# The Grand Bahamas National Parks Expansion Project

**A Component of:**

**ReefFix: An Integrated Coastal Zone Management (ICZM) Ecosystem Services Valuation and Capacity Building Project for the Caribbean**

**Completed by:**


Organization of American States

GLOBAL PARKS

# The Grand Bahamas
# National Parks Expansion Project

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## The Grand Bahamas

# National Parks Expansion Project

## 1.0 Project Background

The Government of The Bahamas is an active participant in several national, regional and international programs toward meeting global standards in achieving the long term conservation and protection of its terrestrial and marine ecosystems. As a signatory to the UN Convention on Biological Diversity (CBD), it is committed to the establishment and effective management of a comprehensive and ecologically representative system of terrestrial and marine protected areas, as further articulated in the CBD's Programme of Work on Protected Areas (PoWPA) for the Bahamas. The Bahamas has shown leadership in the implementation of the PoWPA, both globally and in the Caribbean region, through the Bahamas 2020 Declaration and the promotion of the Caribbean Challenge, launched in 2008. In so doing, the Bahamas has confirmed its intent to meet and even exceed the CBD goals by setting aside at least 20% of its coastal marine waters as marine protected areas (MPAs) and 25% of its terrestrial area in national parks by 2020.

As the statutory body established by the Government of The Bahamas to establish and manage its system of national parks, the Bahamas National Trust (BNT) entered into an agreement with Global Parks, supported by funding from the Organization of American States (OAS), to undertake the development of specific proposals for national park expansion and establishment on Grand Bahama Island. This project is comprised of two distinct components:

- Develop proposals for the expansion of two existing national parks, Lucayan National Park and Peterson Cay National Park; and
- Develop a proposal for establishing a new terrestrial and marine national park on the north shore of Grand Bahama Island.

## 2.0 Project Description

In accordance with the Project Terms of Reference as outlined in the OAS contract to Global Parks, the project undertook the following individual tasks and deliverables in order to develop and deliver the national park proposals:

| Task and Deliverable | Timeline |
|---|---|
| Completion of orientation meetings and description of planning context | Week 1 |
| Completion of field reconnaissance of all sites | Within weeks 1-2 |
| Completion of meetings with necessary 3rd parties | Within weeks 1-2 |
| Prepare a vision, goals and objectives for park establishment and expansion | Week 2 |
| Completion of review of available information | Within 2 weeks of project start |
| Conduct resource inventories and gather tourism related data | Within 2-3 weeks of project start |
| Completion of information analysis and issues analysis | Week 3 |
| Development of establishment and expansion scenarios with recommendations for boundaries | Week 4 |
| Submit and present draft report to BNT/OAS | Week 4 |

The development of the park proposals involved the development of goals and objectives, information collection and analysis, the development of park establishment and expansion scenarios (with options) and recommendations for BNT's consideration. The BNT had already undertaken an Ecological Gap Assessment including an overview of the protection status of major habitats and key species, as well as a series of assessments regarding management effectiveness, capacity and sustainable finance. The BNT is also to address the socioeconomic needs of the park proposal process, while Global Parks staff focus on providing the biological context for the proposed park areas.

During these early stages of park proposal development, it was understood that this project would not involve:

- consultation with the public and stakeholders; and
- detailed discussions or negotiations with adjacent or otherwise affected property owners.

These activities will become necessary should the Government of The Bahamas wish to pursue park expansion and/or establishment and will be undertaken by the BNT.

## 3.0 Project Management and Implementation

Under the direction and guidance of BNT staff, Global Parks provided a professional project team including a national park planner, a terrestrial ecologist/forester and a specialist in karst cave features and management to undertake this task. The lead role for project management was retained by the BNT's planner throughout the project, who was responsible for providing the project team with all the information available with respect to the project sites. The Global Parks national park planner assumed overall responsibility for project completion, working in conjunction with the science specialists. BNT and Global Parks staff met on an as required basis to review information requirements, field visits, and project progress and process.

The project formally commenced with a meeting of the Global Parks team with BNT staff in Nassau, followed by arrival on Grand Bahama Island, on April 9, 2013. The field work, data collection and analysis and final drafts of the park proposals were completed by May 8, 2013. The Global Parks Team was comprised of:

- Bill Henwood, National Park Planner, recently retired from Parks Canada, British Columbia, Canada;
- Dan Nolan, Forester, recently retired from The U.S. Forest Service, Colorado, United States; and
- Phil Whitfield, Park Planner and Cave Expert, recently retired from BC Parks, British Columbia, Canada

Throughout the project, support was provided from other BNT staff and resources, including GIS capability, field personnel and equipment such as vehicles and a boat, on an as needed basis. The BNT provided

accommodation in a house owned by the BNT on the grounds of the Rand Nature Centre in Freeport, Grand Bahama Island.

## 4.0 Summary Report of the Rapid Ecological Assessment for the Expansion of Lucayan National Park

A copy of this summary report is attached as Appendix 1. The full report will be added to this report once it is completed by the BNT.

## 5.0 National Park Proposals

As mandated by the Terms of Reference, the project produced three park proposals, including two expansion proposals for Lucayan and Peterson Cay national parks and a proposal for a new national park on Grand Bahama Island's North Shore. Due to their large file size, the three proposals are appended to this report in APPENDIX 3 as separate files. Summaries of the three proposals follow:

### 5.1 Lucayan National Park:

Lucayan National Park encompasses 40 acres (16.2 ha) that include the entrances to one of the longest known underwater karst cave systems in the world. Mapping of the six mile (9.6 km) long Lucayan cave system indicates that most of the known cave network lies outside the current Park boundary. In addition, the recently discovered Pirates Mew cave system lies further to the west of the mapped Lucayan caves and is also outside the Park's protection area. The Park encompasses a short section of Gold Rock Creek, a tidal creek that passes through mangrove wetlands. This waterway connects to the underwater cave system and provides plankton filled seawater that is needed to support the variety of species found in the cave environment. However, most of this 4 mile (6.4 km) waterway is outside of Park protection.

This proposal provides two options for contributing to the protected area targets for the Bahamas National System of Protected Areas through the expansion of the Lucayan National Park. Specifically, Option 1 would increase the Park's area from 40 acres (16.2 ha) to approximately 2,700 acres (1,092 ha). Of this, approximately 950 acres (385 ha) would be terrestrial and 1,750 acres (708 ha) would be in marine ecosystems. A significant amount of additional pinelands would be added as well as karst caves, mangrove

wetlands, dune area, tidal creeks and various marine components including approximately 2.8 miles (4.5 kms) of fringing reef.

The Option 2 proposal would encompass all of the Option 1 components and further expand the Park's area south of the Queen's Highway to a total of approximately 3,550 acres (1,437 ha). Of this, approximately 1,150 acres (465 ha) would be terrestrial and 2,400 acres (971 ha) would be in marine ecosystems. The entire 4 mile (6.4 km) reach of Gold Rock Creek would come under Park protection status. Approximately 1 mile (1.6 km) of shoreline of the South Shore IBA and 4 miles (6.4 km) of fringing reef would be protected along with additional mangrove wetlands, dune, and coppice vegetation.

The Proposal points out additional opportunities for adding protective status to an area along the coast from the Grand Lucayan Waterway and Barbary Beach along an unbroken stretch of beach to Burnside Cove. Significant natural and cultural values are found here including The Heritage Trail, the site of Old Freetown, additional area of the South Shore IBA, a potential linkage with the Peterson Cay National Park expansion, and the Owl Hole/Mermaid's Lair blue hole and karst cave system.

## 5.2 Peterson Cay National Park:

Peterson Cay is 1.5 acres (0.6 ha) in size. It is the only cay on the south side of Grand Bahama Island, lying 0.7 mile (1.1 km) from shore and 7 miles (11.2 km) east of Lucaya. The island has been recognized as an Important Bird Area because it supports a globally significant nesting colony of Bridled Terns. The Park is actively used by visitors for snorkeling, picnicking and enjoying the beach. It is often overcrowded.

Figure 1: The Bahamas Archipelago as seen from the International Space Station. The 80 kilometre-wide Strait of Florida separates Grand Bahama Island from Florida.

The Park is located within the fringing coral reef that extends along the south coast of Grand Bahama Island. A 2008 study was conducted that detailed geographic and ecological information of the reef.

The ecosystems identified in the study are currently underrepresented in the National Protected Area System as identified in the Master Plan for the Bahamas National System of Protected Areas. Through this Master Plan the Government of The Bahamas has identified targets for expanding protected areas for terrestrial and marine ecosystems in order to meet its obligations under the Convention on Biological Diversity.

This proposal provides two options for contributing to the targets by creating a marine protected area as an expansion of Peterson Cay National Park. Option 1 proposes to extend the Park boundary on the north to within 500 feet (152 metres) of shore, to the south approximately 1.5 miles (2.4 km) from shore, and approximately 0.5 mile (0.8 km) to the east and west of the cay. This expansion would add approximately 1.9 $mi^2$ (4.9 $km^2$) of marine protected area. Option 2 would further extend the Park to the west to encompass more of the fringing reef and would expand total Park area to approximately 4.0 $mi^2$ (10.3 $km^2$).

This proposal also points out additional expansion opportunities that would provide protection to the South Shore Important Bird Area and for linking Peterson Cay and Lucayan National Parks together.

## 5.3 The Proposed Grand Bahama North Shore National Park

The waters off the north shore of Grand Bahama Island form the southern boundary of the Little Bahama Bank. The Bank itself is a broad expanse of shallow water. The coastal area on the north shore consists of mangrove wetlands, tidal creeks, sand and mud flats, beach strand and rocky shore. The shallow Bank waters, mangrove wetlands, and tidal creeks provide critical spawning and nursery habitat for numerous ecologically and economically important marine species. Further inland, where land rises slightly from the shore, pine woodlands with palm understory occur. Numerous bird species rely on the area's coastal and inland habitat. An extensive area of blue holes and an as yet unexplored karst cave system exists in the coastal area northeast of Dover Sound. All the ecosystems found within the north shore area of Grand Bahama are currently underrepresented within the National Protected Area System and are targets for additional protection status. Sport fishing is a popular and economically important activity in these coastal waters. Remnants from the historic logging era are found in the grid of logging roads that is still in existence and the decaying terminal structure at North Riding Point.

In January 2013 a proposal to create the Grand Bahama North Side Replenishment Park was prepared and submitted to the Minister of Environment by the Bahama National Trust. This current proposal incorporates and builds upon the information included in that 2013 report. Specifically, this proposal calls for the establishment of the Grand Bahama North Shore National Park that would encompasses approximately 445$mi^2$ (1,150$km^2$) including 342$mi^2$ (885$km^2$) of marine and 103$mi^2$ (267$km^2$) of terrestrial habitat.

The proposed Park extends nearly 40 miles (64 km), west to east, from Dover Sound to Cormorant Bush. To the north, the Park extends 22 miles (35.4 km) from the northern tip of the unnamed island immediately west of the Waterway entrance to Dover Sound, to and including the marine waters around Mangrove Cay. The proposed Park includes extensive areas of mangrove wetlands, the shallow waters of Little Bahama Bank, numerous tidal creeks and the karst cave and blue hole systems of Dover Sound. Additionally, a significant expanse of pineland vegetation is included both in the area known locally as The Gap at the east end of the proposed Park as well as along a large extent of the Park's southern border.

An additional opportunity is highlighted that would involve extending the proposed park boundary slightly north and east to encompass Great Sale Cay which is recommended for protection in the BNT's Master Plan. This would provide an additional estimated 550 $mi^2$ (1,400 $km^2$) of marine protected area.

## 6.0 Proposed Areas to be included in the Caribbean Challenge

As noted above, The Bahamas is a leading participant in the implementation of the CBD's PoWPA for the Caribbean. Through the Bahamas 2020 Declaration, The Bahamas promoted the Caribbean Challenge, launched in 2008, confirming its intent to meet or exceed the CBD goals by setting aside at least 20% of its coastal marine waters as marine protected areas (MPAs) and 25% of its terrestrial area in national parks by 2020.

To help direct its efforts, The Bahamas completed in 2012 its Master Plan for The Bahamas National Protected Areas System. As an integral part of this process, the BNT undertook an Ecological Gap Analysis to identify: 1) the distribution of biodiversity against the distribution of protected areas; and 2) where species and ecosystems are left unprotected or under protected. Supported by the use of a systematic and efficient site selection software program known as MARXAN, the process produced a map that identifies and

illustrates the distribution of those areas that need to be protected to ensure complete representation of all biodiversity targets. This map, illustrated in APPENDIX 2, will serve to guide The Bahamas in its efforts to meet the aspirations of the Caribbean Challenge.

# APPENDIX 1

**RAPID ECOLOGICAL ASSESSMENT SUMMARY REPORT**
**Expansion of Lucayan National Park (LNP)**
**July 2013**

During August 31st -September 1st, 2012 and April 23rd –25th, 2013, technical staff from the Science & Policy and Parks Divisions of The Bahamas National Trust conducted a Rapid Ecological Assessment (REA) of the marine component for the proposed expansion of the Lucayan National Park. During the REA, the status of marine habitats and resources within the proposed park expansion area were assessed to evaluate:

- Coral community structure, diversity and health
- Composition and diversity of benthic reef communities
- Composition and diversity of benthic mangrove communities
- Composition, diversity and size distribution of reef fish communities
- Composition, diversity and size distribution of mangrove fish communities
- Human impacts and other threats to marine habitats and resources

The team consisting of three (3) divers and two (2) observers assessed a total of 13 representative sites in the proposed expansion area. Survey

areas included eight (8) fringing coral reef sites ranging in a depth from 2.44 – 9.45 m (8- 31 ft.), and five (5) sites within the mangrove creek ranging in depth from 0.40-1.22 m (1.3-4 ft.). Sites were located 0.33 km (1/2mile) from the shoreline of Grand Bahama to 1.6 km (1 mile) offshore. In total, nearly 40 hours were spent underwater and over 1,912 fish belonging to 65 different species were observed during belt transect surveys, and were identified to species, measured and counted at the offshore reef sites. Although red lionfish (Pterois *volitans)* were observed on the reefs, their abundance was relatively low considering their distribution and population size throughout the archipelago.

Thirty (30) species of corals were observed on the fringing reefs offshore from LNP including three (3) species that are listed as either critically endangered or vulnerable – Staghorn coral (Acropora *cervicornis),* Elkhorn coral (Acropora *palmata)* and Pillar coral (Dendrogyra *cylindrus).* A total of 843 coral colonies were observed during belt transect surveys and of these 704 were measured and their condition assessed for signs of tissue damage due to bleaching, disease or predation. Visual observations and preliminary analysis indicate that the offshore reefs are in relatively good condition – exhibiting varied rugosity/structural complexity, a low prevalence of coral disease and mortality.

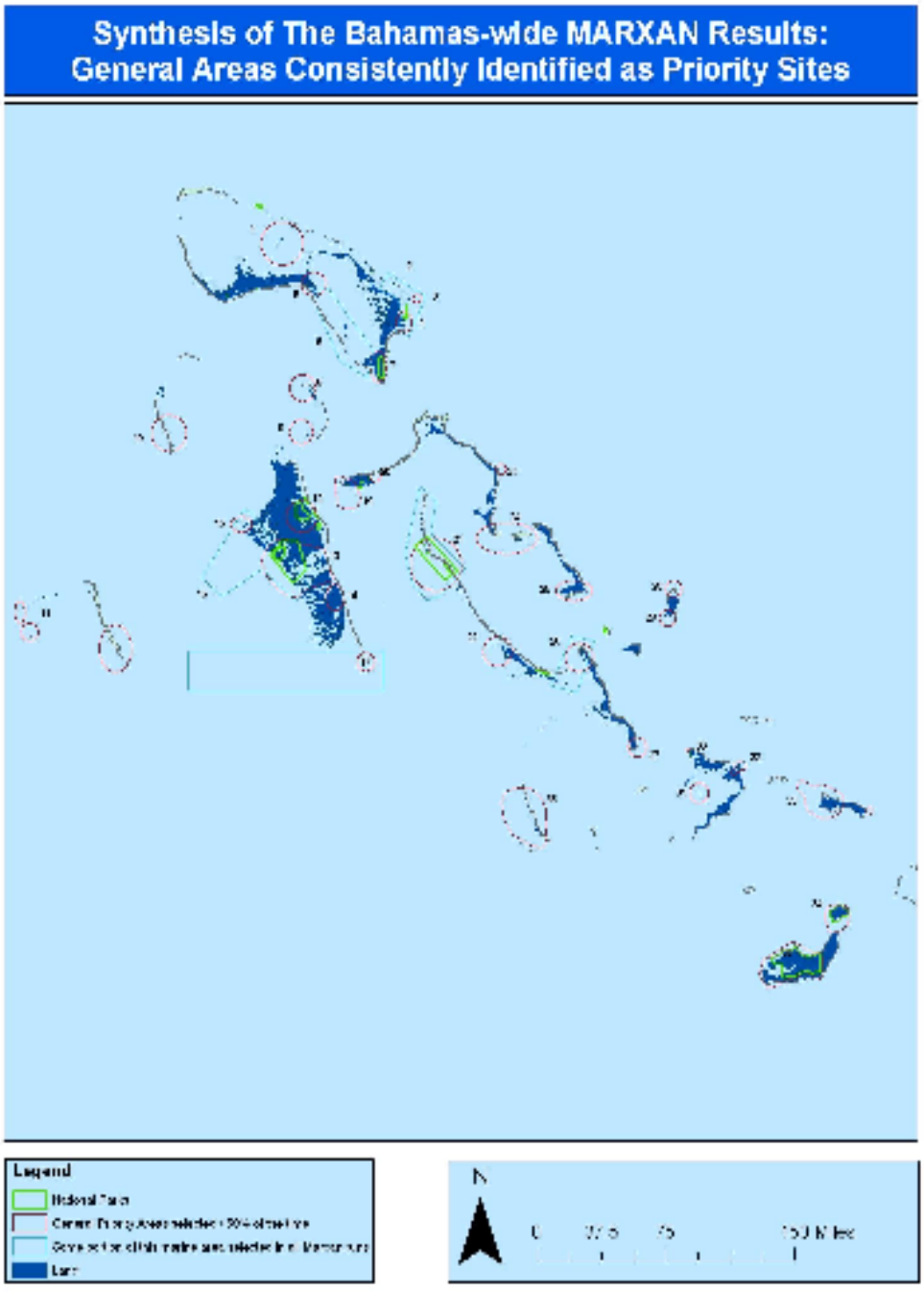
The reefs were algal dominated with fleshy macroalgae (35%) and short turf algae (31%). Of the habitable area, 3.5% was covered by calcareous coralline algae (CCA), which creates an ideal substrate for coral recruits to settle on. Coral recruits were observed in six (6) of the eight (8) sites surveyed. The average coral cover for the 8 sites was 12%. Twenty (20) fish species were observed in the Gold Creek mangrove system and their size estimated to the nearest centimeter, including Rainbow parrotfish (Scarus *guacamaia),* the largest herbivores fish in the Atlantic.

Within the mangroves, benthic cover was equally dominated by *Batophora* sp. and *Thalassia* sp. growing on sand and muddy substrates. The Red mangrove, *Rhizophora mangle* was the predominant mangrove species present. Inclusion of the mangrove creek, which is located in close proximity to the offshore reefs, will protect fish species during ontogeny and ensure this productive nursery habitat is maintained to support community structure on the reefs.

Data is currently being analyzed and a final report of the findings of the REA will be submitted by the end of September.

# APPENDIX 2

# MAP OF PROPOSED AREAS TO BE INCLUDED IN THE CARIBBEAN CHALLENGE


Synthesis of The Bahamas-wide MARXAN Results:
General Areas Consistently Identified as Priority Sites
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