

MANAGEMENT EFFECTIVENESS OF CARIBBEAN MPAS: DESIGN, APPROPRIATENESS AND DELIVERY.

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Floyd Homer
The Trust For Sustainable Livelihoods
22B Boodoo Circular, Sangre Grande, Trinidad & Tobago
floyd@sustrust.org

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Abstract

This paper explores the effectiveness of management of selected marine protected areas (MPAs) in the insular, anglo-phone Caribbean. The IUCN's framework for evaluating management effectiveness is presented and applied to the operations of MPAs in Anguilla, a British Overseas Territory in the Eastern Caribbean. Anguilla's five MPAs were legally designated via the Marine Parks Ordinance in 1982. However, control of activities in the MPAs was not legally possible until the passing of the Marine Parks Regulations in 1993. Operationally, the MPAs were, and continue to be, the responsibility of the Department of Fisheries and Marine Resources. The evaluation of management effectiveness was based on issues of: MPA design, appropriateness of management systems and processes, and delivery of protected areas objectives. Preliminary results indicated that inconsistent interventions have led to management failures related to poor planning, little commitment to implementation, resource allocation constraints, dependence on external donor support, almost no monitoring and evaluation, and an inability to address concerns raised from feedback. Generally, a demonstration of the economic value of MPAs to senior decision-makers and its linkage with national development and political goals, will assist in getting more support for effective management of MPAs in the Caribbean.

Introduction

Marine protected areas (MPAs) in the insular anglo-phone Caribbean have been providing goods and services for several decades to a range of local and foreign resources users. Active management of many of these MPAs is absent and in cases where there are some management interventions, there is often a lack of systematic information on the status of the resources and the effectiveness of management.

MPAs in the British Overseas Territory of Anguilla in the Eastern Caribbean, provide a useful example for evaluating the effectiveness of management, since their operation is similar to many others in the sub-region. This evaluation is based on the framework developed by the IUCN's World Commission on Protected Areas (WCPA) and focuses on issues of MPA design, appropriateness of management systems and processes, and delivery of protected areas objectives.

Background

Anguilla is located in the Eastern Caribbean at 18° 10' North Latitude and 63° 5' West Longitude. The island is roughly elongated in shape, with an area of about 91 km² (35 mi²) and a maximum elevation of 65 m (213 ft). It is about 25.5 km (16 mi) long and 5.5 km (3.5 mi) wide, with its long axis running in an east-northeast to west-southwest direction. Several uninhabited islets -- including Dog Island, Scrub Island, Sombrero Island, and the Prickly Pear Cays -- also form part of its territory. The island is sheltered by extensive reefs off the north coast and fringing reefs along most of the south coast, which provide excellent attractions for visiting yachts, scuba divers and snorkeling enthusiasts.

Five marine protected areas/marine parks; namely Dog Island, Prickly Pear Cays, Little Bay, Shoal Bay/Island Harbour and Sandy Island were designated under the Marine Parks Ordinance of 1982 (Figure 1), but these were not managed until the Marine Parks Regulations came into force in December 1993. It appears that establishment of these MPAs were the direct result of recommendations from proposals made in 1981 by the Anguilla Resources Development Project, sponsored by the Government of Anguilla and the Eastern Caribbean Natural Area Management Programme (ECNAMP).

Management responsibility for the MPAs falls under the jurisdiction of the Department of Fisheries and Marine Resources (DFMR) in the Ministry of Home Affairs and Natural Resources, which is under the direction of the Chief Minister. The DFMR is currently comprised of an Acting Director, two Fishery Officers, one Marine Biologist, one Fishery Assistant and one Secretary. The focus of the DFMR has primarily been on the fishery of Anguilla.

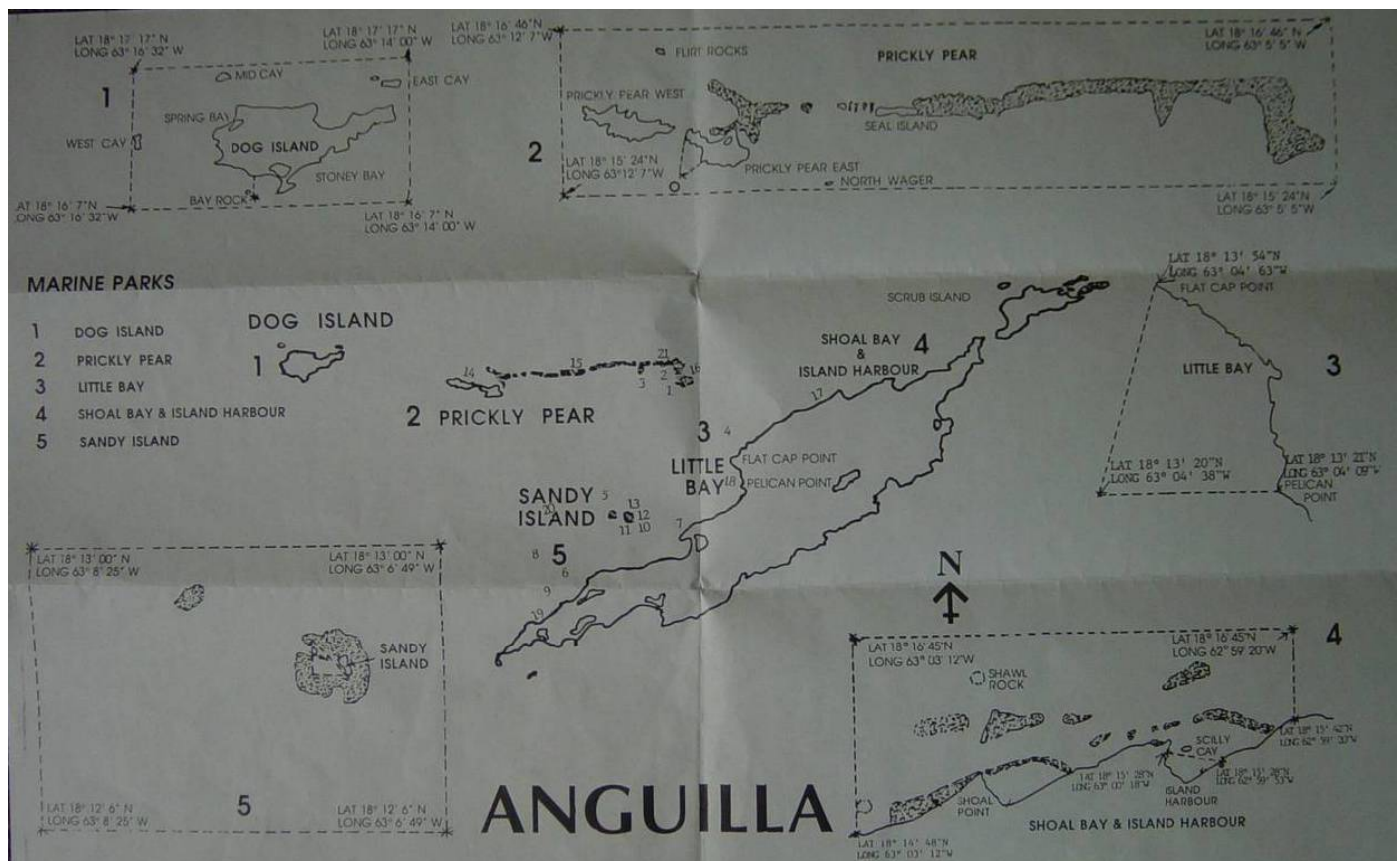


Figure 1: Map of Anguilla showing Marine Parks

Marine Parks Ordinance and Regulations

The Marine Parks Ordinance of 1982 allows the Governor to designate marine parks in any part of Anguilla's marine area, wherever he considers that special steps are necessary for:

1. The protection of the fish, flora, and other fauna and wrecks found at such sites;
2. Preserving and enhancing the natural beauty of such areas;
3. The promotion of the enjoyment by the public of such areas; and
4. The promotion of scientific study and research in respect of such areas.

Anguilla's Marine Parks Regulations 1993, provide for the control of the following activities within designated marine parks:

- mooring or anchoring;
- fishing by non-Anguillians;
- scuba diving by non-Anguillians;
- filming, camping, business activities;
- introduction of flora and fauna;
- damaging or removing flora, fauna, coral or artifacts; and
- offences in relation to safety, such as; speeding, water skiing, littering, discharge of bilge or sewage, polluting, building fires or other dangerous activities.

Mooring in marine parks is permitted only on buoys installed by the DFMR. Red buoys provide moorings for dive and wreck sites, available for a maximum of 90 minutes. White buoys provide moorings in other areas for vessels up to 55ft in length. Anchoring is permitted only within specified use zones in all of the marine parks except Little Bay.

Any person committing an offence against these regulations is liable to a fine of EC\$5,000 or to a term of six months imprisonment; and in the case of a continuing offence, to a further fine of EC\$100 per day for each day the offence continues. Although the DFMR disseminates leaflets on the Marine Park Mooring System to resident and visiting boat owners and yachtsmen, few mooring buoys remain in place due to the lack of maintenance, non-replacement of lost buoys and limited installation of new moorings.

Framework For Evaluating Management Effectiveness

Management effectiveness can be considered as having three main components. These are:

1. **Design issues** relating to both individual sites and to protected area systems. Important elements include size and shape of the site, the existence and use of buffer zones, ecological representation and appropriateness of the site to achieve its stated function.

2. **Appropriateness of management systems and processes.** Especially how management is conducted and how well management is responding to challenges related to planning, training, capacity building, social relations and implementation.
3. **Delivery of protected area objectives.** This is mainly an assessment of the achievement of stated aims of the protected area, including a measurement of the administrative, biological and social aspects.

The IUCN/WCPA framework for evaluating management effectiveness aims both to provide some overall guidance on the development of assessment systems and to encourage standards for assessment and reporting. The framework is based on the premise that successful protected area management follows a process that has six distinct stages or elements:

1. It begins with understanding the **context** of existing values and threats,
2. Progresses through **planning**, and
3. Allocation of resources (**inputs**), and
4. As a result of management actions (**processes**),
5. Eventually produces products and services (**outputs**),
6. That result in impacts or **outcomes**.

The range of considerations in the application of the framework is summarised in Table 1.

Components	Elements of evaluation	Explanation	Criteria that are assessed	Focus of evaluation
Design Issues	Context	<i>Where are we now?</i> Assessment of importance, threats and policy environment	- Significance - Vulnerability - Threats - National context - Partners	Status
	Planning	<i>Where do we want to be?</i> Assessment of protected area design and planning	- Protected area legislation and policy - Protected area system design - Reserve design - Management planning	Appropriateness

Appropriateness of Management Systems and Processes	Inputs	<i>What do we need?</i> Assessment of resources needed to carry out management	- Resources for agency - Resources for site	Resources
	Processes	<i>How do we go about it?</i> Assessment of the way in which management is conducted	- Suitability of management processes	Efficiency and appropriateness
Delivery of Protected Area Objectives	Outputs	<i>What were the results?</i> Assessment of the implementation of management programmes and actions; delivery of products and services	- Results of management actions - Services and products	Effectiveness
	Outcomes	<i>What did we achieve?</i> Assessment of the outcomes and the extent to which they achieved objectives	- Impacts: effects of management in relation to objectives	Effectiveness and appropriateness

Table1: Summary of IUCN/WCPA framework for evaluating management effectiveness

Evaluation of Anguilla’s MPA Management Effectiveness

The following subsections summarise the preliminary findings of the evaluation of the management effectiveness of Anguilla’s MPAs. Readily available data, local knowledge and experience in the field were used in the assessment.

Context

Anguilla’s MPAs are an important source of fish, conch and lobster, both for local consumption and export. They are also popular with visiting yachts, especially from neighbouring St Maarten/St Martin. These MPAs are also a potential source of much revenue from user fees and provide recreation for locals and visitors. Many of the sites are vulnerable to impacts from legal and illegal use, primarily from visiting boats. Threats to the sites are suspected or are likely to occur, but their extent and significance are not known. These threats include over fishing, physical damage and other stress to corals, and pollution from nearshore development and visiting boats. Additionally, hurricanes are perhaps the most severe change factor affecting the marine habitats. For example, Hurricane Luis in 1995 led to the reduction of seagrass

bed cover by 45%, leaving carpets of dead seagrass up to 1m thick on most beaches. Coral reef damage was also extensive, with 61% of intact live reefs, both hard corals and soft corals, being degraded to rubble or bare rock. Red, black and white mangrove stands were destroyed, with mortality rates varying between 68% and 99%. Both sand dunes and beaches were severely eroded, especially on the north shore. Sand dune bases retreated an average of 9m, with a maximum of 30m in Meads Bay on the north coast. Many beaches were eroded to their bedrock foundations. Beach volume decreased by an average 40% and beach width by 9m. Over the past two decades, various international donors and development agencies have partnered with the Government to provide training, equipment and materials, and technical assistance for management of the MPAs.

Planning

Despite the existence of the Marine Parks Ordinance 1982 and the Marine Parks Regulations 1993, there has been no consistent management of the marine parks. Control of activities in the MPAs is constrained because the marine park boundaries were not designated in Schedule 1 of the Regulations. No management plan has as yet been prepared for any of the marine parks. Periodically, some enforcement and control of pleasure boats using the MPAs were undertaken by the DFMR, as well as some installation and maintenance of mooring buoys and collection of user fees. These activities were severely restricted due to staffing and budgetary constraints.

The basis of the design and legal demarcation of the MPAs is not clear, but seem related to initial surveys done in 1981 under the Anguilla Resources Development Project. The outcome of this project recommended the current MPAs among other sites, to be used for fisheries management, tourism management, coral reef reserve, national marine park, and an underwater trail. It is not clear whether or not management objectives were defined in the selection of these sites. It is also not known whether or not these sites are still representative of the range of marine habitats, or the level of ecological or fishery importance in the context of the five serious hurricanes that have passed over Anguilla since 1982, with severe impacts on the marine ecosystems.

Inputs

The DFMR is lacking in appropriate capacity to undertake active management of the MPAs. Staff shortages hindered the full implementation of much of the Marine Parks Regulations. The unavailability of certified divers for training in marine park management or to assist the DFMR in its work programme has been and continue to be a major constraint. In 1995 an additional officer was recruited by the DFMR and was stationed at the Marine Base in Road Bay. His duties were the collection of revenue and issuing of permits in respect of moorings and other activities in the marine park. There is currently no dedicated staffing or significant budget for the MPAs. In the mid-1990s equipment was purchased for the installation of mooring buoys. Although the boundaries of the marine parks were not physically demarcated, many buoys were put in strategic locations to minimise anchor damage to the coral reef. Most of these buoys have since been lost because of hurricanes and poor maintenance. However, the DFMR did some installation this year and has recently received monies from the US-National Fish and Wildlife Service to purchase more moorings for installation next year. Most of the equipment and materials were provided through projects funded by international donors, such as the British Overseas Development Assistance (now Department for International Development) and the Canadian International

Development Agency (through the Caribbean Conservation Association, Marine Parks and Protected Areas Programme).

Processes

The *ad hoc* manner in which the infrequent patrols, enforcement or maintenance of park infrastructure had taken place in the past conveyed a lack of commitment to or importance of MPAs. Reports of infringement of the Marine Parks Regulation from concerned citizens or fishermen, in many cases, did not receive the required response or got some response in an untimely manner. The inability to address most of the concerns related to inadequate management of the MPAs was essentially beyond the capacity of the DFMR. Training for species habitat monitoring, including boat damage to coral, physical, chemical and biological parameters were provided in 1996, together with some monitoring equipment. However, there was no consistent or adequate monitoring of the marine areas that were initially considered priority. There were no clear management objectives for each site and there was a lack of consistent management processes or systems in relation to the management of these sites.

Outputs

It is difficult to quantify the outputs, except to note that some management activities, although sporadic, were carried out, including the dissemination of information on the marine parks and mooring systems, surveillance and limited enforcement of the regulations, installation and limited maintenance of mooring buoys. Additionally the capacity of the DFMR was enhanced, though not sustained, through training and procurement of equipment. It should be noted that much of these activities were a direct result of international or regional donor funded programmes that had specific timelines for delivery.

Outcomes

Since there were no management plans or defined objectives for the management of each MPA, and in the context of little management interventions over the past few years, including no monitoring of the biological resources and user activities, it seems that little has been achieved or sustained in the management of Anguilla's MPAs.

Will MPAs in Anguilla be Actively Managed?

The major challenges faced by the Government of Anguilla in securing adequate financing for active management of its MPAs are; a) lack of awareness on the economic importance of MPAs; b) inadequate institutional capacity to manage the MPAs; and c) competing high profile development interests for allocation of limited national resources. An examination of the manifesto of the ruling political party provided the starting point in trying to show the relationship between Government's policy and protected areas. Identifying the linkages within the Strategic Country Programme and with other regional agreements such as the St George's Declaration of Principles for Environmental Sustainability in the Organisation of Eastern Caribbean States, further strengthened the argument.

It was then easy to illustrate how management of protected areas could assist the Government in the discharge of promises in its manifesto and additionally demonstrate to other Governments in the region,

its ability to honour an important regional agreement. However, to foster commitment by the senior decision makers, it was necessary to identify the broad based economic benefits, including employment generation, which could be derived from protected areas management. Additionally, it was necessary to show how protected areas could become self-financing and not be a drain on the Treasury, and to identify a mechanism for managing the system of protected areas.

Based on a willingness-to-pay survey, tourist arrival data, and valuation of key biodiversity resources, a presentation by the Anguilla National Trust on “Economic Benefits of Biodiversity Conservation” was made to the Executive Council (comprised of the Chief Minister, other Government Ministers, Attorney General, Governor and Deputy Governor). This presentation was subsequently made to several other senior decision makers who collectively were able to catalyse further planning for biodiversity conservation. The presentation started with a clear and simple definition of biodiversity, then went on to show the linkages between biodiversity and national/regional policies, protected areas as a tool for biodiversity conservation, the value of biodiversity to Anguilla (calculated at about US\$2.5million/year), revenue generation from non-destructive use of biodiversity (estimated at US\$440,000/year), and the organizational structure that was needed to manage a system of protected areas.

The Government of Anguilla has subsequently put a mechanism in place for deciding on the administrative framework for managing a system of National Parks and Protected Areas, and the acquisition of grant funding for establishment of the management structure and procurement of equipment. A consultant was also being recruited to finalise the draft legislation for the management of parks and protected areas. In late August 2004, the administrative framework was decided on at a meeting of Permanent Secretaries and Head of Departments from key Government Ministries.

Conclusion

Systems are being put in place to give renewed priority to the management of marine parks and protected areas in Anguilla. The current effort is now largely the result of increased awareness on the direct tangible benefits of managing protected areas and the change in leadership of key ministries/agencies leading to enhanced capacity among senior decision makers in the Government and a major national NGO. For the first time, it seems that protected areas management is being driven by the Government, rather than as a response to foreign donor priorities.

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