

**CABRITS NATIONAL PARK
MARINE SECTION**

**DRAFT MANAGEMENT PLAN
2007-2012**

**Prepared for the Organization of East Caribbean States,
OECS/Environmental & Sustainable Development Unit, ESDU**



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LIST OF ACRONYMS

CDB	-	Caribbean Development Bank
CITES	-	Convention on International Trade in Endangered Species
CNP	-	Cabrits National Park
ECNAMP	-	Eastern Caribbean Natural Areas Management Programme,
ENCORE	-	Environment and Coastal Resources Management Project
ESDU	-	Environment and Sustainable Development Unit
FDD	-	Fisheries Development Division,
FWD	-	Forestry, Wildlife & Parks Division,
FEM	-	Funds Français pour l'Environnement Mondial
GOCD	-	Government of the Commonwealth of Dominica
GEF	-	Global Environment Facility
IUCN	-	International Union for the Conservation of Nature
LAC	-	Limits of Acceptable Change
LMA	-	Local Management Authority
MS/CN	-	Marine Section of the Cabrits National Park
MOA	-	The Ministry of Agriculture, Fisheries and Environment
NNETEDC	-	North Northeastern Tourism and Environmental Development Committee

- NTAC - The National Technical Advisory Committee
- NICE - The National Implementation Coordinating Entity
- NPPAA - National Parks and Protected Areas Act
- OECS - Organization of East Caribbean States,
- OAS - Organization of American States
- OPAAL - OECS Protected Areas & Associated Sustainable Livelihoods
Project
- P.A. - Protected area
- SIE - The Site Implementation Entity
- UNCLOS - United Nations Convention on the Law of the Sea
- WHO - World Health Organization
- WWF - World Wildlife Fund

EXECUTIVE SUMMARY

The Management Plan for the Marine Section of the Cabrits National Park, MS/CNP, was developed as part of the OECS Protected Areas and Associated Sustainable Livelihoods (OPAAL) Project. The objective of OPAAL is to develop within each state a framework for managing protected areas so that the region's biodiversity will be protected from further degradation. OPAAL also addresses the issue of alternative and new livelihoods associated with protected area management by promoting biodiversity management and conservation through the establishment of new or the strengthening of existing protected areas while providing support for alternative or new livelihoods in areas in proximity to protected area.

The Cabrits National Park consists of a series of eighteenth century military buildings, trails and artifacts that make up the historical component, an expansive dry zone forest, plantation species and a freshwater swamp and related fauna that make up the terrestrial, ecological component and the contiguous marine area with its diverse flora and fauna that comprise the marine component of the park. Any activity that occurs in the terrestrial component will inadvertently affect the marine environment. As such any management plan must take into account management of the resources of the entire Cabrits National Park-the physical infrastructure, the dry zone vegetation, the freshwater swamp, the marine environment and diverse fauna and flora that contribute to the biodiversity of the area.

The Marine Section of the Cabrits National Park, MS/CNP has been selected as the OPAAL demonstration site in Dominica. As such, a framework for the protection and management of the resources is being developed and enhanced as part of an integrated regional P.A. system to demonstrate that effective management of natural systems can bring tangible economic benefits and higher overall quality of life for communities in and around those areas.

The Management Plan provides a historical perspective of the Cabrits National Park and describes the current management framework of the Park, the priority actions and programmes necessary to ensure the sustainable management and development of the MS/CNP over the next 5 years.

Policy, Legal and Regulatory Framework

The administration, management and control of the national parks system is vested, under the National Parks and Protected Areas Act, NPPAA, to the

Minister responsible for the national park system. In this case the Minister for Agriculture. The Ministry develops the broad policy framework to guide the development of these resources

The Forestry and Wildlife Division of the Ministry of Agriculture and Environment is responsible for the management and development of National Parks and hence the protection, management and administration of the marine section of the CNP with direct responsibility given to the Director of National Parks.

Since the designation of the Park in 1986, there has been no management of this section of the Park or its resources.

Two major factors contributed to this- conflict of jurisdiction between the Forestry and Fisheries Divisions for management of the marine resources and a lack of human and financial resources under the existing management structure for the management, research and development of the marine section of the national park.

The Fisheries Act 61:60 (1987) under which the Fisheries Development Division, FDD is governed, makes provisions for the establishment and management of marine reserves. There is overlap with the NPPA Act of 1976 that gives jurisdiction to the Forestry and National Parks for the establishment and management of all national parks. As such, it is incumbent on government to ensure that this conflict of jurisdiction is resolved.

It is recommended that the marine component remains an integral part of the Cabrits National Park. In order to do this, the relevant authorities must amend the NPPA Act. The provisions of the Act speak specifically to terrestrial parks and do not make provision for inclusion of marine parks within the national park system.

Amendment to the NPPA Act as recommended above would require the relevant authorities to review and repeal the Fisheries Act and the mandate it gives to Fisheries Development Division with respect to the establishment and management of marine reserves/parks so as to validate the responsibility of the Forestry and Parks Service with respect to management and development of national parks including, marine parks. Additionally, the relevant regulations must be developed to provide for effective implementation of the Act.

It is also important that the authorities move to establish the National Park Service to allow for effective management of the system of national parks in Dominica.

Major Threats Affecting the MS/CNP

- Over-fishing
- Uncontrolled Recreational Use
- The threat to the freshwater swamp that currently serves as a sink to regulate influx of freshwater into the marine environment as well as the unique flora and fauna the contribute to the diversity of the area
- Proposed Tourism development projects- the development of a marina at the Cabrits and the proposed expansion of the Cabrits Cruise Ship Berth that threaten the biodiversity of the Cabrits National Park
- Land- base sources of pollution.
- The low level of awareness by users of the resource and the adjacent communities, of the status of the marine area as a national park
- Natural disasters/ hurricanes and the effects of Climate Change

MANAGEMENT FRAMEWORK

Preservation of the ecological integrity of the marine resources requires that any proposed management framework promotes synergy of the marine and terrestrial components and active stakeholder involvement so as to foster an integrated approach to sustainable use and development of the marine park.

Management Plan

Goals

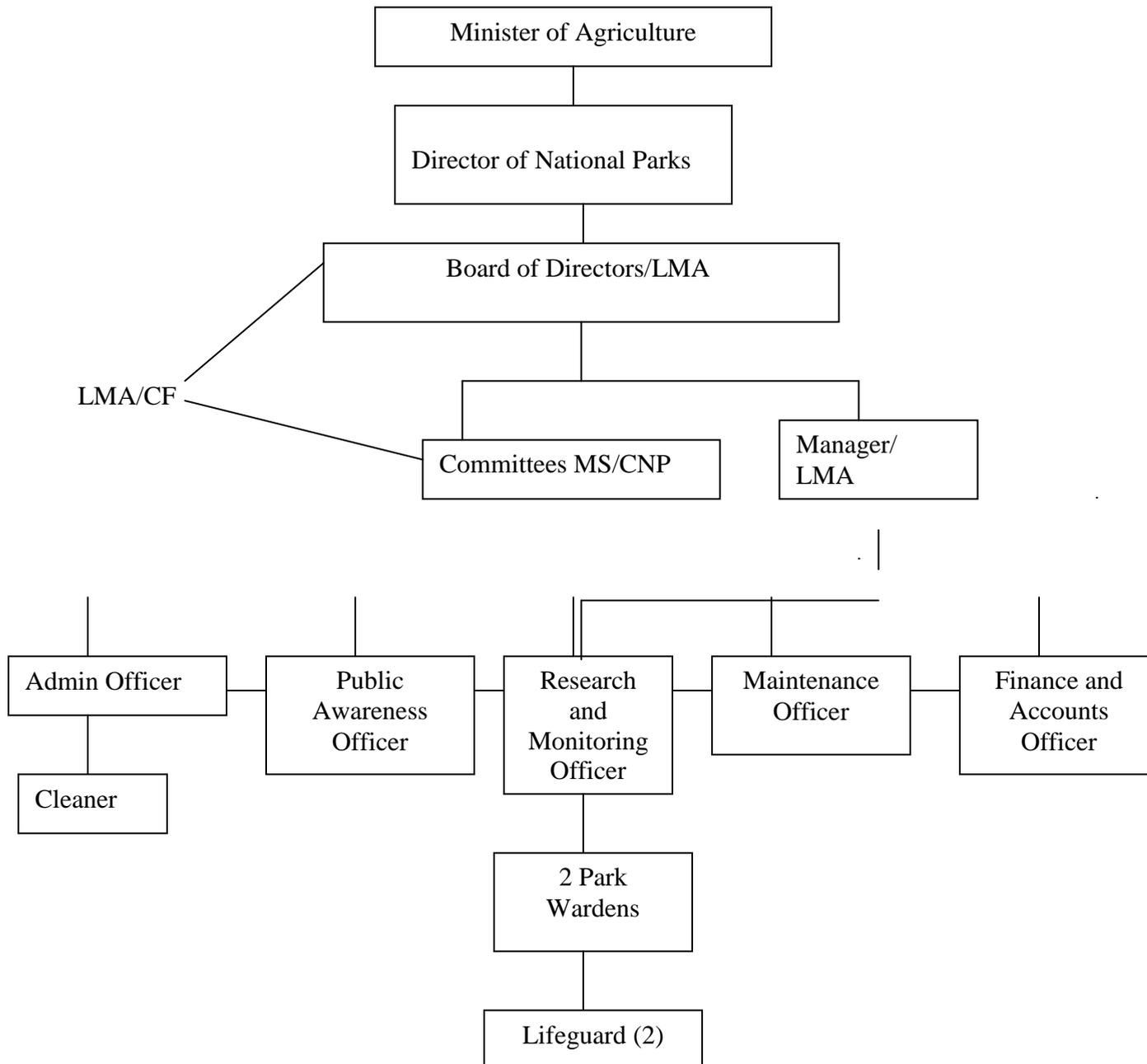
To manage on a self sustaining basis, the natural, social, and economic values of the marine park based on sound scientific research so as to maintain its biological diversity and value for future generations, while providing sustainable livelihood, food security, recreation and educational opportunities for national development.

Objectives

- To provide an effective management framework that will contribute to the protection and sustainable use of the ecological resources of the MS/CNP.
- To manage the area as part of the national representative system of the Cabrits national parks.
- To encourage participatory management of the park and minimize user conflict.
- To optimize and manage livelihood opportunities for the protection and enhancement of the values of the marine park

- To undertake research and provide recreational and educational opportunities

Recommended Organizational Structure



RECOMMENDED MANAGEMENT STRUCTURE

Objectives- To adopt an integrated approach to the management of the marine and terrestrial resources of the park using participatory planning and active involvement of all stakeholders in the management and operations of the Park.

Rationale

There are a large number of stakeholders whose livelihood depends on the resources of the Park. Sustainable livelihood opportunities depend on protection of the resource base. If stakeholders understand the dynamics of protected area management and are involved in the management and policy- making process, then there is a likelihood of stewardship, protection and sustainable utilization of the resources by these stakeholders.

The preferred management approach involves the establishment of a private entity- a Local Management Authority (LMA) or Cabrits Foundation (CF), consisting of private/ public sector partnership, to manage the Cabrits National Park including the marine and terrestrial components because of the physical and biological interrelationship of both components. It envisages active involvement of stakeholders in the management process and some level of autonomy for effective decision-making.

The Local Management Authority will consist of representatives of the various stakeholders and related enterprises as follows who will be responsible for the management of the MS/CNP as described in the management plan.

- Government Agencies- Fisheries, Port Authority Local government/Village Council, Dominica Police Marine /coast guard, Forestry & Wildlife Division

- Marine Interests- Dominica Watersports Association, Local Marine training institute, tour guides.
- Private Sector interests- Tourism service providers, local conservation association, cruise ship agent
- Community Interests- Fishermen, village councils, NNETEDC (North North-eastern Tourism and Environmental Development), Portsmouth Town Council, Women’s groups.

Membership to the LMA will be based on specific criteria that are transparent and acceptable to the membership. The Board will take decision for membership.

Legal Framework

The legal authority of the MS/CNP will be based on the amended National Park and Protected Areas Act, 1976, that will provide the legal basis for its establishment and management. The established National Park Service and the Ministry of Agriculture and the Environment will be responsible for the formulation and execution of the policy framework and development processes of the MS/CNP

The Local Management Authority, LMA, (Cabrits Foundation) would be established under section 16 (1) (d) of the NPPAA “The Minister may make regulations for the granting of leases and licenses for the purpose of providing accommodation or other services to visitors to the national park system” This would be achieved through the issuance of a Statutory Rules and Orders, SRO notice which will be gazetted.

The LMA would be a legally registered entity- an NGO or Cooperative and would function much like the SIE but with extended management responsibilities
The LMA would report to the Minister for Agriculture through the Director of National Parks.

The Organizational Structure of the LMA would consist of a Board of Directors appointed by the membership of the LMA. 4 functional areas for effective implementation of the work plan have been identified as follows:

- Operations and Development
- Public Awareness and Education
- Scientific Research and Monitoring
- Finance

Members of the LMA would, every two years, elect the Board of Directors that would be made up of the Chairperson and vice-chair, and 5 members/trustees two of whom would be government -appointed representatives from Forestry and Parks/ Fisheries or Physical Planning who would be voting members. The Manager of the MS/CNP would be the secretary to the Board.

The Board shall set up management committees, appointing committee leaders from among board members to work with staff and to plan activities relevant to each of the functional areas based on the approved work plan. Each sectional committee would meet with the management and staff to plan activities and programmes, reporting and evaluation requirements based on the approved budget and management plan for approval by the Board.

STAFFING AND SKILLS/TRAINING NEEDS

The local management authority would appoint trained staff to implement the approved management plan as follows:

- A manager/park superintendent, who would be responsible to the Board for the administration and implementation of the management plan and for finance and fund raising. An individual with Masters Degree level in marine biology, / Environmental Science, Fisheries Management/ Natural Resource Management/ Business Administration or other relevant field.
- A Research Officer and Enforcement Officer responsible for research, monitoring and enforcement/
- An Education and public awareness Officer responsible for implementing the education, public awareness and communications programme outlined
- A maintenance Officer responsible for implementing the maintenance system
- 2 wardens responsible for monitoring, licensing and enforcement.
- Administrative Officer- responsible for general administration, office procedures etc/
- Finance/Accounts/ Officer responsible for accounting and finance
- Cleaner-responsible for office maintenance and cleanliness
- Boat Captain

- Life guard

Once the park is operational, there may be need to recruit additional staff

It is expected that wardens will be recruited from the adjacent communities. There is also an opportunity to provide alternative livelihood opportunities for fishermen and/or other persons for positions of Boat captain, wardens and field assistant. The use of volunteer assistant wardens from the community should be encouraged.

There is also an opportunity to use fishermen's boats on a lease basis.

MANAGEMENT STRATEGIES

A number of strategies have been identified that will address the major threats to the biodiversity of the marine park. Priority areas that will be addressed entail the following:

- Effective management of resource habitat and species
- Development of relevant legal and regulatory framework for the operationalization of the marine section of the park
- Establishment of a zone of influence, ZOI, extending north of the MS/CNP park to Capuchin or Cape Melville and south to Pointe Ronde or Rollo Head and establishment of standards governing development in the ZOI to safeguard the biological integrity of the MS/CNP and
- Sustenance of existing livelihoods and their compatibility with resource management and protection as well as identification of alternative livelihoods.

These strategies will require a series of activities or action plans that will be put forward for implementation

PROPOSED WORK PLAN- 2006- 2011

Programmes	Activities	2007	2008	2009	2010	2011	Person Responsible	Collaboration
Programme 1- Conservation-								
1A. Natural Resource Protection	Amend the NPPAA and develop and enact relevant regulations	√					Park Manager	Ministry of Legal Affairs/FDD/ Physical Planning
Legal and Regulatory Programme	Amend and repeal relevant sections of the Fisheries Act	√						
	Develop and ratify all pertinent regulation	√						
Demarcation of boundaries and Installation of boundary markers	Inventory and Installation of boundary markers	√					Park Manager/ Contractual/ Research Officer	FDD/ National Parks Service
	Implement Boundary Marking Program	√						
	Develop Marker Maintenance Program	√	√	√	√	√		
Development of Zoning plan	Inventory of resources and development of Zoning strategy	√					Park manager/Research Officer/ Technical assistance	Dive Operators/ Fishers/ FDD
	Implement Zoning Marking Program	√						
	Develop Maintenance Program	√	√	√	√	√	Research officer	Users of the Park
Installation of mooring buoys	Inventory and Installation of buoys	√					Research officer/contractual	FDD/ Users of the Park
	Implement Mooring Buoy Program	√						
	Develop Mooring Buoy Maintenance Program	√	√	√	√	√		
Development of surveillance and enforcement mechanism	Establish protocol for enforcement procedures and developing standard operating procedures, SOP	√					Park Manager/Research and enforcement/ Public Awareness Officer	Min. of Legal affairs/Coast Guard/ fishers
		√	√	√	√	√	Research and enforcement officers	
	Undertake surveillance and enforcement							

Programmes	Activities	2007	2008	2009	2010	2011	Person Responsible	
Sub-Programme 1B.Natural Resource Management	Establish and equip offices	√						
	Recruit staff	√					LMA Board/ Manager	
	Demarcate specific access points for users of the resource	√					Manager	FDD/ National Park/ Park Users
	Develop an effective maintenance management programme	√	√				Manager/Technical staff	Park Users/ FDD
	Develop standard operating procedures and develop best practices with respect to park operations and programmes- fines and violations,	√	√				"	
	Training of licensing and enforcement personnel	√					Research and enforcement/ Public Awareness Officer	Dominica coast guard/ FDD/ N Parks
Sub-Programme 1 C. Scientific Research & monitoring	To undertake baseline assessment of the resources of the MS/CNP in collaboration with the and other technical persons	√	√	√			Technical Assistance/ Research officer	Fisheries Division, Fishers, other resource users
	Develop a database of information that is scientific, manageable and user friendly.	√					Research officer	FDD /Research institutions
	Design a participatory monitoring system for the MS/CNP	√	√				Manager/ Research Officer/	FDD/ Fishers/ Research Institutions
	Monitoring of point and non-point sources of pollution.	√	√	√	√	√	Research Officer	FDD/ Physical Planning, Environmental Health Dept. Park Users
Strategies	Activities	2007	2008	2009	2010	2011	Person Responsible	Collaboration
Programme 2- Education and Outreach	Design and prepare education and public awareness programmes	√	√				Public Awareness officer	Forestry Division/FDD/ Stakeholders
	Prepare Marketing and promotional Materials	√	√					
1B. Communication/ Education/ Outreach							Public Awareness Officer/ research officer	National parks
	Upgrade and develop interpretive centre	√	√	√	√			

Programme 2B- Livelihood Development	Provide the technical and financial resources to fishermen for accessing soft credit to assist them in enhancing livelihood opportunities	√	√	√	√	√	Manager/Technical Assistance	Financial Institutions / Village Councils / FDD
	Enhance the capacity of fishers to undertake deep sea fishing and work with the FDD to facilitate deep sea fishing	√	√	√	√		Public Awareness Officer Technical Assistance	FDD/Village councils/

Programmes	Activities	2007	2008	2009	2010	2011	Person Responsible	
Programme 3- Administration and Finance Programme 3A. Administration	Develop criteria for membership to LMA	√						Stakeholders
	Develop and establish rules of procedure for the operations of the LMA	√					Board of Directors/LMA	
	Register the LMA either as an NGO or a cooperative	√					Board of Directors/LMA	
	Implement approved management plan.	√	√	√	√	√	Staff	Board of Directors Management committees
	Manage and supervise staff	√	√	√	√	√	Manager/ Board of Directors	
	Monitor and evaluate plan	√	√	√	√	√	Manager/ staff/ committee members	BOD/ stakeholders
	Develop a disaster management Plan						Manager/ BOD	Disaster Preparedness office/ stakeholders
Programme 3B.Finance	Prepare and approve budget Seek Project funding	√	√	√	√	√	Manager/finance officer	BOD/
	Establish and approve user fee system and collect user fees	√	√	√	√	√	Manager/finance officer	BOD/ stakeholders
	Develop accounting system	√					Manager/finance officer	BOD/
	Develop Merchandise for sale	√	√	√			Manager/finance officer/ PR Officer	BOD/ stakeholders
	Undertake annual audits of the accounts of the MS/CNP	√	√	√	√	√	Finance officer/ Accounting firm	BOD/
Programme 3.C Training	Implement training programme developed for Dominica under OPAAL	√	√	√	√	√	Public Awareness & training officer/ Technical Assistance	FDD/ Dominica State College/ N/Parks

SUMMARY BUDGET BY ACTIVITIES

Activities	Year 1	Year 2	Year 3	Year4	Year 5
Boundary Marking Program	65,750	7,150	7,150	7,150	7,150
Resource zone marking programme	50,500	8,100	8,100	8,100	8,100
Mooring Buoys	50,500	21,600	24,300	13,500	13,500
Regulations	5,000				
Surveillance & Enforcement	367,600	185,800	197,300	209,100	221,300
Research & Monitoring	121,700	105,900	110,200	119,800	119,500
Communication, Education & Public Awareness	100,500	82,600	87,800	95,200	95,600
Park Administration	363,700	241,800	251,200	271,100	271,300
Construction of Park Office	250,000				

FINANCIAL MANAGEMENT FRAMEWORK

FINANCIAL RESOURCES

Financial resources for the park can be obtained from a variety of sources including the following.

- An annual subvention from government through the Ministry of Agriculture-short term
- Medium to short term funding from international institutions especially for conservation management and research programmes are available
- Development of a Marine Park Fund- 50% of the environmental head tax charged to cruise ship passenger from cruise ships berthed in the Cabrits could be directed towards the Marine Park fund.
- Revenue generated from user fees from the terrestrial and historical components of the park

- Revenue generated from sale of paraphernalia, concessions, donations and in-kind services and park literature.
- The development of a comprehensive user fees system from activities like diving, sports fishing, research, Yachting, snorkeling. Establishment of a user fees system must ratified by government and officially published in the Gazette. The user fees presently established by the SSMR will be adopted here as follows:

Activity	Charge rate	(E.C. \$)	(U.S.\$)
Scuba Diving	Per individual dive or.	5.00 per tank used	2.00 per tank used
	Per individual/month	50/ month	20/month
	Members of the Dominica Watersports association	25/annum	10/annum
	Non-members of the DWA, or affiliate associations, but residents of Dominica	50 per/annum	20/annum
Snorkeling	A daily entry fee of	5.00 per individual	2.00 per individual
Kayaking	A daily entry fee of	5.00 per individual	2.00 per individual
Whale & dolphin watching	Per Tour	5.00 per individual	2.00 per individual
Yachting			
Watersports Business	For Registration and operation	300 per annum	120 per annum

It is expected that over time the Park will be self-financing

INTERIM MANAGEMENT STRATEGY – 1ST. 6 MONTHS (MINIMAL STAFF REQUIREMENT FOR START UP)

The following is proposed as an interim management strategy for start up of operations bearing in mind that the level of financing proposed will not be available immediately.

The Forestry and National Parks service can use its legal authority to establish a management structure for the MS/CNP under the existing management framework. This would entail the appointment of staff as recommended.

The existing Site Implementation Entity, SIE with additional membership and re-organization, would constitute the LMA and would operate as outlined above. The Ministry of Agriculture would provide financial support initially as is currently done.

Recommended Staff Component

The existing management structure for the Cabrits National Park would be utilized in addition to the following:

- Manager of the Marine Park
- Administrative Assistant
- Park Wardens (2)
- Voluntary community wardens
- Use of fishermen's boat and fishers for patrol and enforcement (contractual arrangement)
- Life Guards (2)

PROPOSED WORK PROGRAMME

Priority Activities for the first 6 months would include the following:

- Expansion and reorganization of the SIE membership as recommended for the LMA
- Appointment of the Board of LMA
- Appointment of committee managers
- Establishment of all recommended legal and regulatory requirements. Print all regulatory requirements for distribution
- Registration and organization of LMA
- Development operations and procedure manual for LMA
- Establish User fee system
- Commencement of research to identify boundaries for actual zonation for the recommended 4 zones of the park
- Demarcation of Park Boundaries
- Public awareness & Education

The Management committee would meet with the Manager of the MS/CNP to plan the work programme, targets and reporting requirements based on staff complement and budgetary requirements as outline above.

CORE INFRASTRUCTURE AND EQUIPMENT NEEDS ARE AS FOLLOWS:

The Marine Park Administration will require the following:

- Office (can be secured at the Cabrits Cruise ship berth or alternate building)
- 1Vehicle
- Boat (1)

- Engines (1)
- Safety equipment-
- Anchor, rope, fenders, life jackets etc
- Marine VHF radio plus base station
- Truck
- Dive equipment
- Underwater camera/video
- Office equipment and furniture
- Computer software and hardware

An assessment of the marine section clearly indicates that there is no management regime in place. The area is biologically diverse, and it has an important socio-economic and cultural value, providing livelihood to a large number of communities. There are varied and conflicting uses of the resource that threaten its biological integrity. It is important that a management structure is put into place in the shortest possible time to ensure sustainability of the natural resources of the area if it is to meet the standards of a national park/reserve.

PART 1 - BACKGROUND INFORMATION

1. INTRODUCTION

1.1 PURPOSE, SCOPE AND DURATION OF THE MANAGEMENT PLAN

The marine section of the Cabrits National Park is an integral component of the Cabrits National Park that is a complex of natural, historical and scenic resources and physical infrastructure providing services to local stakeholders and visitors.

It consists of a complex of historical buildings some of which have been restored, a cruise ship berth and visitor reception facility, as well as other visitor amenities like a restaurant and interpretation centre and trails. The Marine section has been described as one of the most biologically productive areas with coral reefs and seagrass beds that provide healthy nursery for fisheries and livelihood opportunities for adjacent communities, fishers and tourism service providers.

The development of a management plan for the Marine Section of the Cabrits National Park (MS/CNP) has been commissioned by the government of Dominica through the Environment and Sustainable Development Unit (ESDU) of the Organization of East Caribbean States, OECS.

In 1998, under the World Wildlife Fund, Environment and Coastal Resources, WWF/ ENCORE project, a Management plan for the Marine section of the Cabrits National Park was prepared following the development of a marine management strategy prepared in 1998 under the same project. The Fisheries Division rejected the plan on the grounds that the information was unscientific and erroneous (a view that was not held by all stakeholders) and as such the plan was not recommended to the Ministry of Agriculture for ratification and adoption. (It should be noted that the Ministry of Agriculture depended on the recommendation of the FDD with respect to marine environment)

The conflict of jurisdiction between the Fisheries Development Division and the Forestry Division for management of the MS/CNP precluded any responsibility from either departments to manage the marine section.

The Ministry of Agriculture is committed to the establishment of the National parks service and to defining clear lines of responsibility for the management of the parks including marine parks. As such, this management plan comes at an

opportune time to provide some level of guidance to the Ministry of Agriculture in this process.

This project is funded by the OECS Secretariat through its in partnership with the International Bank for Reconstruction and Development (the World Bank) acting as an Implementing Agency of the Global Environment Facility (GEF); the Fonds Français pour l'Environnement Mondial (FFEM) of the Government of France; and the Organization of American States (OAS), under the OECS Protected Areas and Associated Sustainable Livelihoods (OPAAL) Project.

The objective of the OPAAL Project is to assist member states in the development of a framework for managing protected areas and to promote biodiversity management and conservation through the establishment of new protected areas and strengthening of existing protected areas, complemented by support for alternative and/or new livelihoods in areas in proximity to the aforementioned protected areas. It is expected that as a result of these activities that the biodiversity of the region will be protected from further degradation. OPAAL deals with Protected Areas Management and Associated, Alternative and New Livelihoods.

The Management Plan provides an historical perspective of the Cabrits National Park and describes the current management framework of the Park and the priority actions and programmes necessary to ensure the sustainable management and development of the over the next 5 years.

Part 1 of the plan describes the background of the MS/CNP, its resources, uses and current threats. Part 2 describes management issues, vision and goals and outlines objectives and activities as well as benchmarks for successful management of the park. It outlines the management and institutional framework, strategies for monitoring and evaluation process, protection and management of resource habitats and species, and the monitoring and evaluation process. Section three outlines strategies for financial management.

It is expected that the programme will be evaluated on an annual basis and adjusted accordingly as more scientific baseline information becomes available

1.2 PROCESS FOR THE DEVELOPMENT OF THE MANAGEMENT PLAN

In developing the management plan for the Marine Section of the Cabrits National park, it is important to identify, monitor and manage upland watersheds, coastal formations and the impact of human activities that can negatively affect the protection of the marine resources. In order to accomplish this, it is important to establish areas adjacent to the park that would serve as a buffer and to

attempt to manage development activities in this area as part of the planning process. Clarke et Al. (1996) suggested the establishment of “a zone of influence ZOI,” extending north of the Cabrits National park to Capuchin or Cape Melville and south to Pointe Round or Rollo Head. This recommendation is being adopted as part of this management strategy.

A number of activities have been undertaken during this process. An evaluation of the natural resource base has been undertaken through document research, site inventory and a rapid reef survey to assess the biological status of the marine park.

A socio economic survey of the zone of influence has been carried out. An assessment of the communities adjacent to the Park was undertaken through meetings and interviews with the relevant district development officers and the village councils as well as desk research involving assessment of national poverty assessment reports and statistics, and a review of Livelihood Assessment reports commissioned by OECS/ESDU undertaken by Peter Espuet.

A series of consultations with stakeholders were held to obtain their input into the process. Stakeholder consultation took the form of community workshops, focus group meetings and interviews with all communities adjacent to the Park, the fishing communities and fishermen, tourism service providers, as well as the Site Implementation Entity (SIE).

1.3 LEGISLATIVE FRAMEWORK FOR THE DEVELOPMENT OF THE PLAN

Section 11 of the *National Parks and Protected Areas Act (NPPAA)* (1975) provides for the Director of National Parks to prepare a management plan for any area within the national park system, for submission to the Minister. It states the following; “A plan shall contain a scheme of operations, not inconsistent with the purposes of this Act, that it is proposed to undertake in respect of the area within the national park system to which the plan relates.”

It further states, “Where the plan affects or is likely to affect any work or undertaking of Government, the Director may refer the plan to the Government for its recommendations.”

If the Minister proposes to adopt a plan, it shall be published in the Gazette specifying the following:

- The address of the place where the plan may be inspected and
- The address to which representation respecting the plan may be sent

The act makes provision for public input into the plan under a specified time frame and outlines the role of the Director of the National Park and the Park Advisory Council in the process and establishes the process for adoption of the plan (section12).

Section 13 (3) of the Act indicates that where a plan is adopted and in force, all activities within the area shall be conducted in accordance with the plan and no activity contrary to the plan shall be undertaken.

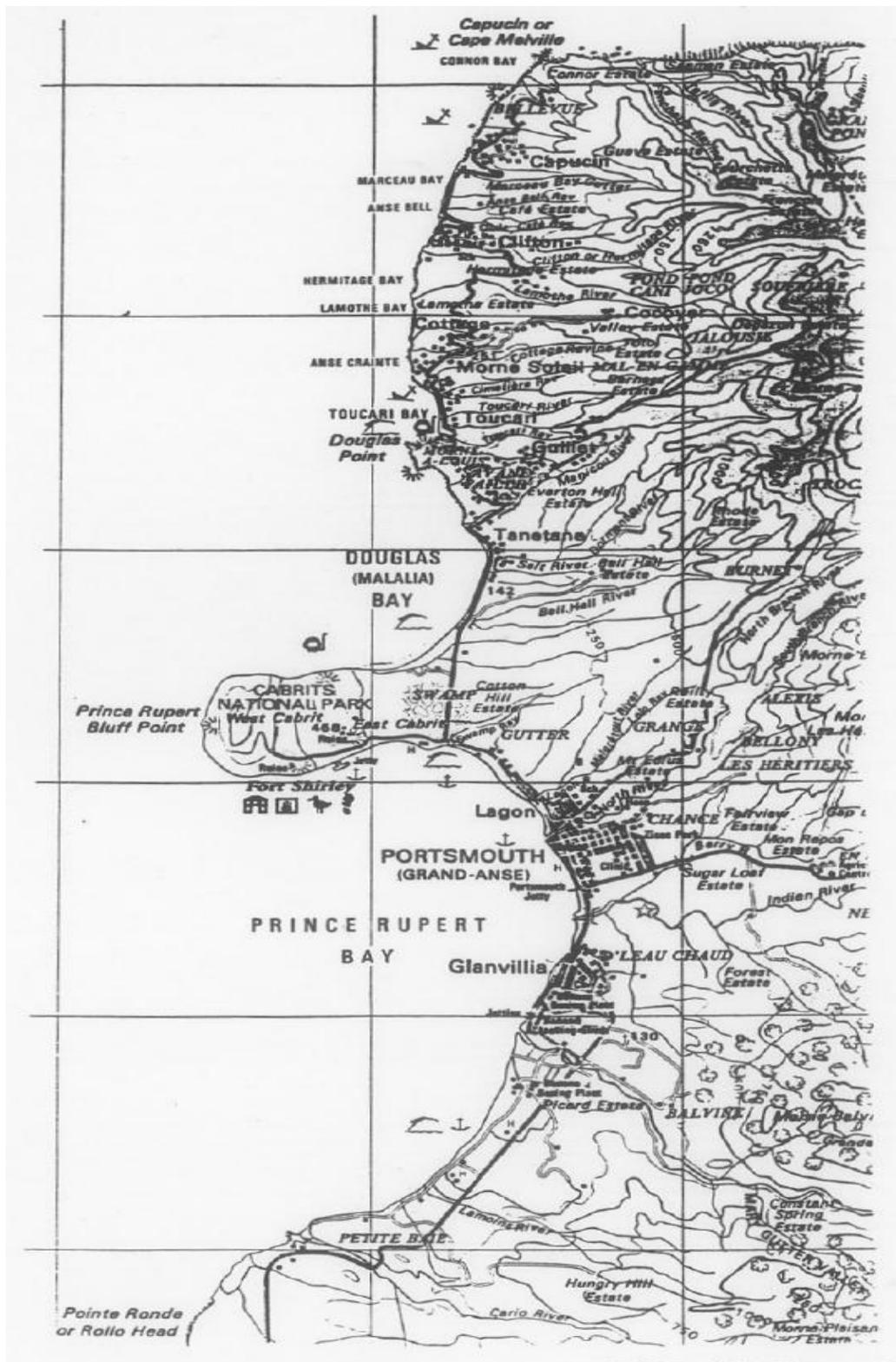


Figure 1. Location of Cabrits National Park and Recommended Zone of influence for the MS/CNP

1.4 HISTORICAL PERSPECTIVE-ASSESSMENT OF PLANNING DOCUMENTS

The Cabrits National Park of which the marine component is an integral part, was officially designated a national park in 1987 under the “National Parks & Protected Areas Act” 1975. There were a number of activities that led up to the area being designated as a Park.

In 1977 the Forestry & National Parks Service initiated the establishment of and prepared a proposal for the conservation and development of the Cabrits as a National Parks. The area in question consisted of the Cabrits peninsula, approximately 1.5 km north of Portsmouth with Prince Rupert’s Bay to the South, Douglas and Toucarie Bays to the north. This development proposal “ Plan for the Management and Development of the Proposed Cabrits National Park” came out of a regional workshop on national park planning undertaken by ECNAMP in 1977. This proposal was integrated into Dominica’s National Structure 1976-1990. (Allen Putney, Butler, Edwards & James) 1983

In 1981, the Forestry & National Parks Service obtained assistance from the Eastern Caribbean Natural Areas Management Programme, ECNAMP, for further development of the Cabrits National Park. An evaluation of the resources of the national park was undertaken, entitled ‘Background Information on the Proposed Cabrits National Park’

Following this, a development strategy was formulated through a consultative process involving all stakeholders and a document entitled “Outline of Management Alternatives, Cabrits Development Area” was presented to the Ministry of Agriculture for review in 1983. In the following year, a report on the development concepts for the Cabrits National Park “Cabrits 2000” was developed and presented to the Ministry for Agriculture, for ratification and implementation. This report placed very little emphasis on management of the marine resources. However a number of recommendations from the report, with respect to the terrestrial section of the park, were implemented

Post 1987, there was a plethora of studies and reports most of which concentrated on the terrestrial portion of the Park. The more recent reports pertinent to the management of the marine sections were as follows:

- In 1996, under the “ENCORE Project” a marine management strategy for the Cabrits National Park was prepared by a team of consultants headed

by John Clarke. This strategy formed the basis for the development of a proposed management plan for the marine park.

- In October 1998, the ENCORE project commissioned the development of a management plan for the marine park. This was prepared by Tom van't Hoff and Jiselle Allport entitled "Management Plan for the Marine Section Cabrits National Park Dominica"

Neither of the two reports mentioned, was officially accepted by the Ministry of Agriculture for adoption and implementation. This is because these reports were rejected at the level of the Fisheries Development Division, FDD, as having no scientific basis and hence considered "grossly erroneous".(A view not held by all stakeholders). The FDD felt that management recommendations resulting from incorrect scientific deductions could not be accepted. Subsequently, no recommendations were made by the Fisheries Development Division to the Ministry of Agriculture for ratification or adoption of the report.

This management plan is being developed with the full participation of and in consultation with the various stakeholders and policy makers. As such, it is expected that the outcome and recommendations will reflect overall consensus on the way forward for effective management and development of the MS/CNP.

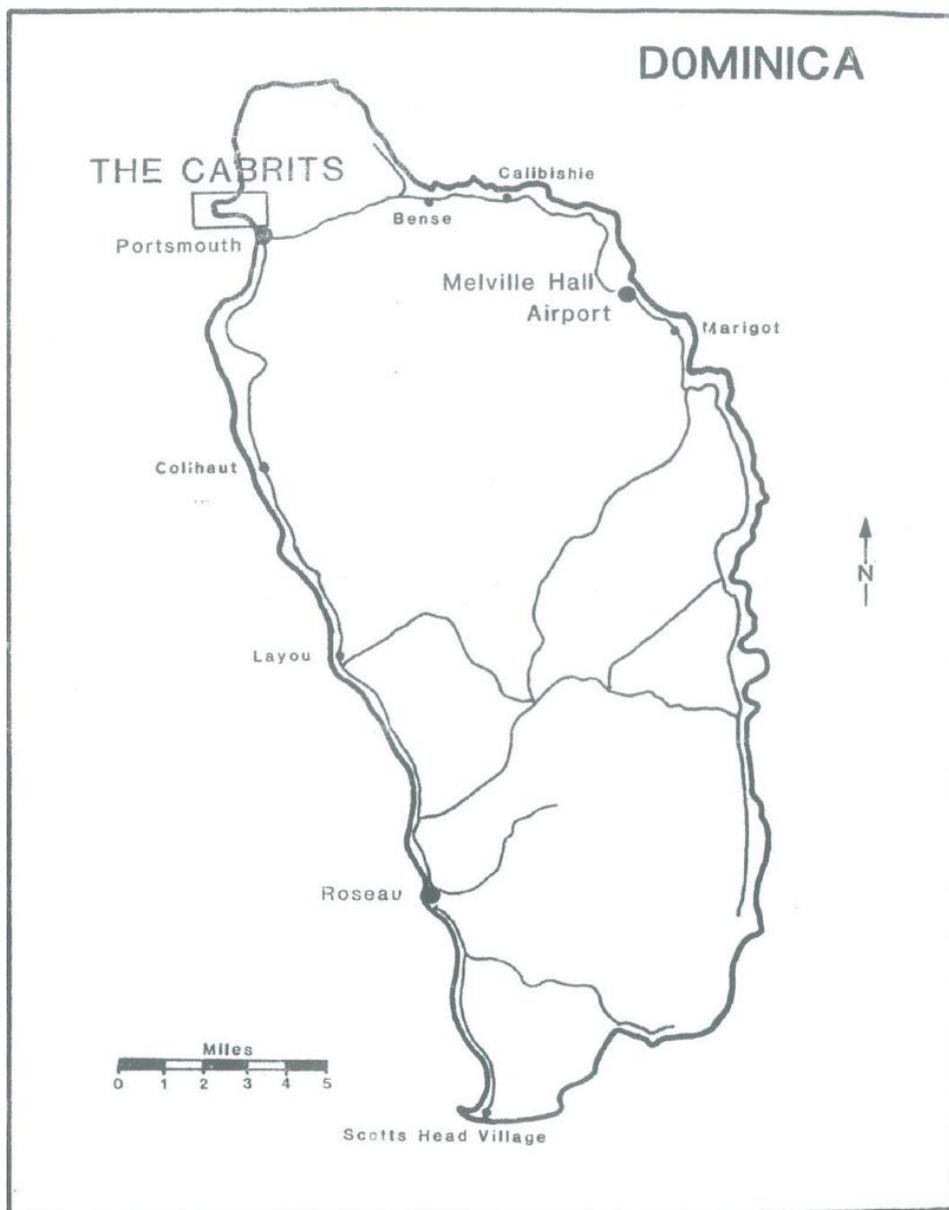


Figure 1: LOCATION MAP

2. PURPOSE MANAGEMENT AND OBJECTIVES OF CABRITS NATIONAL PARK

The Cabrits National Park of which the marine component is an integral part, was officially designated a national park in 1987 under the “National Parks & Protected Areas Act” 1975. At the time the Park was established, the following specific objectives were outlined:

- To conserve the historical resources of the park
- To conserve the unique ecology- dry scrub woodland and swamp forest with the only species of white mangrove
- To conserve the marine ecology
- To develop the tourism potential of the area
- For education and recreation

2.1 GOALS AND OBJECTIVES

The marine section of the Cabrits National Park forms part of a protected area management system important for the conservation and protection of biodiversity. The marine park is a multi-use area providing recreation and livelihood opportunities in fisheries and tourism. As such, an integrated and inter-disciplinary approach has been adopted in the development of the plan. The overall goal is to develop an effective management plan and administrative structure that will ensure the sustainable use of the resources of the park as well as its maintenance as a part of an integrated regional P.A. system.

However, it should be noted that while the historical/ terrestrial component of the park is not included in the terms of reference for this assignment, any management plan developed must take into account this component because of the synergistic relationship with the marine component.

GOALS

- To develop and promote sound management practices to protect and maintain the biological diversity of the marine park
- To promote social and economic benefit through sustainable utilization of the resources
- To maintain the area as an integral component and a representative ecosystem of the Cabrits national park.

- To develop an integrated approach to management of the resources ensuring full stakeholder involvement and livelihood benefits.
- To develop alternative and new livelihood activities

OBJECTIVES

- Preservation of marine fauna and flora- fishery stock and associated biological communities- coral reefs, sea grass beds, etc.
- Regulation and control of any trade, occupation or business within the MS/CNP
- Establishment and protection of boundaries and survey marks
- Control of entry and exit in the Park and establishment of user fees
- Provision of facilities to educate all resource users and other stakeholders on the scientific, ecological and recreational values of the area.
- To prepare the necessary guidelines for and to encourage scientific research with respect to marine biology and ecosystems.
- Promotion of new and alternative livelihood opportunities so as to contribute to the social, economic and cultural development of Dominica while conserving the resources for future generations

3. RESOURCE DESCRIPTION

3.1 GEOGRAPHIC LOCATION AND BOUNDARIES

The Cabrits National Park is located along the northwestern coast of Dominica approximately 2 kilometer from the town of Portsmouth. The peninsular is comprised of twin peaks of extinct volcanoes- the east Cabrits rising to a height of 485 feet (140m) and the west Cabrits rising to 560 feet (171m). An extensive swamp, 35 ha (89 acres) is located east of the Cabrits. Immediately north of the Cabrits peninsula is Douglas Bay. Toucarie Bay is located north of Douglas Bay. Prince Rupert's Bay is located south of the peninsula.

The marine section consists of 421 ha (1053.2 acres) of sea, located between Prince Rupert's Bay and Toucar Bay.

The boundaries of the MS/CNP extend from the Lamothe River on the northwest coast at point (A) to a southwesterly point (B) $15^{\circ}35'40''\text{N}$, $61^{\circ}29'30''\text{W}$. From point (B) the boundary follows a line due south to a point (C) with coordinates $15^{\circ}34'40''\text{N}$, $61^{\circ}29'30''\text{W}$. From point (C) the boundary extends due east to a point (D) $15^{\circ}34'40''\text{W}$, then approximately 1,350 feet due North to the point (E) which is the boundary marker at the southwestern corner of the lands of Alfred Eckart (as described in National Parks and Protected Areas Act No. 16 of 1975 amended by SRO 54 of 1986 and illustrated in Figure 3, Cabrits 2000).

There is no physical demarcation of the boundary of the marine park.

3.2 ACCESS

Visitors can arrive to the MS/CNP by land or water. Land access is via the Portsmouth road north of the town of Portsmouth where the Park entrance is located. There are a number of access points along the Douglas Bay and the Toucarie beach along the Tan Tane road

There are many access points by water along the zone of influence from Pointe Ronde to Capuchin with easy access from the many small beaches.

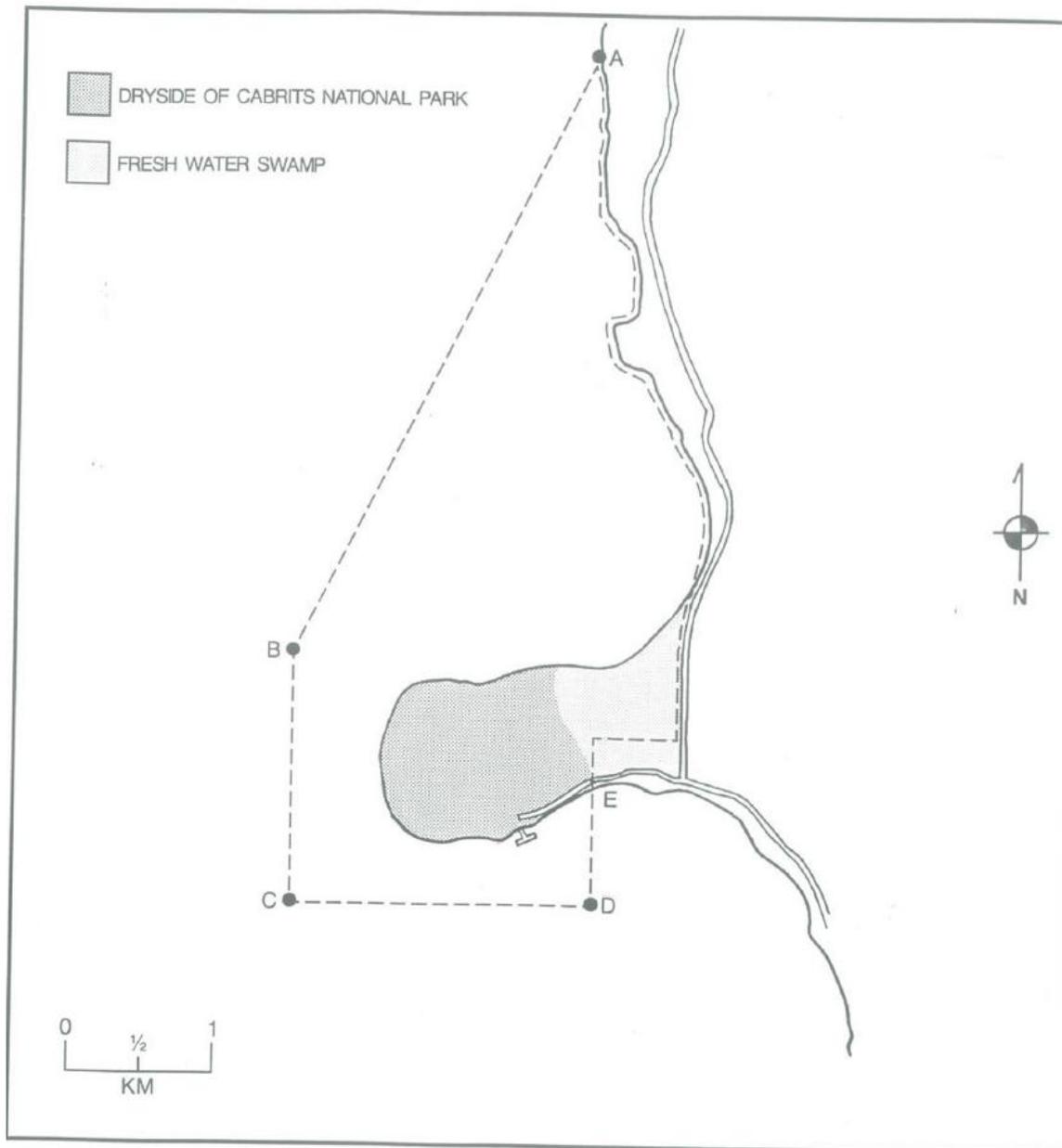


Figure 2-Existing Boundaries of the Marine Section of the Cabrits National Park

3.3 PHYSICAL FEATURES

3.3.1 COASTAL ECOSYSTEM

Dry scrub woodland and a freshwater swamp dominate the immediate terrestrial environment of the MS/CNP as follows.

FRESHWATER SWAMP

The Cabrits swamp consists of 35 ha (89 acres) along the eastern side of the Cabrits peninsular. It is considered to be one of the most important wetlands areas of Dominica “for its assemblage of swamp plants and as an notable migration haunt/ wintering area for herons, egrets, ducks and waders” (Peter Evans, 1997)

The swamp vegetation is dominated by sedges- *Cladium jamaicensis*, *Eleocharis* species- *mutatis* and *instincta* and clumps of swamp fern- *Acrosticum aureum*. Arlington James (1985) identified at least five species of crabs on the Cabrits peninsular.

During the rainy season at least three species of crabs namely *Cardisoma guanhumi*, *Uca burgesi* and *Uca vocator* can be seen in the area feeding in the mud of these wetland areas (P. Evans and A James 1997). It is anticipated that these species have been impacted by human development activities.

The swamp was subsequently drained in the early 1980’s for the construction of a marina (“The Sunshine Village Hotel”) development in Portsmouth. The marina was never constructed but the drainage system was built. Therefore the use of the wetland as a nursery area for marine species has practically been lost.

From a scientific perspective, there is considerable value in the restoration of the swamp and its role in biodiversity as it relates to the biology of the swamp and its impact on the marine environment.

From a political perspective, given government’s policies and programmes for use of the adjacent lands for development of tourism, it is important that government gives serious consideration to the protection of the biological diversity of the swamp since there are very few areas in Dominica representative of this type of biological diversity.

As such, it is important that an Environmental Impact Assessment, EIA is carried out prior to any type of development so that an evaluation of the impact of development can be undertaken and mitigation measures can be proposed.

DRY SCRUB WOODLAND

The dry scrub woodland is considered to be one of the most extensive and best examples of this type of forest in Dominica. It covers the east and west Cabrits and the coastal fringe north of the Cabrits headland. It is dominated by a variety of deciduous tree species. Peter Evans (1997), indicated that this area “has one of the highest densities of reptiles recorded anywhere in the world with an abundance of Anolis, tree lizards, ground lizards, mabouya, skinks, iguanas, geckos, boa constrictor and Alsophis snakes” He also described this area as having “the most important populations of butterflies including the endemic Godman’s leaf and the endangered endemic Dominican Snout butterfly.

3.3.2 BEACHES AND SAND COMMUNITIES

The main beaches, Douglas and Toucarie Bays, prior to the hurricanes of 1995 and 1996 consisted of a broad band of well-established volcanic sand beaches consisting of light grey sand and protected from surf by the headlands to the north and south and by their leeward aspect. Clarke (1996) reported “hurricane waves removed most of the sand from both beaches and deposited it in the near-shore sub-tidal area”. He noted that some of the sand had been re-deposited on the beach particularly at Toucarie Bay.

The beach at Douglas bay has deteriorated further as a result of sand-mining, impact of dumping of solid waste and wave action from coastal currents. The shoreline consists of boulders and the amenity value has been considerably reduced.

Toucarie Bay has been re-habilitated to some extent but has not regained the high amenity value prior to 1995.

The beaches are important nesting sites for the endangered hawksbill and green turtles. These turtles have been reported to nest on both beaches since the early 1980’s. Reports indicate that the turtles still nest on both beaches in spite of the loss of sand.

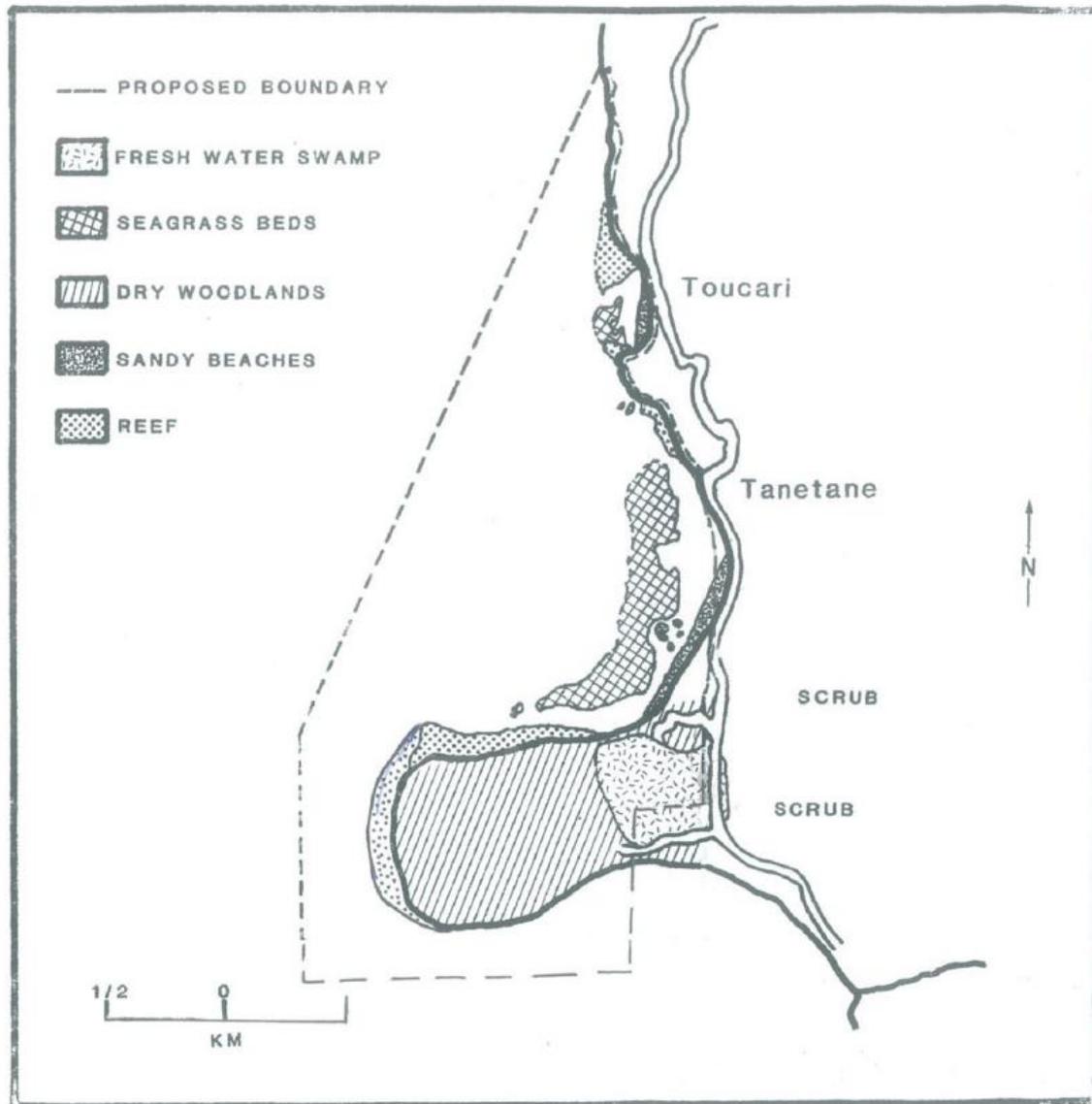


Figure 3- Major Life Zones-(Diagram prepared by A James, 1983-Modified 2007)

3.3.3 WATER QUALITY, INCLUDING SALINITY, TURBIDITY AND OTHER IMPORTANT PARAMETERS

There are a number of rivers and ravines that drain directly into the Marine Park Area and into the wider zone of influence. From the northern boundary of Lamothe Estate to the southern boundary where the swamp river drains into the coastal waters of Prince Rupert's Bay are the following rivers and estuaries:

- Lamothe River drains into the Lamothe Bay
- Cottage Ravine, Cimetiere Ravine and Toucarie River drain into Toucarie Bay
- Lechelle Ravine, Manicou River, Salt River and Belle Hall River drain into Douglas Bay
- The swamp river drains into Prince Rupert's Bay.

Other Rivers draining into the Zone of influence include the Clifton River, Lagon River, North River, The Indian River, Grand River, Picard River Lamoins River and Cario River.

The historical data suggest that there is significant microbiological contamination in river water discharging to the receiving coastal waters of MS/CNP. The high levels of contamination suggest untreated sewage discharges and other animal waste may possibly be present and there was need to assess sewerage facilities for households on the beach front in Portsmouth as well as to introduce a routine monitoring program to assess the benefits of the sewage system.

Table1: Range of Microbiological Contamination at Selected Bathing Waters (1997)

Site	Range	
	Minimum FC CFU/100ml	Maximum FC CFU/100ml
Cabrits Marine Park (Rivers, Streams, and Ravines draining to coastal waters)	40	23,000
Douglas Bay	>1	47,000
Toucarie Bay	10	80,000
Purple Turtle/Lagoon	20	>8,000
Indian River	600	108,000
Glanvilla	>1	>80,000

Source: R. Joseph-“Recreational Water Quality” (Department of Environmental Health)

3.3.4 GEOLOGY

The Cabrits are of volcanic origin of the Pleistocene age. It was formed as a result of eruptions centred on Morne Aux Diables, which piled up the northern headland of Dominica less than a million years ago.

The hills were originally separated from the main island, but through the action of tides and ocean currents an isthmus of sand and coral has built up. Subsequent alluvial deposits from the land have formed a wetland with fresh and brackish waters draining into Prince Rupert's Bay. The Cabrits peninsula can thus be described as a narrow continental shelf around the headland that is typically a mountain formation descending to a depth of over 100 feet uninterrupted.

3.3.5 DOMINANT CURRENTS

The currents in the area circulate in a southerly direction, moving out around the Cabrits Peninsular. The tidal range, except during storms rarely exceed 30 c.m. and there is no well developed inter-tidal area.

3.4 CLIMATE

The area has an annual precipitation range of 70- 120 inches

The temperature of the water remains fairly constant and ranges from 25-29 degrees Celsius (Singh & Lewis, 1997)

3.5 BIOLOGICAL CHARACTERISTICS

The Cabrits has been described by Mariska Weyerman et al (1996) as having a 'Wide coastal shelf with large expanses of coral areas'. Reef structures can be found on gradual slopes from depths of 3- 25 m reaching up to and exceeding depths of 30 m.

Seagrass beds lie towards the shoreline in the south and central areas of Douglas Bay and in the southern half of Toucarie Bay. *Thalassia* sp. dominate. Seagrass beds play an important role as a nursery ground for juvenile fish, and lobster as well as for grazing by the turtle species that frequent the area. It also provides shelter to a variety of fishes, and the queen conch.

The seagrass beds were extensively damaged by hurricanes of 1995. They have since recovered but are subject to new pressures from yachts dropping their anchor there.

A biological survey undertaken (Mariska et al, 1996 Peter Evans, 1997) within the marine park indicates that there are at least 27 species of coral, 10 species of sponge. Reports indicate that while there seems to be no dominance of species,

boulder star and boulder brain coral tended to dominate in deeper waters with mustard hill coral in shallow waters. The reports observed that large sections of the up to one quarter of the surface of the reefs were covered with a high density of fleshy algae particularly Y-branched algae and encrusting fan-leaf algae whilst green grape algae though not common, tend to be prevalent in this area (Peter Evans, 1997)

105 species of fish were also identified. The reports indicated that there is a decline in the number of large reef fish of economic importance to fishermen. This is generally indicative of habitat degradation or a significant amount of fishing pressure/over fishing. While there is evidence of habitat degradation from silting and freshwater and surface run-off, over-fishing has been confirmed by a large percentage of fishermen using the area.

Lobsters also occur in this area but have been reported by the fisher groups using the area, to be over-fished.

Foraging and migrating mammals are found in the MS/CNP. Cetaceans are the most common marine mammals recorded in waters around the marine Park. This includes at least 5 species of whales and 2 species of dolphins. Land mammals include the fish-eating bat, *Noctilio leporinus* reportedly foraging regularly close to the coasts around Toucarie, Douglas and Prince Rupert Bays and a roost of "a few thousand *Pteronotus dayvi* at Morne a Louis as reported by Peter Evans, 1997.

Other marine wildlife as identified by the Traverse Group Inc, 1991 and Mariska et al, 1996 include Marine Turtles- Hawksbill and Green Turtles that nest annually at Toucarie, Prince Rupert's and Douglas Bays, a variety of algal species, sponges, gorgonians as well as feather stars, brittle stars and the black sea urchin- *Diadema antillarum* and the Slipper Lobster, *Parribaeus antarcticus* among others.

The marine park also serves as a breeding and feeding ground for a number of seabird species found in the area. (Peter Evans,1997). Sea birds include the Magnificent Frigate *Bird*, a variety of terns, gulls and some wading birds like the spotted sandpiper, lesser yellow legs and ringed plover.
(Refer to Appendix I for detailed biological description of the MS/CNP)

3.6 SOCIO-ECONOMIC CHARACTERISTICS (REFER TO APPENDIX FOR DETAILED SOCIO-ECONOMIC EVALUATION)

3.6.1 PRESENT POPULATION AND SETTLEMENT PATTERNS AROUND THE PARK

The Cabrits National Park falls within the parish of St. John with a population of 5327 persons (Caribbean Development Bank/Government of Dominica, Country Poverty Assessment – Final Report Vol. 1 of 2). The communities of Tanetane, Savanne Paille, Clifton, Toucarie, Cottage, Capuchin north of the Cabrits; Lagon, Portsmouth, Glanvillea and Picard south and southeast of the Cabrits make up the parish of St. John hereafter referred to as the Cabrits Catchment area. Of importance is the Ross Medical School with an average of 1000 students located in Picard-This represents a large number of potential users of the park for tourism/recreational purposes.

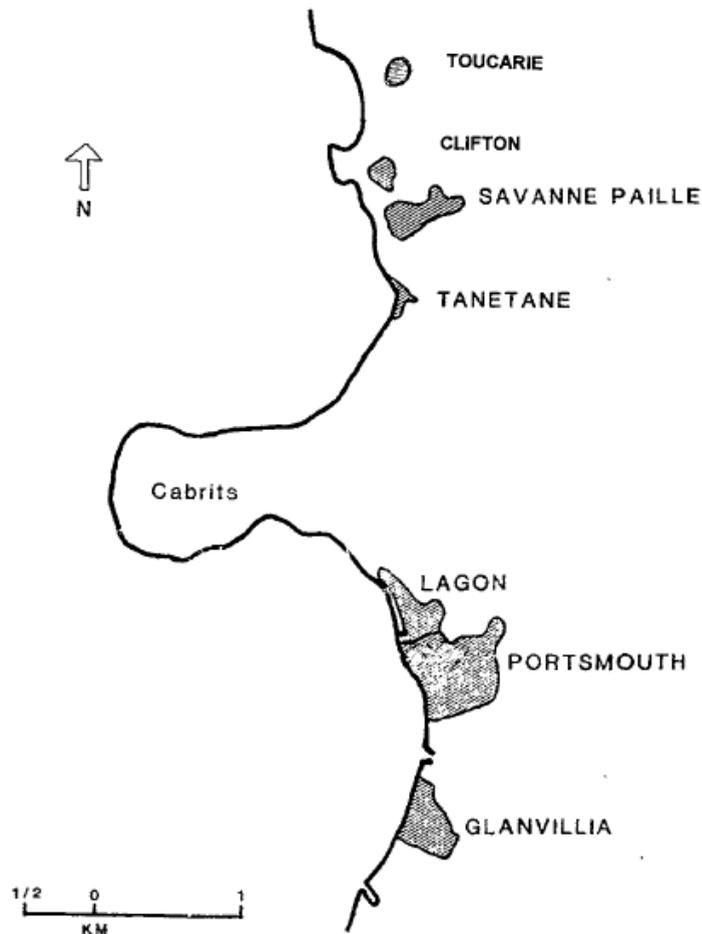


Fig. 4 Settlement Pattern around the Marine Section/Cabrits National Park

3.6.2 EMPLOYMENT PATTERNS AND POVERTY ASSESSMENT

Statistical data (Government of the Comm. Of Dominica Poverty Assessment Report 2003) indicate a high percentage of employment in the catchment area, mainly because of the medical school and its concomitant services. Of interest, is the relatively large percentage of skilled agricultural and fishery workers that indicates a high level of dependence on the marine resources.

While the Cabrits catchment area seems to have a relatively high percentage of employment, the communities other than Picard, Portsmouth and to some extent Toucarie, have high levels of unemployment and underemployment. These communities (*Savanne Paille, Clifton, Glanvillea and Tan Tane*), located closest to the marine resources, make up a small percentage of the population of the catchment area and have very large pockets of poverty (Ref. Discussion with the district development Officer, Steve Joseph) hence the need to assess existing and new livelihood opportunities.

The main economic activity in this catchment area, excluding Portsmouth and Picard, are fishing, construction and agriculture. In these communities, net fishing is considered a part of their culture handed down from generations. In villages like Toucarie and Cottage, construction has replaced agriculture and fishing to some extent.

3.6.3 CURRENT RESOURCE USE AND DEVELOPMENT

TOURISM

The terrestrial section of the national park consists of the historical component as well as the ecological component that attracts a number of visitors. While visitation data predominantly reflects visitation to the terrestrial section of the Cabrits National Park, the impact of these visitors on the MS/CNP should not be underestimated.

Table 2 Visitation Level of Cabrits National Park

Visitors to Cabrits National Parks-1997-2005		
Year	Total Visitors	Residents
1997	308	-
1998	9,320	1992
1999	13,811	5643
2000	11,858	4287
2001	14,201	6292
2002	14,013	8404
2003	13,969	7866
2004	13,966	7444
2005	12,461	6729

Source: Forestry & Wildlife Division

5 major tourism activities take place as follows:

- Cruise Tourism
- Diving and Snorkeling
- Yachting
- Boat tours
- Recreational bathing

CRUISE TOURISM

The Cabrits National park has a dedicated cruise ship berth that is currently underutilized.

Statistical data specific to the Cabrits are not currently available. Discussions with the Manager of the Dominica Air and Sea Port Authority indicate that estimated projections for cruise arrivals for 2006 will be 70 calls. He predicted substantial increases in cruise ship calls to the Cabrits for 2007-2008 with the 3 major lines scheduled to make regular calls there.

DIVING AND SNORKELING

Diving takes place within the marine Park from Toucarie Bay to the Cruise ship berth. 4 diving entities offer services to clients. Cabrits Dive Centre, Sunset Bay, Anchorage Dive center and one individual, Ignatius Mitchel. There is virtually no

accessible scientific statistical data on this. Snorkeling is also a very popular tourism activity with no scientific database on the snorkeler use of the park.

Two (2) small cruise lines undertake these activities on a regular basis. Star Clipper, brings an average of 20 persons on a fortnightly basis to do snorkeling. Club Med provides snorkeling, jet skiing and water skiing to its clients on a monthly basis from October to April.

JET AND WATER SKIING

These are occasional sporting activities undertaken by few individuals and cruise ships. The development of such sporting activities must be guided by the fisheries laws, zoning objectives and regulations.

YACHTING

Table 3- Yacht arrivals 1999- 2005

Year	No. of Calls	No. of Crew	No. of Passengers
1999	1769	606	8985
2000	1470	630	7230
2001	1619	468	7115
2002	1359	405	6082
2003	1366	357	6300

Source- Dominica Port Authority

Portsmouth has been considered as a prime area for the development of a yachting industry in Dominica. Traditionally, the majority of yachts to Dominica anchor in Prince Rupert's Bay outside of the marine Park with a significant numbers anchoring in Toucarie and Douglas Bays.

2 businesses provide services to the yachts anchoring in Portsmouth.

HOTELS, BAR AND RESTAURANT

There are no hotels or restaurants located on the MS/CNP. There are hotel located within the zone of influence that could have an impact on the marine resources. Casaropa Hotel, the Purple Turtle Beach Club and the Big Papa Restaurant and Sports Bar are the closest. Other major hotels are the Coconut Beach Hotel, Pickard Beach Cottage Resorts.

RECREATION

Swimming takes place in Toucarie and Douglas Bays and near the Cruise ship Berth. In fact Douglas and Toucarie Bays were popular picnic spots. Diving and snorkeling are also popular activities undertaken by nationals as well as jet and water skiing. There is a hot water vent in Toucarie Bay similar to Champagne

Recreational fishing, particularly spear fishing, is emerging as a new high demand activity from university students

FISHING

Fishing is considered a family tradition and constitutes a significant source of subsistence to many families particularly those living along the coast not only in terms of financial support of the family but also as a major source of protein.

Major fishing activities are directed at pelagic species. The Traverse Group, Inc. identified 3 types of fishing pursued in Dominica as follows:

- Close inshore demersal fishing around the continental shelf
- An inshore pelagic fishing for small species in the coastal waters especially the west coast and Cabrits areas.
- An offshore pelagic fishing.

All major fishing communities are located along the coastal fringe of the MS/CNP. There are an estimated 260 fishermen (full and part time) operating between Glanvillea and Toucarie Bay. The Portsmouth Area is described by the FDD as a major fishing community.

The main types of fishing activities occurring in the MS/CNP are beach seining and pot fishing for inshore pelagics and long lining and trolling for coastal pelagics. Other fishing practices are hand line fishing and spear fishing.

Discussion with the fisher groups indicate that the two most destructive methods of fishing within the CNP are fish seining since a large number of fishers used nets with uncontrolled sizes resulting in a large number of small fish being caught and spear fishing reported by the fishermen to cause physical damage to the reef from the fish guns used for this purpose and pot fishing.

Table 4. Data on Fishing Activities of Fishermen from Portsmouth to Capuchin

Landing Site	No. Of Fishermen	Fishery Type	Areas Fished
Portsmouth/Glan-villia/Lagon Cabrits	78	Fish pots Beach Seine Trolling, Tuna Long Line	Pointe Ronde Pointe Crabbier Prince Rupert Bay Toucarie Tanetane Guadeloupe Channel
Toucarie/Clifton/Tanetane	47	Beach Seine Tuna Long Line Trolling	Toucarie Tanetane Guadeloupe Channel

Landing Site	No. Of Fishermen	Fishery Type	Areas Fished
Capucin, Cottage, Savanne Paille, Guillet	40	Fish pots Trolling, Hook /Line, Tuna Long Line Beach Seine	Capuchin Point Guadeloupe Channel Capuchin Point

Source: Fisheries Development Division 2006

3.6.4 GENDER ISSUES

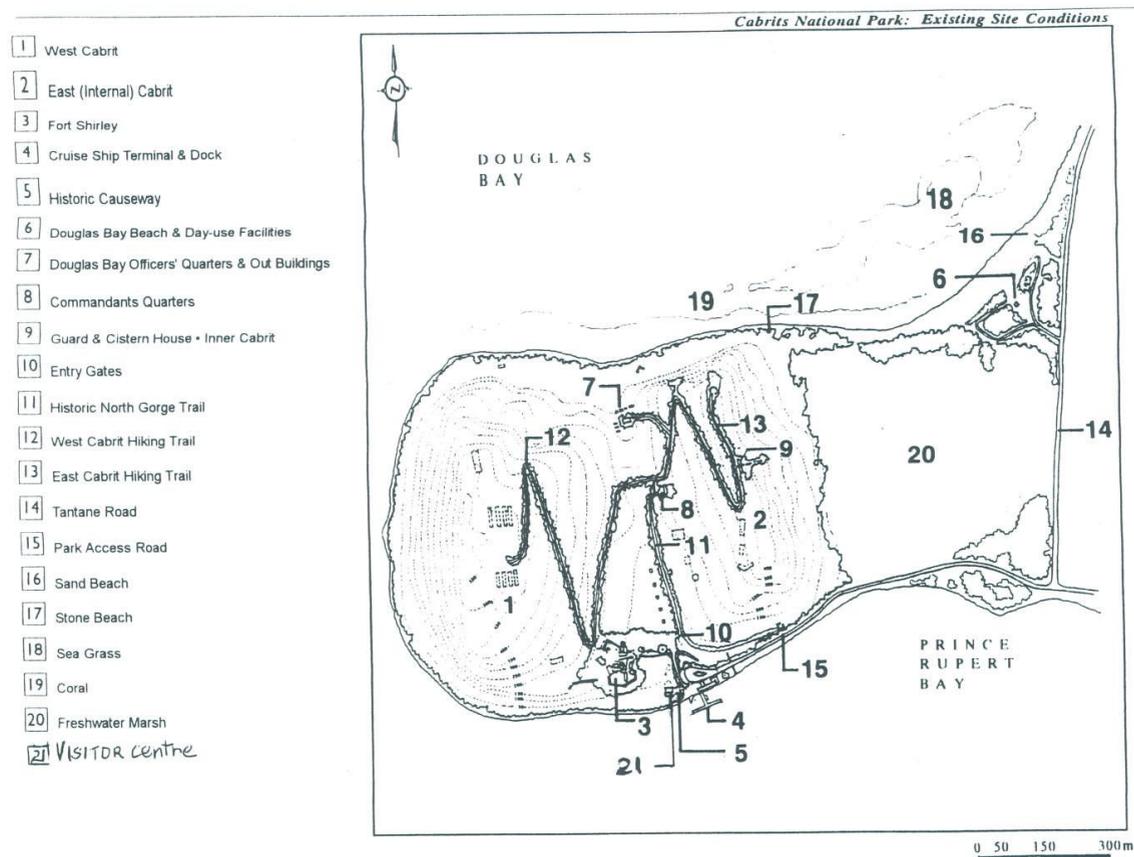
In this area there are 1034 male to 734 females. The major livelihood activities with respect to the marine resources are fishing dominated by males, tourism activities, predominantly dominated by males in activities like snorkeling, boating and yachting. One dive operation in the area, Cabrits Dive, is managed by a woman. All other diving activities are male –dominated.

Because of the dearth of information related to this issue it is recommended that some research be undertaken in this area.

3.6.5 EXISTING FACILITIES AND AMENITIES

The terrestrial component of the Cabrits National Park consists of a number of historical buildings, trails and visitor facilities. The commandants headquarters are currently being restored under the EU funded Ecotourism development programme.

Figure 5- Map showing general plan of terrestrial component of the Cabrits National Park



THE CRUISE SHIP BERTH

A cruise ship berth and reception facility has been constructed since 1991. Facilities within the reception area include change rooms, washrooms, an auditorium, craft shops, customs and immigration departments, an information centre and telephones.

VISITOR CENTRE

The visitor centre located at the entrance to the historic causeway consists of an interpretive centre, bar and restaurant and washroom facilities.

MOORING BUOYS

In 1998 20 mooring buoys were installed with funds provided by the ENCORE project. To date, there are 16 mooring buoys. An additional 30 mooring buoys will be installed within the “proposed zone of influence” as part of the Ecotourism Development Programmed, ETDP funded by the European Union. However, it is not know how many will be actually installed within the MS/CNP. Apart from this there are no other facilities and amenities specific to the marine park section

3.6.6 PROPOSED DEVELOPMENT PROJECTS

Portsmouth has been considered as a potential yachting haven for Dominica and attempts have been made to attract investors in the development of yacht marinas in the area. Discussions with the National Development Corporation indicate that plans are well advanced to develop a hotel and marina in the Prince Rupert’s bay area, adjacent to the Park boundary.

Other proposed development include a wharf at Toucarie Bay- the Port Authority, the agency responsible, indicated that the planning phase of this project is well advanced and that this was being built “specifically to facilitate the fishermen of the area”.

Discussions with the management of the Port Authority indicated that there are plans to adjust the boundary of the national park to exclude the area of management for the Cabrits Cruise Ship Berth that is managed by the Dominica Port Authority. This would mean reducing the size of the Park and excluding the cruise ships from observing park rules and regulations.

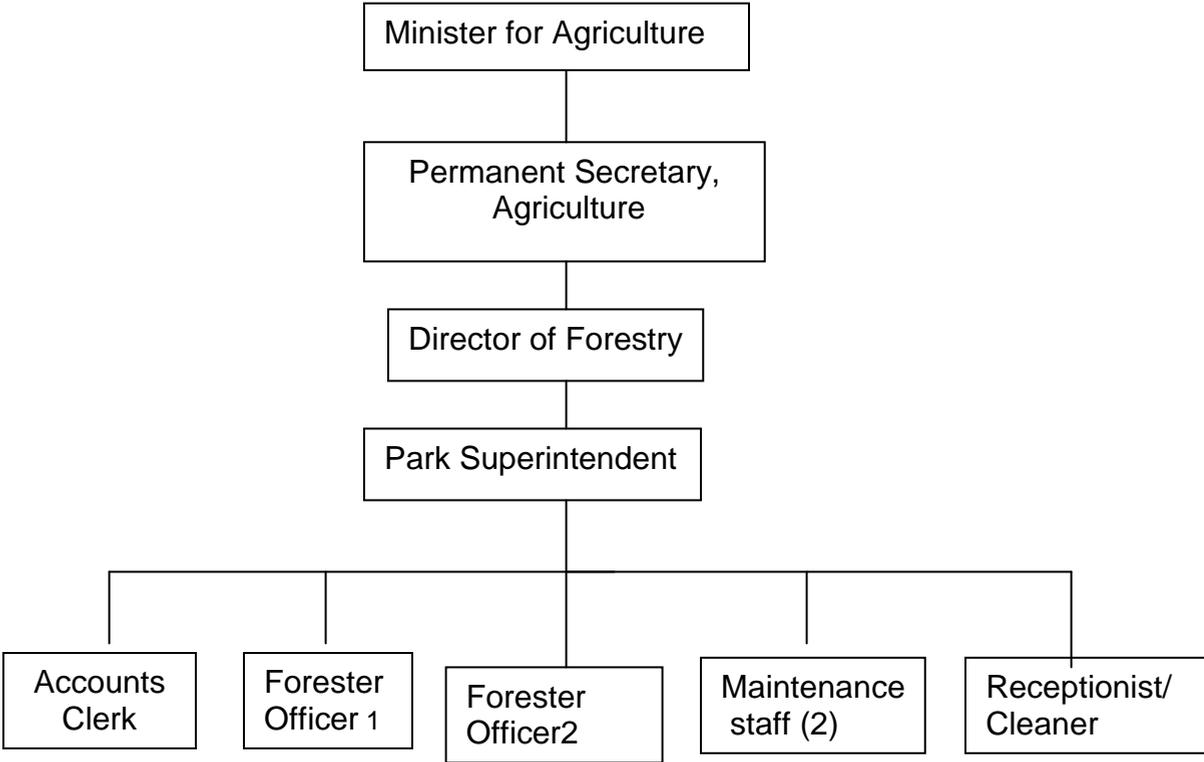
With respect to the proposed development projects, it is important that an environmental impact assessment is undertaken prior to construction to ensure that mitigation measures are put in place to reduce any negative impact on the marine resources during construction and operational phases.

Plans to adjust the boundary of the National Park to give jurisdiction of the area to the port authority must be reconsidered so as to give due cognizance to the need to protect the biological resources of the marine environment and the impact of cruise operations in the area.

4. EXISTING MANAGEMENT, LEGAL AND REGULATORY FRAMEWORK

4.1 EXISTING MANAGEMENT FRAMEWORK

FIGURE 6 - EXISTING STAFF AND MANAGEMENT STRUCTURE



The Ministry of Agriculture, Fisheries and Environment (MOA) is the primary institution with direct responsibility for coastal, marine, freshwater and terrestrial resources through its respective departments- the Fisheries Development Division, (FDD) and the Forestry, Wildlife & Parks Division, (FWD). The Ministry develops the broad policy framework to guide the development of these resources.

The administration, management and control of the national parks system is vested, under the Act section 3(3), to the Minister responsible for the national park system. In this case the Minister for Agriculture, Fisheries and the Environment. The Forestry and Wildlife Division of the Ministry of Agriculture and Environment is responsible for the management and development of National Parks and hence the protection, management and administration of the marine section of the CNP with direct responsibility given to the Director of National Parks.

Budgetary allocations for the management of the National Park for 2004 –2005 and for 2005- 2006 respectively, were as follows: E.C. \$ 26,342 and \$26, 592. (MOA)

Section 7 of the Act provides for the appointment of a Director of National Parks, together with the Superintendent of parks, park wardens and such other officers who shall constitute the “National Parks Service” The Director is empowered under section 7(2) of the Act, to employ casual workers as may be necessary for the administration of the national parks system

The Act also provides for the appointment of a National Park Advisory Council consisting of the Director of National Parks, three members appointed by the Minister and one on the recommendation of the Dominica Conservation Society (section 8)

The function of the Council is to advise the Minister on matters relating to the administration, management and control of the national parks system.

To date, the “National Park Service” including the recommended management staff, has not been fully established. The existing administrative structure of the National Park consists of a Park Superintendent who is responsible for the Park supported by 5 non-technical staff and two technical staff. To date, no one has been appointed as Director of National Parks. The Director of Forestry takes on the responsibility of Director of National Parks. A national parks advisory council has never been appointed and no park management plan has been submitted for public review or approval as required by the Act.

Regulations with respect to the NPPA Act have been developed through “Statutory Rules and Orders No. 54 of 2003 and gazetted in January 2004. and earlier in 1997 user fee regulations were established.

To date, the historical and terrestrial components of the park have some level of management with very little attention paid to the marine component. Two major factors contributed to this- conflict of jurisdiction between the Forestry and Fisheries Divisions for management of the marine resources and a lack of human and financial resources under the existing management structure for the management, research and development of the marine section of the national park.

Discussions with the Director of Forestry have indicated that there are plans to establish the “National Parks Service” in keeping with the requirements of the NPPA Act. This has been confirmed by the Minister responsible for Agriculture

4.2 EXISTING LEGAL AND REGULATORY FRAMEWORK

The National Parks & Protected Areas Act, Section 5 outlines the following criteria for designation of an area as a national park. It authorizes the Minister for Agriculture to set aside any state lands as “protected areas” for the following:

- a. Preserving the natural beauty of such area, including flora and fauna
- b. Creating a recreational area
- c. Commemoration of an historic event of national importance; or
- d. Preserving any historic landmark or any area of object of historic, pre-historic, archaeological or scientific importance.”

It should be noted that the Act specifically refers to “state land” and thus inadvertently does not directly address issues related to a marine environment

The Schedule attached to the Act describes the boundaries of the CNP, including its Marine Section. The Schedule contains a discrepancy with the original Statutory Rules and Orders no. 54 of 1986 with respect to the boundaries. The Schedule mentions that point B of the boundary is approximately 200 ft west of the northern tip of the Cabrits peninsula, while the SRO has point B located approximately 2,000 ft west of the northern tip of the Cabrits peninsula. This should be corrected to read “200 feet west of the northern tip of the Cabrits peninsula”

REGULATORY FRAMEWORK

Under section 16 of the Act, the Minister may make regulations for inter alia the preservation of flora and fauna, the regulation of hunting and fishing, the preservation of water catchments areas, the prevention of encroachment, the prevention of soil erosion, the control of fire, the charging of fees and to control the entry and movement of persons within the parks system area.

These regulations have been passed and gazetted as well as regulations with respect to vending in the park and user fees.

4.3 OTHER LEGAL INSTRUMENTS RELEVANT TO THE MANAGEMENT OF THE MARINE PARK

THE FISHERIES ACT

This act is directly related to the management of marine Reserve and is more applicable than the existing National Parks and Protected Areas Act.

The Fisheries Act 61:60 (1987) under which the Fisheries Development Division, FDD is governed also makes provisions for the regulation of fishing in the fishery waters of Dominica and for the “management and development of fisheries so as to ensure the optimum utilization of the fisheries resources in Dominica”. It provides a legal framework within which strategies can be devised to address issues related to conservation and sustainable development of the marine resources with emphasis on fisheries resources.

It also places emphasis on a number of activities to include “the establishment of marine reserves, fisheries research and enforcement among other things”.

In terms of conservation of marine resources, Part 111 section 22 of the Act provides that the Minister of Agriculture may, by order, declare any area and any adjacent land, to be a marine reserve where special measures are necessary “to afford special protection to the flora and fauna of such areas and to protect and preserve natural breeding grounds and habitats of aquatic life with particular regard to flora/fauna in danger of extinction.”

- To allow for natural regeneration of aquatic life where necessary
- To promote scientific study and research
- To preserve and enhance the natural beauty of the area

Part V authorizes the Minister to develop regulations for the management and development of fisheries to include among others, the following:

- Management and protection of marine reserves and fishing priority areas

BEACH CONTROL ORDINANCE NO.21, 1966

Beach control ordinance prohibits the use of the beach for a public or commercial purpose except when a license is issued. It contains provisions to control sand mining and removal of stone from the beach. It prohibits the taking of sand, stone, shingle or gravel for construction or ballast except with a permit from the Ministry of Communications, Works & Housing and provides penalties for illegal removal of beach material

It also sets a setback requirement of 50 yards for construction along the beach. This ordinance falls under the jurisdiction of the department of Physical Planning that relies on village councils to provide information on mining activities occurring on some beaches.

THE LITTER ACT

Under the *Litter Act* the jurisdiction of the legislation stops above the water line. As such, the Act is deficient as far as littering of the marine waters is concerned.

INTERNATIONAL CONVENTIONS AND TREATIES RELEVANT TO MARINE BIODIVERSITY

There are a number of international conventions and treaties to which Dominica is a party that are relevant to the MS/CNP- United Nations Convention on the Law of the Sea, UNCLOS, Cartagena Convention, The Convention for the Prevention of International Trade in Endangered Species, CITES, the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Environment, the Convention on Biological Diversity as well as other relevant protocols like the Oil Spill Protocols. (Refer to Appendix V for other relevant acts and international conventions and treaties)

As a result, there are specific obligations that, Dominica being a party to the convention, must fulfill. In developing regularizing legislation pertinent to the development of the MS/CNP, all of these should be considered.

Most of these conventions, in many cases, fall under the jurisdiction of a number of government agencies, hence the importance of inter-agency collaboration for effective management and development of the MS/CNP.

4.4. LEGAL AND REGULATORY CONSTRAINTS

The National Parks and Protected Areas Act (NPPAA) 1976 gives the Forestry & Wildlife Division, jurisdiction of all areas designated as national park. As such, the Cabrits National Park which includes the marine component falls under the jurisdiction of the Forestry & Wildlife Division.

However, the NPPAA, in its present form, places emphasis on terrestrial parks and does not address key management and conservation issues specific to marine parks. While some of the terms used in the Act are generic and can be applied to marine parks, it is important to address the present shortcomings of the Act so as to provide clear jurisdiction and an effective legal framework for the development and management of the MS/CNP designated under the Cabrits National parks. This will entail the review and amendments to the NPPAA.

There is overlap with the Fisheries Act of 1987 that contains provisions for the establishment of marine parks or reserves. The authorities must decide whether

they want to rest authority for marine parks with the Fisheries Development Division or to the Forestry/National Parks Division.

In addition, adequate institutional structures for cross-sectoral linkages should be established for better co-ordination of efforts. For example, with respect to the Beach Control Ordinance Act, the authority with respect to the protection of beaches lies with the Ministry of Communications, Works & Housing. Over the years, there have been problems with enforcement due to inadequate surveillance capability. As such, there is very little that can be done by the Forestry and Wildlife department.

With respect to the international conventions, the national legal frameworks should be reviewed to take into account existing gaps in the legal structures. In some cases, there is a need to amend the relevant national legal framework within which these conventions and treaties fall, in order to incorporate these within the legal framework and to develop the required regulation to effect enforcement.

5. DESCRIPTION OF MANAGEMENT ISSUES- MAJOR THREATS AND STAKEHOLDERS

5.1 OVERALL MAJOR THREATS TO THE MS/CNP

The multiple use activities outlined indicate major threats to the resource base and potential and actual conflict among users of the resource. These threats are a source of stress to the biological integrity of the marine environment and its importance as a protected area.

Some of these activities pose a potential for human health and safety of park users that could have repercussion both for local recreationists and visitors as well as the biological resources of the marine environments, if they are not quickly and effectively managed.

Overall, there are 4 major threats to the MS/ CNP.

- Recreational
- Unsustainable Fishing
- Infrastructure and terrestrial /upland Development
- Climate change

Table 5. Summarizing the Overall threats to the MS/CNP

Sources of Threats	Threats	Impact	Mitigation
Tourism/Recreation Activities	Anchor damage by coral reefs	Damage to coral population and sea grass beds	Establishment of mooring buoys Establish zones of activities to protect impact Education and public awareness for park users
	Damage to sea grass beds through anchorage and dragging of boats		
	Septic and oil Discharge from boats		
	Physical contact from divers		
Sources of Threats	Threats	Impact	Mitigation
Fishing Activities	Incompatible fishing methods and devices	Destruction of juvenile fish.	Establish activity zones to include “no take” zones Regulate fishing methods Education and public awareness for park users
	Overfishing	Decline of fish population Increase in algal cover	
	Removal of herbivorous fish		
Upland Development	Destruction of the freshwater swamp	Sedimentation of reefs	Establish a zone of influence and standards for development within that zone that will safeguard the marine environment. Public awareness and education
	Siltation from major road construction	Increased nutrient load	
	Solid and liquid waste disposal		
	Pollution from agriculture and chemicals	Damage to sea grass beds	
Natural disasters	Hurricane	Loss of live cover of corals	Research and monitoring
Climate Change		Damage to seagrass beds	
		Coral Bleaching	

5.2 STAKEHOLDERS

There are a large number of stakeholders because of the multiple use of the area. This includes users of the resource, policy makers, the community adjacent to the CNP as well as the various organizations and government departments with responsibility for the activities and programmes that directly affect the

marine environment. Stakeholders either positively or negatively affect the resource as a result of their actions. It is important not only to identify stakeholders and to assess their impact on the Park, but also to include them in the assessment of the resource and in the formulation, development and implementation of any strategies and programmes planned for the park. These constitute the stakeholder groups as follows:

- Resource Managers- Fisheries Development Division / Physical Planning
- Forestry & Wildlife Division/ Dominica Coast Guard

- Resource Users- Fishermen / Tourism service Providers/ Dominica Port Authority /Ministry of Tourism / National Development Corporation

- The Communities

- Developers

- The general public

5.3 MANAGEMENT ISSUES

The following are the major management Issues affecting effective management of the MS/CNP

- Review of the NPPAA and the Fisheries Act to provide clear jurisdiction to the Forestry and Wildlife Division for the Management of the MS/CNP under the NPPAA
- Establishment of the National Parks Service and injection of the necessary financial resources and recruitment of a cadre of staff with the necessary skills and support services and equipment to manage the resource users as well as the natural resources in a sustainable manner, to allow for economic, social and recreational benefits and to provide opportunities for livelihood development.
- Development of a clear understanding among policy makers of the importance of preserving the biological diversity of the parks for future generations and for sustainable economic development.
- Protection of the biological resources of the MS/CNP through zonation to protect nursery areas, preserve reef fish stocks and to minimize the impact of users on the resource base as well as the protection of the freshwater swamp that serves as a sink and thus reduces sedimentation of the marine environment and protection of the resources.

- Sound scientific research and monitoring as a primary basis for sustainable management of the area and for effective decision making
- Control of land-based sources of marine pollution
- An effective communication and public awareness strategy to encourage active participation of stakeholders and to develop local awareness of the importance of the park to conservation and livelihood development through education.
- An efficient enforcement mechanism for effective protection

6. RECOMMENDED MANAGEMENT STRATEGIES

Stakeholders outlined a number of strategies for management and development of the MC/CNP as follows:

For User conflict

- Create management structure to encourage participation of resource users & stakeholders
- To put in place effective communication techniques
- To conduct/undertake sound research information gathering, evaluation dissemination
- Define activities zones conflict resource

Resource Valuation

- To develop appropriate instruments for economic evaluation of resource
- To ensure overall health of eco system
- To increase fish population, by reducing the negative impact affecting the maximum sustainable yield

Capacity building

- To build the appropriate capacities for management of resources
- Building capacity and awareness of communities with respect to proper utilization of resources

Base on above, a number of strategies have been identified that will address the major threats to the biodiversity of the marine park as follows:

Strategy 1: Establishment of an effective legal and regulatory framework to operationalize the MS/CNP and to provide clear jurisdiction for management of its resources.

This entails the following:

- Amendment of the NPPAA to manage not only terrestrial parks but marine parks as well.
- Develop and enact regulations with respect to the NPPAA
- Repeal of the marine parks under the Fisheries Act so as regularize the functions of management of parks under the NPPAA.
- Enforce fishing regulations pertinent to management and use of fishing techniques in the park
- Develop regulations governing the operations and use of boats, commercial and recreational activities
- Develop regulations governing upland development that has an impact on the biological resource of the park

Strategy 2: Establishment of a zone of influence, ZOI, extending north of the MS/CNP Park to Capuchin or Cape Melville and south to Pointe Ronde or Rollo Head and establishment of standards governing development in the ZOI to safeguard the biological integrity of the MS/CNP

Strategy 3: Development of a management framework that promotes synergy of the marine and terrestrial components and active stakeholder involvement.

- To promote participatory management
- To manage the terrestrial and marine components as one entity to reduce conflicts

Strategy 4: Protection of the biological resource of the park from activities that are not compatible with their long-term protection and restoration.

- Establishment of baseline information on the status of habitat and species-marine fauna and flora, sand banks, oceanography of the marine area and socioeconomic data and stakeholders
- Boundary and navigational demarcation
- Zoning activities for habitat and species restoration,
- Management of user conflict
- Management of recreational and livelihood potential and other sustainable uses of the park

- Surveillance and enforcement to safeguard the integrity of the resources of the MS/CNP

Strategy 5: Data Gathering, Storage and Evaluation

- To develop and promote scientific research and monitoring as a primary basis for sustainable management of the area and for effective decision making
- Establishment of research policy
- Development of user-friendly data base management and retrieval system

Strategy 6: Development of an Effective communication system

- To maintain stakeholder participation and to inform all stakeholders on all aspects of park management, monitoring and development.
- Stakeholders must be given the opportunity to share their concerns, priorities, and knowledge of the park and at the same time to gain access to the knowledge, resources and management activities in the park. This will reduce threats to the park, engender a sense of ownership and provide the public and political support necessary for the success of the park.

Strategy 7: Ensure the compatibility of livelihood activities with resource protection and management

- Review existing livelihood programmes and identify new and alternative livelihood in keeping with sustainable management and development of the marine resources.

These strategies will require a series of activities or action plans that will be put forward for implementation.

PART 2 - MANAGEMENT PLAN

7. GOALS & OBJECTIVES

Goals

To manage on a self-sustaining basis, the natural, cultural, and economic values of the marine park based on sound scientific research so as to maintain its biological diversity and value for future generations, while providing sustainable livelihood, food security, recreation and educational opportunities for national development.

Objectives

- To provide an effective management framework that will contribute to the protection and sustainable use of the ecological resources of the MS/CNP.
- To manage the area as part of the national representative system of the Cabrits national parks.
- To encourage participatory management of the park and minimize user conflict.
- To optimize and manage livelihood opportunities for the protection and enhancement of the values of the marine park
- To undertake research and provide recreation and educational opportunities

8. MANAGEMENT PROGRAMME AND ACTIVITIES

The stakeholder consultations recommended priority activities to be undertaken based on the strategy outlined above. 4 programme areas were identified as follows:

1. Conservation

A. Natural Resource Conservation

- B. Natural Resource Management
- C. Research and Monitoring

2. Education and Sustainable Use

3. Administration and Finance

4. Monitoring and Evaluation

8.1 PROGRAMME 1- CONSERVATION

8.1.1 SUB-PROGRAMME 1A- NATURAL RESOURCE CONSERVATION

Objectives: To maintain and protect the biological diversity of the park,

ACTIVITIES

1. Physical demarcation of Boundaries

Objectives: To identify and establish the boundaries of the park using standardized, internationally accepted signage.

Activities to be undertaken for Boundary demarcation

- Formalize the boundaries of the Park through legislation
- Identify park boundary and use GIS methods to develop a marker database of information
- Implement demarcation programme utilizing appropriate markers and developing effective signage. This will also provide for identification of zoning areas as well as the restrictions for use of area
- Develop a boundary maintenance programme with respect to markers

Implementation -This should be implemented within the first year of implementation of the Management Plan followed by continuous maintenance

Cost- - Purchase markers, production of information signs, placement and maintenance of markers and signs- \$94,350

Personnel- 2 park wardens

Programme Monitoring and Evaluation- This will be evaluated based on users' knowledge of the demarcation and navigational signs and boundaries, the efficacy of the maintenance programme and the number complaints filed for inappropriate use of the park

2. Develop, Establish and Implement a Zoning Plan

Objectives- to protect the resource and promote the recovery of over-exploited species by disallowing activities that are not compatible with the preservation of the biological integrity of the resource.

Activities to be Undertaken for Development and Implementation

- An inventory of the resources must be undertaken to establish a zoning marking strategy.
- Consultation with the FDD, fishermen and other park users and stakeholders
- Boundaries should be identified and the use of GIS to establish a database of marker locations for management and operation of the area
- An effective zoning marker maintenance programme will be established to support effective management and upkeep of the various zones.

Implementation - This should be implemented within the first year of the implementation of the management plan of the Park followed by continuous maintenance. Research and technical services and cooperation of the Fisheries Division, the fishers, and the other users of the resource should be solicited.

Cost- research studies, purchase of mooring buoys, placement and maintenance-\$50,500.00

Personnel- Technical assistance/ Research Officer, 2 park wardens in collaboration with FDD

Programme Monitoring and Evaluation- This will be evaluated based on level of success of the restoration of the habitat and fish population, the reduction of complaints of user conflict, and reports on monitoring of turtle nesting.

3. Establishment of Mooring Buoys

Objectives: To provide facilities to boats using the marine park so as to minimize any negative impact on the reef ecology.

Goals: To develop a well maintained mooring system that supports the goals and objectives of providing quality service to yachts and boats and resource protection within the marine park

Activities

- An inventory to assess the status of the existing mooring buoys and to identify areas requiring mooring buoys.
- Using GIS methods, a database of the mooring programme will be developed for ongoing monitoring
- Install the moorings based on inventory.
- Establish an effective maintenance programme to support the mooring buoys

Implementation - This should be implemented within the first year of implementation of the Management Plan followed by continuous maintenance

Cost- purchase of mooring buoys, placement and maintenance- \$123,400.00

Personnel- Research Officers, 2 park wardens in collaboration with FDD and fishers

Monitoring and Evaluation - This will be based on the number of buoys installed, the level of usage of the buoys based on statistic collected from mooring fees paid and assessment of the impact of coral reef damage from boats

4. Management Regulations

Objectives: To develop a comprehensive and effective regulatory system for the MS/CNP in keeping with existing legal and regulatory regimes, as to ensure the protection of the resources of the park, the use of the park, as well as users of the resource.

(Refer to Appendix IX for proposed regulations for consideration.)

Activities

- A detailed review of all relevant legal instruments will be undertaken with a view to establishing all the necessary laws and regulations.

Implementation - This should be initiated within the first year of the of implementation of the Management Plan

Personnel- , Legal consultant/ Ministry of legal affairs / in collaboration with Marine Park Management

Cost - will include the production of flyers/brochures on rules as well as public service announcements.- \$5000.00

Programme Monitoring and Evaluation- This will be assessed on the number of regulations that are actually developed and legally adopted and circulated to park users and stakeholders.

5. Development of a Surveillance and Enforcement Programme

Objectives

To develop an effective surveillance and enforcement mechanism that will ensure compliance with the rules and regulations of the MS/CNP

Goals

To attempt to prevent incidents or accidents through effective patrolling and surveillance as opposed to infraction while establishing a system to deal with unavoidable infractions as stipulated by Law

Activities

- Power of authorized officers-Section 17 (1) of the NPPAA dealing with this section would have been reviewed and formalized to make it more relevant to marine parks.
- Formal authorization of licensing and enforcement
- Establish protocol for enforcement procedures
- Training of licensing and enforcement personnel
- Developing inter-agency cooperation and agreement with the Port, customs and Dominica coast guard and the FDD
- Defining areas of jurisdiction and
- Developing standard operating procedures, SOP, with respect to fines, violations etc
- Implementing public awareness and education programmes to all stakeholders especially users of the resource

Implementation schedule- This should be implemented within the first year of the implementation of the Management Plan followed by continuous monitoring.

Cost- \$193,700

Personnel- Min. of legal affairs in collaboration with Licensing and enforcement officer, Education and public awareness officer/ In collaboration with coast guard

Programme Monitoring and Evaluation- a monitoring and evaluation programme must be developed that will take into account the number of complaints, citations for violations and/or infractions. This would indicate the level of understanding of park regulations. Good record keeping and a standardized format must be developed for this

8.1.2 SUB-PROGRAMME 1B. NATURAL RESOURCE MANAGEMENT

Objective: To provide the necessary staff, equipment and other relevant resources for management of the natural resources of the MS/CNP

Activities

- Establish and equip offices for staff
- Recruit staff (Refer to Section 8 for staffing)
- Demarcate specific access points for users of the resource
- Develop an effective maintenance management programme
- Manage marine species and habitats
- Develop standard operating procedures and develop best practices with respect to park operations and programmes- fines and violations,
- Undertake relevant activities and procedures for authorization of licensing and enforcement officers

Implementation schedule- This should be implemented at inception stage

Cost- \$193,700

Personnel- Board of Directors/ Staff

Programme Monitoring and Evaluation-Park is operational and functioning with a full cadre of staff and equipment.

8.1.3 SUB-PROGRAMME 1C.SCIENTIFIC RESEARCH AND MONITORING

Objectives: To provide management with scientific information for decision-making so as to ensure that the objectives of conservation and management of the resources are achieved.

Activities

- Setting standards and format for research and monitoring programmes within the MS/CNP
- Establish protocol for monitoring and research
- To undertake baseline assessment of the resources of the MS/CNP in collaboration with the Fisheries Division, fishers, other resource users and other technical persons
- Develop a database of information that is scientific, manageable and user friendly.
- Develop and Establish in collaboration with FDD and users of the resource a research and monitoring programme

(Refer to Appendix VIII for list of research and monitoring priorities)

Implementation - Because of the absence of base line data specific to identified sites, this will be a priority activity to commence in year 1 and to be ongoing

Cost- \$577,100.00

Personnel- Technical Expertise contracted/ FDD/Marine Institute/ Research officer / Fishers

Equipment- Boat, monitoring equipment, and office equipment- software/hardware/ database

Costs- will be associated with hiring of a marine biologist and an assistant to initiate and continue the programme as well as purchase of research equipment as well as office equipment- software and hardware

Monitoring and Evaluation- the effectiveness of the programme will be based on the establishment of a effective database for the park, the actual collation of information on the biological resources, the resource use and information on users as well as information garnered on fishing activities, methodologies and equipment used in the identified research area.

Monitoring of Pollution

Objectives: To undertake regular assessment of point and non-point sources of pollution and their possible impact on the marine biology.

To develop mitigation measures to reduce the impact and to monitor water quality standards against international benchmarks for water quality.

Activities

- To assess nitrate and phosphorus levels of water
- Assess faecal coliform levels
- Assess pollution discharges from domestic waste water
- Assess levels of storm drainage from roads and drains
- Monitor sediments, turbidity, pesticide residues,
- Assess level of pollution from rivers and streams.
- To implement standards with respect to storm water and drainage from domestic and industrial buildings.
- To monitor activities from live –aboard/ yachts with respect to disposal of waste water

Implementation

This is an ongoing programme to be initiated from the first year of implementation of the Management Plan.

Personnel- To be undertaken by the Division of Environmental Health and the Research and monitoring department

Cost section- cost of this is budgeted under “Research & Monitoring”

Programme Monitoring and Evaluation

This will be assessed on the water quality standards of the marine park, on the mitigation measures put in place to reduce water pollution from domestic wastewater, and standards put in place for management of storm water over a period of time.

8.2 PROGRAMME 2- EDUCATION AND OUTREACH

8. 2.1 PROGRAMME 2 A. COMMUNICATION, EDUCATION AND PUBLIC AWARENESS

Goal: To develop and coordinate the flow and variety of information within the park so as to increase awareness among relevant publics of the ecological and historical significance of the Park, and to emphasize its contribution to national development and to global biodiversity conservation.

Objectives: to sensitize stakeholders on the value of the MS/CNP and to foster participation in its operations and a sense of ownership.

To catalyze the promotion of revenue- generating activities and to develop and promote sustainable livelihood opportunities

Activities

- Awareness Raising;
- Marketing
- Branding: Develop a “brand” and tagline for positioning of CNP
- Key messages: Develop and deliver key messages to target audiences using the most cost-effective vehicles;
- Active community participation
- Networking Media Outreach/Advocacy: develop strategic relationships with organizations and individuals and the media in Dominica
- School’s Outreach: Launch a school’s outreach programme, promoted through specially organized activities for schools and students in order to attract interest in and garner support for the CNP as a Protected Area;
- Development of Public Awareness and Educational tools
 - Printed materials
 - Audio-visual materials
 - Interpretive centre

Implementation-This should be started within the first year of the implementation of the Management Plan and should be on-going

Cost \$ 461,700

Programme Monitoring and Evaluation - Indicators to be assessed will include the actual production of materials outlined above. The number of public awareness programmes implemented, the level of awareness of the target groups as well as evaluation of park users in terms of knowledge of regulations, zoning g etc. evaluation programme specific to this must be developed e.g. a before and after survey on the level of perception of stakeholders/target groups.

8.2.2 PROGRAMME 2 B. LIVELIHOOD/ ALTERNATIVE AND NEW LIVELIHOOD DEVELOPMENT

Objectives: to sustain and develop livelihood / alternative livelihoods compatible with the protection and sustainable use of the marine biological resources so as to develop the socio-economic status of the relevant communities

Table 6-Alternative livelihood Requirements

Alternative Livelihoods	Training requirements	Other needs
Park Warden	Seamanship, enforcement procedures,	Negotiating Soft Loans Technical assistance for business development
Deep sea Fishing	Training in the use of FAD's	Equipment
Data collection	Methods of data collection	
Handicraft	Product development, marketing	Sourcing of raw materials
Tourism services- Tour guiding Boating Sports Fishing	Tour guiding. Customer relations Basic business management and accounting	Developing a registry of Micro business

Activities

Provide the technical and financial resources to fishermen including soft credit to assist them in enhancing livelihood opportunities

Enhance the capacity of fishers to undertake deep sea fishing

Implementation

This should be initiated within the first year of the implementation of the Management Plan.

Personnel- 1 Public Awareness and Training officer in collaboration with the village councils and relevant CBO's and NGO's and government agencies

8.3 PROGRAMME 3- ADMINISTRATION AND FINANCE

8.3.1 ADMINISTRATION

Objective: To operationalize and manage the MS/CNP as an integral component of the Cabrits National Park

Activities

- Develop criteria for membership to LMA
- Develop and establish rules of procedure for the operations of the LMA
- Register the LMA either as an NGO or a cooperative
- Review and update management plan and budget.
- Manage and supervise staff
- Approve operations plan with staff for implementation
- Monitor and evaluate plan

8.3.2 MANAGEMENT OF FINANCES OF THE LMA

Objectives: To manage the finances of the MS/CNP in a transparent manner and within established legally accepted financial and accounting procedures.

Activities

- Prepare and approve budget for programme implementation
- Seek Project funding

- Establish and approve user fee system and collect user fees
- Develop accounting system
- Develop Merchandise for sale
- Undertake annual audits of the accounts of the MS/CNP

8.3.3 TRAINING

Objective- To build capacity of staff to carry out their functions/ to train stakeholders for alternative livelihood opportunities

Activities

- Train staff in participatory management and group facilitation
- Train wardens in Seamanship, boat handling, enforcement procedures
- Train research assistant and fishermen in data collection and analysis
- Train research officers in Environmental impact assessment and methods of assessing use of resources e.g. limits of acceptable change, LAC, Marine Biology and Conservation
- Train officers in Surveillance and enforcement techniques

Other training activities include

- Information management and technology
- Research and data collection
- Conservation
- Diving
- Seamanship

Provide training for fishers in the following new livelihood areas:

- -Deep sea Fishing
- -Park Warden –Surveillance and law enforcement
- -Tour guide training for glass bottom boat tours
- Customer Relations
- Basic Business management

9. MANAGEMENT FRAMEWORK

Goals- Development of a management framework that promotes synergy of the marine and terrestrial components and active stakeholder involvement.

Objectives- To provide an effective management framework based on an integrated approach to sustainable use and development of the marine park.

The preferred approach involves the establishment of an entity with responsibility for both the terrestrial and the MS/CNP because of the interrelationship of the marine and terrestrial components, active involvement of all stakeholders in the management process and the need to provide of some level of autonomy for effective decision-making. This entity would be a private sector organization- a local management authority/foundation.

Legal Framework

The National Parks and Protected Areas Act is the legal authority for the establishment of the LMA /Foundation. Under Section 16.1(d) the Minister is authorized to make regulations for granting of leases and licenses “to provide accommodation and other services to visitors to the national park system.

The NPPA Act must be amended to provide legal authority for the MS/CNP and to address key management and conservation issues specific to marine parks as well as the provision of jurisdiction of management of the marine park. This will entail review and amendment of the Fisheries Act No.11,1987, repealing the authority of the Fisheries Development Division for management of marine reserves/parks

The legal authority of the MS/CNP will be based on the amended National Park and Protected Areas Act, 1976, which will provide the legal basis for its establishment and management.

Institutional Responsibility and Management Entity

The Ministry of Agriculture will use the legal authority provided by the Act to establish the National Parks Authority that would have overall responsibility for management of all national parks including the MS/CNP.

The Ministry of Agriculture and the Environment through the established National Park Authority will be responsible for the formulation and execution of the policy framework and development processes of the MS/CNP

A special management authority hereafter called a Local Management Authority, LMA, or Cabrits Foundation, CF would be established under the NPPA Act, 1975 Section 16:1 (d) through the issuance of a Statutory Rules and Orders, SRO notice which must be gazetted. This entity will be charged with the responsibility for management and development of the entire Cabrits National Park including

the authority to manage all activities occurring in the marine and terrestrial sections, as well as physical infrastructure and fishing.

LMA would be registered as a legal entity either as an NGO or a Cooperative Society and should develop its articles of association.

Membership to the LMA / Cabrits Foundation will be open to individual residents, representative of groups and businesses that are registered, various stakeholders and other relevant interest groups.

Criteria for membership should be based on effective stakeholder representation e.g. no more than 5 persons representing specific stakeholder interest after which there could be a cut off point (the number is flexible) and on the ability to pay memberships dues.

However, the criteria must be transparent and acceptable to the membership. Decisions for membership will be taken by the Board.

The LMA would appoint a cadre of staff for management and operation of the MS/CNP and would provide policy direction and supervision.

Functions of the LMA/ Cabrits Foundation

LAMA would be charged with the responsibility for the management and development of the Cabrits National Park.

The LMA would be responsible for the management and development of the MS/CNP as described in the management plan. The Board of Directors of the LMA would appoint relevant staff to implement the programmes of the Park, would have its own budget for management, would be authorized to make disbursement from the approved budget and to prepare financial reports for submission through its board to the Minister for Agriculture. Other responsibilities would include the following:

- Achieving the overall goals and objectives of the Cabrits National Park
- Overall management to include granting permits for activities in the park, collection of user fees.
- Developing and recommending relevant rules and by-laws for governing activities in the park
- Preparation and submission of annual budgets and operational plans, based on the management plan
- Undertaking periodic reviews of the management plan and submission of the revised plans to the Board and the Minister of Agriculture through the Director of National Parks.

- The LMA would also have the authority to collaborate with regional and international institutions in areas of research, financing, marketing and development of the MS/CNP

These arrangements will enable the local management authority to manage the MS/CNP independently within the framework of approved budgets and operational plans. They will also allow the local management authority to influence policy formulation and be actively involved in future planning.

The LMA would operate under prescribed rules and procedures that would be transparent and approved by the membership.

Composition of LMA- Management Entity

The Local Management Authority will be basically a private /public sector partnership, much like the Site Implementation Entity, but with legal authority, and consisting of representatives of the various stakeholders and related enterprises as follows:

- Government Agencies- Fisheries, Forestry & National Parks, Port Authority, Local government/Village Council, Dominica Police Marine force/coast guard.
- Marine Interests- Dominica Watersports Operators / Association/, Local Marine training institute, tour guides.
- Private Sector interests- Tourism service providers- Hotels managers, restaurants, shops and vendors, tour guides, Yachting organizations, Investors.
- Shipping companies
- Community Interests- Fishermen organizations, village councils adjacent to the Park, Representatives of Community based organizations and NGO's within the vicinity of the Park - NNETEDC (North North-eastern Tourism and Environmental Development), Portsmouth Town Council, Women's groups.
- Historical and Conservation Societies

- Professional Organizations

Board of Directors of LMA/CF

Members of the LMA would, on a bi-annual basis, elect the Board of Directors that would be made up of a Chairperson and Vice-chair, 5 members/trustees two of whom would be government representatives from Forestry and Parks/ Fisheries - appointed to the Board by the Minister for Agriculture. Other Board members would be nominated and selected by the membership through secret ballot and should represent the following interests- Tourism Private Sector, Conservation/Environmental Management/ Community Based Organization/ Fishermen/

The Manager of the MS/CNP would be the secretary to the Board.

The Board shall set up management committees to work with the Management and staff to plan activities and programmes relevant to each of the 4 functional areas based on the approved work plan and budget and to set up reporting and evaluation requirements for approval by the Board. The Board will designate from its own membership, 4 trustees, each to head one of the 4 functional areas and will co-opt other members of the LMA/stakeholders to form committees. Each committee will consist of a maximum of 5 persons.

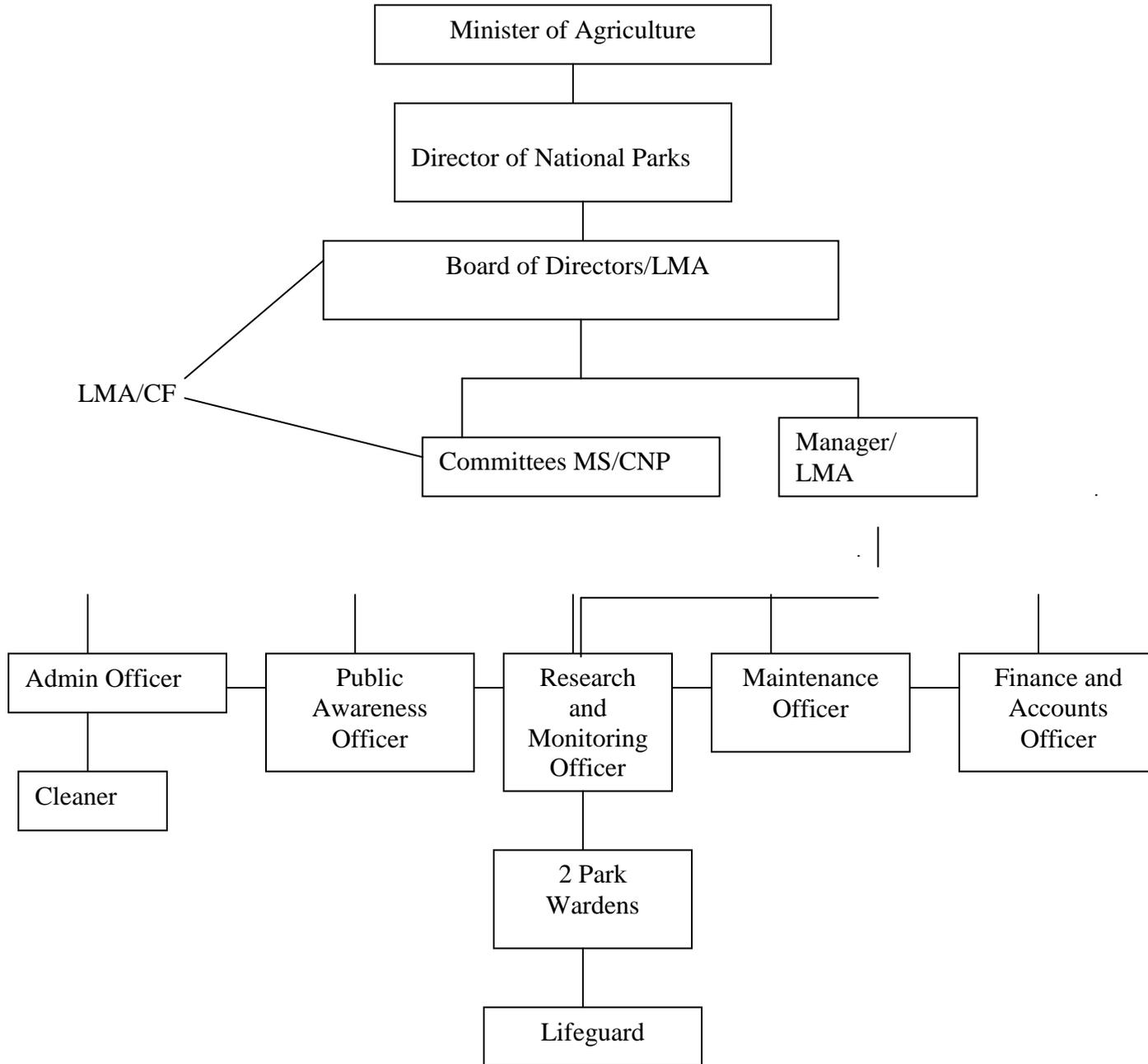
The committees will be expected to meet quarterly or as required.

The term of office of the Board will be 2 years. At the end of the two years executive officers will be eligible for re-election but will not hold a position for more than 4 years. Membership to the committees will be on an annual basis to ensure that a wide cross section of stakeholders participate in the management process.

The Board of Directors of the LMA would report to the Minister for Agriculture through the Director of National Parks who will head the Proposed National Parks Service. In the absence of this, the Board will provide reports to the designated representative of the Minister for Agriculture.

TABLE 7 - PROPOSED ORGANIZATIONAL STRUCTURE

New Organizational Structure



In terms of membership, the LMA will be expected to hold annual general meetings to report to the general membership. An annual report and audited financial statements would be presented to membership.

The Organizational Structure of the LMA would consist of 4 functional areas for effective implementation of the work plan as follows:

- Operations and Development
- Public Awareness and Education
- Scientific Research and Monitoring
- Finance

Staffing

The LMA would appoint a cadre of staff to implement the approved management plan as follows:

- A manager, who would be responsible to the Board for the administration and implementation of the management plan, finance and fund raising. Individual with Masters degree level in marine biology, oceanography, business administration, Natural resource management or environmental management
- A Research Officer responsible for research and monitoring, licensing and enforcement
- An Education and Public Awareness Officer responsible for implementing the marketing, education, public awareness and communications programme outlined

- Accountant/ Financial Officer responsible for accounting, finance
- A Maintenance Officer responsible for maintenance
- 2 park wardens- to undertake monitoring and enforcement.
- Administrative Officer/Secretary- responsible for general administration, office procedures etc.
- Cleaner
- Boat Captain- to manage and operate the marine boat for parks operations
- Life guards (2)

Once the park is established there may be need to recruit additional staff

It is expected that wardens will be recruited from the adjacent communities. There is also an opportunity to provide alternative livelihood opportunities for fishermen and/or other persons. (Boat captain, wardens, field assistant). The use of volunteer assistant wardens from the community should be encouraged. There is also an opportunity to use fishermen boats on a lease basis.

Rules of Procedures of LMA/CF

The management, organizational and functional structures of LMA/CF will be set up in accordance with the recommendations of the approved management plan.

The management rules and procedures should be developed in consultation with the Board and stakeholders to ensure wide participation, input and consensus building. Procedures will be incorporated in the articles of Association to be facilitated by a legal expert in collaboration with the Board and the relevant stakeholders and should address the following:

Membership

- Criteria for Membership
- Membership Application and confirmation
- Voting rights of members
- Voting rules
- Election of officers
- Quorum

Meetings

- Criteria for regular and special meetings
- Notification of meetings
- Record of meetings
- The role of the President, Vice-President, Secretary, Treasurer
- Dates and conduct of Annual General Meeting, AGM

Others

- Dates of AGM and the financial year of LMA
- Auditing of accounts
- Approval of Budgets
- Amendments of rules

10 . MONITORING AND EVALUATION

Objective

The main objective for evaluation of protected areas as specified by the IUCN is “To improve conservation and management effectiveness of protected areas – both for individual protected sites and protected area systems.

The findings of evaluation can be used to help managers improve on-going management of protected areas through adaptive management; to influence policy to improve protected area systems and management arrangements; and to provide accountability to, and raise awareness of, civil society.

This is an important management tool critical to decision–making. It provides feed-back in identifying whether the plan is being implemented effectively and the objectives are being met; it provides information on the impacts of management to allow for revision and review of the management actions in order to adapt and improve on the implementation of management plans and procedures.

In recommending a M&E process the OECS Management Effectiveness tool will be utilized for this purpose –Refer to Appendix for ME Tool

Activities

The Park Manager will initiate the evaluation process and will involve the Board of Directors, the members of the LMA other fishers, the Forestry and National Park and the Fisheries Division. However, baseline information must be collated, interpreted and made available to relevant stakeholders.

The evaluation process will include the participation of all stakeholders in the monitoring and evaluation programme using the framework above. For examples Dive operators should be monitoring corals and abundance of marine fauna. The fishermen would be expected to evaluate the same including fish catch fish size, reefs etc.

Evaluation of the achievements or outcome of the past year will be undertaken. Based on the outcome a revised strategy will be developed taking into account recommendation from all stakeholders and management.

It is recommended that an annual evaluation of the plan is undertaken by management staff and stakeholders. The services of an independent external assessor are recommended for evaluation of the 5-year plan, towards the end of the fifth year.

11. DISASTER MANAGEMENT

Objective: to put in place an effective disaster management plan to ensure the safety and security of staff, equipment and other resources.

Activity

- Develop a disaster management plan
- Put in place a disaster management committee
- Ensure the development of physical facilities to secure marine equipment-boats, vehicles etc.

Implementation

This should be implemented within the first year of the establishment of the Park followed by continuous planning and management

Personnel- Management and staff and stakeholders make up the disaster management committee / Director/Disaster Management Unit /Fisheries

12. ZONING PLAN

Zoning, as applied to national parks, entails the subdivision of the resource area into specific use allocation zones. This is achieved through reduction or

prohibition of consumptive activities and minimization of user conflict in particular areas in order to restore the biological integrity of the resource.

There are various use allocations pertinent to marine reserves as follows:

- Habitat restoration
- Diving
- Fishing
- Research areas/nature study
- Protection of breeding areas
- Water sports / anchorages

An effective zoning will depend on the status of the biological resources of the area, the social and economic importance of the area to communities (livelihood issues) and the country in general and the general appreciation of the issues of conservation by the users. The MS/CNP has never been physically zoned.

Proposed Zoning Plan and Justification

A zoning plan for the MS/CNP was proposed by Clark *et al.* (1996) and recommended by Tom Vant Hof in 1998. This plan recommended two types of zones as follows:

- A restoration and nursery zones
- A conservation zone.

Based on the review of the available scientific data, results of a rapid reef survey undertaken, and meetings with fishermen and stakeholders, recommendations are being made for the establishment of 4 zones as follows:

- A “no take” or nursery zone
- A recreation zone
- A Fishing Priority Zone
- Turtle Preservation Zone

Justification

“No take” or Nursery zone

The primary purpose of a nursery zone or “no take” is to protect the natural spawning and nursery areas and provide an undisturbed habitat/residence area for genetic protection and replenishment of marine species- reef biology,

especially reef fish and seagrass beds. This will be a “no take” zone that will allow for the restoration of degraded ecosystems and for the replenishment of fish populations.

The secondary purpose is further research and development planning and to provide a controlled environment against which to monitor changes in the ecosystem. No extractive uses of any kind, or anchoring will be permitted.

The recreation zone will be established to provide for sustainable, non-extractive multiple-use of the resources of the area so as to sustain existing livelihood opportunities like snorkeling, diving, yachting and boating, to ensure that the recreational value of the area for users is not compromised and to minimize user conflict.

This area will include all waters within the CNP boundaries not included in the nursery and fishing priority zone. There is insufficient scientific data at this time to demarcate this zone.

The Fishing Priority Zone will be established to sustain the livelihood opportunities of the main users of the resource, the fishers and to ensure that user conflict is minimized. This open fishing zone will allow sustainable fishing practices and will serve as a benchmark for assessing the impact of zoning on the marine biological resources

There was insufficient in-depth scientific research to demarcate the fishing priority zone from the recreation zone. As such, further research and discussion with the FDD and the fishers are recommended for further demarcation of these zones.

Turtle Preservation Zone

To protect the integrity of beaches to encourage continued nesting of turtles. Toucarie and Douglas Bays, traditionally nesting sites for turtles will be declared as turtle preservation areas. Discussions with fishermen and the community indicate that in spite of the present stony nature of the beach the turtles continue to nest there.

While there are measures in place at the national level to protect turtles (Ninth Schedule of the Forestry & Wildlife Act, 1976) and (Fisheries Act 1987, Part 111 section 22), it is important that the nesting areas for endangered turtles within the boundaries of the MS/CNP are protected.

Regulations governing access, lighting levels and infrastructural development will be developed to ensure the protection of the turtles while preserving the public's right to use of the beach.

However, more in-depth research and input of fishers are required for more accurate designation of the proposed zones.

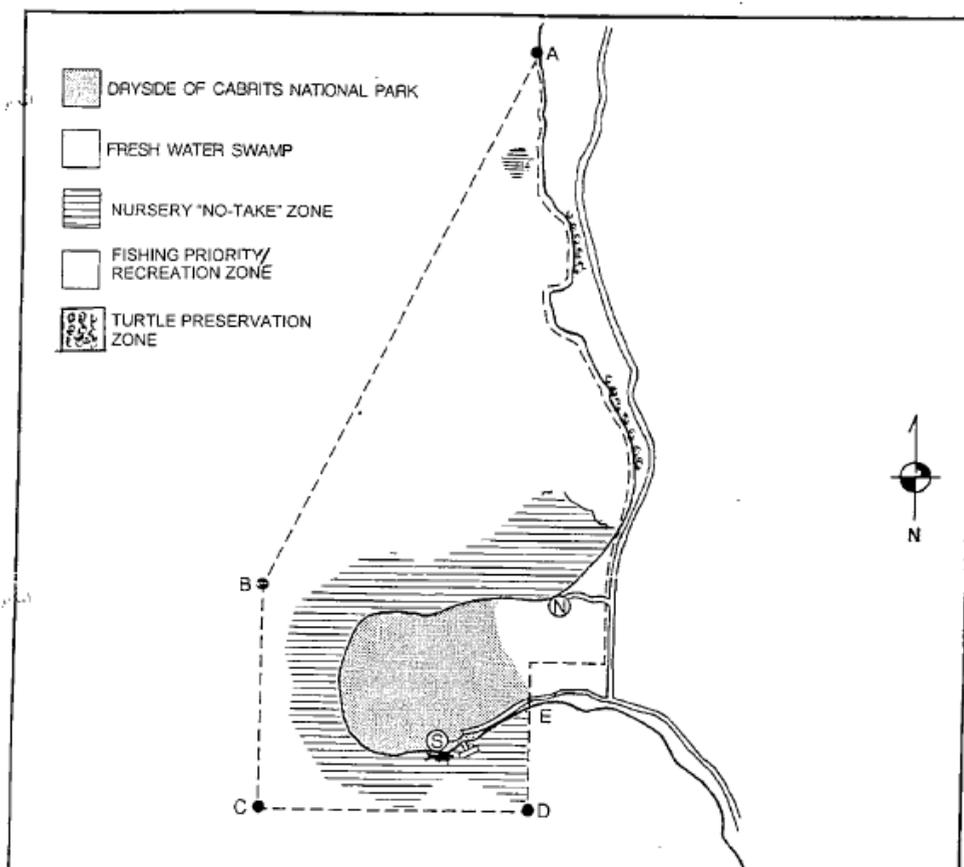


Figure 7 - Proposed Zoning Plan- 4 Recommended Zones

13. KEY INFORMATION AND DATA GAPS

There are some constraints with respect to the development of this plan specifically data information. As such, various aspects of this plan must be reviewed as information becomes available. Some of the major areas were as follows.

Standard Biological data /marine biology of the Park were outdated (1996). For most of the scientific data used, the research was carried out over a very short period of time. As such, the level of accuracy with respect to the status of these resources is questionable.

A biological survey was carried out as part of this process. However, this can be described as a rapid assessment. As such, it is necessary to continue undertaking research over a period of time so as to analyze all the factors affecting the biology of the marine environment of the park.

The following represent areas with data gaps.

- Fish Density and Diversity
- Updated Surveys/ studies on corals and sea grass beds
- Coral destruction/disease and coral growth.
- Benthic surveys and maps
- Macro algal distribution and Abundance,
- Water quality
- Water Nutrient Levels
- Sedimentation Rates
- Oceanographic information-currents/ wind, bathymetry and other physical factors.

Community Resource use information

- Statistical data on cruise ships, yachts utilizing the marine area
- Dive operation statistics
- Tourism trends in the Portsmouth area
- Gender issues

14. MANAGEMENT PLAN REVIEW PROCESS

The management plan will operate for five years. The plan will be reviewed one year before expiry.

The review of the plan will be undertaken by management and stakeholders. Monitoring and evaluation assessment carried out on an annual basis will form part of the review process and will guide the formulation and drafting of the new

plan. An external evaluator should be recruited by the end of year 4 to review the effectiveness of the Programme

15. INTERIM MANAGEMENT STRATEGY – 1ST. 6 MONTHS

The following is proposed as an interim management strategy for start up of operations bearing in mind that the level of financing proposed will not be available immediately.

The Forestry and National Parks service can use its legal authority to establish a management structure for the MS/CNP under the existing management framework. This would entail the appointment of staff as recommended.

The existing Site Implementation Entity, an advisory group at the site level, set up under the OPAAL project could be re-organized to serve as the nucleus for the proposed LMA and would operate as outlined above. SIE currently represents the following stakeholders:

NNETEDC (North North-eastern Tourism and Environmental Development)

- Portsmouth Town Council
- Fisheries Development Division
- Fishermen
- Dive operators
- Community Based Organization- CALLS
- Hoteliers
- Secondary Schools e.g. Portsmouth Secondary School
- Village councils - Cottage / Toucarie and Tan Tane
-

There is need to expand the base of SIE to include representation of the following stakeholders at individual, group or business levels that are not currently represented on the list of stakeholders outlined as follows:

- Government Agencies- Port Authority, Local government/Village Council, Dominica Police Marine force/coast guard.

- Marine Interests- Dominica Watersports Operators / Association/, Local Marine training institute, tour guides.
- Private Sector interests- Tourism service providers- Hotels managers, restaurants, shops and vendors, tour guides, Yachting organizations, Investors.
- Shipping companies
- Community Interests- Fishermen organizations, village councils adjacent to the Park, Representatives of other Community based organizations and NGO's within the vicinity of the Park – Women's groups, service clubs etc.
- Historical and Conservation Societies
- Professional Organizations

The Ministry of Agriculture would provide financial support initially as is currently done.

RECOMMENDED STAFF COMPONENT

The existing management structure for the Cabrits National Park would be utilized with additional staff as follows:

- Manager of the Marine Park
- Administrative Assistant
- Park Wardens (2)
- Life guards (2)
- Voluntary community wardens
- Use of fishermen's boat and fishers for patrol and enforcement (contractual arrangement)

PROPOSED WORK PROGRAMME

Priority Activities for the first 6 months would focus on the development of the management structure to include the following:

- Put in place all recommended legal and regulatory requirements. Print all regulatory requirements for distribution
- Registration and organization of LMA
- Review and refine criteria for approval of membership to LMA/CF
- Review, refine and agree upon rules and procedures for meetings and decision-making
- Develop operations and procedures manual for LMA
- Expansion of the SIE membership as recommended for the LMA/ Cabrits Foundation,(CF) to function as the LMA/CF
- Appoint the Board of LMA/ CF
- Appoint committee managers
- Establish User fee system
- Establish visitor access points for snorkeling and swimming west of the Interpretive centre and at Douglas Bay on the north side
- Public awareness & Education

The Management committee would meet with the Manager of the MS/CNP to plan the work programme, targets and reporting requirements based on staff complement and budgetary requirements as outline above.

CORE INFRASTRUCTURE AND EQUIPMENT NEEDS ARE AS FOLLOWS:

The Marine Park Administration will require the following:

- Office (can be secured at the Cabrits Cruise ship berth or alternate building)
- 1Vehicle
- Boat (1)
- Engines (1)
- Safety equipment-
- Anchor, rope, fenders, life jackets etc
- Marine VHF radio plus base station
- Truck
- Dive equipment
- Underwater camera/video
- Office equipment and furniture
- Computer software and hardware

WORK PLAN 2007- 2011

Programmes	Activities	2007	2008	2009	2010	2011	Person Responsible	Collaboration
Programme 1- Conservation- 1A. Natural Resource Protection	Amend the NPPAA and develop and enact relevant regulations	√					Park Manager	Ministry of Legal Affairs/FDD/ Physical Planning
Legal and Regulatory Programme	Amend and repeal relevant sections of the Fisheries Act	√						
	Develop and ratify all pertinent regulation	√						
Demarcation of boundaries and Installation of boundary markers	Inventory and Installation of boundary markers	√					Park Manager/ Contractual/ Research Officer	FDD/ National Parks Service
	Implement Boundary Marking Program	√						
	Develop Marker Maintenance Program	√	√	√	√	√		
Development of Zoning plan	Inventory of resources and development of Zoning strategy	√					Park manager/Research Officer/ Technical assistance	Dive Operators/ Fishers/ FDD
	Implement Zoning Marking Program	√						
	Develop Maintenance Program	√	√	√	√	√	Research officer	Users of the Park
Installation of mooring buoys	Inventory and Installation of buoys	√					Research officer/contractual	FDD/ Users of the Park
	Implement Mooring Buoy Program	√						
	Develop Mooring Buoy Maintenance Program	√	√	√	√	√		
Development of		√					Park	Min. of Legal

surveillance and enforcement mechanism	Establish protocol for enforcement procedures and developing standard operating procedures, SOP						Manager/Research and enforcement/ Public Awareness Officer	affairs/Coast Guard/ fishers
	Undertake surveillance and enforcement	√	√	√	√	√	Research and enforcement officers	
Sub-Programme 1B.Natural Resource Management	Establish and equip offices	√						
	Recruit staff	√					LMA Board/ Manager	
	Demarcate specific access points for users of the resource	√					Manager	FDD/ National Park/ Park Users
	Develop an effective maintenance management programme	√	√				Manager/Technical staff	Park Users/ FDD
	Develop standard operating procedures and develop best practices with respect to park operations and programmes- fines and violations,	√	√				"	
	Training of licensing and enforcement personnel	√					Research and enforcement/ Public Awareness Officer	Dominica coast guard/ FDD/ N Parks
Sub-Programme 1 C. Scientific Research & monitoring	To undertake baseline assessment of the resources of the MS/CNP in collaboration with the and other technical persons	√	√	√			Technical Assistance/ Research officer	Fisheries Division, Fishers, other resource users
	Develop a database of information that is scientific, manageable and user friendly.	√					Research officer	FDD /Research institutions
	Design a participatory monitoring system for the MS/CNP	√	√				Manager/ Research Officer/	FDD/ Fishers/ Research Institutions
	Monitoring of point and non-point sources of pollution.	√	√	√	√	√	Research Officer	FDD/ Physical Planning, Environmental Health Dept. Park Users
Programme	Activities	2007	2008	2009	2010	2011	Person Responsible	Collaboration
Programme 2-Education and Outreach	Design and prepare education and public awareness programmes	√	√				Public Awareness officer	Forestry Division/FDD/ Stakeholders

1B. Communication/ Education/ Outreach	Prepare Marketing and promotional Materials	√	√					
	Upgrade and develop interpretive centre	√	√	√	√		Public Awareness Officer/ research officer	National parks
Programme 2B- Livelihood Development	Provide the technical and financial resources to fishermen for accessing soft credit to assist them in enhancing livelihood opportunities						Manager/Technical Assistance	Financial Institutions / Village Councils / FDD
	Establish a register of small businesses	√	√	√	√	√		
	Enhance the capacity of fishers to undertake deep sea fishing and work with the FDD to facilitate deep sea fishing	√	√	√	√		Public Awareness Officer Technical Assistance	FDD/Village councils/
Programme 3- Administration and Finance Programme 3A. Administration	Develop criteria for membership to LMA	√						Stakeholders
	Develop and establish rules of procedure for the operations of the LMA	√					Board of Directors/LMA	
	Register the LMA either as an NGO or a cooperative	√					Board of Directors/LMA	
	Implement approved management plan.	√	√	√	√	√	Staff	Board of Directors Management committees
	Manage and supervise staff	√	√	√	√	√	Manager/ Board of Directors	
	Monitor and evaluate plan	√	√	√	√	√	Manager/ staff/ committee members	BOD/ stakeholders
	Develop a disaster management Plan						Manager/ BOD	Disaster Preparedness office/ stakeholder
Programme 3B.Finance	Prepare and approve budget Seek Project funding	√	√	√	√	√	Manager/finance officer	BOD/
	Establish and approve user fee system and collect user fees	√	√	√	√	√	Manager/finance officer	BOD/ stakeholders
	Develop accounting system	√					Manager/finance officer	BOD/
	Develop Merchandise for sale	√	√	√			Manager/finance officer/ PR Officer	BOD/ stakeholders
	Undertake annual audits of the accounts of the MS/CNP	√	√	√	√	√	Finance officer/ Accounting firm	BOD/

Programme 3.C Training	Implement training programme developed for Dominica under OPAAI	√	√	√	√	√	Public Awareness & training officer/ Technical Assistance	FDD/ Dominica State College/ N/Parks

16. FINANCIAL MANAGEMENT FRAMEWORK

FINANCIAL RESOURCES

Financial resources are required for administration, development and operations of the proposed MS/CNP. Regulations have been developed for charging of user fees within the park and this is operational within the terrestrial section of the Park. Similar arrangement can be put in place with respect to a range of fees applicable to the MS/CNP.

Financial resources for the park can be obtained from a variety of sources including the following:

- An annual subvention from government through the Ministry of Agriculture.
- Medium to short term funding from international institutions especially for conservation management and research programmes are available.
- Development of a Marine Park Fund- 50% of the environmental head tax charged to cruise ship passenger from cruise ships berthed in the Cabrits could be directed towards the Marine Park fund
- Revenue generated from sale of paraphernalia, concessions, donations and in-kind services and park literature.
- The development of a comprehensive User fees system as follows-

Diver fees- all dive shops using the mooring facilities of the park will be expected to pay fees. There are at present 20 mooring buoys. Additional mooring buoys will be installed based on the proposed survey of the area.

Fishing licenses- Persons wanting to do sports fishing would be expected to pay for a fishing license. Fishermen would not be expected to pay fishing licenses

Research Fees

Institutions undertaking any kind of research will be expected to pay research fees based on the requirement for obtaining a research permit.

Establishment and Collection of User Fees

Fees paid by users of the resource. Establishment of user fees must be ratified by government and officially published in the Gazette. The user fees presently established by the SSMR will be adopted here as follows:

Activity	Charge rate	(E.C. \$)	(U.S.\$)
Scuba Diving	Per individual dive or.	5.00 per tank used	20/month
	Per individual/month	50/ month	10/month
	Members of the Dominica Water sports association	25/annum	10/annum
	Non-members of the DWA, or affiliate associations, but residents of Dominica	50 per/annum	20/annum
Snorkeling	A daily entry fee of	5.00 per individual	2.00 per individual
Kayaking	A daily entry fee of	5.00 per individual	2.00 per individual
Whale & dolphin watching	Per Tour	5.00 per individual	2.00 per individual
Yachting			
Water sports Business	For Registration and operation	300 per annum	120 per annum

**Cabrits Marine Park Budget
Boundary Marking**

OUTPUT 1.1 : Boundary Marking Program

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Sub-Total
Inventory of area						
Contractual Implement Boundary Marking Program	10,000	-	-	-	-	10,000
Personnel	-	-	-	-	-	-
Equipment	20,000	-	-	-	-	20,000
Project Supplies Develop Marker Maintenance Program	35,750	-	-	-	-	35,750
Personnel	-	-	-	-	-	-
Project Supplies	-	7,150	7,150	7,150	7,150	28,600
OUTPUT 1.2 : TOTALS	65,750	7,150	7,150	7,150	7,150	94,350

Zoning

OUTPUT 2.1 : Resource Zoning Marking Program

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Subtotal
Inventory						
Contractual Implement Zoning Marking Program	10,000	-	-	-	-	10,000
Personnel	-	-	-	-	-	-
Equipment	-	-	-	-	-	-
Project Supplies Develop Maintenance Program	40,500	-	-	-	-	40,500
Personnel	-	-	-	-	-	-
Project Supplies	-	8,100	8,100	8,100	8,100	32,400
OUTPUT 2.1 TOTALS	50,500	8,100	8,100	8,100	8,100	82,900

Mooring Buoys

OUTPUT 3.1 Mooring Buoy Program

Description	Year 1	Year 2	Year 3	Year 4	Year 5	SubTotal
Inventory						
Contractual	10,000	-	-	-	-	10,000
Implement Mooring Buoy Program						
Personnel	-	-	-	-	-	-
Equipment	-	-	-	-	-	-
Project Supplies	40,500	13,500	13,500	-	-	67,500
Develop Mooring Buoy Maintenance Program						
Personnel	-	-	-	-	-	-
Project Supplies	-	8,100	10,800	13,500	13,500	45,900
OUTPUT 3.1 TOTALS	50,500	21,600	24,300	13,500	13,500	123,400

Regulations

OUTPUT 4.1 : Regulations

Description	Year 1	Year 2	Year 3	Year 4	Year 5	SubTotal
Develop recreation, Boating, Fishing, etc Regulations						
Contractual	5,000	-	-	-	-	5,000
OUTPUT 4.1 TOTALS	5,000	-	-	-	-	5,000

Park Administration

OUTPUT 5.1 : Administration

Description	Year 1	Year 2	Year 3	Year 4	Year 5	SubTotal
Marine Park Office						
Personnel	172,800	179,716	186,981	194,392	202,148	936,037
Office Furniture & Equipment	50,000	-	-	10,000	-	60,000
Office Supplies	10,000	10,000	10,000	10,000	10,000	50,000
Equipment	98,000	-	-	-	-	98,000
Other Operating Expenses Housing (Construction of office building)	18,000	18,900	19,800	20,800	21,800	99,300
	250,000	-	-	-	-	250,000
OUTPUT 5.1 TOTALS	598,800	208,616	216,781	235,192	233,948	1,493,337

Surveillance & Enforcement

OUTPUT 6.1 : Surveillance & Enforcement

Description	Year 1	Year 2	Year 3	Year 4	Year 5	SubTotal
Hire & Train Enforcement Officers						
Personnel	134,800	140,200	145,800	151,700	157,700	730,200
Training	10,000	-	-	-	-	10,000
Equipment	198,500	-	-	-	-	198,500
Equipment Maintenance	-	8,000	12,000	16,000	20,000	56,000
Project Supplies	36,000	37,800	39,700	41,700	43,800	199,000
OUTPUT 6.1 TOTALS	379,300	186,000	197,500	209,400	221,500	1,193,700

Research & Monitoring

OUTPUT 7.1 : Biological, Resource Use, Activity Monitoring

Description	Year 1	Year 2	Year 3	Year 4	Year 5	SubTotal
Personnel	51,300	53,400	55,500	57,700	60,000	277,900
Office Furniture & Equipment	20,000	-	-	5,000	-	25,000
Office Supplies	12,000	12,600	13,200	13,900	14,600	66,300
OUTPUT 7.1 TOTALS	83,300	66,000	68,700	76,600	74,600	369,200

Education & Public Awareness

OUTPUT 8.1: Community Involvement/ Community Program

Description	Year 1	Year 2	Year 3	Year 4	Year 5	SubTotal
Personnel	38,500	40,000	41,700	43,300	45,100	208,600
Office Furniture & Equipment	20,000	-	-	5,000	-	25,000
Office Supplies	12,000	12,600	13,200	13,900	14,600	66,300
Special Events	30,000	30,000	33,000	33,000	36,000	162,000
OUTPUT 8.1 TOTALS	100,500	82,600	87,900	95,200	95,700	461,900

SUMMARY

Summary by budget category

Budget Category	Year 1	Year 2	Year 3	Year 4	Year 5	SubTotal
Personnel	397,400	413,316	429,981	447,092	464,948	2,152,737
Training	10,000	-	-	-	-	10,000
Office Construction	250,000	-	-	-	-	250,000
Equipment	316,500	-	-	-	-	316,500
Equipment Maintenance	-	8,000	12,000	16,000	20,000	56,000
Project Supplies	152,750	74,650	79,250	70,450	72,550	449,650
Office Furniture & Equipment	90,000	-	-	20,000	-	110,000
Office Supplies	34,000	35,200	36,400	37,800	39,200	182,600
Contractual	35,000	-	-	-	-	35,000
Special Events	30,000	30,000	33,000	33,000	36,000	162,000
Other Operating Expenses	18,000	18,900	19,800	20,800	21,800	99,300
BUDGET CATEGORY TOTALS	1,333,650	580,066	610,431	645,142	654,498	3,823,787

CABRITS MARINE PARK BUDGET

NOTES AND ASSUMPTIONS

Boundary Marking

Inventory and installation of boundary markers

A contractual amount of \$10,000 has been estimated for this activity. This will involve identifying the park's boundaries and will include the development of a GIS database of marker locations.

Personnel

Costs are based on the assumption that there is one full time maintenance staff with an annual salary of \$32,100 (including Employer Social Security contribution). Part of this individual's duties will be implementing and maintaining the markers. A 4% annual increase has been budgeted – **(Included in Park Administration budget)**.

Equipment

A boat with outboard engine at estimated cost of \$20,000 has been allocated for this activity. This will also be used in Zoning, and Mooring Buoy programs.

Project Supplies

It is estimated that 25 boundary markers will be required at a cost of US\$500 per marker. It is also estimated that 20 beach signs at \$100 per sign will be required. An amount of 20% of original cost has been provided for annually for repair and maintenance costs.

Resource Zoning Marking

Inventory and zone marking

A contractual amount of \$10,000 has been allocated for this activity. This will involve identifying zoning boundaries within the park and will include the development of a database of marker locations.

Personnel & Equipment

As per boundary marking.

Project Supplies

It is estimated that 30 zoning markers will be required at a cost of US\$500 per marker. An amount of 20% of original cost has been provided for annually for repair and maintenance costs.

Mooring Buoys
Inventory and installation of buoys

A contractual amount of \$10,000 has been allocated for this activity. This will involve identifying areas within the park requiring mooring buoys. This will also include the development of a GIS database of buoy locations.

Personnel & Equipment
As per Boundary Marking.

Project Supplies
It is estimated that 30 mooring buoys will be required at a cost of US\$500 per buoy. In Year 2 and Year 3, an additional 10 buoys per year will be added. An amount of 20% of original cost is budgeted for repairs and maintenance.

Regulations
A contractual amount of \$5,000 has been budgeted for this activity. This will involve reviewing and developing regulations for use of the park.

Park Administration
Personnel

It is estimated that the administration of the Marine Park office will require 4 staff positions plus 1 maintenance staff for maintaining park signs, boundary markers and buoys:-

Park Director	- \$64,100 annual salary
Admin. Asst.	- \$38,500 annual salary
Office Clerk	- \$32,100 annual salary
Cleaner	- \$ 6,000 annual salary
Maintenance Staff(1)	- <u>\$32,100</u> annual salary
TOTAL	<u>\$172,800</u>

Salary includes Employer Social Security payments. A 4% annual salary increase is also budgeted.

Office Furniture & Equipment/ Office Supplies
These are estimated costs.

Equipment
Estimated cost of duty-paid new double cab 4WD pickup (including insurance) - \$81,000. Dive equipment - \$6,000. Underwater camera & equipment - \$11,000.

Housing costs

An amount of \$250,000 is provided for construction of a concrete structure to house Marine Park offices.

Surveillance & Enforcement

Personnel

It is estimated that this activity will require 4 officers with 1 in a supervisory/patrol boat captain role, and another as a Life Guard.

Supervisor - \$38,500 annual salary (including Employer Social Security)

Officers(3) –\$96,300 annual salary (including Employer Social Security)

Annual salary increase of 4% is budgeted.

Equipment

This activity will require a patrol boat, a vehicle and enforcement gear. Estimated costs are:-

Patrol Boat	- \$100,000
Vehicle	- 81,000
Marine VHF & Safety gear	- <u>17,500</u>
	<u>\$198,500</u>

Project Supplies

This represents estimated cost of fuel and other operating expenses for boat and vehicle.

Research & Monitoring

Personnel

It is estimated that this activity will require the hiring of a Field Biologist whose annual salary has been budgeted at \$51,300 per annum.

Annual salary increase of 4% is budgeted.

Education & Public Awareness

Personnel

It is estimated that this activity will require an Education and Outreach Coordinator whose annual salary has been budgeted at \$38,500 per annum.

Annual salary increase of 4% is budgeted.

Special Events

To raise Park awareness and to generate a sense of ownership for the resources of the Park, amounts have been provided on an annual basis to fund such events.

APPENDIX 1 – DETAILED DESCRIPTION OF THE MARINE PARK

RESOURCE DESCRIPTION

PHYSICAL FEATURES

Dominica has a 153 km coastline that adjoins to 715 sq. km coastal shelf. The Dominica Environmental Profile, 1998) states that most of the western portion of this shelf is less than 1 km wide except for the east coast in the vicinity of Marigot which broadens to approximately 5 km. The coastal plain is similarly narrow except around Portsmouth on the west coast”.

Dry scrub woodland and a freshwater swamp dominate the immediate terrestrial environment of the MS/CNP. The Cabrits swamp consists of 89 acres (35 ha) along the eastern side of the Cabrits peninsular. It is considered to be one of the most important wetlands areas of Dominica “for its assemblage of swamp plants and as an notable migration haunt/ wintering area for herons, egrets, ducks and waders” (Peter Evans, 1997)

The swamp vegetation is dominated by sedges- *Cladium jamaicensis*, *Eleocharis* species- *mutatis* and *instincta* and clumps of swamp fern- *Acrosticum aureum*. Arlington James (1985) identified at least five species of crabs on the Cabrits peninsular.

During the rainy season at least three species of crabs namely *Cardisoma guanhumi*, *Uca burgesi* and *Uca vocator* can be seen in the area feeding in the mud of these wetland areas (P. Evans and A James 1997). It is anticipated that these species have been impacted by human development activities.

The swamp is considered a watershed area with water draining from the headlands of the Cabrits and also from the lands immediately east of the peninsula. There had been no direct influx of seawater into the swamp since the area had been blocked off for development approximately 40 years ago.

The Cabrits wetland was again drained in the early 1980’s for the construction of a marina at what used to be called the Sunshine Village Hotel development in Portsmouth. The marina was never constructed but the drainage system was built. Therefore the use of the wetland as a nursery area for marine species has practically been lost.

The dry scrub woodland is considered one of the most extensive and best examples of this type of forest in Dominica. It covers the east and west Cabrits and the coastal fringe north of the Cabrits headland. It is dominated by a variety of deciduous tree species. Peter Evans indicated that this area “has one of the

highest densities of reptiles recorded anywhere in the world with an abundance of Anolis, tree lizards, ground lizards, mabouya skinks, iguanas, geckos, boa constrictor and Alsophis snakes” He also described this area as having “the most important populations of butterflies including the endemic Godman’s leaf and the endangered endemic Dominican Snout butterfly.

BEACHES AND SAND COMMUNITIES

The shifting nature and low nutrient levels of sand in general limits its biological diversity. Sand dollars, sea urchins and worms generally dominate with some species of burrowing fish, shrimps and mollusks

The main beaches, Douglas and Toucarie Bays, prior to the hurricanes of 1995 and 1996 consisted of a broad band of well-established volcanic sand beaches consisting of light grey sand and protected from surf by the headlands to the north and south and by their leeward aspect. Clarke (1996) reported “hurricane waves removed most of the sand from both beaches and deposited it in the near-shore sub-tidal area”. He noted that some of the sand had been re-deposited on the beach particularly at Toucarie Bay.

The beach at Douglas bay has deteriorated further as a result of sand-mining, impact of dumping of solid waste and wave action from coastal currents. The shoreline consists of boulders and the amenity value has been considerably reduced.

Toucarie Bay has been re-habilitated to some extent but has not regained the high amenity value prior to 1995.

The beaches are important nesting sites for the endangered hawksbill and green turtles. These turtles have been reported to nest on both beaches since the early 1980’s. Reports indicate that the turtles still nest on both beaches in spite of the loss of sand.

Continued existence of these beaches will require the maintenance of the coral reefs and sea-grass beds as well as the present patterns of currents and tides

Water Quality, Including Salinity, Turbidity and Other Important Parameters

A report prepared by Raphael Joseph, Senior Environmental Health Officer of the Department of Environmental Health states as follows: “The ENCORE project provided the most detailed assessment to date for bathing and marine waters in

Dominica. The monitoring was conducted in 1997 and looked at rivers in Cabrits Marine Park, Douglas Bay, Toucarie Bay, Purple Turtle/Lagoon, Indian River, Glanvillea, and Portsmouth area in 1997. The extent of contamination is shown in the table below for those sites where faecal coliform was monitored.

Table1: Range of Microbiological Contamination at Selected Bathing Waters 1997

Site	Range	
	Minimum FC CFU/100ml	Maximum FC CFU/100ml
Cabrits Marine Park (Rivers, Streams, and Ravines draining to coastal waters)	40	23,000
Douglas Bay	>1	47,000
Toucarie Bay	10	80,000
Purple Turtle/Lagoon	20	>8,000
Indian River	600	108,000
Glanvillea	>1	>80,000

Source: R. Joseph-“Recreational Water Quality”

NB: samples were collected from multiple located at each site.

The historical results suggest that there is significant microbiological contamination in river water discharging to the receiving coastal waters of Prince Rupert Bay and the Cabrits Marine Park. The high levels of contamination suggest untreated sewage discharges and other animal waste may possibly be present” and there was need to assess sewerage facilities for households on the beach front in Portsmouth as well as to introduce a routine monitoring program to assess the benefits of the sewage system.

Measurements of salinity, turbidity and other major pollutants were also determined through the Encore project in 197 in the following areas of the marine park.

Table 2 - Water Quality Data- Cabrits Marine Park- ENCORE PROJECT, 1997

Water Quality-Average	Toucarie Bay	Douglas Bay	Rivers, streams and ravines in ZOI	
PH	7.4	7.7	7.2	
Turbidity (NTU)	4.2	10.3	13.5	
Salinity	13.4	16.4	0.19	

0/00				
Temp C	27.5	27.8	26.7	
Phos mg/L	0.06	0.10	0.03	
Nitrate mg/L	2.74	1.82	2.28	
Fc/100/mL	30536	8698	4974	

GEOLOGY

The Cabrits are of volcanic origin of the Pleistocene age. Dominica was formed in 15 stages with the Cabrits being formed in the tenth stage as a result of eruptions centred on Morne Aux Diabes, which piled up the northern headland of Dominica less than a million years ago.

The hills were originally separated from the main island, but through the action of tides and ocean currents an isthmus of sand and coral has built up. Subsequent alluvial deposits from the land have formed a wetland with fresh and brackish waters draining into Prince Rupert's Bay. The Cabrits peninsula can thus be described as a narrow continental shelf around the headland that is typically a continuation of the mountain formation descending to a depth of over 100 feet uninterrupted. This formation continues toward the northwestern tip of the peninsula where the slopes become less steep. The substratum consists of boulders with encrusting epibiota.

The remainder of the marine expanse, approximately fifty-five (55%) percent of the MS/CNP is beyond the twenty-five (25) fathom contour.

Dominant Currents

The currents in the area circulate in a southerly direction, moving out around the Cabrits Peninsular

Tom Vant Hoff & Jiselle Allport (1998) reporting on currents and tides noted that the tidal range, except during storms rarely exceed 30 c.m. and there is no well developed inter-tidal area. However when wind driven, the normal direction is towards the northwest, which is evident in the area of the CNP. Open water current patterns are not usually the same in the near-shore areas.

During the winter months (January to April), up-welling currents, which bring nutrients from the depth to the surface, are more abundant. There is the everyday lateral wave movement resulting in long-shore sediment movement that maintains the integrity of the beach by moving sand along the shoreline. However, vertical sediment displacement is increased drastically during the

hurricane season thereby removing sand from the beach, and exposing the rocks along the foreshore.

Toucarie Bay and Belle Hall (Douglas Bay) beaches are areas where sand drifting and accretion has been evident over the last two years. This regeneration of the beach is usually a fairly rapid process and is characterized by the dynamics of the physical oceanographic processes.

Freshwater Inputs

There are a number of rivers and ravines that drain directly into the Marine Park Area and into the wider zone of influence. From the northern boundary of Lamothe Estate to the southern boundary where the swamp river drains into the coastal waters of Prince Rupert's Bay are the following rivers and estuaries:

- Lamothe River drains into the Lamothe Bay
- Cottage Ravine, Cimetiere Ravine and Toucarie River drain into Toucarie Bay
- Lechelle Ravine, Manicou River, Salt River and Belle Hall River drain into Douglas Bay
- The swamp river drains into Prince Rupert's Bay.

Other Rivers draining into the Zone of influence include the Clifton River, Lagon River, North River, The Indian River, Grand River, Picard River Lamoins River and Cario River

Climate

The area has an annual precipitation range of 70- 120 inches

The temperature of the water remains fairly constant and ranges from 25-29 degrees Celsius (Singh & Lewis, 1997)

Biological Characteristics

The major marine and coastal life zones are coral reefs – fringing and patch types, sea grass beds and sandy areas. Sandy areas are already described above.

A biological survey undertaken (Mariska et al, 1996) within the marine park indicates that there are at least 27 species of coral and 51 species of fish. Lobsters also occur in this area but have been reported to be over-fished over the years.

CORAL REEFS

Coral reefs in Dominica are not considered as true coral reefs but coral communities that have grown on rock substrates, which are located on sand bottom. Cabrits has been described by Mariska Weyerman et al (1996) as having a 'Wide coastal shelf with large expanses of coral areas'.

Generally reefs in the marine park are characterized by a predominance of boulder like structures located on sand bottom. Reef structures are can be found

on gradual slopes from depths of 3- 25 m reaching up to and exceeding depths of 30 m.

Peter Evans, 1997, reported 26 species of hard corals and 10 species of sponge identified in the area. He indicated that while there seems to be no dominance of species, boulder star and boulder brain coral tended to dominate in deeper waters with mustard hill coral in shallow waters. He observed that large sections of the up to one quarter of the surface of the reefs is covered with a high density of fleshy algae particularly Y-branched algae and encrusting fan-leaf algae whilst green grape algae though not common, tend to be prevalent in this area (Peter Evans, 1997)

Research indicated that broken and overturned coral colonies and sponges were evident in the Park as a result of the impact of repeated hurricane damage over the years especially in the Toucarie and Douglas Bays. This phenomenon has ensured that there is no dominance of specific coral species. The Institute For Tropical Marine Biology (2006) has indicated that 95% of the reefs in the Cabrits Park have showed signs of recovery.

STATUS OF CORAL REEFS

Major impact to coral reefs generally results from human induced activities, hurricanes and natural disasters and global climate change. Coral reefs grow very slowly and have very little opportunity to recover, making loss of live cover almost permanent.

A survey undertaken by Mariska Weyerman et al (1996), indicated that overall live coral was less than 25% of bottom cover and was less than 10% on most sites around the Cabrits Peninsular and Douglas Bay

They identified four reef zones as follows and provided an assessment of the reef using these reef zones:

Table 3- Reef Zones

Reef zones	
Coral pavement-CP	Shallow and relatively flat areas of unconsolidated sediment with isolated coral colonies and gorgonians
Shallow reef flats-SF	Flat or gently sloping (<40°). Reef areas less than 10m deep including

	tops of patch reefs
Deep reef flats-DF	Flat or gently sloping (<40°). Reef areas greater than 10m deep
Walls-WA	Near vertical reef surfaces (>80°)

Summary of the results of Benthic Survey -Cabrits Marine Park-1996 (Mariska et Al)

Table 4. Evidence of stress = single tick √= present; double +major impact

Site	Zone	% Live Cover			Urchins/m2	Evidence of stresses			
		Coral	Fleshy Algae	Sponge		Algal Overgrowth	Hurricane Impact	Solid Waste	Sediment
Toucarie Bay	SF	10-25	10-25	5-10	<1		√	√	√
	CP	10-25	10-25	10-25	<1		√		
	DF	25-50	10-25	25-50	<1	√	√		
Douglas Point N	SF	10-25	10-25	0-5	1	√			
	DF	25-50	10-25	5-10	1		√	√	
	WA	10-25	0-5	0-5	<1		√		
Douglas Point S	SF	5-10	0-5	0-5	1	√	√		
	DF	25-50	10-25	5-10	<1	√ √	√		
Douglas Bay	DF	5-10	25-50	5-10	0				
Cabrits North	SF	10-25	5-10	5-10	<1		√ √		
	DF	5-10	25-50	10-25	0				
Cabrits south	SF	5-10	5-10	5-10	<1		√ √	√	
	DF	5-10	25-50	20-25	≈0				

The results of the most recent rapid assessment of the biology of the reefs and discussions with Arum Madisetti (who conducted the assessment in November, 2007) indicated that the evidence of stress from hurricanes on the reefs is no longer visible. There is a reduction of algal growth and the impact of coral bleaching is not as serious.

With respect to coral bleaching the report states

"2005 was a very bad year globally for coral bleaching, several reefs in the Cabrits area were surveyed during and post bleaching event to gauge the

damage done and recovery. This was done through a small grant expressly for this purpose made by the ReefCheck foundation.

Due to Dominica’s limited continental shelf the corals along our shore are able to recover very quickly, despite being stressed by heat during the vent, the proximity to cold deep water ensures a rapid recovery. The Institute for Tropical Marine Ecology that conducts research in Dominica informed through their lectures stated that over the year of recovery the reefs around Dominica, and in the Cabrits particularly have recovered by more than 95%, they are still however in a very weakened state”. (

However, there was evidence of anchor damage, pollution from garbage, sediment and fishing pressures as shown on the table and map below

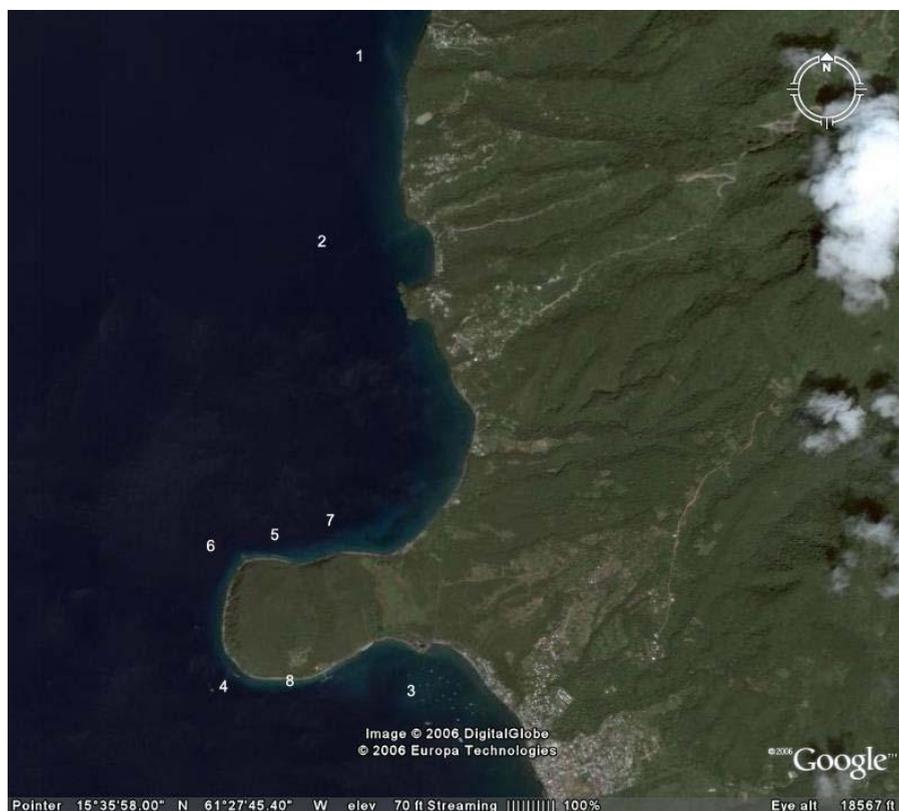
Refer to table and map below showing sites by number and the various stresses on each reef

- 1 = Low
- 2= Medium
- 3= High

Table 5- Showing Sites by number and various stresses

No.	Garbage	Sediment	Fishing pressure	Juvenile area	Conflict	Anchor Damage
1	-	2	2	-	1	-
2	1	-	-	1	1	-
3	3	-	-	-	2	3
4	-	-	1	1	2	-
5	-	-	1	-	2	-
6	-	-	-	2	1	-
7	-	-	1	1	1	-
8	-	-	1	-	2	-

Please refer to the map of surveyed areas for location.



Map and table- 5- showing recent impact on coral reefs and areas within the marine park- (Arum Madisetti 2006)

FISH-COMMUNITY STRUCTURE AND DENSITY

A Fish survey undertaken in 1996 (Mariska Weyerman et al) recorded approximately 105 species of fish. (It should be noted that this survey focused on reef fish and pelagic fish species.) There is an abundance of blue and white chromis and bicolor damselfish with other very common species of parrotfish, wrasse, mahogany snapper, squirrel fish and black-bar soldier fish.

Fish is 30% more abundant in deep water (>10m) than elsewhere. In Toucarie Bay fish tend to be more abundant in shallow than in deep waters. On average, there was 60 fish per 100 m² in deep water as compared to 39 in shallow waters

In shallow waters, fish community is very diverse with an abundance of wrasse, parrotfish and squirrelfish, as well as surgeonfish, goatfish and puffers in relatively larger numbers.

In the deeper reefs, Snappers are more abundant with grunts, squirrelfish and wrasse appearing in large numbers

Mariska Weyermen et al reported that there is a relatively small number of large reef fish of economic importance to fishermen. Of the Fish groups of Groupers, Snappers, jacks and parrotfish, the numbers of large fish more than 20cm tend to be low with an approximate density of six per 100m². Surgeons and grunts were mainly seen in the size class of 10-15 m (Weyerman et al.)-This is generally indicative of habitat degradation or a significant amount of fishing pressure/over fishing, - the latter has been confirmed by a large percentage of fishermen using the area.

SEAGRASS BEDS

The main areas of seagrass habitat lie towards the shoreline in the south and central area of Douglas Bay and in the southern half of Toucarie Bay. *Thalassia* sp. dominate. The grass is classified as a true flowering plant with the blades acting as sediment traps while the root system maintains clarity of the water. Seagrass beds play an important role as a nursery ground for juvenile fish, and lobster as well as for grazing by the turtle species that frequent the area. It also provides shelter to a variety of fishes, and the queen conch.

The seagrass bed were extensively damaged by hurricanes of 1995 through the combination of wave action tearing the sea grass free and from deposition of sand that smothered the sea grass beds. The seagrass beds have recovered since then but in the Prince Rupert's Bay area it is being destroyed by yachts dropping their anchor there.

OTHER MARINE WILDLIFE

The Traverse Group Inc, 1991 as well as Mariska et al, 1996 identified a number of marine plant life. A number of algal species Y-branch alga- *Dictyota*, a variety of encrusting fan-leaf algae,-*Lobophora variegata*, Thicket algae,-*Galaxaura* sp. and *Gracilaria* sp, were identified as well as, red filamentous algae species, and macro-algae species- the green grape algae, *Caulerpa racemosa*. Sea plumes- *Pseudopterogorgia* sp. tend to be common and giant split pore sea rod- *Plexaurella nutans*- have been observed.

Many sponges were identified – large barrel sponges, brown tube sponge and others including *Lotrochota* sp., *Angelas spectrum* *Cleona deletrix*, *Neofibularia* sp., *Verongia* sp., *Nifates*, *Haliclona* and *Xestospongia* species. Some gorgonians including *Erythropodium* sp., as well as other marine wildlife like

feather stars, brittle stars and the black sea urchin- *Diadema antillarum* and the Slipper Lobster, *Parribaeus antarcticus* among others

TURTLES

Marine Turtles- Hawksbill and Green Turtles nest annually at Toucarie, Prince Rupert's and Douglas Bays.

FORAGING AND MIGRATING MAMMALS AND SEABIRDS

Sea Birds

The marine park also serves as a breeding and feeding ground for a number of seabird species found in the area. Research undertaken by Peter Evans, 1997 indicated that the most frequently observed (April – August annually) are the Magnificent Frigate *Bird and royal terns as well as laughing gulls. Several other species of tern- common terns, roseate tern, bridled tern, noddy tern and sooty tern- have also been recorded in the summer months. The White-tailed tropic bird also has a nesting colony between Morne a Louis and Douglas Point.*

Wading birds such as spotted sandpiper, lesser yellow legs and ringed plover may be seen along the shoreline mainly during the months of August to October and March to April.

Marine Mammals

Cetaceans are the most common mammals recorded in waters around the marine Park. Between November and March, there have been recorded sightings of Humpback whales seen from the Cabrits peninsula. Sperm whales occur regularly all throughout the year but especially between November and February. Spotted dolphins and long-snouted spinner dolphins enter Douglas and Prince Rupert's Bay on frequent occasions.

Further offshore, Evans has reported sightings of short finned pilot whales, false killer whales, melon headed whales and Fraser's dolphins- this has been verified by Dr, Jones Armour of Anchorage Dive Centre.

There is a population of whales and dolphins in Dominica as follows: Sperm, Beaked, Dwarf Whales, Spinner and Spotted Dolphins. The Bottle-neck Dolphin is also "resident". Sperm whales have been observed mating in Toucarie. (Personal communication Dr Jones Armour. Anchorage Dive Centre).

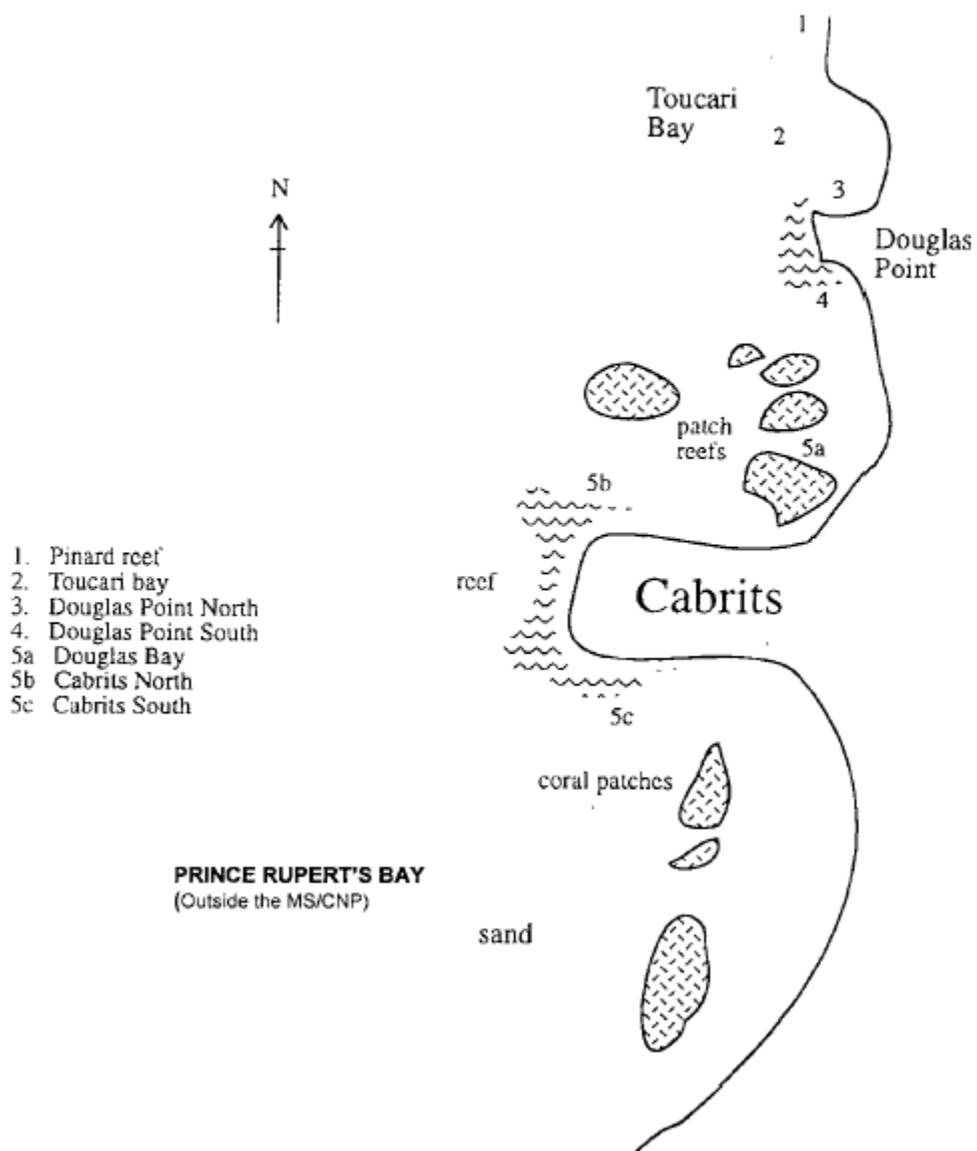
Land Mammals

The fish-eating bat, *Noctilio leporinus* is reported to forage regularly close to the coasts around Toucarie, Douglas and Prince Rupert Bays. There is also a roost of "a few thousand *Pteronotus dayvi* at Morne a Louis as reported by Evans.

Figure 1

MARINE RESERVE- CABRITS NATIONAL PARK

Site Descriptions



APPENDIX II- DETAILED SOCIO-ECONOMIC EVALUATION-MS/CNP

SOCIAL

- **Present population and settlement patterns around the Park**

The Cabrits National Park falls within the parish of St. John (Shaded area in table 4.6.1). The communities of Tanetane, Savanne Paille, Guillet, Toucarie, Cottage, Clifton and Capuchin north of the Cabrits; Lagon, Portsmouth, Glanvillea and Picard south and southeast of the Cabrits make up the parish of St. John. Of importance is the Ross Medical School with an average of 1000 students located in the Picard area-This represents a large number of potential users of the park for tourism/recreational purposes.

Table 6 Total Population of Catchment area 1991-2001 and Comparison with Other Areas*

Parishes	1991	2001
St. George	20,365	19,825
City of Roseau	15,853	14,593
Rest of St.George	4,512	5,286
St John	4,990	5,327
St. Peter	1,643	1,452
St. Joseph	6,183	5,765
St. Paul	7,495	8,397
St. Luke	1,552	1,571
St. Mark	1,943	1,907
St. Patrick	8,929	8,383
St. David	6,977	6,758
St. Andrew	11,106	10,240
Total	71,183	69,625

**Source- Caribbean Development Bank/ Government of Dominica, Country Poverty Assessment –Final Report- Vol 1 of 2*

The cab

Figure 2.3. Parish Population Growth Rates

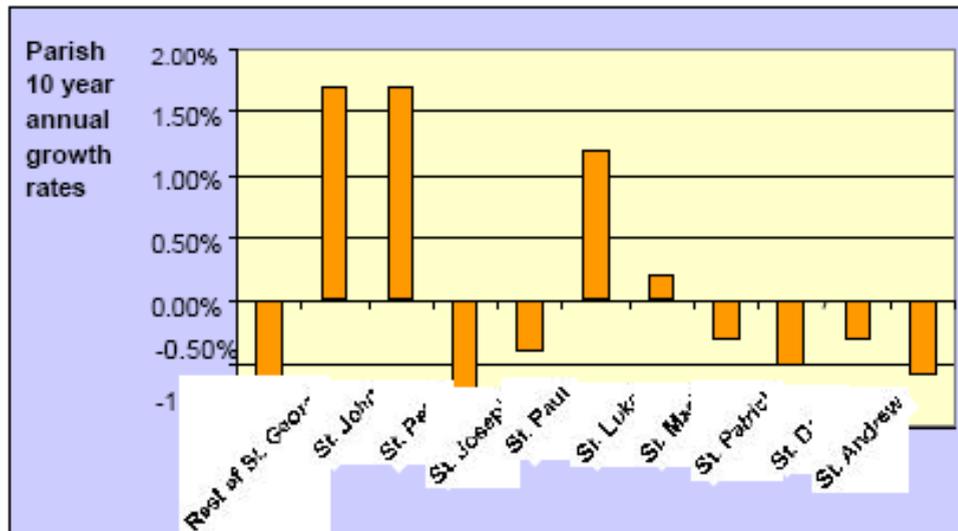


Figure.2- Parish population Growth Rate

*Source- Caribbean Development Bank/ Government of Dominica, Country Poverty Assessment –Final Report- Vol 1 of 2

- **Employment Patterns and Poverty Assessment in the Catchment Area**

Statistical data indicate a high percentage of employment in the area, mainly because of the medical school in the area and its concomitant services. Of interest is the relatively large percentage of skilled agricultural and fishery workers that indicates a high level of dependence on the marine resources.

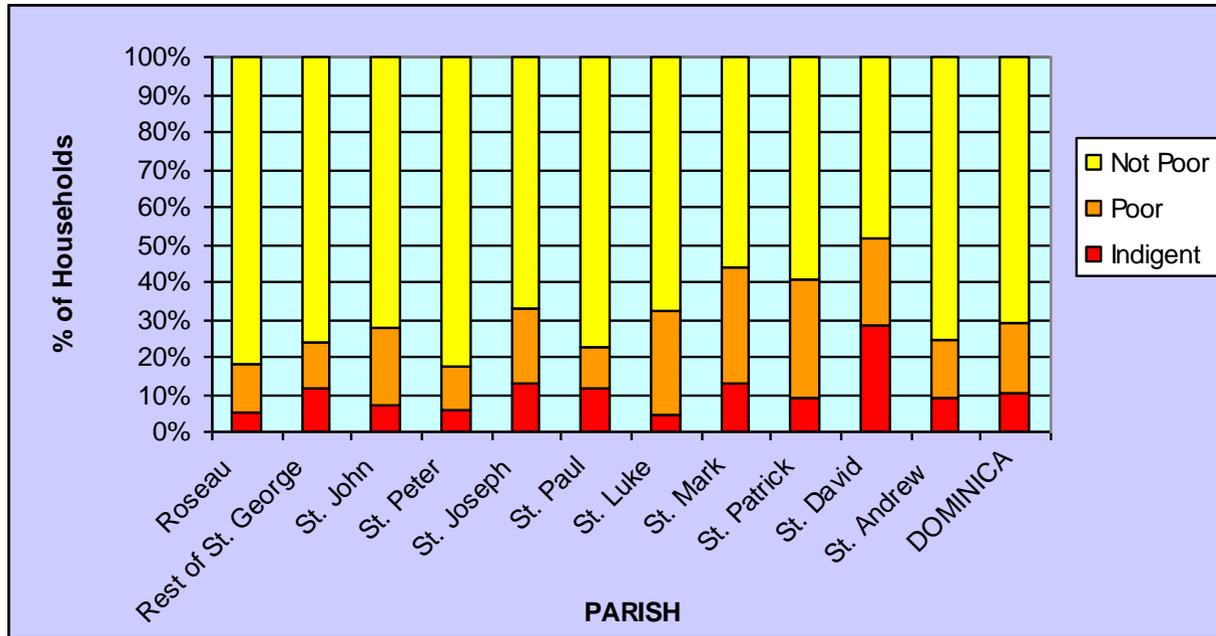
While the Cabrits catchment area seems to have a relatively high percentage of employment, the communities other than Picard, Portsmouth and to some extent Toucarie, have high levels of unemployment and underemployment. These communities make up a small percentage of the population of the catchment area and have very large pockets of poverty (Ref. Discussion with the district development Officer, Steve Joseph) hence the need to assess existing and new livelihood opportunities.

In the same vein, statistical data indicate that 37 % of the population in the St. John area has been estimated as all poor. While this may seem low in comparison to other parishes, it should be noted that the poverty spread of the population lies within the rural areas like Savanne Paille, Clifton, Glanvillea and Tan Tane areas that are closest to the marine resource.

The main economic activity in this catchment area excluding Portsmouth and Picard are fishing, construction and agriculture. In these communities, net fishing is considered a part of their culture handed down from generations. In villages like Toucarie and Cottage, construction has replaced agriculture and fishing to some extent.

Table.7 Population of employed by sex and occupational group in the Cabrits Catchment Area- Source- CDB/GOCD/Poverty Assessment Report (2003)

	Cabrits Area			All Dominica		
	Male	Fem	Total	Male	Fem	Total
Legislators, Senior officials, managers	76	93	169 (9.6%)	721	958	1,679 (6.8%)
Professionals	28	25	53 (3.0%)	499	416	915 (3.7%)
Technicians & associated professionals	94	89	183 (10.4%)	1,104	1,505	2,609 (10.5%)
Clerks	34	126	160 (9.0%)	515	1,864	2,379 (9.6%)
Service/shop/market/sales workers	136	180	316 (17.9%)	1,459	1,936	3,395 (13.7%)
Skilled agricultural & fishery workers	169	24	193 (10.9%)	3,768	658	4,426 (17.3%)
Craft and related trade workers	262	29	291 (16.6%)	3,611	548	4,159 (16.8%)
Plant & machine operators/assemblers	103	4	107 (6.1%)	1,237	75	1,312 (5.3%)
Elementary occupations	131	164	295 (16.7%)	2,077	1,845	3,922 (15.8%)
Not stated	1	0	1 (0.1%)	12	3	15 (0.1%)
TOTAL	1,034	734	1,768	15,003	9,808	24,811



Source- Caribbean Development Bank/ Government of Dominica, Country Poverty Assessment – Final Report- Vol 1 of 2

Table 3.5. Geographic Distribution of Household Poverty

PARISH	Indigent	Poor	All Poor		Not Poor	Total	% of all poor
St. George (Roseau)	5%	13%	18%	(23%)*	82%	100%	12%
Rest of St. George	11%	12%	24%	(39%)	76%	100%	6%
St. John	7%	21%	28%	(37%)	72%	100%	9%
St. Peter	6%	12%	17%	(31%)	83%	100%	1%
St. Joseph	13%	20%	33%	(44%)	67%	100%	11%
St. Paul	12%	11%	23%	(36%)	77%	100%	9%
St. Luke	4%	28%	32%	(48%)	68%	100%	3%
St. Mark	13%	31%	44%	(62%)	56%	100%	4%
St. Patrick	9%	32%	41%	(48%)	59%	100%	16%
St. David	28%	23%	52%	(67%)	48%	100%	15%
St. Andrew	9%	16%	25%	(32%)	75%	100%	12%
TOTAL	10%	18%	29%	(39%)	71%	100%	100%

* Figures in () relate to population. All other figures related to households

Source-Government of the Comm. Of Dominica Poverty Assessment Report 2003

APPENDIX III - LIST OF MARINE WILDLIFE

LIST OF CORAL FOUND IN MARINE PARK-

SCIENTIFIC NAME	COMMON NAME
<u>STONY CORALS</u>	
<i>Acropora palmata</i>	Elk horn coral
<i>Acropora ceruicornis</i>	Staghorn coral
<i>Agaricia agaricites</i>	Lettuce coral
<i>Agaricia fragilis</i>	Lettuce coral
<i>Agaricia grahamae</i>	Graham's Sheet coral
<i>Agaricia lamarkii</i>	Leaf/plate coral
<i>Colpophyllia natans</i>	Large brain coral
<i>Dendrogyra cylindrus</i>	Pillar coral
<i>Dichocoenia stokesii</i>	Large starlet coral
<i>Diploria labyrinthiformis</i>	Grooved brain coral
<i>Diploria strigosa</i>	Smooth brain coral
<i>Eusmilia fastigiata</i>	Flower coral
<i>Isophyllia multiflora</i>	Cactus coral
<i>Isophyllastrea rigida</i>	Flower coral
<i>Madracis decactis</i>	Cactus coral
<i>Madracis mirabilis</i>	Pencil coral
<i>Meandrina meandritis</i>	Butterprint brain
<i>Millepora complanata</i>	Fire coral
<i>Millepora spp.</i>	Fire coral
<i>Montastrea annularis</i>	Boulder Star coral Knobby
<i>Montastrea annularis II</i>	Boulder star coral ridged
<i>Montastrea cavernosa</i>	Large star
<i>Mussa angulosa</i>	Spiny Flower Coral
<i>Mycetophyllia danaana</i>	Lowridge cactus coral
<i>Mycetophyllia ferox</i>	Fungus
<i>Mycetophyllia aliciae</i>	Knobby cactus coral
<i>Mycetophyllia lamarckiana</i>	Ridged cactus coral
<i>Porites porites</i>	Knobed finger
<i>Porites asteroides</i>	Porus (mustard hill)
<i>Siderastrea radians</i>	Golfball
<i>Siderastrea siderea</i>	Large starlet
<i>Stephanocoenia michilini</i>	Blushing Coral Star

SOFT CORALS (Gorgonians)

Sea fans
Sea whips
Black coral
Atlantic gorgonian

POLYCHAETE WORMS

<i>Sabellastarte magnifica</i>	Feather duster worm
<i>Hermodice carunculata</i>	Fire worm
<i>Spirobranchus giganteus</i>	Christmas tree
<i>Loimia medusa</i>	Medusa
<i>Eupol ymnia crassicornis</i>	Spaghetti (thread)

SPONGES

<i>Agela s conifera</i>	Brown tube sponge
<i>Agelas spectrum</i>	
<i>Verongia gigantea</i>	Barrel Spong
<i>Cliona delitfix</i>	Red fire
<i>Haliclona</i>	
<i>Lotrochata sp.</i>	
<i>Neofibularia sp.</i>	
<i>Xestodpongis sp.</i>	

ECHINODERMS

<i>Luidia spp.</i>	Sea stars
<i>Ophiuroidea spp.</i>	Brittle
<i>Astrophyton muticatum</i>	Basket star fish
<i>Oreaster reticulatus</i>	Cushion star fish
<i>Diadema antillarum</i>	black sea urchin
<i>Tripneustes ventricosus</i>	West indian sea egg
<i>Clypeas ter subdepressus</i>	Sand dollar
<i>Holothuria mexicana</i>	Sea cucumber
<i>Eucidaris tfibuloides</i>	Pencil urchin
<i>Nemaster rubiginosa</i>	Feather stars (Crinoids)

SEA ANEMONES

Stoichactis helianthus
Condylactis gigantea
Epicystis crucifer
Via trix globulifera
Bartholomea annulata

Sun anemone
Giant Caribbean anemone
Beaded
Turtle grass
Corkscrew

SEA GRASS

Thalassia thalassia
Syringodium spp.

Turtle grass
Marine grass

ALGAE

Dictyota sp.
Galaxaura sp.
Lobophora variegata
Red filamentous algae

Y-branch algae
Thicket algae
Fan- leaf Algae

LIST OF REEF FISHES

Chaetodon spp.
Holacanthus spp.
Pomacanthus spp.
Acanthurus chirurgus
Acanthurus coeruleus
Pomacentrus spp.
Abudefduf saxatilis
Chromis spp.

Epinephelus spp.
Mycteroperca spp.
Serranus spp.
Sparisoma spp.
Scarus spp.
Rypticus spp.
Holocentrus spp.
Myripristis jacobus
Aulostomus maculatus
Fistularia spp.
Malacanthus plumieil
Sphoeroides spp.

Butterfly fishes
Angel fishes ,rock beauty
Angel fishes
Doctor fish
Blue tang
Damsel fishes
Sergeant major
Purple reef fish, brown
Blue
Groupers
Groupers
Basses
Parrotfishes
Parrotfishes
Soap fishes
Squirrelfishes
Blackbar soldierfish
Trumpetfish
Cornetfish
Sandtile fish
Puffer fishes

Mulloidichthys martinicus	Yellow goatfish
Lactophrys spp.	Trunk fishes
Gymnothorax funebris	Green moray
Gymnothorax moringa	Spotted moray
Quassiremus productus	Black spotted snake eel
Equetus punctatus	Spotted drum
Equetus lanceolatus	Jack knife fish
Balistes spp.	Trigger fishes

SOME WHALE AND DOLPHIN SPECIES

Sperm Whale	-	<i>Physeter catodon</i>
Bryde's Whale	-	<i>Balaenoptera edeni</i>
Short-finned Pilot Whale	-	<i>Globicephala macrorhynchus</i>
Cuvier's Beaked Whale	-	<i>Ziphius cavirostris</i>
Pygmy Sperm Whale	-	<i>Kogia breviceps</i>
Spotted Dolphin	-	<i>Stenella sp</i>
Spinner Dolphin	-	<i>Stenella clymene</i>
Frasers Dolphin	-	<i>Lagenodelphis hosei</i>
Bottlenose Dolphin	-	<i>Tursiops truncatus</i>

TURTLES

Green Turtle "Toti"	-	<i>Chelonia mydas</i>
Leatherback Turtle	-	<i>Dermochelys coricea</i>
Hawksbill Turtle "Do kawet/Kawet"	-	<i>Eretmochelis imbricata</i>

BATS

Fish-eating bats	-	<i>Noctilio leporinus</i>
<i>Pterontus davyi</i>		

CRABS

Soldier Crab	-	<i>Coenobita cylpeatus</i>
Kobo / White Crab	-	<i>Cardiosoma guanhumi</i>
Zagaya	-	<i>Grapsus grapsus</i>
Black crab	-	<i>Gegracinus ruricola</i>
Touloulou	-	<i>Gegracinus lateralis</i>

THREATENED SPECIES

Species	Status	Cause
White Sea Urchin	Endangered	Exact cause is not known. However, there is no fishery for this resource so some environmental factor such as water quality is suspected
Marine Turtles	Threatened	Illegal harvesting, loss of habitat and nesting grounds
Corals	Severely Threatened	Collection of coral for export, siltation due to erosion from poor land management practices, anchor damage, scuba diving
		Poor fishing practices, natural disasters.
Sea grass	Threatened	Siltation is the main cause of death of this species
Reef Fish and coastal pelagics	Threatened	Habitat destruction, poor water quality poor fishing practices along west coast of Dominica

APPENDIX IV-LIST OF BIRDS FOUND AT THE CABRITS SWAMP

Local name	Scientific name
Little Blue Heron-	Florida caerula
Great Blue Heron	Ardea herodias
Green- backed heron	Butorides striatus
Yellow Crowned Night Heron	Nycticorax violaceus
Tricolored heron (occasional)	Egreta tricolor
Cattle Egret	Bubulcus ibis
Common Egret	
Snowy egret (occasional)	Egreta thula
Glossy Ibis (occasional)	Plagadis falcinellus
Common gallinule (resident)	Gallinula chloropus
Sora rail (Resident)	
Blue-winged teal (wintering)	Anas discors
American wigeon (wintering)	Anas Americana
American redstart	Setophaga ruticilla
Prothonotary warbler	Protonotaria citrea

APPENDIX V - LIST OF ENVIRONMENTAL LAWS & RESPONSIBLE AGENCIES

International Conventions and Treaties Relevant to Marine Biodiversity

There are a number of international conventions and treaties to which Dominica is a party that are relevant to the MS/CNP- United Nations Convention on the Law of the Sea, UNCLOS, Cartagena Convention, CITES, the Cartagena Convention, ratified in 1990, the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Environment, the Convention on Biological Diversity as well as other relevant protocols like the Oil Spill Protocols.

Most of these conventions, in many cases, fall under the jurisdiction of a number of government agencies, hence the importance of inter-agency collaboration.

One such convention, United Nations Convention on the Law of the Sea, UNCLOS, ratified by Dominica in October, 1991, requires each participating country to delimit the territorial sea, contiguous zone, archipelagic waters, the continental shelf and exclusive economic zone on the basis of the prescribed principles under UNCLOS. As such the Territorial Sea, Contiguous Zone, Exclusive Economic and Fishery Zones Act of 1981 established “12, 24 and 200 nautical miles boundary for the first three zones respectively and defined the fishery zone bounded by the seaward extent of the territorial sea and exclusive economic zone” (Dominica Environmental Profile). Under this law, Dominica has an obligation to protect and preserve the marine environment and to implement measures to do so. This is a significant piece of legislation as far as protection of the marine resources.

Other conventions include the Cartagena Convention, ratified in 1990, the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Environment ratified by government in September 1990, the Convention on Biological Diversity to which Dominica became a party in April, 1994 as well as other relevant protocols like the Oil Spill Protocols.

As a result, there are specific obligations that, Dominica being a party to the convention, must fulfill. Some examples are CITES, UNCLOS, the Cartagena Convention, IMO regulations, The CARICOM Regional Fisheries Mechanism, and Harmonization of Maritime Boundaries and Fishing Zones, World Health Organization, WHO Water Quality Standards.

Environmental Law	Agency & Authority	Regulations
Physical planning Act, 2000	Physical planning and development control and the requirements for EIA's	None
Forestry & Wildlife Act, 1976,1982, 1990	Min. of Agriculture-Forestry Division-Protection of wildlife including turtles	Wildlife Regulations
Fisheries Act, 1987	Min. of Agriculture-Fisheries Development Division	
National Parks & Protected Areas Act, 1975,1986,1990	Forestry Division Establishment of national parks including marine parks and reserves	some regulations
Beach Control Act, 1966,1990	Ministry of Agriculture / Min. of Comm., Works & Housing-Beach Protection. Provides guidelines for the removal of sand and stones from the beach	Beach Control Prohibition Order
Public Health Act, 1968	Min. of Health & Social Security- Environmental Health Department Pollution Control & Water Quality and Waste Management	None
Pesticides Control Act, 1974, 1987	Min. Of Agriculture Control importation and use of pesticides	For storing, labeling
Maritime Act, 2002	Ministry of Finance	None
Port Authority Act	Min. of Comm., Telecoms and Ports	
Water & Sewage Act No.60 1997	Dominica Water & Sewage Company- to manage water and	None

	sewage in Dominica	
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Environmental Law	Agency & Authority	Regulations
Regional & International		
United Nations Convention of the Law of the Sea, UNCLOS	Rights and obligation of States, on an int'l basis, for protection and sustainable development of their marine resources	None
CITES	Ministry of Agriculture	None
IMO Regulations	Ministry of Communications Telecoms & Ports	
Cartagena Convention	Convention for the protection and development of the Marine Environment of the Wider Caribbean	
SPAW-Special protected areas of wildlife protocol		
Oil spills Protocol		

APPENDIX VI
GOVERNMENT AGENCIES AND THEIR RESPONSIBILITIES
RELATIVE TO CONSERVATION OF MARINE BIODIVERSITY

Government Agencies	Responsibility in Relation to Marine Resources
Environmental Health Dept.	Pollution control and water quality monitoring
Office of the Prime Minister	Dominica Coast Guard - Enforcement of maritime and marine environmental law.
Ministry of Legal Affairs Immigration and Labour	Formulation of legislation for the protection of coastal and marine resources as well as provide legal advice.
Ministry of Finance Industry & Planning Division Maritime Unit	Planning for coastal developments and the execution of environmental impact assessments (EIA) Administration of maritime affairs
Ministry of Communications and Works	Responsible for sand mining and removal of stones from shoreline.
Ministry of Agriculture (Fisheries Division Forestry Division	Responsible for sustainable use of marine and coastal resources. Responsible for wild life including turtles and marine birds and river systems.
National Development Corporation/ Ministry of Tourism	Tourism and Industry investment

APPENDIX VII- REPORTS ON MEETINGS WITH STAKEHOLDERS

First National Stakeholders Workshop Friday 20, October 2006

Outcome

Who are we planning for?

- The community
- Ourselves/future generation
- Youth
- Unemployment
- Visitors
- Stakeholders/resources users
- Dev. Pf our country
- Political directorate
- Physically challenged

Threats

- Overuse
- Natural disasters
- Pollution
- Foreign disease- invasive species
- Land sedimentation
- Damage to coral by anchors
- Change in government policy
- Garbage disposal/solid & liquid
- Illegal hunting & fishing
- Lack of monitoring & evaluation
- Lack of awareness
- Hotel expansion /infrastructure
- Absence of planning framework
- Zoning

Significance of Park

- Biodiversity
- Sustainability of the resources
- Global significant
- Recreational opportunities
- Social & economic
- Livelihoods
- Research /education
- Tourism

- Food security
- Employment
- To create alternative livelihoods opportunities
- To educate stakeholders & community wise use of resources
- To develop standards and certification for users of resources/ control of harvesting setting limits
- To allocate resources to new and emerging uses
- To encourage effective participation of communities

Economic

- Showcase the traditional methods of fishermen e.g. boat making /nets
- To put in place security & safety measures

User conflict

- Create management structure to encourage participation of resource users & stakeholders
- To put in place effective communication techniques
- To conduct/undertake sound research information gathering, evaluation dissemination
- Define activities zones conflict resource

Valuation

- To develop appropriate instruments for economic evaluation of resource
- To ensure overall health of eco system
 - To increase fish population
 - Capacity building
- To build the appropriate capacities for management of resources
- Building capacity and awareness of communities with respect to proper utilization of resources

Where do we want to be (goals)?

- Sustainable ecological, economics management of resources
- Economic Development of Portsmouth & communities in Dominica /economics
- Increase fish population
- Integration of uses/management of users conflicts
- Strengthening of linkages between stakeholders
- Valuation of resources
- Capacity building

Objective sustainable utilization
Capacity building

How to appropriate is our pro legislation?

- The question of language with respect to legislation should be reviewed
- Develop appropriate legislation to integrate sustainable use of the resources
- To review the definition of national parks

What is our policy?

Financial Income

- Cabrits marine park day
- Cabrits marine membership club
- Fines and penalties for misuse or breaking the law

Sustainable livelihoods

New livelihoods

- Certification of visiting divers
- Life guard system for monitoring policies

Opportunities for tourism

- Tour guiding
- Glass bottom boats
- Providing services for yachts
- Marketing of Cabrits marine park
- Activities that are easy for people to do

Group activities

Group 1

1. Education and public awareness

Design programme for schools

- Poster competition ID species
- Essay /debate –primary/secondary school
- Painting book – pre-schools
- Basic awareness –Talks, presentations, skits
- Research & Development (local/foreign)

Public Service Announcement

- Production of posters, Brochures, flyers, CD's (distribution)
- Televised programme – at all angles etc
- Involvement of media
- Town Hall meetings
- Provide links with existing websites (interactive)
- Collaborative with telecommunications institutions (text messaging)

- Planned tour of marine area (boundary)
- Involvement of faith based organizations (church)
- Carnival floats

Park interpretations

To be accomplished through the above mechanism

Inventory of the resource (physical & Biotic)

Zones plan

Roles and functions of users

Management structure of framework (clearly defined)

Group 2

Identify Resources

Separate Management Entity

- Patrol
- Resource monitoring
- Education (museum)
- Fee collection

Infrastructure

- Superintendent of Parks
- Park wardens
- Monitoring of officers
- Museum personnel (ex fisherman) fishing, marine life etc.
- Park management office
- Patrol boat and safety & security equipment
- Park demarcation equipment
- Reef & marine life monitoring equip
- Research facility & museum

Financial

- User fees (water activities, yachts)
- Museum fees
- Souvenirs
- Education & Historical seminars i.e. fishing techniques

Group 3

Identified Areas

- Fishing /stringing existing fishers cooperation
- Dive/snorkeling
- Yachting

- Tourism
- Research (ongoing)
- Zoning

New Livelihoods

- Lifeguard/training C.P.R
- Laboratory research /beach profiling
- Glass bottom boat tours
- Introduction of deep sea fishing methods/equipment
- Integrating fishing activities with fisheries complex
- Aqua culture
- Social fundraisers
- Fish processing (smoking, salting)

Name	Organization	Contact Information
Olive Douglas	CALLS	
Bethude Azille	Dominica Port Authority	445-5118
Antonia Pierre	NORTH- DOM Co-op.	277-7877
Oliver Joseph	NORTH- DOM (SIE)	445-6896 614-9160
George A. Butler	UNDP – National Parks	617-6112
Ignatius Mitchell		315-7209
Urban Irish	PTAC Sie	
Roosevelt Sabin	P.B.H&P.BCWR	445-5131
Errol	PTC	265-3244
Eric Hypolite	Forestry Wildlife & Parks Div.	forestry@cwdom.dm
Felix Leslie	Min. of Agriculture	445-5250
Helen Hepp	Cabrits Dive	445-3010
Jeff Frank	PIRTGA	245-0125
Collin Guiste	E.C.U	448-4577
Hon. Ian Douglas	Govt. of Dominica	448-3022
Nicoholls Andrew	NNETEDC	
Walter Codrington		
Vernon Daniel	Fisherman	277-5640
Josephine Labadie		
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Randolph Winston	Forestry	
Stephen Toussaint	Forestry	Forestry
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Andrew Magloire	Fisheries Division	Fishesdivision@cwdom.dm
Cyrille John	Forestry Division	forestry@cwdom.dm

Report

2nd.National Stakeholders Workshop On the Management Plan of the Marine Section of the Cabrits National Park OECS Protected Areas and Associate Livelihood Project-OPAAL

Date: Monday 18th December 2006,

Objectives of the workshop

- Stakeholders review of Document
- Presentation of the Draft Management Plan
- To solicit input from stakeholders with regards to various component of the plan in preparation of the final plan.

The workshop was attended by thirty (34) participants representing various stakeholder groups. The Hon. Reginald Austrie, Parliamentary Representative for the Cottage Constituency and Senator John Collin Mc Intyre, Minister of Agriculture Fisheries and the Environment were unable to attend because of parliamentary Proceedings at the House of Assembly. The acting Co-ordinator of the OPAAL, Mr. Cyrille John gave a brief overview of the OPAAL Project and the consultation.

Participants Input

The following are some of the comments made by participant after the Draft Management Plan were presented by Ms. Marie Jose Edwards.

- Zoning to include at Purple turtle Beach
- Important barrier reef outside Marine Park Boundary
- Reasons for lost of sand in Douglas Bay
 - Part of a normal process of erosion in and accretion
 - Sand Mining
 - Impact of Hurricanes

Stakeholder Working Group

The stakeholders were divided into three working groups as indicating below:

(1) Group 1

- Site Boundaries and the Zones
- Management Structure

(2) Group 11

- Strategies and Action Plan
- Finance the Plan

(3) Group 111

- Research, Monitoring Development and Evaluation

Results of Stakeholders Working Groups

Group 1

Site Boundaries and Use Zones

Aim: Synergistic Sustainable Development

To Reverse a Shifted Baseline

1. Boundaries should remain as Established

2. Include Corridors:- Indian River

- Purple Turtle Recreation Area
- Picard Reefs/Secret beach

3. Re-establish Nursery at Cabrits (Restore) *Critical Component

Uses

- Fishermen
- Youth Education
- Tour Guides
- Vendors
- Scuba
- Whale and Dolphin watchers
- Turtle watchers
- Bird Watchers
- Snorkels
- Cruise Ship
- Non-Motorized Water Sports
- Sea Bathers
- Regatta

Components of Unit

- Human
- Swamp Nursery
- Nursery Access
- Fish
- Sea Grass Beds
- Beaches and Sand Community
- Turtle
- Birds
- Crabs and Insect
- Corals
- Air Quality
- Nocturnal Cycle
- Marine mammals
- Land mammals
- Turtles

Factors affected:- Water Pollution

- Anchors
- Improper Techniques
- Nursery Destruction

Use Zones:

Protection of:

- Habitat Restoration
- Water Quality/Air quality
- Diving
- Light Cycle
- Fishing
- Sound quality
- Research/Natural Study
- Protection of breeding areas
- Establish Wreck
- No turtle hunting in the zone
- Recreation
- Water Sports
- Establish wrecks and Artificial Reefs

FOR MANAGEMENT STRUCTURE

OPTION 1 OR 2 PREFERABLE

Group 11

Strategy and Action Plan

1. Legal and Regulatory Framework

- Develop Management Structure (Government, statutory)
- Define Geographic Boundaries (Implementation of Regulations)
- Define Political Boundaries
- Define Regulatory Framework
- Establish means of conflict resolution
- Incorporate Pollution Policy
- Establish economic Ownership
- Establish Law Enforcement Procedures

2. Management of Resource Habitat and Species

- Establish baseline for Resource
- Undertake Socio-Economic Studies
- Detail Users List and Activities
- User Education and Development

3. Scientific Research and Monitoring

- Integral part of Management framework

- Locals are paid affiliated partners
- Directive versus exploratory research
- Dedicated monitoring projects
- Clear Strategy for data gathering storage plus management
- Information available for dissemination for educational purpose

4. Develop or Complement a long term Education Program/Awareness

- Focus on Youth in Tourism Related Programs
- Make Education Minor (child) User friendly
- Subject Areas – Conservation
 - Monitoring of resources
 - Environmental / Fishing/ Projects
 - Training of Stakeholders/ Users of C.N.P/M.S.

5. Effective Communication Strategy

- Marketing Strategy (key aspect)
- Resources (Natural, Historical)
- Education/Capacity Building
- Conservation
- Value of Money e.g. users fee

Financing Plan

1. Develop a Fund (C.M.P)

2. Money Ideas:- User Fees

- Operating Fees
- Licenses Fees
 - Logo Paraphernalia
 - CNP Activity Days
 - Private Donations
 - Membership Fees

3. Autonomy

4. Operational Funding only (Sustainability of Project)

5. Say no to Additional Agency Funding to Government (tend to lead to dependency; lack of Innovation and creativity)

Group 111

Research

1. Definition: Biodiversity – Species Richness and Abundance

Compilation and analysis of Previous Reports

Assessment of Biodiversity within each eco system or habitat type present

Assessment of condition and sources of disturbance (baseline studies, reef check, Agra, carwash)

- Qualitative, Quantitative Database – references/White and

Assessment of Users

Definition of User – Person making use of or benefiting from for pleasures, subsistence or profit of a defined Areas/Resource.

- Assessment of users: fisher persons, scuba divers, snorkelers, swimmers, yachting- quantitative
- Quantification of use- extractive an non-extractive

Monitoring

- Establishing monitoring protocols
- Monitoring frequency
- Establishing alert indices of environmental degradation, post alert, action plan implementation resources and logistics
- Disseminations of information for policy makers, general public and scientific community
- Database information centre for general public and science community

Development - Based on Research and User Input

Assessment of carrying capacity

- Near shore Fisheries /Gear/Types/Quotas near shores
- Off shore Fisheries - FAD's offshore
- Aqua-Tourism (excluding jet skis),Trails under water/ guided snorkeling tours
- Artificial reefs

- Turtle Habitat/Observations
- Research and Monitoring, EIA

National Stakeholders Workshop
OPAAL Project
Monday 18th December, 2006

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Douglas	CALLS	

Meeting with the Fishermen of Portsmouth- November, 25, 2006

Fishing Patterns of Fishermen in Portsmouth

- All of them do fishing in the Marine Park
- Fish Pots – 4
- Spear Fishing- more than 25 persons undertake this activity
- Net- Most present do net fishing
- Line Fishing –15
- Deep Sea Fishing- 2
- Full time Fishermen- 9 of those present

Fishing equipment used by fishermen

Gill nets

Net Fishing

Pot Fishing

Spear Fishing- major method of fishing used by young persons

Long line

Trolling

Status of Fisheries

- There is very little lobster and conch present due to over-fishing of these species.
- Fishermen encounter rotten fish pots that cause damage to fish /lobsters trapped
- into these pots
- Abandoned fish traps found in Douglas and Toucarie Bays
- Jacks are very rarely seen in the Cabrits marine Park
- Fishermen indicated that there is virtually no fish from the area of the Cruise ship berth to Point Rounde because of over-fishing. They recommended that this entire area should be closed to fishing to allow for restoration of the biological resources of the area

Activities affecting fish

The small mesh size of nets used for fishing

Hand line destroys a large volume of small fish

Too much spear fishing occurring in the park

Abandoned fish traps

Pollution from the “Para” River and the Lamothe River affecting the coral reefs

Anchor damage from the cruise ships destroying the corals and sea grass bed in the area within the berth.

There is an oil plume coming from Astaphan, Fond Cole all along the west coast that is affecting fisheries in the area

Recommendations from Fishermen

Reduce sedimentation coming from rivers and streams

Wire meshes should be bigger

Mesh size of nets should be bigger

No net fishing in the park or institute the use of larger mesh size of nets

Use drag net only in deep waters

Reduce the number of persons doing spear fishing in the park

Turtles

Fishermen indicate that the turtles come to Douglas, Purple Turtle, and Toucarie Bays to nest. Douglas Bay is stony and creates a problem for the turtles to bury their eggs.

The Fishermen indicated that they were willing to make some level of sacrifice to protect the area from being depleted as the adjacent area from Portsmouth to Pointe Round.

They indicated that they could accept a no- fishing zone up to a depth of 40 meters.

In terms of alternative livelihood areas identified were as follows

- Deep sea fishing
- Park Wardens and use of fishermen's boats to do surveillance and monitoring
- Banana Ride for tourism/ Boating

List of fishermen Present

Curtley Mills F

Jack Harney F

Francis Sango F

Chambo Pierre P

Andy Akie F

Lewis Benjamin F

Crispin Mitchell F

Elvius Mitchell F

Albert Clarke

Tannick Anthony F

Martin Peter F

Ossie Dumas F
Julian Mills P
Karay Panthier P
Ignatius Mitchell P
Gairy Hamilton F
Darwin Johnson Observer

APPENDIX VIII - RESEARCH AND MONITORING PRIORITIES

3 major areas will be researched and monitored as follows:

- Biological resources of the park
- Level of Resource use and resource users
- Fishing activities and fish population as well as methods of fishing

In light of the fact that there has been no management of the marine resource under review it is necessary to establish base line data. There have been various studies on the biology of the reef. However, the scientific value of these data must be reviewed since research undertaken has always been short-term. Monitoring can be undertaken in collaboration with private research organizations, the FDD, universities, dive operators and fishermen

The following is a list of research needs:

- Develop baseline data on the various zones in the park so as to provide a reference area for measuring changes in the future
- Collect fisheries data that quantify fishing trends (i.e., fishing methods, species
- caught/catch composition, amount caught, type of fishing gear used etc.) within Park boundaries
- Collate park utilization data for assessment and analysis with respect to park activities and regulations
- Collect biological data on marine habitats and marine organism to be able to assess the overall status
- Scientific survey of the oceanographic structure of the MS/CNP that will give information on the physical and biological dynamics of the area.
- Basic scientific data on the physical characteristics of the seabed, bathymetry, currents and wind data

Overall this information will provide managers and policy makers with information that will give insight into the status of the biological resource, carrying capacity or limits of acceptable change and will influence management decisions with respect to the park programmes and objectives

Proposed monitoring activities

The following monitoring programmes should be considered

- Status of coral reefs and seagrass communities
- Turtle nesting in the marine park
- Fish population and fish biology in collaboration with dive operators and fishermen
- Fishing methods used by fishermen
- The Carrying capacity /limits of acceptable change of the marine component of the park- with respect to activities- fishing, diving, yachting
- Upland impacts on the marine environment
- Current patterns and beach profiles
- Water Quality
- Monitoring frequency
- Establishing alert indices of environmental degradation, post alert, action plan implementation resources and logistics

Monitoring activities and data should be consistent and should be scientifically sound. Data analysis should be shared with other similar entities to assess trends regionally.

APPENDIX IX - PROPOSED REGULATIONS

The existing regulations prepared by Daniel Hoggarth, Scales Inc for the "Soufriere Scotts Head Marine Reserve SSMR 2002-2006 Management Plan are relevant to the requirements for the CNP/MS as follows:

Watersports

Scuba diving, snorkeling and swimming

- *Snorkeling and Scuba diving will be prohibited in the Park without a special permit issued by the Director of Parks. Snorkelers and Scuba Divers will only be allowed to enter the Park at designated entry points- (This will provide for control points and collection of fees)
- User fees will be charged to all persons who operate or engage in scuba diving, snorkeling, yachting or any authorized aquatic activity in the reserve
- *The operation of snorkeling or scuba diving tourism in the Marine Park will be restricted to local certified dive operators, members of the DWA or others permitted by the Director of Parks or his/her designee
- *Fishermen of the surrounding communities will be exempt from the snorkeling regulations inside the open fishing zone
- No fishing shall be allowed in the restoration and nursery zone.
- User fees shall be paid to the established management authority
- Operators of water sports activities in the National park must be registered with the Park and hold a valid license issued by the Director of Parks or his/her designee.
- Scuba diving activities in the Park will be subject to all diving regulations applicable in Dominica

Jet Skis and other Water Sports

- Jet skis will not be permitted in the Marine Park
- Water skiing will not be permitted in the Marine Park

Fishing

- Fishing will be prohibited in the nursery and restoration zone.
- Minimal fishing practices will be permitted in the recreational zone,
- Spear gun fishing will only be permitted in the open fishing zone
- Fish pots will only be used in the open Fishing zone
- Fishing with explosives or poison will be prohibited in the Park
- Fishing nets and fish gear used in the open fishing zone must comply with the regulated national standards set by the FDD.
- The use of trammel nets will not be permitted in the marine park

All other strategies employed to achieve a sustainable fishery should form part of the regulations for the marine park so as to manage the fishery resource in the park on a sustainable basis. These include:

- The enforcement of a ban on destructive gear (including seine nets);
- The enforcement of a ban on small mesh in nets and traps;
- The enforcement of no fishing with SCUBA or hooks²;
- The enforcement of no-take zones;
- The enforcement of closed seasons on certain species (like lobster and conch);
- The enforcement of a system of limiting new entrants into the fishery;
- The enforcement of effluent discharge standards that is friendly towards fish habitat.

Infrastructure (Buildings & Moorings)

- Conducting or erecting any buildings or other structures on or over any land or waters within the Park will be prohibited, except where required for the proper management of the Park and where special written permission is granted.
- Mooring structures used in the marine park remain the property of the government of Dominica
- Each mooring shall be marked to allow for identification of users of the moorings
- The Director of Park or designee is the only authority to manage and maintain all mooring in the Park and to make rules and guidelines to govern the usage of the moorings placed in the reserve

Boats and Yachts

- No vessels shall be moored/ anchored or taken into the MC/CNP without permission
- Mooring structures installed in the Park shall be used only by designated vessels authorized to enter or execute specific duties in the MC/CNP
- Mooring fees shall be charged to all users of the mooring structures in the Park and shall be paid to the National park authority.

- Activities that require the use of vessels /boats will be restricted to defined zones where mooring facilities are erected.
- All crafts executing scuba diving and snorkeling operations shall fly the internationally recognized flags and surface markers to indicate the said operations
- All craft operating in the marine park must adhere to boating standards set by the Dominica Water sports Association
- All vessels, other than fishing vessels so registered with the Fisheries Division, shall carry a flag of Dominica and other designated banner/sign while in the marine park
- Following appropriate warnings, the National Park authority is authorized to withdraw any permits issued to vessels that break the park regulation or act in any way contrary to the goals and objectives of the marine park

Resource Extraction and Pollution

- Disposal or dumping of solid or liquid waste, debris or pollutants from any vessel or boat or from land based sources is prohibited in the Park
- Any taking or destroying of flora or fauna is prohibited in the marine Park.

Dredging, extraction of sand or gravel, discharging or depositing waste or any other water polluting matter or disturbing or destroying the natural environment are prohibited in the Park

- Vessel operations including yachts, boats, live- aboard in terms of their use of the park for recreational purposes (using their own facilities for diving),
- Methods of dealing with boats undertaking illegal activities in the Park-towing of boats
- Fishing to include restriction of fishing gear used in the Park, and review and implementation of fishing regulations as it pertains to the park
- Pollution from boats and cruise ships requiring them to have holding tanks, and preventing discharge of unwanted substances in near shore waters
- Pollution –terrestrial pollution from upland development.
- Regulation of storm water and waste water from facilities and amenities adjacent to the park
- To prohibit coral touching from divers and snorkelers
- Special permits
- Licensing and user fees

Turtle Preservation Areas

Any infrastructural development or lighting on areas designated as turtle preservation areas will take into account minimal / no disturbance with respect to the breeding or nesting of turtles.

In recommending a M&E process the OECS Management Effectiveness tool will be utilized for this purpose

- *The appropriateness of management systems and processes*: measured by assessing the management inputs required and the processes used; and
- *The delivery of protected area objectives*: measured by identifying the outputs and outcomes of management.

APPENDIX X - EVALUATION INDICATORS

The major elements of the management process that will be evaluated are those identified by IUCN as follows:

- Where are we now? (context)
- Where do we want to be? (planning)

- What do we need? (input)
- How do we go about it? (process)
- What were the results? (outputs – i.e. the activities carried out or services provided)
- What did we achieve? (outcomes – i.e. the actual achievements of management)

These element will serve to identify the level and location of success or failure within the management cycle: This will be based on the output and management targets outlined in the management plan and on whether the outlined objectives have been achieved and whether these were the right objectives taking into account the need to preserve the biological integrity of the resource given, the recommended level of use of the marine resources.

The Park Manager will initiate the evaluation process and will involve the Board of Directors, the members of the LMA other fishers, the Forestry and National Park and the Fisheries Division. However, baseline information must be collated, interpreted and made available to relevant stakeholders.

The evaluation process will include the participation of all stakeholders in the monitoring and evaluation programme using the framework above. For examples Dive operators should be monitoring corals and abundance of marine fauna. The fishermen would be expected to evaluate the same including fish catch fish size, reefs etc.

Evaluation of the achievements or outcome of the past year will be undertaken. Based on the outcome a revised strategy will be developed taking into account recommendation from all stakeholders and management.

It is recommended that this evaluation of the plan is undertaken annually by management staff and stakeholders and an independent external assessor is recommended towards the end of the fifth year to undertake the evaluation of the 5-year plan

Programme evaluation should be undertaken with all stakeholders so that they are an integral part of the process.

Evaluation Indicators

Context- Where are we now?

Assessment of importance, threats policy

In terms of resource management, is there baseline information in place?

Are legal instruments, regulations and policies established and gazetted?

Are stakeholders aware and participating in the process?

Is the MS/CNP positioned to be part of the system of protected areas

Is participatory management working to achieve goals outlined

- Has the Marine area received national and international (IUCN) recognition
- Are sustainable management practices been implemented and observed

Planning- Where do we want to be?

This is basically an evaluation of the goals and objectives outlined and of the design and planning process of the programme.

- Are objectives achieved
- Has the management plan been adopted and implemented
- Are objectives appropriate to goals
- Are stakeholders informed and actively involved in the implementation of the plan

Input- What do we need?

This is an evaluation of the management structure, financing and

- Is there sufficient staff, equipment and financial resources to manage the programme?
- Is there an on-going research programme
- Is the database established user-friendly and accessible to management and stakeholders?

Process- How do we go about it?

Assesses the way in which management conducted

- Is there communication between stakeholders?
- Do stakeholders have meaningful input in the management programme?
- Is there adequate training for staff and the LMA
- Is there a planned communication and education programme?

- Is there a disaster plan in place?
- Is There sufficient equipment for programme implementation?

Output- What were the results? (– i.e. the activities carried out or services provided)

Assessment of implementation of management programmed and delivery of products and services

The will be base on the strategies and action plan outlined in section 2

- Legal status
- Law enforcement
- Boundary demarcation
- Monitoring
- Maintenance
- Communication and public awareness
- Training
- Alternative livelihoods

Outcome- What did we achieve? (– i.e. the actual achievements of management)

This will be based on

- Achievement of objectives
- Status of threats to protected area- overfishing, recreation, pollution
- Environmental awareness of communities and park users
- Compliance- are users complying?
- Community welfare improved –alternative livelihood project operational
- Improvement of resource conditions

BIBLIOGRAPHY

Clark, J.R., J. Ramnath, C. Roberts, J. Hawkins, and E. Siirila. 1996. Marine Management Strategy for Cabrits National Park. ENCORE/Dominica

Clarke J. Joseph Ramnath, Callum Roberts, Julie Hawkins & ErkkiJ Siirila, 1996- Draft Marine Management Strategy for the Cabrits National Park-WWF/U.S./

Dobbin Milus International. 1995. Cabrits National Park. Design Development Stage, Phase One. Dobbin Milus International, Virginia, USA.

Evans, Peter G. H 1997 - Dominica, Nature Island of the Caribbean- A guide to Dive Sites and Marine Life

Espeut, Peter- Sustainable Livelihood Assessment, 2006 OPAAL/ OECS/ESDU

Government of Dominica- Department of Statistics, Ministry of Finance

Government of Dominica, National Biodiversity and Action Plan, 2000

Government of Dominica. Soufriere/Scotts Head Marine Reserve Management Plan. Fisheries Division, Ministry of Agriculture and the Environment, Dominica.

Government of Dominica. Fisheries Act. Act 11 of 1987.

Government of Dominica. National Parks and Protected Areas Act. Act 16 of 1975, amended by 54 of 1986 and 12 of 1990.

Hoggarth, Daniel, Scales Inc. 2002-"Soufriere Scotts Head Marine Reserve, SSMR 2002-2006 Management Plan

Jackson, I. 1993. Portsmouth/Cabrits Site Management Plan. ENCORE/Dominica.

James, A. 1990. Freshwater Swamps and Mangrove Species in Dominica. Environmental Education Unit, Forestry and Wildlife Division, Ministry of Agriculture, Dominica.

Joseph, Rapahel 2006- Recreational Water Quality

Lawrence, N., A. Magloire & H. Guiste. 1997. Soufriere/Scotts Head Marine Reserve Management Plan. Fisheries Division.

Madisetti, Arum 2006-Rapid Reef Survey at the Cabrits National Park- Marine Section

National Parks Unit- Forestry & Wildlife Division 2003-A Selection of Legislation Related to Natural Resource Conservation and Tourism

Putney, A.D. L. Honychurch, A. James, and D. White. 1984. Cabrits 2000. Developments Concepts for the Proposed Cabrits National Park, Dominica. ECNAMP and the Government of Dominica.

Putney, A.D. ECNAMP/Govt. of Dominica, Butler G./Edwards S/ James A- Background Information on the Proposed Cabrits National Park” April 1983

Siirila, E. 1995a. Coral Reef Management Issues in Portsmouth, Soufriere and Scotts Head. A preliminary Assessment. WWF and ENCORE/Dominica.

Siirila, E. 1995b. Coral Reef Damage in Dominica after One Tropical Storm and Two Hurricanes. A Rapid Assessment. WWF and ENCORE/Dominica.

Siirila, E. (1995) - “Coastal Management Options in Portsmouth, Soufriere and Scott’s Head- A discussion Paper

Tom van’t Hoff & Jiselle Allport 1998 - Management Plan For the Marine Section Cabrits National Park

Singh J. G. & Lewis, A. 1997. Water Quality Monitoring for Proposed Cabrits Marine Park. CEHI/ENCORE.

Traverse Group Inc., 1991. Preliminary Environmental Review and Development of Environmental Evaluation Guidelines for the Prince Rupert Bay Area, Dominica. USAID. 1991. Environment and Coastal Resources Project Paper.

LIST OF PERSONS INTERVIEWED

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Ignatius Mitchell-Fisherman, Dive operator

Benoit Bardouille- Port Manager, Dominica Port Authority

Gernot Ott- Programme Manager, Ministry Of Tourism/ Eco-Tourism Development Programme, ETDP

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Harold Guiste- Fisheries Officer, Min. of Agriculture

Helen Hepp- Manager, Cabrit Dive Centre, Picard

Jacqueline Andre- National Coordinator- OPAAL, Forestry & Wildlife Division

Mayor, Portsmouth Town Council

Raphael Joseph- Senior Environmental Health Officer, Environmental Health Department

Steve Joseph- District Development Officer- Toucarie/ Savanne Paille /Tantane

Indian river Tour Guides

Fishermen- Dublanc

Fishermen- Portsmouth

Fishermen- Toucarie

Magloire, A.-Chief Fisheries Officer

David Williams- Park Superintendent, Forestry & Wildlife Division

