princess Alexandra Land & Sea National Park. Your name or position will not be identified in any reports and the information will not be used for any enforcement.

Interviewer's Name:

Interviewee's Name:

Location:

Date: \_\_\_ August 2013      Time start/ end:      /

#### **Assess uses of the National Marine Park and identify threats and problems to natural resources**

1. What activities occurring within the PALSNP would [*insert specific stakeholder group*] like to see addressed by DEMA? (K35 [adaptation of K14])
2. What activities occurring in the Princess Alexandra Nature Reserve (Little Water Cay) would [*insert specific stakeholder group*] like to see addressed by the Turks and Caicos National Trust (TCNT)? (K35 [adaptation of K14])

#### **Evaluate stakeholder awareness of, and compliance with, regulations and policy and their enforcement**

3. How aware do you think [*insert specific stakeholder here*] in general are aware of regulations and policies relating to the PALSNP and their activities within it? (S18 adopted as K variable)
4. Which regulations/policies would they be most familiar with? (S18 adopted as K variable)
5. In your opinion, how effective do [*insert specific stakeholder here*] believe enforcement of Park regulations to be? Explain. (S20 Enforcement adopted as K variable)
6. From the perspective of [*insert specific stakeholder*] in what way(s), if at all, could enforcement be improved? (S20 Enforcement adopted as K variable) Explain.

#### **Determine stakeholder capacity and willingness for collaboration in National Marine Park stewardship and management and promote monitoring and evaluation as part of stewardship and management**

*Environmental (ecosystem) stewardship is now generally recognized as the acceptance of responsibility for sustainable use and protection of the environment (resources, ecosystems etc.) for current and future generations.*

7. Do [*insert specific stakeholder here*] participate in any stewardship or management activities in the PALSNP? If YES, in which activities do they participate? If NO, would they like to be involved in stewardship and management of the PALSNP? In what ways? (K31)
8. How can DEMA engage [*insert specific stakeholder here*] in stewardship and management of PALSNP? (K31 [needs to be further developed to include actions by management bodies for encouraging stakeholder participation])

#### **Assess trends in the extent to which PALSNP management bodies are contributing to the achievement of the NMP goals (objectives)**

9. Do you have any additional comments about the PALSNP and its management?

## APPENDIX 3 KEY INFORMANT VARIABLES CHOSEN FOR MONITORING

<b>Data collection instrument</b>	<b>Variable no.</b>	<b>Variable</b>
Key informant	K31	Stakeholder participation
	S18*	Awareness of rules and regulations
	S10*	Enforcement
	K35**	Critical activities for management intervention

\* SocMon survey variable adopted as key informant variable

\*\*Variable developed in the Caribbean Challenge SocMon project (see Pena, McConney and Blackman 2013)

# APPENDIX 4 SURVEY

Date: / / Location: ID#: Q#: Start time

## Socio-Economic Monitoring Princess Alexandra Land and Sea National Park (PALSNP) Stakeholder Survey

*The Department of Environment and Maritime Affairs (DEMA, in cooperation with the TC Reef Fund (TCRF)) is conducting a study to determine uses, attitudes and perceptions about the Princess Alexandra Land and Sea National Park (PALSNP) from people living and working near or within the Park. Your responses/answers to this survey will be invaluable input towards updating the sustainable management plan for the Park. Your identity will not be divulged and the highest degree of confidentiality will be observed.*

**Objective 1:** To assess the uses of the National Marine Park and identify threats and problems to the natural resources.

1.
  - a) Do you know the boundaries of the Princess Alexandra National Park (PALSNP)?  
 Yes  No [S29 MPA Knowledge and Awareness]
  - b) If YES, please either identify the boundaries or show the extent of the PALSNP on the map. [S29 MPA knowledge and awareness]  
*Check one of the following to indicate respondent knowledge:*  
 Good  
 Fair  
 Poor

*If NO, show the respondent a map of the PALSNP and point out the boundaries of the marine park.*

2. What do you do within the park boundaries? Check ALL that apply. [S41 MPA User Frequency and Type of MPA Use(s)]  
 Work  
 Swim  
 Use the Beach  
 Scuba Dive/Free Dive  
 Snorkel  
 Boat  
 Other, please specify \_\_\_\_\_
2. How often do you do any of these activities? [S41 MPA User Frequency and Type of MPA Use(s)]

*Days per week*

1  2  3  4  5  6  7

*Weeks per year (record a value between 1 and 52)*

3. List the three most common ways people make money in the PALSNP. [S30 Types and Changes in MPA Livelihoods]

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

4. How would you describe the current health of the following resources in the Princess Alexandra National Park, and their value to you?

Resource	5 (a) Condition 1: v. bad 2: bad 3:neither good nor bad 4: good 5: v. good DK: Don't Know [S16 Perceptions of Resource Conditions]	5(b) Value If [resource] in the PALSNP deteriorated, how would it matter to the country, other than economically? [S15 Non-market and Non-use Values]
Coral reefs	1 2 3 4 5 DK	
Mangroves	1 2 3 4 5 DK	
Seagrass beds	1 2 3 4 5 DK	
Fish population	1 2 3 4 5 DK	
Beaches	1 2 3 4 5 DK	
Other Marine life	1 2 3 4 5 DK	
Water quality	1 2 3 4 5 DK	<i>If water quality decreased, how would it matter to you?</i>

5. From the list below, check the **THREE** biggest potential threats to the natural resources in the Princess Alexandra Land and Sea National Park? [S17 Perceived Threats]

- Overdevelopment/improper development
- Decreasing and deteriorating beach access
- Pollution (water and land based)
- Climate Change (sea-level rise, increase in sea-water temperatures, changing rainfall patterns, acidification, etc.)
- Beach erosion (natural and human-induced erosion)
- Beach restoration/beach re-nourishment activities
- Hurricanes and storms
- Illegal fishing
- Overuse (too many users in a particular place at onetime)
- Dredging
- Invasive species (marine and terrestrial invasive species)
- Other, please specify \_\_\_\_\_

6. Using a scale of 1 to 5, rate the significance of the following issues to users and communities within / next to the Park. [S25 Perceived Community Problems]

Community problem	Very significant (5)	Significant (4)	Neither significant nor insignificant (3)	Insignificant (2)	Very insignificant (1)
Improper trash disposal					
Improper sewage disposal					
Overuse of chemicals					
Illegal development					
Over-population					
Illegal Vendors					
Other, please specify _____					

7. Do you think onshore physical development along the Princess Alexandra National Park has had a positive or negative impact on how people earn a living? [S30 Types and Changes in MPA Livelihoods]

<input type="checkbox"/> positive impact	Why has it been positive?
<input type="checkbox"/> negative impact	Why has it been negative?

**Objective 2: To evaluate the level of stakeholder awareness and compliance with park regulations and the enforcement of them.**

8. Are there regulations and policy related to the following activities within the PALSNP? [S18 Awareness of Rules and Regulations]

Activity	9(a)	9(b) Tell me anything you know about these regulations and policy.
Fishing	[ <input type="checkbox"/> ] Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ] DK	
Hotel development	[ <input type="checkbox"/> ] Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ] DK	
Watersports	[ <input type="checkbox"/> ] Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ] DK	
Mangrove use	[ <input type="checkbox"/> ] Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ] DK	
Boating rules	[ <input type="checkbox"/> ] Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ] DK	

9. In your opinion, to what extent do people comply with these regulations and policies? Check ONE. [S19 Compliance]

- [  ] Fully compliant
- [  ] Moderately compliant
- [  ] Minimally compliant
- [  ] Not compliant
- [  ] Don't know

10.

a) On a scale of 1 to 3 (1 = no enforcement, 2 = some enforcement, 3 = fully enforced) to what extent do you believe the regulations and policies are enforced? [  ] [S20 Enforcement]

b) Why did you give that rating?

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**Objective 3: To determine stakeholder capacity and willingness for collaboration in PALSNP stewardship and management.**

12. How capable of managing the PALSNP do you believe the following organizations are? (1= least capable, 2 = somewhat capable, 3= most capable)[NEW Perceived Management Capacity and Capability]

- Local residents
- Watersports operators
- Department of Environment & Maritime Affairs (DEMA, formerly the DECR)
- Hoteliers
- Tourist Board
- Non-governmental organizations (e.g. TC National Trust, TC Reef Fund)
- Others, please state \_\_\_\_\_

13. *Parks stewardship is the acceptance of responsibility for sustainable use and protection of the environment (resources, ecosystems etc.) for current and future generations.*

a) Do you feel any sense of stewardship for the PALSNP? [NEW Sense of Stewardship]

- Yes  No  Don't know

14. a) Do you participate in any stewardship activities in the PALSNP? [S21 Participation in decision-making with revision to include stewardship]

- Yes  No  Don't know

b) If YES, in which activities do you participate?

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c) Would you be willing to increase your personal stewardship of the PALSNP? [S21 Participation in decision-making with revision to include stewardship]

- Yes  No  Don't Know

d) If, YES, in what ways are you able to further develop upon your current level of stewardship or participation in management?

e) If NO, would you like to be involved in stewardship and management of the PALSNP? In what ways?

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- 
- f) How well do you believe the following stakeholders interact with DEMA? [S21 Participation in Decision-making, with possible revision to include perceptions of stakeholder-management body interactions]

Stakeholder	Interaction rating 1= very poorly, 2= poorly, 3= satisfactory , 4= well, 5 = ideally
Water sports operators	1 2 3 4 5 DK
Dive operators	1 2 3 4 5 DK
Hoteliers	1 2 3 4 5 DK
National service clubs ( <i>Examples: Rotary, Kiwanis, PRIDE, Soroptimist</i> )	1 2 3 4 5 DK
Statutory bodies ( <i>National Trust</i> )	1 2 3 4 5 DK
Other, please specify _____	1 2 3 4 5 DK

15. How much responsibility should each of the following groups assume in reducing the negative impacts that some activities have on the resources within the PALSNP?  
 [NEW Perceived responsibility for impact reduction (not be confused with CC SocMon S38 which focuses on responsibilities for reduction of impacts due to physical development)]

Stakeholder	Interaction rating 1 = No role, 2 = Moderate Role, 3 = Important role
Water sports operators	1 2 3 DK
Dive operators	1 2 3 DK
Hoteliers	1 2 3 DK
National service clubs ( <i>Examples: Rotary, Kiwanis, PRIDE, Soroptimist</i> )	1 2 3 DK
Statutory bodies ( <i>National Trust</i> )	1 2 3 DK
Other, please specify _____	1 2 3 DK

**Objective 4: To assess trends in the extent to which PALSNP management bodies are contributing to the achievement of NMP goals**

16. What are two major problems facing management of the PALSNP? [S27 Challenges in Coastal Management]

1.

2.

17. Suggest solutions to each of these problems.  
 [S27 Challenges in Coastal Management]

1.

2.

18. On a scale of 1-5 (1 = very bad, 5 = very good) rate the effectiveness of management of the PALSNP by DEMA and the Turks and Caicos National Trust in achieving the following management objectives: [S26 & S27 Successes and Challenges in Coastal Management]

Management objectives	Rating 1: very bad; 2: bad; 3: neither good nor bad; 4: good; 5: very good
Protection of natural and culturally significant areas.	1 2 3 4 5 DK
Keeping the park in as natural a state as possible.	1 2 3 4 5 DK
Managing and protecting the fishery stocks.	1 2 3 4 5 DK
Managing the way in which visitors use the park.	1 2 3 4 5 DK
Prevention of inappropriate uses or activities in the park.	1 2 3 4 5 DK

19. What activities occurring within PALSNP would you like to see addressed by DEMA? [S35 Management Priorities]
- 

#### Demographic Data

20. Gender(*observed*)  
 Male  Female [S2 Gender]
21. How old are you? \_\_\_\_\_ years [S1 Age]
22. Where are you from originally? [New Origin]  
 TCI  
 Jamaica  
 Bahamas  
 Dominican Republic  
 Haiti  
 Canada  
 US  
 UK  
 Other, please specify \_\_\_\_\_
23. How long have you lived in the TCI? [New Number of years living in area]  
 \_\_\_\_\_ years
24. What is the highest level of education you have completed? [S4 Education]  
 Primary School  
 Secondary School  
 Technical/Vocational  
 Bachelor's Degree or higher
25. What is your current job? [S7 Occupation]

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26. How long have you been doing this kind of work? [S7 Occupation]

\_\_\_\_\_ years

Name of respondent (Optional) \_\_\_\_\_

Email (Optional) \_\_\_\_\_

Time finished: \_\_\_\_\_

Thank you very much

## APPENDIX 5 SURVEY VARIABLES CHOSEN FOR MONITORING

Data collection instrument	Variable no.	Variable
Survey	S1	Age
	S2	Gender
	S4	Education
	S7	Occupation
	S15	Non-market and non-use values
	S16	Perceptions of resource conditions
	S17	Perceived threats
	S18	Awareness of rules and regulations
	S19	Compliance
	S20	Enforcement
	S21*	Participation in decision-making
	S25	Perceived community problems
	S26	Successes in coastal management
	S27	Challenges in coastal management
	S29**	MPA knowledge and awareness
	S30**	Types and changes in MPA livelihoods
	S35**	Management priorities
	S41**	MPA user frequency and type of MPA use(s)
	NEW	Perceived management capacity and capability
	NEW	Sense of stewardship
NEW	Perceived responsibility for impact reduction	
NEW	Origin	
NEW	Number of years living in the area	

\* Suggestion to revise the original variable to allow collection of data on stewardship and perceptions of interactions between stakeholders and management bodies

\*\*Variable developed in the Caribbean Challenge SocMon project (see Pena, McConney and Blackman 2013).