

Management Plan for the Gouyave Marine Protected Area 2018 - 2022



September, 2018

KFW



Caribbean Community
Climate Change Centre



Submitted to:



Grenada Community Development Organization (GRENCODA)
Lower Depradine Street
Gouyave
St. John's
Grenada

Prepared By:



Grenada Coral Reef Foundation (GCRF) Grand Anse
St. George's
Grenada

Acknowledgements

This management Plan for the Proposed Gouyave Marine Protected Area (GoMPA) was made possible through funding provided by The German Ministry for Economic Cooperation and Development (BMZ) through an agreement with the Caribbean Community Climate Change Centre (CCCCC). More specifically, this document is a deliverable of the “Community-based Coastal Ecosystem Management for Climate Adaptation in Selected Areas of Grenada” project which is implemented by the Grenada Community Development Organization (GRENCODA) and its partner agencies; Grenada Fisheries Division and the Gouyave Fishermen Cooperative Society Ltd. The Grenada Coral Reef Foundation (GCRF) would like to thank the MPA Unit of the Fisheries Division for their assistance in facilitating stakeholder meetings as well as all stakeholders who participated in the various stakeholder meetings that guided the development of this management plan. GCRF would also like to thank the staff of GRENCODA for the logistical support they provided for the completion of this assignment as well as the critical review received in refining this document.

Table of Contents

<i>Abbreviations</i>	<i>iv</i>
<i>Introduction</i>	<i>1</i>
<i>Guiding Principles</i>	<i>1</i>
<i>Site Description</i>	<i>2</i>
MPA Boundaries	2
Socioeconomics	2
Conservation Status	3
Access	3
Current Use & Development	3
Physical Features	4
Bathymetry	4
Tides and Dominant Current	4
Water Quality	4
Fresh Water Inputs	4
Habitats	5
Marine Habitats	5
Coral Reef Ecosystem Status	5
<i>Description of Management Issues</i>	<i>8</i>
Conflicts, Threats & Challenges	8
<i>Policy and Legislative Framework</i>	<i>10</i>
<i>Management Activities</i>	<i>11</i>
Objectives	11
Zoning	11
Fish Sanctuaries	12
Reef Fishing Zone	12
Multiuse Zone	13
Demarcation	14
Maintenance	15
Enforcement	15
Scientific Monitoring and Research	16
Coral Reef Assessment	16
Seagrass Assessment	16
Water Quality Assessment	17
Public Education and Awareness	17
Administration and Staffing	18
Operational Staff	19
Training Needs	19
<i>Budget</i>	<i>20</i>
<i>Monitoring and Evaluation</i>	<i>21</i>
<i>Conclusion</i>	<i>21</i>

Limitation	21
Way Forward	22
References	23
Appendix 1	24
Appendix 2	26

Abbreviations

AGRRA: Atlantic and Gulf Rapid Reef Assessment
 CCA: Crustose Coralline Algae
 FD: Fisheries Division
 GCRF: Grenada Coral Reef Foundation
 GMPA: Grenada Marine Protected Areas
 GPS: Global Positioning System
 GoMPA: Gouyave Marine Protected Area
 KAP: Knowledge, Attitude and Practices
 km: Kilometers
 km²: Square Kilometers
 MBMPA: Moliniere Beausejour Marine Protected Area
 MOU: Memorandum of Understanding
 MPA(s): Marine Protected Area(s)
 SAC: Stakeholder Advisory Committee
 SCUBA: Self Contained Underwater Breathing Apparatus
 SIOBMPA: Sandy Island/Oyster Bed Marine Protected Area
 SLR: Sea Level Rise
 SRO: Statutory Rules and Orders

Introduction

The German Ministry for Economic Cooperation and Development (BMZ) is supporting the Caribbean Community (CARICOM) through a €12.9 million Coastal Protection for Climate Change Adaptation in the Small Island States in the Caribbean project over the next 5 years. The Project seeks to pursue the implementation of local adaptation measures for the sustainable improvement of coastal ecosystems relevant for climate change adaptation in 4 CARICOM Countries including Grenada. The design of the Project is based on an agreement made between KfW (the German Development Bank) and the Caribbean Community Climate Change Centre (CCCC) through the CARICOM Secretariat.

To improve adaptation to climate change, Grenada as a Small Island Developing States (SIDS) was instrumental in the establishment of the Caribbean Challenge Initiative (CCI), where Grenada pledged to protect 25% of its near-shore marine and coastal environment by 2020. Grenada Community Development Agency (GRENCODA) through the implementation of the “Community-based Coastal Ecosystem Management for Climate Adaptation in Selected Areas of Grenada” project plans to enhance ecosystem services provided by coral reefs to reduce the effect of climate change on vulnerable coastal communities on Grenada’s west coast by:

- a. Fostering the creation of an effectively managed MPA on Grenada’s West Coast.
- b. Increased Public awareness of, and Community Resilience to the adverse impact of climate change.

The development of this management plan works towards the first objective of the GRENCODA Project of fostering the creation on an effectively managed MPA (i.e. GoMPA) on Grenada’s West Coast. The contents of this management plan are derived from a comprehensive literature review of previous work executed within the Gouyave area; and as well as from discussions with stakeholders during visits to the various communities within and adjacent to the proposed Gouyave Area over the period June 4th to 9th, 2018 (See Appendix 1 for the complete list of stakeholders consulted). Although a number of primary assessments were conducted in order to facilitate the development of this plan, a number of minor gaps, identified in the different sections of this plan, still exist and would require further evaluation and investigation as the implementation of this plan proceeds over the next five (5) years.

Guiding Principles

The development of this management plan is based on a number of guiding principles which are intended to establish a shared vision for the development and establishment of the GoMPA. These principles are as follows:

1. The socioeconomic development of the communities adjacent to the Gouyave Marine Protected Area (GoMPA) is based on the tenet of sustainable utilization of the resources within the designated area.
2. The conservation measures employed with the GoMPA are designed to enhance the status of natural resources within the area and facilitate sustainable use.
3. The benefits to be derived from the designation of the GoMPA should be distributed as equitably as possible amongst those most likely to be affected by the management intervention within the area.

4. The management of the GoMPA should be people-centered and participatory as possible to ensure that the decision-making processes are shaped by those most likely to be affected by the decisions.
5. The GoMPA would be managed via an adaptive management approach which allows for realignment of the management regime to ensure that the most effective and efficient management approach be employed in actualizing the goals and objectives of the GoMPA.
6. The management of the MPA is science-based and follows the principles of sustainable development while employing the precautionary approach, given the uncertainty associated with Climate Change.

Site Description

The Proposed Gouyave Marine Protected Area (GoMPA) is located along the North Western corridor of the Grenadian mainland. The Proposed GoMPA is Approximately 5.4 km² and includes the coastal areas that straddles the parishes of St. Mark and St. John.

MPA Boundaries

During the various sector specific stakeholder consultation meetings that were held leading up to the development of this plan, the stakeholders were asked to provide their suggestions on the most appropriate boundaries and management zones for the proposed MPA, along with their justification for selecting each boundary or zone. Stakeholders that were interviewed as part of the socioeconomic assessment prior to the establishment of the MPA were also asked to provide input on the proposed extent of the GoMPA (Glasgow, 2018). The preliminary draft of the proposed boundaries for the GoMPA was developed by combining the suggested boundaries from the sector specific meetings and the socioeconomic study. The final proposed boundaries of the MPA were selected to include all marine habitats that are important to the ontogenetic life cycle stages of the organisms that inhabit the area (See Figure 1 for a map of the proposed boundaries).

Socioeconomics

A socioeconomic study which included 221 residents from St. Mark and St. John was commissioned by GRENCODA to facilitate the development of this management plan (see [Annex 1](#) for the full socioeconomic report). The assessment indicated that there was moderate support for the establishment of the proposed Gouyave Marine Protected Area (GoMPA) (from the communities within the Greater Gouyave Area Glasgow, 2018). Glasgow (2018), also noted that over half of the respondents expressed the opinion that an MPA within the Gouyave area will provide protection to the marine environment and species; thereby, positively contributing to fisheries, tourism and enhancing community livelihoods.

The majority of persons within the community were of the opinion that the most important barrier to taking actions to protect the environment and adapting to climate change was due to insufficient knowledge on the issues (Glasgow, 2018). Glasgow (2018), concluded that a comprehensive education program to enhance overall knowledge on climate change and

coastal ecosystem issues would make a significant positive contribution to improve the resilience of the community with regard to climate change and livelihoods.

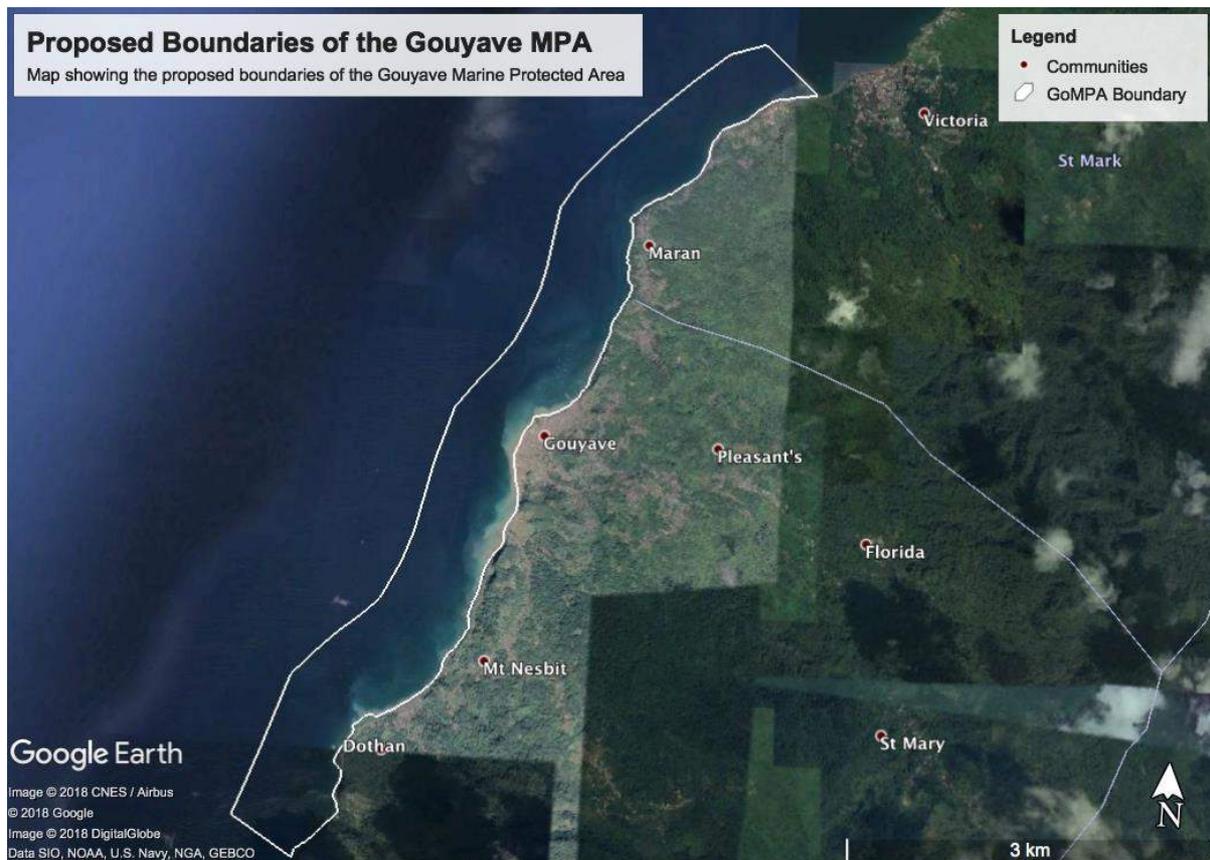


Figure 1: Map showing the proposed boundaries of the Gouyave MPA as a white line.

Conservation Status

The area proposed for the establishment of the GoMPA currently has no official conservation status.

Access

The territorial water within the Western corridor falls with the dominion of the Royal Grenada Police Force (Coast Guard) and the Grenada Maritime Administration. The Grenada Fisheries Division has jurisdiction over all the living marine/aquatic resources which are utilized for fishers. There are very clear jurisdictional lines with regard to which agency has responsibility within the marine space. There are currently no restriction to access of the proposed GoMPA as there is unimpeded access at any point in the sea and from land.

Current Use & Development

The proposed GoMPA is approximately 14 km from the main tourism belt located on the south of the island; consequently, there are no major tourism infrastructure along the beach. The

land used along the beaches of the proposed GoMPA is dominated primarily by fisheries and retail operations (i.e. shops, bars, restaurants, etc.) and domestic dwellings.

The primary use within the coastal waters of the proposed MPA is small-scale and subsistence fishing for lobsters, conch and finfish. The beaches along the stretch of coastline are utilized for recreational activities (i.e. swimming, picnicking, snorkeling, etc.) especially during public holidays.

Fishing within the boundaries of the proposed Gouyave MPA is conducted primarily by beach seine, hook and line and spearfishing. The beach seine fishery focuses primarily on small pelagics (i.e. scads, sardines, anchovies, etc.) and coastal pelagics (i.e. rainbow runners, yellow jacks, small tunas) which are either consumed domestically or used as baitfish for the longline industry. The Hook and line fishery targets primarily demersal species (e.g. snapper, groupers, and coastal pelagics (e.g. mackerel, barracuda and blackfin tunas) which are sold for local consumption. The spear fishers target finfish and lobster which are sold for local consumption. Fishing methods utilized within the area also include: gill nets and fish traps. The vast majority of fishers that utilize the area operate from the Gouyave landing sites, with the others coming from Victoria and Maran.

Although illegal, the practice of sand and rock mining still occurs along several of the beaches within the boundaries of the proposed MPA, including White Gate, Palmiste, and D' Lance beaches. The harvested material (i.e. rock and sand) are utilized for construction purposes.

Physical Features

Bathymetry

The depth of the water within the proposed GoMA ranges from 0-100m with the majority of the area being of a depth less than 40m deep (Imray-lolaire, nd). The majority of the reefs within the area are bank barrier or fringing which are within 600m of the coastline.

Tides and Dominant Current

The tidal range is 0.61 metres (Grenada Ports Authority, 2016). The dominant currents within the GoMPA appears to flow in a south westerly direction. However, due to the morphology of the areas, the primary current is determined by the tide phase. The strength of the current depends on the bathymetry, wind forces, moon phase and current width (i.e. fastest over the shallower areas).

Water Quality

There is very little information available on water quality within the area proposed for the GoMPA. At the writing on this draft of the Management Plan, GCRF is in the process of conducting preliminary water quality testing, the results of which will be incorporated in subsequent draft.

Fresh Water Inputs

There are three permanent rivers that empty directly within the proposed GoMA (i.e. Charlotte River, Little River and Palmiste River) as well as a number of seasonal streams that flow only during the rainy season, bringing additional fresh water into the coastal areas. There are also a

number of municipal and antimalarial drains that carry storm and grey water from residential homes into the areas.

Habitats

Marine Habitats

GRENCODA commissioned a Marine habitat assessment to identify the various marine habitat types within the coastal areas of the proposed GoMPA. The primary objective of this study was to identify the location and extent of the various benthic habitat types within the coastal waters extending from White Gate in the South up to La Resource in the North; and extending seaward to the 25m depth contour. The resulting benthic habitat map was utilized to direct the establishment of the zoning plan, MPA Boundaries and the location of the coral reef assessment sites (See [Figure 2](#) for a map of the various habitats and [Annex 1](#) for the full assessment report). The benthic habitat assessment indicated that there were seven distinct benthic substrate categories (i.e. silt, sand, sparse seagrass, seagrass, hardground with gorgonians, Bolder with Gorgonians and live reef) within the coastal area off Gouyave.

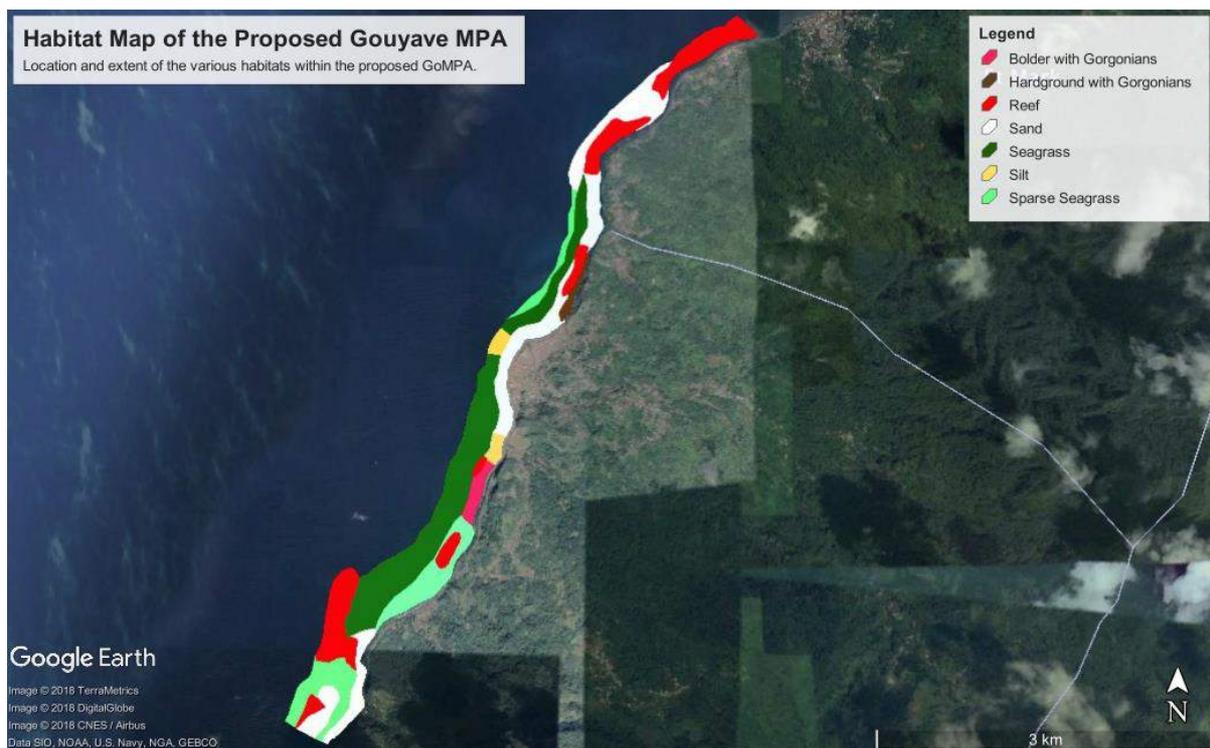


Figure 2: Map showing the various benthic Habitat types with the proposed GoMPA.

Coral Reef Ecosystem Status

The Grenada Coral Reef Foundation also conducted a baseline assessment of the health of the coral reefs within the proposed Gouyave MPA at five (5) indicator sites utilizing the internationally recognized Atlantic and Gulf Rapid Reef Assessment (AGRRA) protocol Version 5.4 (Nimrod, 2018) (See [Figure 3](#) for the location of the five coral reef monitoring sites). The 5 monitoring sites were selected as they represented the variety of different types (i.e. patch, fringing and bank barrier) of coral reefs that are present within the study area.

Therefore, these 5 sites provided an accurate representation of the coral reef conditions within the study area. A summary of the findings of the study is presented below (See [Annex 2](#) for the complete coral reef assessment report):

Motile Invertebrates

The abundance of urchins especially diadema (long spin black sea urchin), was critically low (i.e. <0.10 individuals/m²) across all sites, compared to the Eastern Caribbean average of 1.4 individuals/m². This is an issue of significant concern as urchins play a critically important role as they work in collaboration with herbivorous fish to helping to manage the macro-algal population on the reef. There was also low abundance of the other motile invertebrate indicator species (i.e. spiny lobster, queen conch & sea cucumber). Spiny Lobsters and Queen Conch are selected as indicator species because they are highly priced commodities on both the domestic and export markets; consequently, there is a potential for overexploitation of these species.

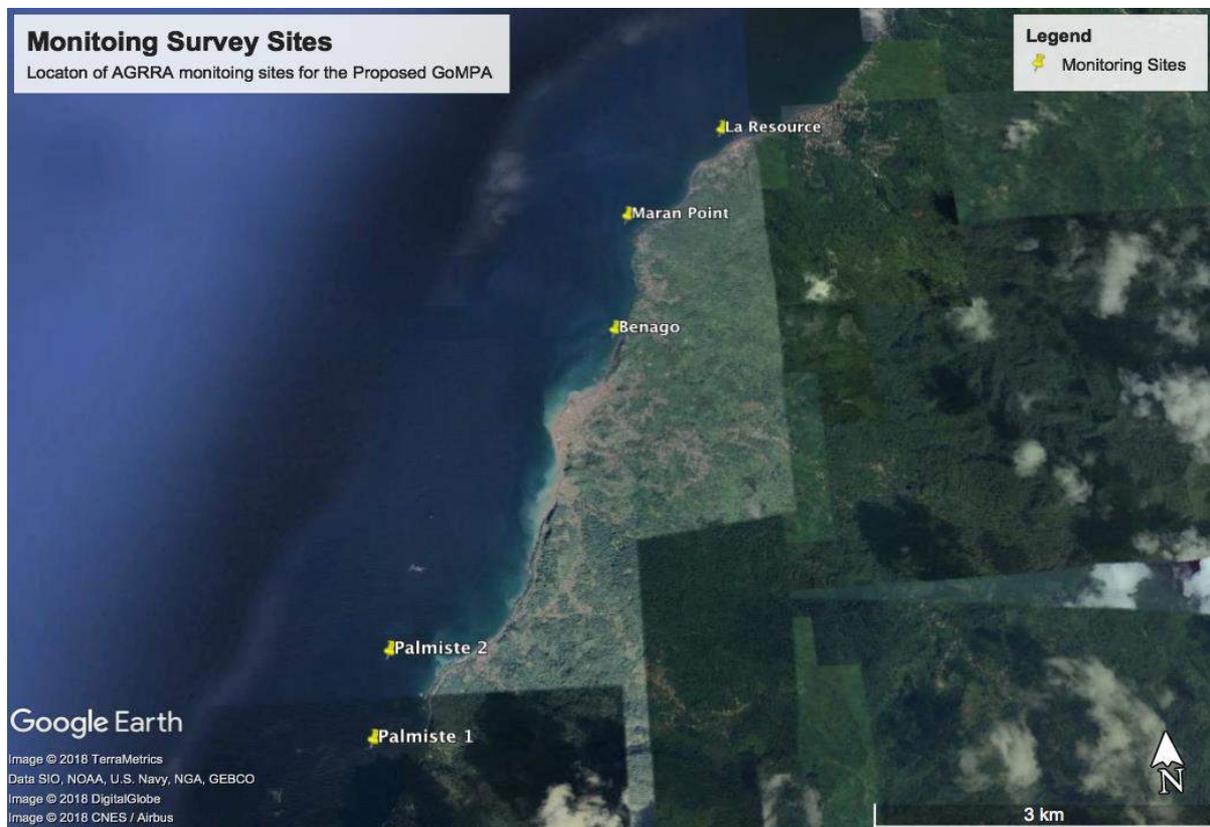


Figure 3: Map showing the location of the five coral reef assessment sites with the proposed GoMPA.

Reef Fish

Entire Population

46 species of reef fish from 23 genera and 16 families were documented across the five study sites. The overall biomass was relatively low at all sites; despite the relatively high abundance at the sites. This can be attributed to the fact that most of the fish that were observed were <15cm in total length. The fish species diversity was relatively high across all the survey sites.

Herbivorous Fish

The biomass of herbivorous fish (i.e. parrotfish & surgeonfish) was significantly different across the five survey sites ranging from 28 g/100m² at Maran Point to 197 g/100m² at Palmiste 1. Despite the variability across the sites, the highest recorded value at Palmiste 1 (197 g/100m²) is drastically lower than the mean Eastern Caribbean herbivorous fish biomass of 1506 grams/100m². The low fish herbivore biomass across all the sites is having a significant negative impact of the level of macroalgae on the reefs.

Commercially Important Fish

The two highest biomass of commercially important reef fish species (i.e. snapper, grouper, grunts, jacks, etc.) of 104 g/100 m² and 103 g/100 m² was recorded at Palmiste 1 & Palmiste 2 survey sites respectively. Similar to the herbivore biomass, the biomass of the highest commercially important species was drastically below the 1208 g/100 m² mean biomass for commercially important reef fish species in the Eastern Caribbean. The mean length of commercially important fish species within area is 5.6 cm. The low biomass and short length of commercially important reef fish species indicate that the populations of commercially important fish can no longer viably sustain a fishery.

Benthos

Crustose Coralline Algae (CCA) represented a mean percentage cover of 14 % ± 3.2 % of the benthic substrate across the five study sites. High CCA cover is typically a good feature on coral reefs as they play an important role in facilitating recruitment to the reef. An increase in CCA on the reefs would most likely help to increase coral recruitment across all sites.

Cyanobacteria (CYAN) is a type of blue-green algae that typically indicates that a land-based source of pollution is negatively affecting the water quality at that site. This study noted that there was CYAN present at all of the sites at an overall mean percentage cover of 1 ± 0.3 (%) at each site. This is an issue for concern, given that the area is being considered for an MPA.

Fleshy macroalgae represented at least 10% at two of the survey sites (i.e. Palmiste 1 & Palmiste 2). Although macroalgae is a normal constituent on all reefs, the proliferation of macroalgae can result in them outcompeting with corals for reef space and changing the overall structure of the reef from a coral dominated reef to an algae-dominated reef as is the case of the Palmiste 1 site. This phase shift, to an algae-dominated reef, is an issue of major concern as the algae not only competes with established coral colonies, it also prevents the recruitment of juvenile corals.

Coral

Species diversity is relatively low across all sites; given the fact that a total of 22 species from 15 genera and 9 families were documented. Live coral cover is below the Eastern Caribbean

mean of 21.7 at all of the survey sites except Benago. Despite the relatively high (49%) live coral cover at the Benago site, the vast majority of the coral at that site was a single species. The low coral diversity can have significant negative implications for the resilience of the reefs. Low species diversity could mean that the corals are less likely to recover following a catastrophic event (i.e. tropical cyclone) or less likely to adapt to the project impacts of climate change (e.g. elevated sea surface temperature, sea level rise or ocean acidification). Nimrod's (2018), assessment report went on to provide the following insight and recommendations:

- Given the low abundance of urchins on the reefs within the study area, efforts should be made to reduce or eliminate removal of any species of urchins on these reefs so as to enhance stock and ensure that the ecological function they carry-out are fulfilled.
- Given the low abundance of the three mobile invertebrate indicator species within the surveyed reefs, the extraction of these resources should be prohibited so as to maintain and enhance their abundance.
- In order to increase fish biomass at all sites measure must be put in place to reduce fishing pressure.
- The capture of the commercially important reef fish on the survey reefs should be discontinued until the biomass and size classes of fish can once again facilitate sustainable fisheries.
- Measures should be put in place to reduce the fishing pressure on herbivorous fish by instituting a moratorium of these species and/or a size limit.
- Water Quality testing (i.e. nutrient & microbiological) should be conducted to determine exactly what the cause of the water quality issues are within the MPA.
- A pollution hotspot analysis in the watershed(s) impacting the site should also be conducted to identify the source of the pollution problem.
- Where appropriate, efforts should be made to increase coral species diversity through coral out-planting from coral nursery.

Description of Management Issues

Conflicts, Threats & Challenges

The following areas of concerns were highlighted during the initial round of stakeholder consultation Conducted during June 2018.

Top-Down Management Model: Member of the fisheries sector including the Gouyave Fishermen Society Ltd. expressed concerns that the Management of the proposed GoMPA may follow the typically government led top down command and control model which would reduce the effectiveness of the MPA management. To mitigate this concern, a stakeholder-based co-management model is recommended.

Harvesting of Construction Aggregate from Beaches: The illegal mining of sand and rocks from the beaches along the coastline within the proposed MPA. This is having adverse impacts on sediment balance along the coastline and resulting in beach erosion within the MPA.

Reduction in Demersal Species: Although the fishers contended that overfishing is not a problem within St. John's and St. Mark's, they noted that several demersal species that were once abundant within the near-shore reefs, have reduced significantly (e.g. big eye snapper, coney) and in some cases they have all disappeared (e.g. rock hind). The fishers noted, the fact that they are catching more and larger tunas than before, is proof that overfishing has not occurred. There appears to be a disconnect in the cause and effect loop as it relates to fishers as well as the oceanic pelagic and nearshore demersal fisheries. Public education on fisheries and fishery related issues must be a priority of the MPA management entity for GoMPA.

Land-based Sources of Pollution: The stakeholders raised concerns about the impact of pollution (i.e. solid waste, hydrocarbons, nutrients, sewage, etc.) on the health of the marine environment especially coral reefs within the area. The stakeholders also pointed out issues of sedimentation in the area at Gross point where illegal dumping of soil and construction debris is on-going.

Lionfish Invasion: The fishers expressed concern about the proliferation of lionfish within the coastal habitats inside the area proposed for the MPA. The fishers requested training and equipment to facilitate the management of the lionfish population via active culling by divers. The Fisheries Division have staff that would provide the requisite training and at the least provide guidance on sourcing appropriate equipment.

Regulation on Bait Size: There were concern raise about the size of the small pelagics (i.e. scads) that are harvested for bait in the longline fishery and the amount of juvenile species that are killed as 'by-catch' in seines. It was suggested that measure must be put in place to ensure that all seine nets adhere to the stipulated mesh size.

Disproportional Impact on the Seine fishery: Given the fact that the most dominant fishing method within the area proposed for the MPA is Seine fishing, there is a concern that the establishment of the MPA would prevent seines from casting in areas that were historically productive "hauls". In light of the importance of the seine fishery to the longline fishery, any action that adversely affects the seine fishery would have negative repercussions for the longline industry and livelihoods with both Parishes (i.e. St. Mark & St. John) which are considered the Fishing Capital of Grenada. In order to mitigate against this concern, the seine fishers would be consulted to minimize impact on their operations, as much as practical, without compromising the functionality of the GoMPA.

Banning of Spearfishing: There were concerns raised on whether spearfishing would be prohibited throughout the entire extent of the GoMPA, bearing in mind that there are several spear fishers from the communities adjacent to the MPA that utilize the area for spearfishing as their source of livelihood. This fear soon dissipated as the stakeholders were informed that the MPA would be a multi-use area where all activities would be allowed to occur; however, there will be necessary changes in practices that will allow these activities to be sustainable.

Policy and Legislative Framework

Since the official gazetting of the Moliniere Beausejour and Woburn Clarkes Court Bay Marine Protected Areas in December 2001, Grenada has continued to reaffirm its commitment to expand the MPA network. Subsequently, Grenada has established two additional MPAs (i.e. Sandy Island Oyster Bed MPA in 2010 and Grand Anse MPA in 2017). The Government of Grenada via its Caribbean Challenge Initiative has pledged to effectively conserve at least 25% of the near-shore marine resource across Grenada by year 2020.

Fisheries (Marine Protected Areas) Order (i.e. SRO 77 of 2001) and Fisheries (Marine Protected Areas) Regulation (i.e. SRO 78 of 2001) are the primary bits of legislation that govern the establishment of Marine Protected Areas in Grenada. SRO 78 of 2001, outlined the various types of MPAs as well as the management arrangement (i.e. authority, procedures, fees, penalties, etc.) necessary for their management.

National Parks and Protected Area Act (i.e. Act No. 20 of 2009) was established for the designation and maintenance of national parks and protected areas. More specifically, this legislation defined the powers of the Minister for declaring national parks and protected areas, restrictions on park lands, as well as the management arrangements (i.e. administration, staffing, penalties, etc.).

Forest, Soil and Water Conservation Act (i.e. Act No. 34 of 1984) amongst other areas speaks to the proclamation of forest reserves and protected forests on private land. The Act defined a number of purposes under which the Governor General by an Order can declare private lands a protected forest. Under Chapter 7 section 1(c) private land may be declared a protected forest “for the protection of wastage of resources of timber and for securing the proper management of lands whereon trees are growing, and which are not under permanent agricultural cultivation”. This subsection may be significant for the protection of mangrove and other vegetation that exist long the coastline adjacent to the GoMPA.

Birds and Other Wildlife (Protection) Act (i.e. Act No. 10 of 1990) speaks to the protection of birds, oysters, turtles and lobster via the establishment of closed seasons and minimum harvest sizes (e.g. turtles and lobsters). Given the fact the GoMPA would be a multiuse MPA, it is critically important to have existing legislation that could be utilized for the management of these harvested resources.

Physical Planning and Development Control Act (i.e. Act No. 24 of 2008) deals with the approval for the development of lands and the protection of the Natural and Cultural Heritage. The section of particular importance to the MPA is the section which deals with declaring areas of natural beauty or interest, including submarine and subterranean areas and their flora and fauna as protected environments. This bit of legislation can also be utilized to ensure that the any future development within or adjacent to the GoMPA adheres to all the laws governing infrastructure development.

Management Activities

Objectives

The goal for designating the coastal areas along St. John and St. Mark as an MPA is to maintain, and where possible, improve the ecological integrity and ecosystem resilience of the coastal ecosystems (i.e. mangrove wetlands, seagrass meadows and coral reefs), including building resilience from the projected negative impacts of Climate Change. The protection of the GoMPA provides an opportunity to protect a significant seagrass bed, coral reef complexes and their associated flora and fauna. More specifically, the primary objectives of the Gouyave Marine Protected Area (GoMPA) are:

1. To protect and enhance the coastal ecosystems and their associated resources (i.e. flora and Fauna).
2. To facilitate the development of sustainable livelihoods within and adjacent to the GoMPA through sustainable use.
3. To enhance community resilience through increased knowledge and awareness of the projected impact of Climate Change of community livelihoods.

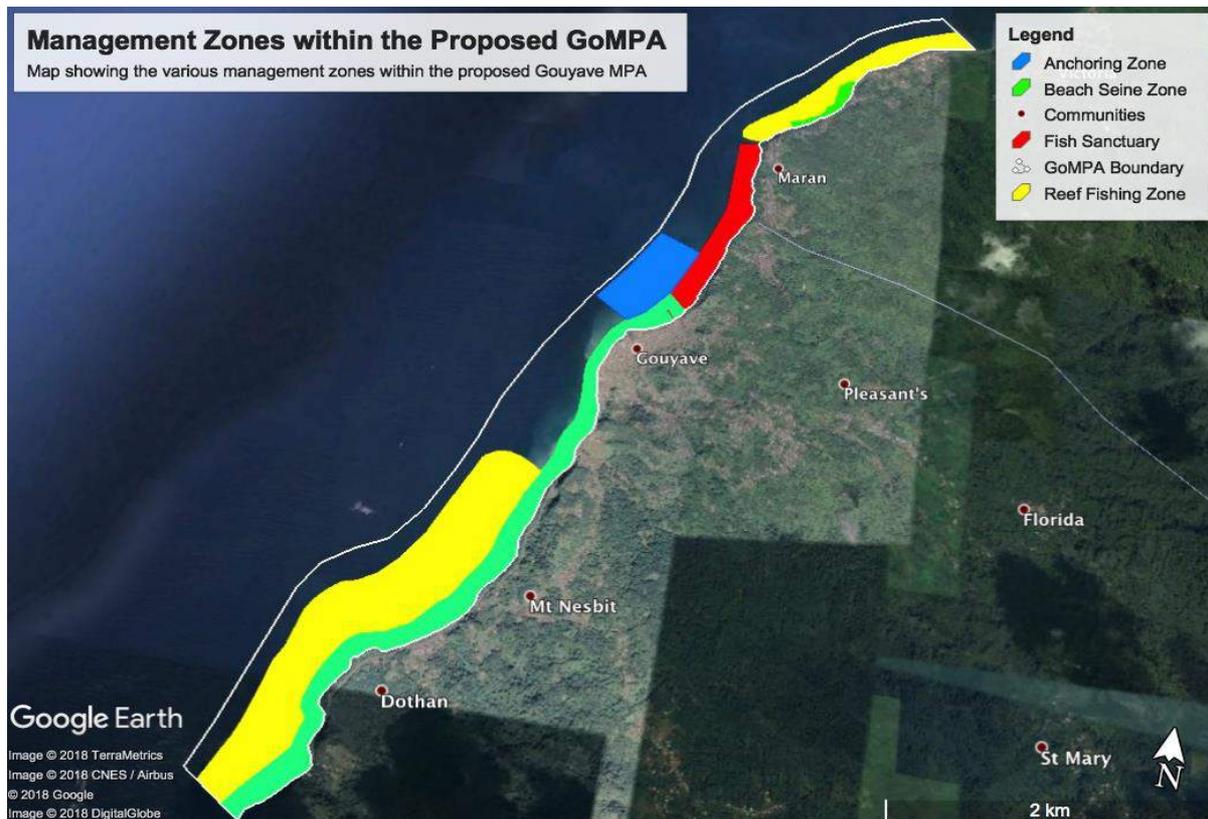


Figure 4: Map showing the proposed management zones within the GoMPA.

Zoning

The Gouyave MPA will be divided into five (5) distinct zones where specific activities will be allowed to occur with defined rules. The five management zones identified below will provide the GoMPA management entity with the opportunity to protect the resources within the area from unsustainable practices and/or activities. More specifically, each zone corresponds to a

specific benthic habitat category (e.g. coral reef, seagrass, beach, etc.) where resources are harvested or utilised for specific socioeconomic purposes. The rules for each zone would ensure that the activities that are allowed to occur within that specified zone is sustainable and does not cause unacceptable changes to these ecosystems (See [Figure 4](#) for a map of the proposed management zones).

Marine Reserve (Fish Sanctuaries)

There is one fish sanctuary within the proposed GoMPA associated with the major fringing reef systems that extends north of the Gouyave Fisheries Complex Jetty up to Maran Point (i.e. “coffin stone”). The location of the fish sanctuary was selected because it already provides ideal juvenile and sub-adult habitats for marine organisms; several species of which are important to the fishery (e.g. finfish, lobsters, crabs, etc.). The protection of this area as a fish sanctuary would allow for the regeneration of the habitat and with it, the various marine species that utilizes these areas. In this way, the fish sanctuary would function as replenishment zones where fish are allowed to reach maturity, then they can move outside the sanctuary to areas where they can be legally caught. Consequently, the sanctuary areas would function as a sustainable source of fisheries resources for the GoMPA. The southern Boundaries of the Sanctuary are 12°10'15.59"N/ 61°43'42.75"W & 12°10'11.77"N/ 61°43'38.69"W. The northern boundaries of the Sanctuary are 12°10'59.30"N/ 61°43'32.37"W & 12°11'0.17"N/ 61°43'27.99"W. The following rules apply to the fish sanctuary:

- a. Fishing is prohibited (including from shore/rocks).
- b. Entry into or transit through the reserve is prohibited.
- c. SCUBA diving or Snorkeling only with special permission.
- d. The removal of rock, coral, sand or plant are prohibited.
- e. Feeding of marine wildlife is prohibited.

Fishing Vessel Anchoring Zone (Anchoring Zone)

The fishing vessel anchoring zone is a dedicated area approximately 175 m from the shoreline within the vicinity of the Gouyave Fisheries Complex Jetty where fishing vessels could deploy a fixed mooring or drop anchor. The area is intended to be a safe harbour for fishing vessels while in port. The anchoring of vessels would take priority in this area; however, it does not preclude the casting of seines. The boundaries of the anchoring zone are 12°10'6.86"N/ 61°43'51.80"W; 12°10'11.82"N/ 61°43'59.68"W; 12°10'31.13"N/ 61°43'47.55"W; 12°10'27.21"N/ 61°43'37.87"W.

Reef Fishing Zone

There are two designated reef fishing zones proposed for the GoMPA, one at each extreme of the proposed MPA coinciding with the two larger coral reef complexes. The general boundaries of the reef fishing zones is 12° 8'5.66"N/ 61°44'53.41"W; 12° 8'9.47"N/ 61°44'59.34"W; 12° 9'27.87"N/ 61°44'17.25"W; 12° 9'26.13"N/ 61°44'4.11"W for the southern zone and 12°11'1.10"N/ 61°43'27.57"W; 12°11'3.40"N/ 61°43'32.32"W; 12°11'42.54"N/

61°42'42.60"W; 12°11'38.08"N/ 61°42'37.57"W for the northern zone. The capture of shell and finfish using all gear and methods that are allowed by Grenada Fisheries legislation is permitted once the following rules for the reef fishing zones are adhered to:

- a. Minimum size limit of 1.5 lbs for all finfish (except Lionfish any size can be taken)
- b. The taking of Parrotfish of any size is prohibited
- c. Harvesting of any species of Sea Turtle is prohibited

Beach Seine Fishing Zones (Seine Zone)

There are two beach seine priority fishing zones proposed for the GoMPA. The first zone extends from the southern boundary of the MPA and runs all the way to the start of the coral reef complex north of the Gouyave Fisheries Complex Jetty and extends to approximately 175 m out to sea along its full extent. The second seine fishing zone is small area of sand within Maran Bay which is encircled by reefs. The Seine fishing zone gives priority to seine fishing within these areas however does not preclude other activities which are compatible with seine operations (e.g. swimming, snorkeling, etc.). The only activity that is strictly prohibited within seine fishing zone is the deployment of fixed mooring or anchoring within established “seine hauls”.

Multiuse Zone

All areas within the boundaries of the GoMPA which are not specifically designated as a distinct zone are part of the multiuse zone. Fishing is allowed within this zone using all legally sanctioned fishing gear and methods within the stipulated season and size limits. In order to reduce the impact of anchor damage by vessels that are conducting recreational activities (e.g. diving, snorkeling, yachting, etc.) with the multiuse zones, a series of moorings should be installed at strategic locations where these activities are most likely to occur (see [Figure 5](#) for a map of the proposed locations of these yacht and dive moorings).

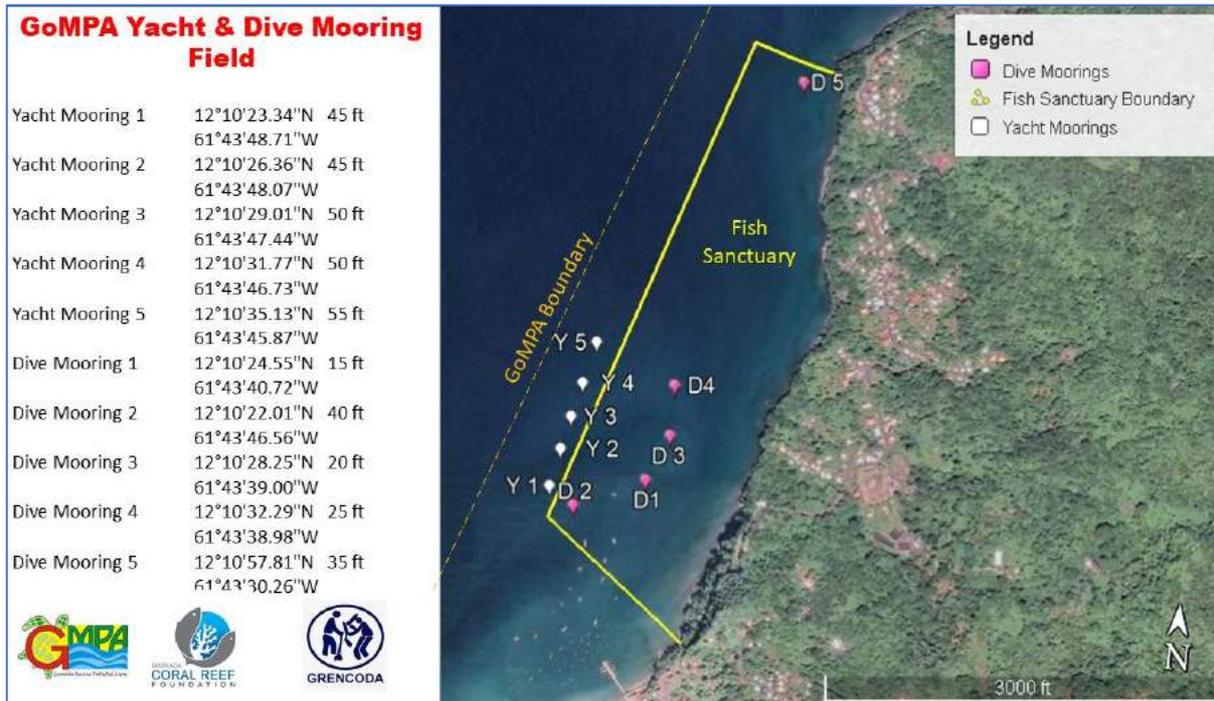


Figure 5: Map showing the proposed location of Yacht and Dive Moorings with the proposed GoMPA.

Demarcation

As soon as is practicable, the seaward boundaries and the fish sanctuary should be demarcated to facilitate public awareness and visibility of the zones within the GoMPA. The demarcation should be a priority activity that should occur within the first few months after legal designation. Given the drastic change in depths that occurs as you move seaward from the land within the area, special effort should be made to consult the local fishers that utilize the area on a frequent basis for the most appropriate locations for installing the demarcation markers (See Figure 6 for the proposed location for the boundary marker buoys).

The following sequence should be followed for the installation of Demarcation Markers and Mooring Buoys:

1. Hire an experienced consultant/firm to install the demarcation and mooring systems.
2. Conduct a scoping exercise with the aid of local fishers to determine the most appropriate location, materials and gear to utilize for the installation of the demarcation and mooring buoys based on the conditions.
3. Procure the selected equipment and prepare for the installation.
4. Deploy and quality check the mooring buoys and demarcating markers.
5. Have the underwater firm/expert develop an individualized maintenance plan for the moorings and demarcation and train the MPA staff in executing the routine maintenance.



Figure 6: Map showing the proposed locations of the MPA boundary Demarcation Markers Buoys

Maintenance

Routine preventative maintenance is frequently the most underappreciated duty within the workload of MPA staff. However, it is the most effective mechanism available to prevent catastrophic equipment failure (e.g. engine breakdown or mooring failure) that could impede effective management of an MPA. Equipment should be inspected at least monthly or more frequently if the producer suggests to determine if servicing is required. It is the responsibility of the MPA Manager to ensure that all equipment (e.g. boat, VHF, dive gears, etc.) and infrastructure (e.g. demarcation, moorings, etc.) are maintained or serviced in a timely manner. The actual task of maintaining or servicing the equipment or infrastructure may be delegated to another member of staff (e.g. head/lead Ranger) but verification that it is completed is mandatory for effective management.

Enforcement

The ‘on the water’ activities of people and vessels operating within the boundaries of the GoMPA would be monitored and recorded by routine daily patrols by designated MPA Rangers. In the instance where there isn’t 24 hours patrols, it would be best to schedule patrols in a manner so as to prevent predictability in when rangers would or would not be on patrol. The bulk of enforcement and surveillance activities of the MPA should be scheduled during the period when the resources users are most active within the MPA. In the case of fishers, this would be during the early morning and later afternoon periods. An infringement or an offence is considered to have occurred if someone fails to follow any of the general prohibitions of the GoMPA.

The GoMPA enforcement regime should operate using the three-strike model as follows:

- First time offenders would be given a verbal orientation on the water as to the offence committed and the potential penalty of committing the specific infringement.
- The second time a person commits an offence within the GoMPA, he/she would be required to report to the MPA Office within 24 hours for a second orientation where the entire boundaries of the MPA and the full list of prohibited offences would be explained. Following the orientation meeting, the offender would be required to sign a release, indicating that they were fully brief on the rules and regulations of the MPA.
- If an individual assumes a threatening or aggressive demeanor during either (1st or 2nd) of the orientation sessions, that person forfeits the informal warnings and the Royal Grenada Police Force may be called in and the matter dealt with using the court system.
- On the third offence, the offender would be arrested and brought before the court with the aid of the Royal Grenada Police Force (Coast Guard) where necessary. The offender's prior warning and orientation record(s) would be provided as evidence against them during court proceedings.

The management of the GoMPA would be responsible to record all offences in a dedicated database. This database must be available/accessible to the Rangers on the water to facilitate searching for an offender's history. An individual log would be made for each infraction or offence and would collect as a minimum, the following information:

- Name and address of all persons involved
- Name and/or registration of all vessels or vehicles involved
- Date, time and location (GPS if available) of the event
- Description of the incident
- Actions that were taken by MPA Staff (e.g. orientation or legal action)

Scientific Monitoring and Research

In order to determine the impact of the management interventions on the health of the environment, a number of biological assessments must be conducted.

Coral Reef Assessment

The three (3) permanent monitoring station established as part of the coral reef assessment (i.e. coral, fish & benthos) conducted by the GCRF should be monitored every two (2) years to determine health of the resource. To ensure consistency across the MPAs sites in Grenada, the Atlantic and Gulf Rapid Reef Assessment (AGRRA) methodology should be utilized for all coral reef assessments.

Seagrass Assessment

At least five (5) seagrass monitoring stations should be established within the western Corridor, four (4) of which should be within the boundaries of GoMPA and one control site outside the MPA (e.g. Black Bay or Halifax Harbor). These monitoring stations should be evaluated annually to assess the overall health of the seagrass meadows within the GoMPA. Special effort

should be made to ensure the changes in seagrass community composition (i.e. ratio of native species) as well as the proliferation of invasive species (i.e. *Halophila stipulacea*).

Water Quality Assessment

Water Quality should be tested on a quarterly basis to monitoring seasonal changes in nutrient and bacteriological inputs. Water quality testing should focus on the following parameters: nitrates, phosphates, faecal coliforms, enterococci, dissolved oxygen, turbidity, pH and salinity. At least five (5) permanent water quality monitoring sites should be established within the boundaries of the GoMPA. The monitoring sites may be distributed as proposed in **Figure 7** in order to provide insight into pollution sources and/or gradients.

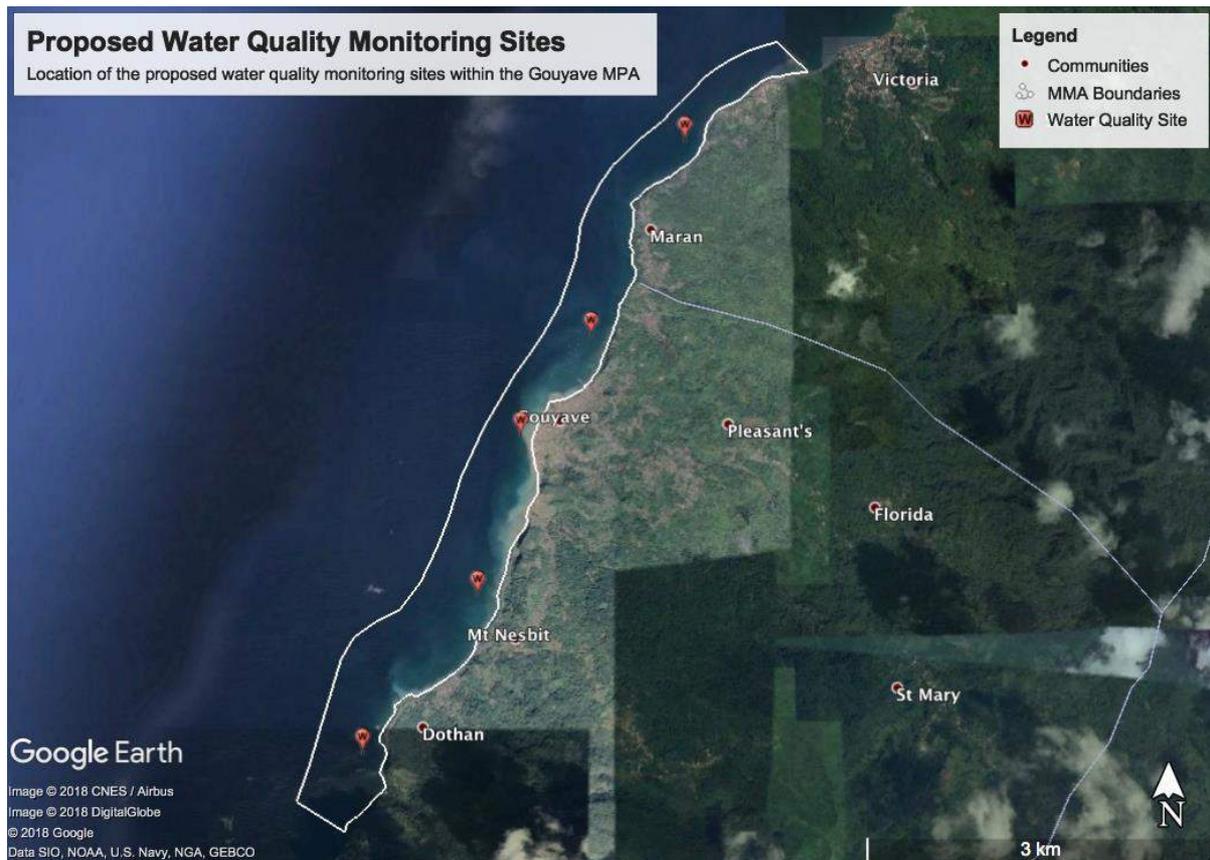


Figure 7: Map showing the proposed water quality monitoring locations within the GoMPA

Public Education and Awareness

The most important activities for the Management of the GoMPA immediately after the designation of the area, is to continue the public awareness activities that are already ongoing to ensuring that the general public along with key stakeholders are aware of the legal designation on the MPA. The MPA Unit within the Fisheries Division already has a dedicated Education and Communication Officer within the other established MPAs with extensive experience in conducting public education and awareness within the Grenadian context. The management of the GoMPA can tap into the experience and expertise of that officer in designing a similar program for the GoMPA. During the first year of operation, efforts should

be focused on educating the public on the objectives of the MPA as well as the rule and regulation for its operations. In order to assess the impact of the awareness program, a Knowledge, Attitudes and Practices (KAP) survey should be conducted at the end of each fiscal year. The results of this assessment can then be compared to that of the socioeconomic assessment conducted by Glasgow (2018) (see [Annex 3](#) for the complete report) and also guide the restructuring, if necessary, of the public awareness activities for the subsequent year.

Administration and Staffing

The Fisheries (Marine Protected Areas) Regulations indicated that the MPA Management Authority is responsible for the management of all MPAs with the jurisdiction of Grenada. The Management Authority according to the legislation consists of the Manager of MPAs (i.e. MPA Coordinator) and the Management Committee. The legislation goes on to stipulate that the Management Committee for MPAs must consist of a representative nominated by the respective body and appointed by the Minister as follows:

1. The Ministry of Finance;
2. A representative of the Ministry of Tourism;
3. The Board of Tourism;
4. The Ministry of Agriculture;
5. The Science and Technology Council;
6. The Grenada Coast Guard;
7. The Grenada Ports Authority;
8. The Marine and Yachting Association of Grenada;
9. The Grenada SCUBA Divers Association;
10. Any non-governmental organisation which has a specialized interest in marine or environmental matters

As is customary within the Grenada Marine Protected Areas System, a Stakeholder Advisory Committee (SAC) would be established for the Gouyave Marine Protected Area. The SAC would consist of all the primary stakeholders of the GoMPA and would provide recommendations for the operation of the MPA to the Management Authority through the MPA Coordinator.

The proposal for the designation of the coastal areas of Gouyave as an MPA finds its genesis with the fishers of Gouyave. The fishers through their formal organization, the Gouyave Fisherman Cooperative Society Ltd. (GFCSL) has expressed their willingness, commitment and has demonstrated their capacity for taking the leading role in the management of the GoMPA. From the inception of the MPA designation process, there has been a general consensus that a delegated or co-management arrangement would more adequately fit the management of the GoMPA. A separate activity was conducted to formulate a draft co-management agreement that could be formalized between the MPA Management Authority and the GFCSL for the management of the GoMPA (see [Annex 4](#) for a draft of the co-management agreement). Figure 9 below outlines the proposed management structure for the GoMPA.

Operational Staff

There is currently a number of key staff positions that operate at a national level and service all MPAs including: Marine Biologist, Manager of MPAs, Education/Communication Officer and Coral Reef Restoration Coordinator. These officers would be critical for getting the various education/awareness and research activities of the MPA operational. In addition to these national staff, there would be a need for a site manager and at least four (4) MPA Rangers that would be completely dedicated to the operation of the GoMPA and the implementation of this management plan. The primary role of the GoMPA site Manager would be to ensure that the various management interventions outlined in this management are effectively implemented. The primary role of the MPA Rangers would be to conduct the surveillance and enforcement activities of the MPA as well as assist with maintenance, public awareness and resource monitoring (See **Figure 8** for the proposed organizational/management structure for the GoMPA).

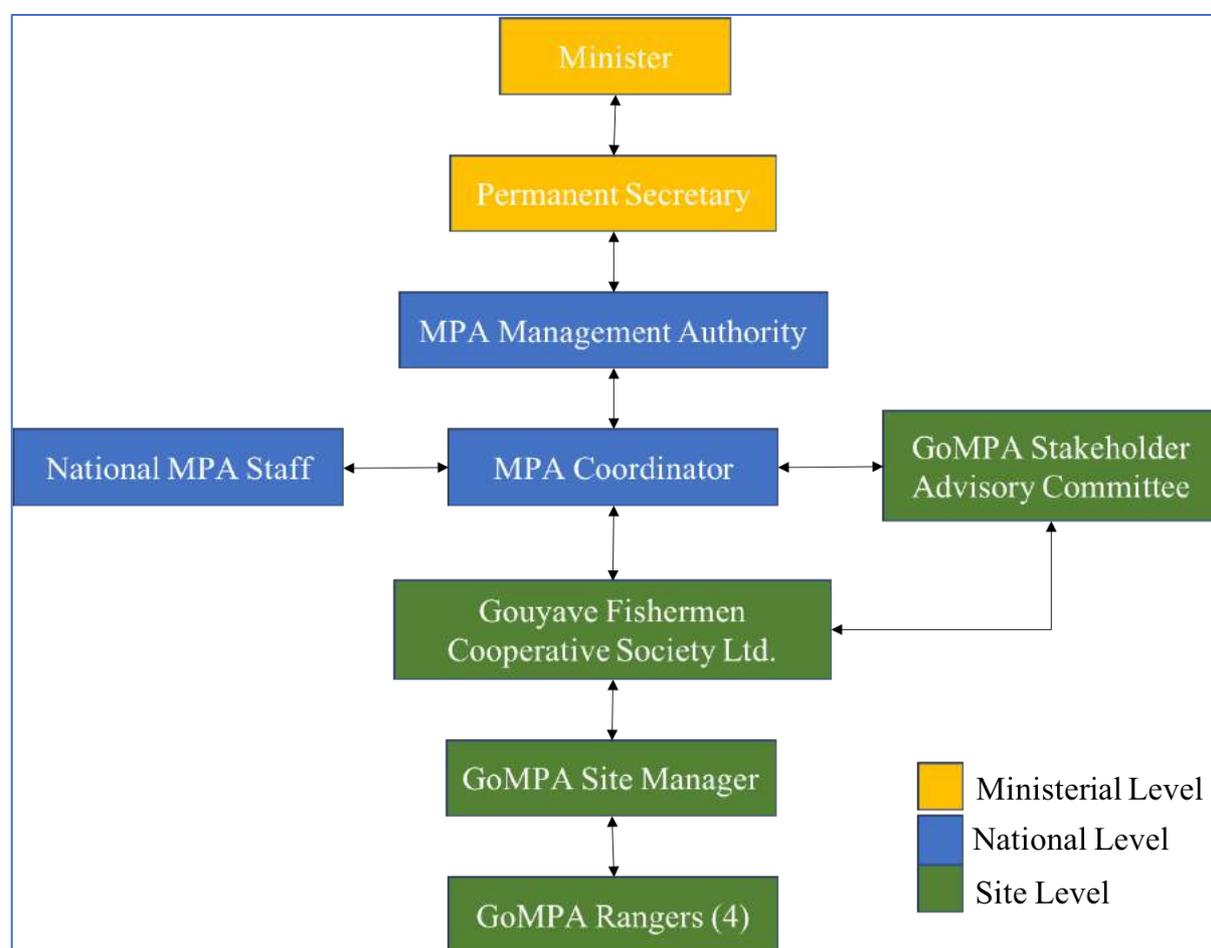


Figure 8: Proposed organizational structure for the Management of the GoMPA

Training Needs

Given the delegated or cooperative management arrangement proposed for the GoMPA, it is critically important that the GFCSL (i.e. management entity) as well as the operational staff possess the requisite skillsets to effectively manage the MPA. This would require a series of

specialized training activities and courses, most of which can be done on the job by domestic trainers (e.g. senior staff and rangers within the National MPA Unit). Learning is a continuous process; therefore, adequate opportunity must be provided for staff to learn new skills - domestic as well as external - through learning exchanges with other MPAs/MMAs as well as participation in formal training courses. It is also critically important to foster an environment of peer-to-peer learning within the institution where staff can learn from the experiences and skillsets of their colleagues. Staff must also be given the opportunity to implement what they learn, this constant reinforcement would develop “muscle memory” and critically important tasks would become second nature or instinctual. Some of the critically important areas where staff training is required include:

- Report Writing
- Work Planning
- First Aid/CPR
- Safety at Sea/Seamanship
- Evidence collecting and Chain of Custody
- Wildlife Management, Coastal Ecology and Species Identification
- Basic Engine Repair and Troubleshooting
- Nature and Wildlife Interpretation
- Conflict Resolution
- SCUBA Diving
- Communicating and Public Relations
- Standard Operating Procedures for GMPA Rangers
- Enforcement and patrolling
- Scientific and Socioeconomic Monitoring Protocols
- Interpretation of MPA Regulation
- Equipment and Infrastructure Maintenance

Budget

An estimated budget of operating cost based on the current costs of operating the existing GMPAs as indicated by the staff of the Fisheries Division, MPA Unit is provided in [Appendix 2](#). The estimated cost of operations for the start-up year is estimated at Five Hundred and eighty-two Thousand Eastern Caribbean Dollars (XCD \$582,000). The subsequent four years of operation are \$309,000.00, \$305,000.00, \$325,000.00 and \$325,000.00 respectively. The significant drop in cost for the subsequent four years of operations is as a result of having already purchased the large infrastructural items (i.e. boat, moorings, demarcation, etc.) during the start-up year.

Potential sources of funding for the implementation of activities outlined in this management plan include Government of Grenada Subvention, the Grenada Sustainable Development Trust Fund, the Caribbean Biodiversity Fund and other donor agencies active in the region (e.g. UNDP, GEF, etc.)

Monitoring and Evaluation

The Site Manager for the GoMPA with input from the technical staff (i.e. national and site specific) should as soon as is practical, develop an annual workplan for the MPA. The plan should outline all the major tasks and activities that would be implemented each month based on the availability of technical and financial resources. Quarterly assessment should be conducted to ensure that activities that are planned for the preceding months are completed. In the event that an activity was not completed as planned, every effort should be made to incorporate that activity into a subsequent month.

In addition to monitoring the progress of implementing the annual workplan, there should be a biennial (i.e. every other year) assessment of the management effectiveness in achieving the expressed goal of the GoMPA. There are a number of well-established institutional self-assessment toolkits (e.g. How is your MPA Doing?, Impact Evaluation Toolkit, etc.) for conducted these types of assessments which the MPA staff can utilize. The result of this institutional self-assessment should be utilized to realign the management intervention for the subsequent year so as to better achieve the intended purpose, goal and objectives of the GoMPA.

This management plan is intended to be implemented over a five-year planning cycle, at the end of that planning cycle, a critical review of the document should be conducted in order to update the plan. The question listed below could be utilized to begin the review process:

- what component of the plan was implemented?
- what was successful and/or not successful?
- what were the impediments to the successful implementation of the plan? How has the situation on the ground changed since implementation of the plan began?
- What components of the plan should be updated?

Conclusion

Limitation

The current range of legislation that govern the establishment and management of protected areas do not make any legal provision for delegated or collaborative management of areas as is envisaged for the GoMPA. However, the legislation does not specifically prohibit co-management arrangements either. The Fisheries Division is currently in the process of conducting a review of the Fisheries Act which will also explore the potential for delegated management of aspects of the Fisheries Act including MPAs (O. Harvey, per.com.). In the interim, the GoMPA can utilize the model of the Sandy Island/Oyster Bed Marine Protected Area by establishing a collaborative management agreement with the MPA Management Authority for the management of the MMA.

The development of this GoMPA management plan is based on the best available data and information for the Gouyave area; however, there are a few gaps that would warrant

remediation by the management of the GoMPA during the first year of operations, including are:

- The development of a comprehensive inventory of users and uses of the GoMPA. Despite the best effort of the drafting team, there could be uses and users that may have gone unnoticed during the development of this plan. Therefore, every effort should be made to identify and engage these users in future management processes and activities of the GoMPA.

Way Forward

In order to effectively operationalize the GoMPA, there are a number of activities that must take priority during the first year of operations. These include the areas listed below:

- Finalize the management structures for the GoMPA
- Signing of Co-management Agreement (i.e. MPA Management Authority & GFCSL)
- Develop a strategic plan for the GoMPA
- Develop an implementation plan for the various management interventions
- Constructing and equipping the site office for the GoMPA
- Hire requisite staff (i.e. site manager & MPA rangers)
- Commence in-house/on the job training of staff
- Develop an annual workplan/program
- Procure and install MMA Infrastructure (i.e. Boat, Signage & Demarcation Markers)
- Develop a communication strategy and action plan
- Commence MMA Patrols
- Commence Awareness and Education Activities within community and school

References

Glasgow, L., (2018). Community-based Coastal Ecosystem Management for Climate Adaptation in Selected Areas of Grenada. Assessment Report. GRENCODA 5Cs Project. 69pp

Government of Grenada (2013). Laws of Grenada. <http://laws.gov.gd/>. Date Assessed 10th July 2018.

Grenada Coral Reef Foundation (2018). Benthic Habitat Mapping: A Baseline Assessment of Habitat Types within the proposed Gouyave MPA. Assessment Report. GRENCODA 5Cs Project. 18pp

Grenada Ports Authority (2018). Official Ports of Entry: Port of St. George's. <http://www.grenadaports.com/index.php/ports-of-entry/port-of-st-george-s>. Date Accessed 1st, August 2018.

Nimrod, S. (2018). Coral Reef Composition and Status within the Coastal Areas of the Proposed Gouyave MPA. Assessment Report. GRENCODA 5Cs Project. 17pp

Appendix 1

List of stakeholders that participated in consultation meetings for the GoMPA management Plan.

First Name	Last Name	Designation/Sector
Gouyave Meetings		
John	Wright	Fishing Industry
Dexter	Warren	Fishing Industry
Larry	Cuilla	Fishing Industry
Tylon	Joseph	Fishing Industry
Glen	Mark	Fishing Industry
Dorrani	Marshal	Fishing Industry
Brenda	Thomas	Fishing Industry
Carlton	Gilbert	Fishing Industry
Roger	Gill	Fishing Industry
Judy	Lewis-Joseph	Fishing Industry
Ronnie	Matthew	Fishing Industry
Seon	Walker	Fishing Industry
Cecil	Marquez	Fishing Industry
Shevon	Sampson	Fishing Industry
Alwyn	Ferguson	Fishing Industry
Desmond	Gill	Fishing Industry
Cecil	Joseph	Fishing Industry
Mervin	Oliver	Fishing Industry
Gary	Mc Phie	Fishing Industry
Kent	Phillip	Fishing Industry
Devon	Britton	Fishing Industry
Edwin	Sanderson	Fishing Industry
Michael	Augustine	Fishing Industry
Brendon	Joseph	Fishing Industry
Kimon	Charles	Fishing Industry
Lemrick	Stanislaus	Community
Clive	Lewis	Community
Lexie	Smith	Community
Nydanu	Joseph	Community
Martin	Mendes	Community
Daniel	Welsh	Community
Gemma	John	Community
Insp. Desmond	Richards	Community
Insp. Glen	Charles	Community
Alwyn	Gatt	Community

First Name	Last Name	Designation/Sector
Jimmy	Crowe	Community
Rachael	Hyacinth	Community
Kendall	Victor	Community
Michael	Mapp	Community
Dunstan	Campbell	Community
Judy	Williams	General Secretary: GRENCODA
Benny	Languigne	Programme Manager: GRENCODA
Carisha	Thomas	Communications Officer: GRENCODA
Amanda	Boldeau	Environmental Officer: GRENCODA
Ezra	Campbell	Project Manager: GRENCODA
Olando	Harvey	MPA Coordinator
Lisa	Chetram	Extension Officer for Western District
Victoria Meeting		
Tabia	Paul	Fisheries Officer in Victoria
Curlyn	Julien	
Eric	Straker	
Conrad	St. John	
Dunbar	George	
Lasil	Williams	
Don	Curwen	
Shevon	Fraser	
Anthony	Hosten	
Leandra	Mc Ewen	
Khalifani	Curwen	
Asha	Fletcher	
Peter	Andrew	
Junior	Commission	
Liam	Barry	
Kent	Phillip	
Mike	Lewis	
Jude	Ellis	

Appendix 2

Estimated budget for the operations of the Gouyave Marine Protected Area for the first five (5) years of operations.

BUDGETED ACTIVITY	2019	2020	2021	2022	2023
Staffing					
Site Manager	\$42,000.00	\$44,000.00	\$46,000.00	\$48,000.00	\$50,000.00
MPA Rangers (4)	\$69,000.00	\$72,000.00	\$75,000.00	\$78,000.00	\$81,000.00
Staff Training					
Domestic	\$15,000.00	\$8,000.00	\$5,000.00	\$5,000.00	\$5,000.00
Overseas	\$0.00	\$10,000.00	\$8,000.00	\$8,000.00	\$8,000.00
Infrastructure					
Boat	\$110,000.00	\$0.00	\$0.00	\$0.00	\$0.00
Demarcation	\$80,000.00	\$0.00	\$0.00	\$0.00	\$0.00
Moorings (yacht & speed Boat)	\$20,000.00	\$0.00	\$0.00	\$0.00	\$0.00
Enforcement					
Equipment (GPS, VHF, Binoculars, etc.)	\$10,000.00	\$0.00	\$0.00	\$5,000.00	
Uniform & PPG (life jackets, rain coats)	\$20,000.00	\$0.00	\$7,000.00	\$6,000.00	\$6,000.00
Fuel	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
Monitoring and Research					
Benthic Habitat (Coral Reef & Seagrass)	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00
Water Quality	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
Public Awareness & Education					
Signage & Brochures	\$30,000.00	\$20,000.00	\$10,000.00	\$10,000.00	\$10,000.00
AV Equipment	\$12,000.00	\$0.00	\$0.00	\$3,000.00	\$3,000.00
Outreach Activities	\$15,000.00	\$15,000.00	\$10,000.00	\$10,000.00	\$10,000.00

BUDGETED ACTIVITY	2019	2020	2021	2022	2023
MPA Office					
Rent	\$24,000.00	\$24,000.00	\$24,000.00	\$24,000.00	\$24,000.00
Furniture	\$10,000.00	\$2,000.00	\$2,000.00	\$3,000.00	\$3,000.00
Utilities	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
Stationary	\$12,000.00	\$12,000.00	\$12,000.00	\$12,000.00	\$12,000.00
Equipment	\$15,000.00	\$2,000.00	\$3,000.00	\$5,000.00	\$5,000.00
Maintenance					
Boat	\$10,000.00	\$12,000.00	\$15,000.00	\$15,000.00	\$15,000.00
Mooring & Demarcation	\$15,000.00	\$15,000.00	\$15,000.00	\$18,000.00	\$18,000.00
Signage	\$8,000.00	\$8,000.00	\$8,000.00	\$10,000.00	\$10,000.00
Total Estimated Cost (XCD)	\$582,000.00	\$309,000.00	\$305,000.00	\$325,000.00	\$325,000.00