A Proposal for the Establishment of

The Grand Bahama North Shore National Park

Grand Bahama Island, The Bahamas

Organization of American States

GLOBAL PARKS

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Executive Summary

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 445mi^2 (1,150km^2) including 342mi^2 (885km^2) of marine and 103mi^2 (267km^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) on a north-south bearing 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. All these included ecosystems are underrepresented in The Bahamas National System of Protected Areas and will contribute to meeting targets for protected area expansion. 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.

1.0 Introduction

Clearly visible from space, the aqua-marine waters of The Bahamas' near shore banks, encompassed by some of the world's most extensive coral reefs, are an unsurpassed marine treasure of local, regional and international importance (Figure 1). As the largest small island archipelago in the tropical Atlantic with over 700 islands, and 2,200 miles (3,542 kilometers) of coastline, The Bahamas cover an expansive land and marine area of approximately 89,960 sq. mi. (233,000 km²) within the 12 nautical mile territorial sea. Of this area, only 5, 380 mi² (13,940 km²), or about 5%, is land and 28,790 mi² (116,500 km²), or 50%, is relatively shallow bank. The remainder of about 39,600 mi² (102,560 km²), or 44%, is deep water either in the three major marine canyons that separate the banks or in the outside depths adjacent to the islands' flanking reef systems. These islands and adjacent marine waters encompass a unique confluence of landform types, including both saline and freshwater wetlands, mangroves, blue holes, creek systems, shallow water banks, deep ocean trenches and marine estuaries that host a range of terrestrial and marine resources important to the country, the Caribbean region and beyond. For example, it is thought that the west coast of Andros may serve as the greatest marine estuary for the entire Western Atlantic. On a global scale, the coral reefs of the Bahamas comprise about 5% of the world's total coral reef systems, surpassing even that of Australia's Great Barrier Reef.

Figure 1: The Bahamas Archipelago as seen from the International Space Station. The 50 mile (80 km) wide Strait of Florida separates Grand Bahama Island from Florida.

The relative insularity of Bahamian waters and an extensive shelf with productive coral reefs and other habitats, augmented by a large area of coastal wetlands and mangrove forests, contribute to the considerable abundance and diversity of fish. In this regard, The Bahamas has

greater biodiversity abundance and diversity than the entire insular Caribbean (UNEP-GEF, 2010).

The islands themselves are generally of low relief, with a maximum elevation above sea level of 206 feet (63 metres). They are composed primarily of limestone derived from the deposition of calcareous sand and marine shells since the Jurassic period (208 - 144 million years ago) and are over 5 kilometers thick (Moses, 2008). During the Pleistocene (1.2 million - 10,000 years ago) the sea level fluctuated considerably, from being as much as 390-460 feet (120-140 metres) lower than today, to being 82 feet (25 metres) higher than today following the last ice age, as evidenced by wave-cut notches found in limestone cliffs in several locations in the islands, including in Lucayan National Park.

While the Bahama Banks were dry land, they were exposed to the atmosphere where the limestones were subjected to chemical weathering that created the karst topography that the islands are famous for today (Wikipedia, 2013). The now largely submerged limestone banks that comprise the archipelago of the Bahamas are riddled with karst features such as sinks, blue holes, fracture caves and solution caves known as among the most extensive in the world, and hold hydrological, archaeological, paleontological and biological treasures found nowhere else on earth.

2.0 Purpose of this Report

In recognition of this abundant biodiversity and the international significance of both terrestrial and marine environments, the Government of the Bahamas is committed to the establishment and effective management of a comprehensive and ecologically representative system of terrestrial and marine protected areas. The Master Plan released by the Bahamas National Trust in 2012 guides the expansion of the National System of Protected Areas to meet its international obligations under the Convention on Biological Diversity (CBD) and the subsequent Programme of Work on Protected Areas (PoWPA) for the Bahamas (Moultrie, 2012).

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 10% 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) has 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 and adjacent to 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.

The Government of The Bahamas has also committed to other components of the Caribbean Challenge, including the development and implementation of ecosystem-based projects aimed at adapting to climate change and the development of sustainable finance mechanisms to fund protected areas. While not implicitly integral to this project, these factors will also be given consideration in the development of recommendations for park expansion and establishment.

3.0 The Status of Terrestrial and Marine Protected Areas in The Bahamas

The Bahamas National System of Protected Areas is currently comprised of 27 national parks, four Marine Reserves managed by the Department of Marine Resources and a number of Bird Reserves managed by the Ministry of the Environment, all of which contribute to the 20% goal (for a complete listing of these areas see Moultrie, 2012).

According to the Protected Planet Report (PPR) 2012, the most up to date assessment of the global coverage of all types of protected areas, it is apparent that The Bahamas has made considerable progress in protected area establishment during the PPR's review period 2002-2010 (Bertzky et al, 2012). Prior to 2002, The Bahamas recorded a total of 7.36% protected in its terrestrial environments, but only 0.22% protected in the adjacent marine waters. In 2002, an unprecedented event took place when the Government of The Bahamas created 10 new national parks, effectively doubling the area within the national park system (primarily with the creation of The West Side of Andros National Park). Further expansions in 2011 of West Side Andros National Park and of Conception Island National Park, and the establishment of the new Fowl Cays Land and Sea Park in Abaco, marked significant progress in terrestrial protection where the amount of terrestrial protected area jumped to 13.66% (709 mi^2 or 1,836.85 km^2). In continued contrast, however, the amount of marine environment protected increased only modestly to 0.41% (443 mi^2 or 1,149.45 km^2). The combined total in 2010 for both terrestrial and marine environments amounted to 1,153 mi^2 (2, 986.3 km^2) or 1.01% of Bahamian territory out to the 12 nautical mile limit (Bertzky et al, 2012).

In comparison to the rest of the Caribbean, The Bahamas has performed well terrestrially, exceeding the rate of growth in the Caribbean where the total terrestrial area protected across the region grew to 11.2% in 2010 (from 9.9% in 2000). In the marine environment, however,

The Bahamas lies considerably behind the Caribbean region where the level of protection is 2.2%, more than five times the level of protection in Bahamian waters. When comparing total levels of protection, combining marine and terrestrial, the total for the Caribbean region is 4.6%, whereas The Bahamas is a quarter of that at 1.01% (Bertszy et al, 2012). For further comparison, a total of 7.2% of the coastal marine waters of the world have been protected (UN, 2012).

This data clearly indicates that to meet the goals of the CBD, the Caribbean Challenge and the 2020 Declaration, The Bahamas will need to focus primarily on increasing the level of protection in the marine environment. According to the UNEP-GEF project to assist The Bahamas in achieving the Caribbean Challenge goals, an *interim* national target of a network of MPAs comprising 10% of representative marine ecosystems is about 8,500 - 9,600 mi² (22,000 - 25,000 km²), with the 20% target comprising about 17,000 - 19,200 mi² (44,000 - 49,700 km²) (UNEP-GEF, 2010).

This project described in this report provides recommendations as to how this target can be approached on a regional basis on the Little Bahama Bank and Grand Bahama Island.

4.0 Little Bahama Bank and Grand Bahama Island

The Little Bahama Bank is the northern most of three extensive shallow sand banks that make up the Bahamian Archipelago. These banks are separated from each other by deep, steeply-sloped ocean trenches, known to be among the deepest submarine canyons in the world. The Little Bahama Bank encompasses Grand Bahama Island and Abaco Island in an area of approximately 6,560 mi² (17, 000 km²) of which about 65% or 4,250 mi² (11,000 km²) is covered by water (Figure 2) (Fearnbach et al 2011). Most of the marine bank lies north of Grand Bahama Island in a well-defined basin that is physically isolated from similar coastal habitats by the deep oceanic waters of North West Providence Channel to the south, the Florida Gap to the west and the Atlantic Ocean to the east. The Bank is bounded to the north and east by a chain of cays extending west from Abaco Island as far west as Walker Cay National Park and another series of cays and submerged sand bars to the south.

Figure 2: A satellite image of Little Bahama Bank with Grand Bamaha Island and Abaco Island.

The Bank also includes a narrow fringe about 1.5 miles (2.4 kms) wide along the south shore of Grand Bahama Island which descends steeply into the depths (>500 meters) of North West Providence Channel. As shown on the map in Appendix A, Little Bahama Bank is virtually surrounded by either fringing, patch or barrier reefs. This project is concerned with only the Grand Bahama "portion" of Little Bahama Bank, or approximately half of the marine area of the bank or about 3,280 mi^2 (5,500 km^2).

The waters of the Little Bahama Bank are very shallow, averaging less than 23 feet (7 meters) in depth (Figure 3). Oceanographically, water movement is generally to the north, being influenced by the flow of the Florida Current and the Gulf Stream. Seasonal variability in surface water temperature on Little Bahama Bank is limited, but temperatures are moderately elevated in summer, peaking at 88°F (31°C), compared to winter when temperatures moderate to about 72-75°F (22-24°C) (Fearnbach et al 2011). These waters are well recognized for their rich biodiversity including a wide variety of fishes, most notably several species of sharks, bonefish, grouper and snapper, conch, spiny lobster and a resident population of approximately 1,000 bottle nosed dolphins that have not been observed in the surrounding pelagic waters, appearing to be restricted to this shallow bank ecosystem (Fearnbach et al 2011).

Figure 3: The shallow waters of the Little Bahama Bank and its myriad tidal creeks and mangrove wetlands provide an invaluable nursery area for a variety of fish, amphibian, crustacean and bird species.

The Bank is also well recognized for its sea bird populations. The chain of cays extending west from Abaco Island forming the northern extent of the Bank is proposed as an Important Bird Area (IBA) for its breeding populations of Bridled Terns, Least Terns and Roseate Terns (Birdlife International, 2013). In addition, Sale Cay and Little Sale Cay in the north-central Bank area is recognized as a high priority for conservation and protection in the BNT's Master Plan for the National Protected Areas System, most likely for its high value for breeding seabirds (Moultrie, 2012). The Bank is also an important staging area for migrating populations of a variety of seabirds, including species of herons, egrets, ibis and spoonbills.

In contrast to the broad shallow banks to the north of Grand Bahama Island, the south shore of the island is characterized by its relatively narrow coastal shelf with its fringing reef and a steep drop-off into the considerable depths of the North West Providence Channel. This channel is an

extension of the Great Bahama Canyon which also includes the Tongue of the Ocean located between Andros and New Providence islands. North West Providence Channel reaches depths approaching 6,500 feet (2000 meters) and is considered important habitat for a number of cetacean species including bottle nosed dolphins, beaked whales and other deep-diving cetaceans, especially sperm whales. Considering that deep waters constitute 44% of the marine area within the 12 nautical mile territorial sea in the Little Bahama Bank area, the BNT or the Department of Marine Resources may wish to consider the establishment of marine protected areas in these deep water environments as well as in the shallow coastal waters. Accordingly, the expansion proposals for both LNP and PCNP suggest extensions into the channel to the 200 fathom (600 meters) depth contour, which is apparently becoming or is the standard for the seaward boundary for The Bahamas' land and sea parks (Lindy Knowles, pers. com, 2013).

5.0 Terrestrial and Marine Protection Targets

The Master Plan for the Bahamas National System of Protected Areas is based on the identification of a number of terrestrial and marine targets, an Ecological Gap Analysis and a MARXAN analysis leading to the identification of high priority sites for conservation and protection to meet those targets (Moultrie, 2012). This project has endeavored to design the protected area expansion and establishment proposals to contribute to those targets as much as possible. Rather than repeat the targets here, they are easily referenced in the Master Plan document (Moultrie, 2012). The detailed table in Section 7.0 below describes the natural values that are the genesis for the creation of a new national park on the north shore and link then directly to the targets they address.

Also worthy of note in this regard is the identification, both through the Master Plan process (Moultrie, 2012) and at least one other ecoregional conservation planning process (Sealey et al, 2002), of specific areas throughout the Bahamian archipelago that warrant protection, three of which relate to the Little Bahama Bank-Grand Bahama Island region. To the authors' knowledge, these areas have not been specifically mapped and may or may not have been captured in the proposals herein:

- Grand Bahama (eastern cays and offshore marine area extending towards Abaco) (Moultrie, 2012, page 38);
- Marine Area surrounding Great Sale Cay, Pigeon, Gully Cays, and Cross Cays to the South (cays off the western tip of Little Abaco) (Moultrie, 2012, pages 40 and 60); and
- Western Little Bahama Bank (Grand Bahama) (Sealey et al, 2002, page iv).

It is recommended that, at some point, the analyses that led to these protection recommendations be reviewed and considered in the final protected area designs emerging from this project or in future proposals that go forward to the Government for approval.

6.0 Proposal for the Establishment of the Grand Bahama North Shore National Park

A proposal to create the Grand Bahama North Side Replenishment Park was prepared and submitted to the Minister of Environment in January 2013 by the Bahama National Trust. This current proposal incorporates and builds upon the information included in that 2013 report which is attached as Appendix B.

6.1 Area Description

The waters off the north shore of Grand Bahama Island form the southern boundary of the Little Bahama Bank as described above. The Bank itself is a broad expanse of shallow water (Figure 4). The coastal area on the north shore consists of mangrove wetlands, tidal creeks, sand and mud flats, beach strand and rocky shore Figgure 6). The shallow Bank waters, mangrove wetlands, and tidal creeks provide critical spawning and nursery habitat for numerous ecologically and economically important marine species including grouper, snapper, tarpon, bonefish, turtles, several species of shark, lobster and a variety of other marine invertebrates (Figure 7). Further inland, where land rises slightly from the shore, pine woodlands with palm understory occur (Figure 5). Numerous bird species rely on the area's coastal and inland habitat (see Appendix B, Table 3).

Figure 4: Shallow water and mangroves of Little Bahama Bank at the entrance to The Gap.

Figure 5: Pine forest with thatch palm understory.

The coastal area is a relatively undisturbed enviroment, and without the prisitne sandy beaches found elsewhere, is not a likely candidate for development. Water Cay is the only settlement within the north shore area. The inland area of pine forest is flat and easily accessible. Development in this area would be feasible, although constrained by the potential for inundation from storm surges.

Figure 6: Vegetation types of the north shore of Grand Bahama Island (BNT 2013).

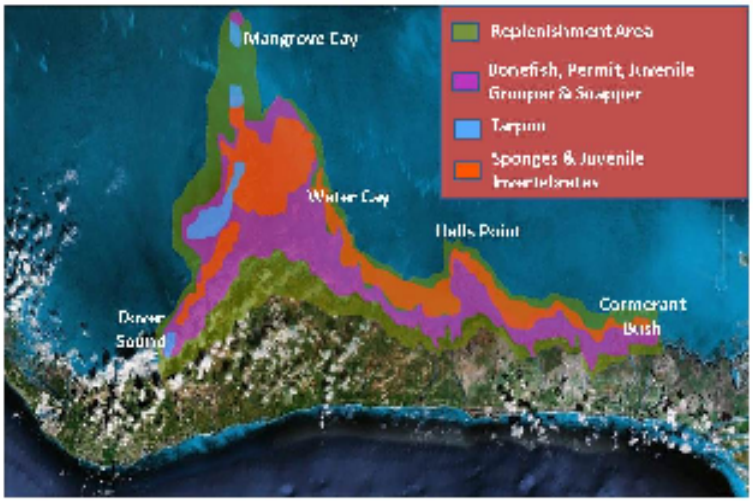


Figure 7: Marine habitats of the north shore of Grand Bahama Island (BNT 2013).

An extensive area of blue holes and an as yet unexplored karst cave system exists in the coastal area northeast of Dover Sound (Figure 8) (Zenato 2013). There would appear to be considerable "cave activity" in the region which warrants further research.

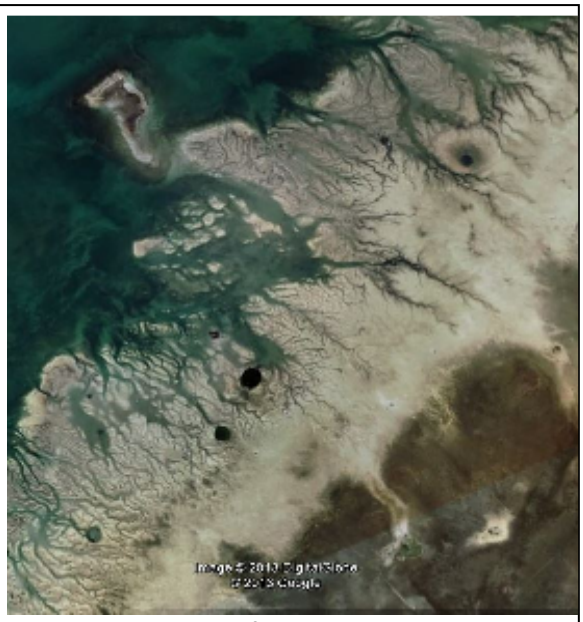


Figure 8: Example of karst cave area and blue holes near Dover Sound.

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 (see Table in 8Section 7.0 below) (Moultrie 2012).

6.2 Local Economic Activity

Sport fishing is a popular activity in these coastal waters, and is the primary economic activity, save for occasional subsistence fishing, in the proposed park area. The Little Bahama Banks are internationally known for their excellent opportunities for catching bonefish and other sport fish on a catch and release basis. Local companies provide guided fishing trips for Island visitors, and this recreational activity results in a significant contribution to the area's economy. Recent estimates (2010) indicate that bonefishing and related activities (lodging food, transportation) contribute $141 million to The Bahamas economy annually. Protection of the marine habitat is critical for sustaining this activity as well as for maintaining the ecological health for which all resident species are dependent. Kayaking the tidal creeks and shoreline is another recreational pursuit that occurs to a small extent in the area.

Figure 9: The deteriorating dock and landing facility at North Riding Point could present an opportunity for visitor access to a new national park but may also present significant liabilities for restoration and renewal. Note the intrusion of invasive Australian Pine *(Causarina equisetifolia)* trees.

The pine forests were extensively logged in the 1950's and the last reported logging activity occurred in 1960. Approximately 130,000 acres of pulpwood were harvested from the east half of Grand Bahama Island between 1956 and 1959. A pulpwood loading terminal was constructed at North Riding Point in the late 1950's and a logging camp community of 200 homes known as The Gap community existed for several years up until the end of the logging (Williams 2007). Remnants

from this historic era are found in the grid of logging roads that is still in existence and the decaying terminal structure at North Riding Point. An important consideration for this proposal is the decision on whether to include the road to, and the deteriorating facility at, North Riding Point (Figure 9). On the one hand, the existing road and facility could provide access for visitors to a new national park. On the other hand, there are significant costs to the initial upgrading and ongoing maintenance of these assets into the future, especially given their susceptibility to storm surges.

Figure 10: The extensive road network through the pine forest presents potential opportunities for visitor access but is deteriorating. Some roads were built across tidal creeks, as above, preventing the water from flowing feely.

A network of unsurfaced roads provides good but rough access through the north shore land area from The Gap across to the west and the Water Cay Road. The Queens Highway is the principal east-west route and while passable is in a deteriorating state (Figure 10). Where this road crosses the tidal creeks at several locations in The Gap area it forms a dam to the natural flow of water, no doubt seriously impacting the nursery value of these waters for numerous species of fish and turtles. Installing culverts or bridges at these crossing points would be necessary to facilitate access and to allow the water to return to it's natural flow regime (Figure 10).

6.3 Potential Threats

- Australian Pine *(Causarina equisetifolia)* an introduced, invasive species can be found along coastal areas, including the road to and landing facility at North Riding Point (see Figure 9).
- Development and pollution can cause significant damage to the integrity of cave ecosystems.
- There is the potential for overfishing of the banks and tidal creeks.

6.4 Park Proposal

The proposed Grand Bahama North Shore National Park encompasses approximately 445mi^2 (1,150km^2) including 342mi^2 (885km^2) of marine and 103mi^2 (267km^2) of terrestrial habitat. The proposed Park extends nearly 40 miles (64 km), west to east, from Dover Sound to Cormorant Bush (Figure 11).

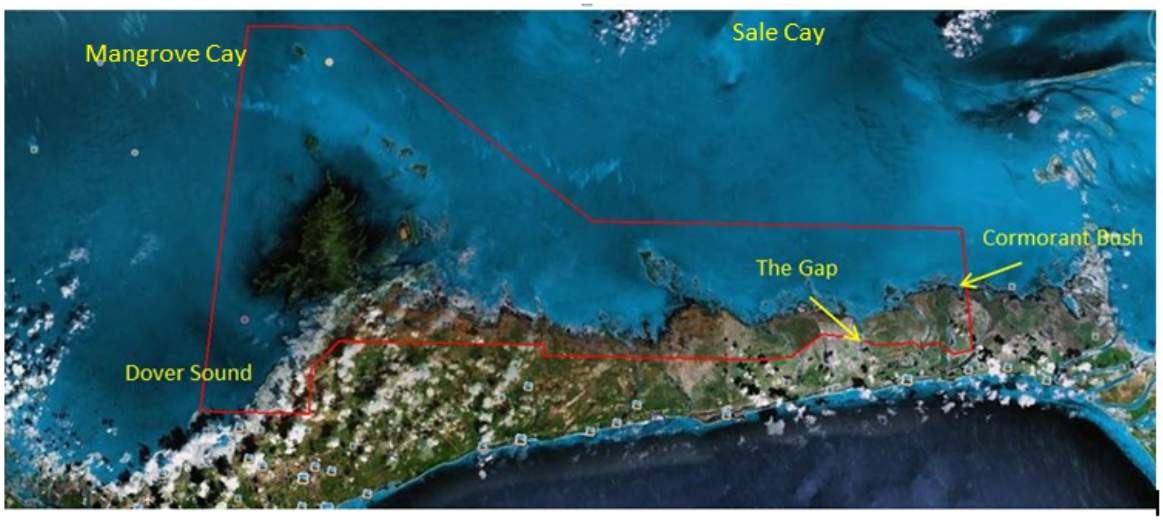


Figure 11: Proposed boundary (red) for the creation of the Grand Bahama North Shore National Park.

direction around Mangrove Cay then southeast and easterly direction to a point due north of, and then turns due south toward, the Cormorant Bush inlet. The easterly boundary continues inland south to the Queen's Highway, at which point the southern boundary follows the existing Queen's Highway road alignment west for about 12 miles at which point it veers west-northwesterly to eventually skirt and exclude a zoned residential area within the Grand Bahama Port Authority jurisdiction. Private land holdings, including the settlement on Water Cay, are intended to be excluded from any national Park designation.

As described in Appendix B, the boundaries of the Park were developed using the 1999 BNT Parks and Protected Area Selection Criteria. In particular, 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 Park as well as along a large extent of the Park's southern border. In addition to the ecological value of the pinelands, they offer a place and opportunity to tell the story of the logging days which were a significant, historic era in the culture and economic growth of Grand Bahama Island.

6.5 Lands of the Grand Bahama Port Authority

A significant portion, perhaps as much as 50%, of the coastal and near inshore lands implicated in this proposal for a new national park on the North Shore are owned by the Grand Bahama Port Authority (GBPA) (Figure 12). All of these lands, however, are beyond the scope of the GBPA's current developments and development proposals, and the proposed park boundary

was designed accordingly. The authors assume that these lands may be available for inclusion in the park. Note also, it would appear that most, if not all, islands adjacent to the unnamed northern peninsula are not part of the GBPA lands, including the privately owned Water Cay. Should the GBPA lands on Grand Bahama Island not become available for the national park, at a minimum these islands with the exception of Water Cay should become part of the park.

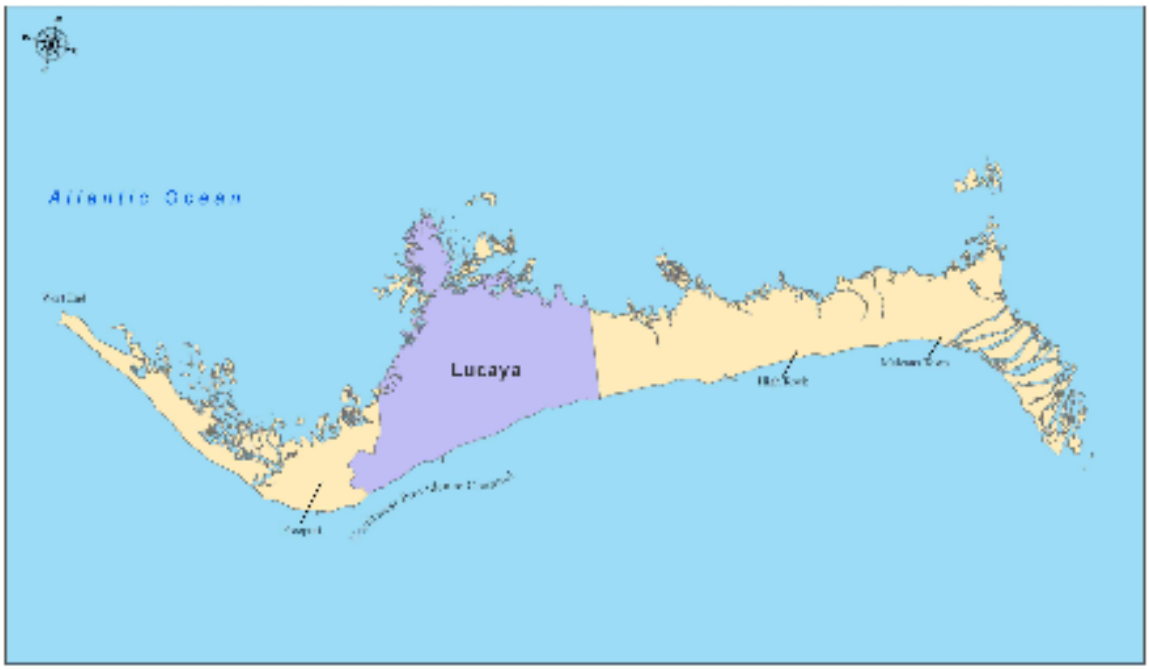


Figure 12: The boundary of the Lucayan District of the Grand Bahama Port Authority (GBPA).

7.0 Natural Values Contributing to the Proposed Grand Bahama North Shore National Park

Feature or Value	Description and Contribution to Park Values	**Contribution to National Biodiversity Targets***
Protection of Blue Holes	The coastal waters to the north of Dover Sound, among the many inlets, channels and islands on the Sound's east coast, harbour numerous blue holes, which by and large have not been explored. Some are known not to provide ready access to cave systems due to collapsed ceilings, and there is little knowledge of the true extent of the underground cave system.	• The Ecological Gap Analysis (EGA) target for karst cave systems is 20%; • Only about 1% is currently protected. • The creation of GBNSNP would make a significant contribution to this target.
Protection of Tidal Creeks and Mangroves	The approximate 68 miles (110 kms) of coastline in this proposal represents the largest and longest uninterrupted mangrove system in the Bahamas intermixed with about eight large tidal creek systems, the most well known being "The Gap", and innumerable smaller tidal creeks. In addition to their biodiversity values, these creek systems and associated shallows provide critical nursery habitat for a number of economically important species (see below)	• The EGA target for Tidal Creeks is 30%; only 12% is currently protected. • The EGA target for Mangroves is 30%; only 13% is protected. • The creation of GBNSNP would make a significant contribution of national significance to these targets.

Protection of Shallow Marine Habitats and Marine Nursery Areas for Species of Economic and non-Economic Importance	The marine component of the proposed park is comprised totally of shallow water habitats, generally less than five metres, with hard bottom, sand and mud flat habitats with extensive sea grass beds of critical importance to numerous species of economic importance to The Bahamas including spiny lobster, queen conch, Nassau grouper, mutton snapper, lane snapper, bonefish, tarpon and permit, as well as various	• The EGA identifies a number of marine biodiversity targets to which the creation of GBNSNP could contribute:
		  • Turtle habitats (20% target; 1% protected)
		  • Sparse seagrass (20% target; 2% protected)
		  • Medium seagrass (20% target; 2%

* These targets are the results of an Ecological Gap Analysis as defined in *Master Plan for The Bahamas National Protected Area System* (Moultrie, 2012).

	species of sharks, turtles and juvenile reef fishes. These waters are also home to a resident group of about 1,000 bottle nosed dolphins. Coastal habitats, in addition to the extensive mangroves, include beach strand and rocky shoreline.	protected) • Dense seagrass (20% target; 2% protected) • Non-reef flat (25% target; 4% protected) • Sand (20% target; 4% protected) • Sandy beach (30% target; 6% protected) • Rocky shore (25% target; 8% protected) • Cetaceans (20% target; 2% protected)
Important Seabird habitat	The extensive shallow water habitats of Little Bahama Bank are important as foraging areas for a number of species nesting nearby in the mangroves, on Great Sale Cay (proposed for protection in the Master Plan) and the barrier cays west of Andros (all of which, including Great Sale Cay, are proposed as an Important Bird Area). Species include the bridled, roseate and least terns, as well as egrets, herons, spoonbills and species of shorebirds and ducks.	• The EGA identifies two targets for seabirds to which the creation of GBNSNP could contribute: • Seabird (lower priority) (30% target; 12% protected) • Seabird (higher priority) (35% target; 10% protected)
Representation of Coastal Vegetation Types	In addition to the extensive mangroves included in this proposal (see above), there are large areas of pinelands within the proposal to both improve representation of this vegetation type under protection but also, given that the landscape is so flat, to create a permanent viewscape of natural forest as seen from the water which would also serve as a barrier to the visual impacts of potential coastal development.	• The EGA identifies a number of targets for terrestrial vegetation to which an expanded LNP could contribute: • Pinelands (25% target; 8% protected) • Mangrove (30% target; 13% protected)

8.0 Application of Selection Criteria to the Proposed Establishment of The Grand Bahama North Shore National Park

Criteria	High Value	Medium Value	Low Value
Biogeographic importance	X		
Ecological importance	X		
Biodiversity importance	X		
Naturalness/habitat structure	X		
Economic importance	X		
Social importance		X	
Scientific importance	X		
International/national importance	X		
Practicality/feasibility	X		
Biogeographic sub-criteria	High Value	Medium Value	Low Value
Presence of rare biogeographic qualities or representativeness of a biogeographic type	X		
Unique or unusual geographic features	X		
Characteristic of the biogeographic province or region	X		
Ecological sub-criteria	High Value	Medium Value	Low Value
Essential part of ecological process or life-support systems	X		
Area's integrity encompasses a complete ecosystem		X	
Variety of ecosystem	X		
Habitat for rare or endangered species	X		
Nursery or juvenile area	X		
Feeding or courtship breeding rest or migration areas	X		

9.0 Additional Opportunities — Great Sale Cay

The proposed boundary for The Grand Bahama North Shore National Park extends north as far as Mangrove Cay as recommended by the 2013 BNT proposal (Appendix B). Also consistent with the 2013 proposal, the proposed boundary would angle southeast from Mangrove Cay.

It was noted that the latitude of Mangrove Cay is approximately 2 miles south of the latitude of the southern tip of Great Sale Cay which has been identified as a high priority site for conservation and protection in the Master Plan for the Bahamas National System of Protected Areas (see above discussion chapter 5.0 and Moultrie, 2012). Great Sale Cay is within the

jurisdiction of Abaco Island thus not part of Grand Bahama. However, an option exists to extend the boundary of the proposed Grand Bahama North Shore National Park slightly north and east to encompass Great Sale Cay. This would provide an additional estimated 550 mi^2 (1,400 km^2) of marine protected area.

References

Bahama National Trust (BNT). 2013. Proposal for the creation of the Grand Bahama North Side Replenishment Park.

Bahamas National Trust. 2011. Bahamas National Trust Strategic Plan 2008-2013.

Bertzky, Bastian, Colleen Corrigan, James Kemsey, Corinna Ravilious, Charles Besacon and Neil Burgess, 2012. Protected Planet Report 2012: Tracking progress towards global targets for protected areas. IUCN, Gland Switzerland and UNEP-WCMC, Cambridge, UK.

Birdlife International, 2013. Marine E-Atlas for "North Atlantic Abaco Cays". Available on-line at: http://maps.birdlife.org/marineIBAs/default.html

Kakuk, Brian. 2006. Proposed Protection for Karst Features (Blue Holes and Underwater Caves) in the Bahamas, Bahamas Caves Research Foundation October, 2006

Kornicker, Louis S. 1963. The Bahama Banks: A "Living" Fossil-Environment. Journal of Geological Education Vol. 11, No. 1, March 1963, pp. 17-25.

Fearnbach, Holly, John Durban, Kim Parsons and Diane Claridge. 2011. Seasonality of calving and predation risk in bottlenose dolphins on Little Bahama Bank. Marine Mammal Science, 2011, The Society for Marine Mammalogy.

Morre, Predensa and Gape, Lynn. Important Bird Areas in the Caribbean: Bahamas

Moses, Christopher S. 2008. Introductory Field Guide for Biological, Physical and Geological Oceanography of the Bahamas. SCUBAnauts International, Tampa Bay, Florida, USA.

Moultrie, Stacey. 2012. Master Plan for The Bahamas National Protected Area System. The Nature Conservancy, Northern Caribbean Office. Nassau, The Bahamas.

Sealey, Kathleen Sullivan, Barbara Brunnick, Stefan Harzen, Corene Luton, Vanessa Nero and Lester Flowers. 2002. An Ecoregional Plan for the Bahamian Archipelago. Taras Oceanographic Foundation, Jupiter, Florida. 227pp.

UN, 2012. The Millenium Development Goals Report 2012. United Nations, New York, USA.

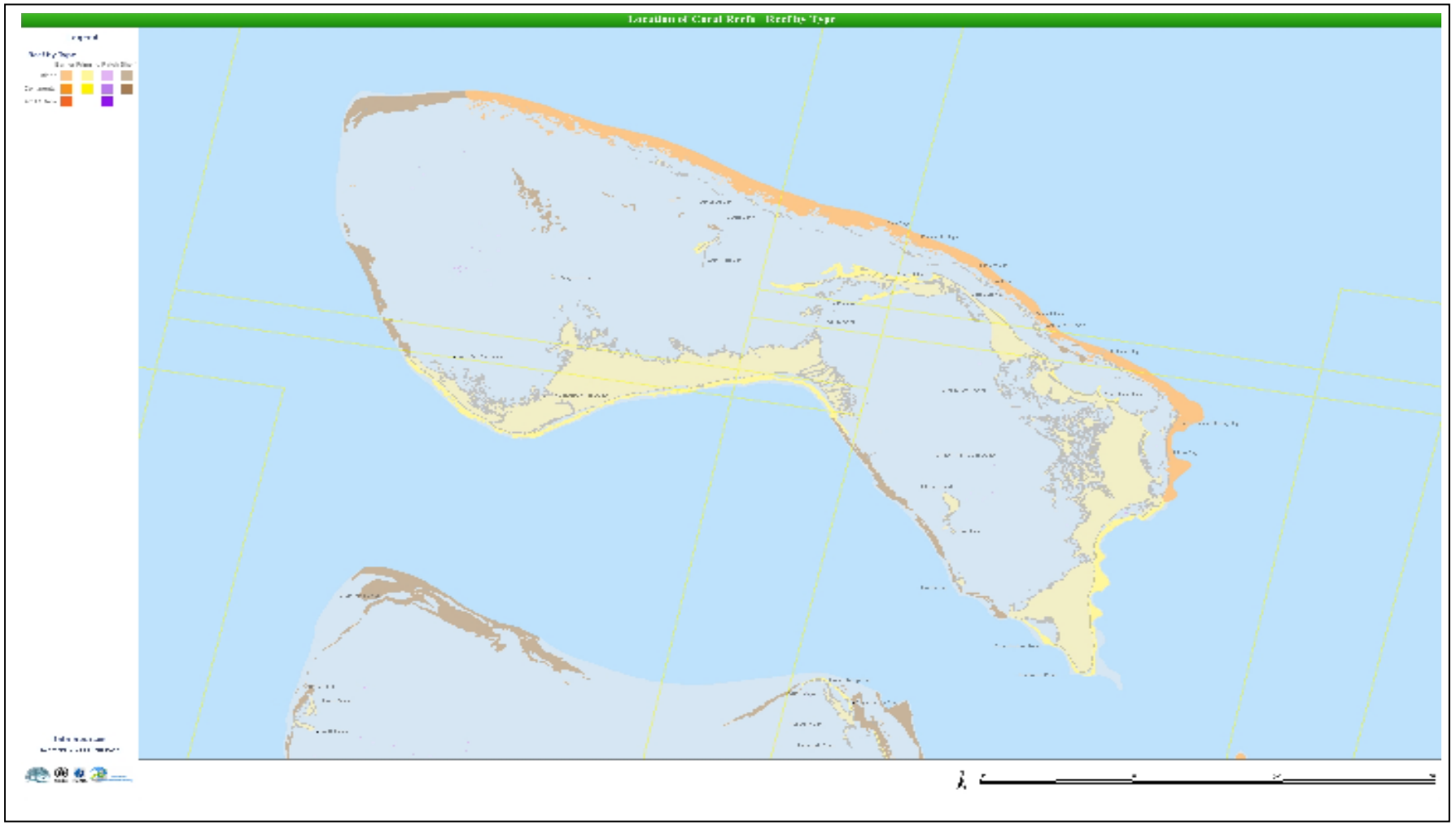
UNEP-GEF, 2010. Project Document: Building a Sustainable National Marine Protected Area Network – The Bahamas. United Nations Environment Programme. 132pp.

Wikipedia, 2013. Found at: http://en.wikipedia.org/wiki/Little_Bahama_Bank

Zenato, Cristina. 2013 personal communication
Williams, Darius. 2007. A Railroad & Locomotive History of The Bahamas. White Sound Press, New Smyrna Beach, FL

Appendix A

The Reef Systems of Little Bahama Bank, Grand Bahama Island and Abaco Island



Source: http://reefgis.reefbase.org

Appendix B

The intent here is to have the BNT insert the original “Proposal for the creation of the Grand Bahama Replenishment Park” here as Appendix B.

Appendix C — Persons and Organizations Consulted

Bahamas National Trust Staff

- Eric Carey, Executive Director
- Lynn Gape, Deputy Director
- David Knowles, BNT Director of Parks
- Lakeshia Anderson, BNT Parks Planner
- Ellsworth Weir, BNT Deputy Park Warden (Grand Bahama)
- David Cooper, BNT Warden, Lucayan National Park
- Cecilia Bodie, Education Speciaist RNC
- Lindy Knowles, BNT Science Officer
- Krista Sherman, BNT GEF FSP Coordinator

Stakeholders

- Darius Williams, Author/Historian
- Lloyd Cheong, BNT Regional Branch Chairman, Environmental Geologist/Chemist
- Jason Franklin, H2O Bonefishing
- Greg Vincent, H20 Bonefishing
- Cristina Zenato, Cave explorer
- Daniel Murray, Overseas Marine Group
- Nikara Wilchcombe, Environmental Manager, Grand Bahama Port Authority
- Randy Taylor, Asst. Manager GIS, Grand Bahama Port Authority
- Cheri Wood, Volunteer for the Environment