EXPANDING THE BAHAMAS MARINE PROTECTED AREA (MPA) NETWORK TO PROTECT 20% OF THE MARINE AND COASTAL ENVIRONMENT BY 2020: *A NATIONAL MARINE GAP ANALYSIS*

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Introduction

Marine Protected Areas (MPAs) can be powerful tools for conservation if they are well designed and managed. As signatory to the Caribbean Challenge Initiative, The Bahamas has committed to effectively conserve and manage at least 20% of its marine and coastal environment by 2020. Currently, The Bahamas National Protected Areas System (BNPAS) includes about 10% of the country's entire marine environment. Consequently, achieving the 2020 goal will require creation of new MPAs and/or expansion of existing areas.

From February 2016 to July 2017, the ***Bahamas Protected*** science team undertook a national marine gap analysis to identify biodiversity and essential ecosystem goods and services not adequately conserved and managed in the country's existing MPA network. The results of the gap analysis would then be used to guide the process of identifying and establishing new MPAs.

Method Overview

This iteration of the gap analysis differed from two previous national gap analyses by:

1) Having a marine focus only;
2) Specifying a planning area that aligns with multiple national planning processes;

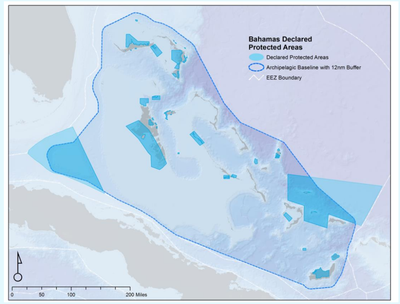

Figure 1. Planning area for the marine gap analysis: the territorial waters of The Bahamas (archipelagic baseline plus a 12-nm buffer).

3) Expanding objectives beyond biodiversity protection to include climate change and socioeconomics (e.g. to support Bahamian livelihoods);
4) Developing biophysical, socioeconomic and governance design principles to guide the analysis;
5) Incorporating new and refined spatial data layers; and
6) Using innovative scientific approaches to model and map coral reef fisheries (fishing intensity, current and potential standing stock) and climate change (thermal stress and bleaching risk).

Using the spatial conservation planning tool Marxan, 'Areas of Interest' (AOI) were identified that can be considered as focal areas in the process to establish new MPAs.

While conducting the gap analysis, the team consulted approximately 40 local and international scientists and field practitioners from more than 27 organizations and held three national workshops to gather input. The team also sought strategic advice from the National Implementation Support Partnership (NISP) responsible for implementing national policies on protected areas.

Results & Discussion:

Although The Bahamas has made progress in meeting or exceeding the area coverage goal for a number of marine conservation features, there are approximately 20 features that fall short of nationally set targets. Some of these gaps are described further.

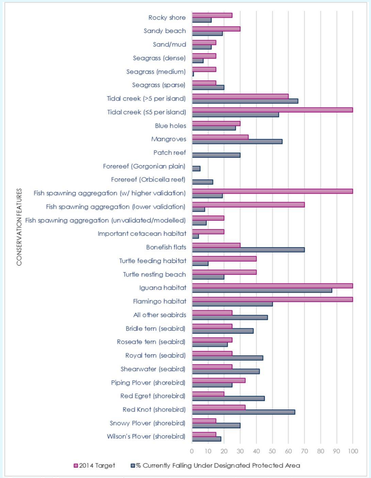

Figure 2. Comparison of previously set national targets with percentage of conservation features currently in protected areas.

- Less than 20% of all fish spawning aggregations are under protection; a significant shortfall in meeting national targets.
- Coral reefs are one of the most diverse marine habitats in the archipelago. Forereefs support the largest biomass of fish, but are under immense fishing pressure. There are no national targets for forereefs or patch reefs. However, approximately 7% of forereef habitat and 30% of patch reefs fall under the current protected area system.
- The Bahamas has the most expansive seagrass beds in the Caribbean. Overall, approximately 8% of this habitat falls within current protected areas.
- Although the protection of mangroves exceeds the national target, most of the nation's mangroves are located in the Andros Westside National Park. Consequently, measures should be taken to protect mangroves in other locations to address ecological concerns related to connectivity, replication and representation of this habitat across the protected area system.
- Fifty percent (50%) of tidal creeks in The Bahamas are currently protected. However, progress to-date falls short of the national target, which is to protect 100% of these habitats.
- Marine mammal (cetacean) habitat and important bathymetric features (steep walls, seamounts, oceanic ridges and canyons) are some of the poorest mapped areas and the least protected in The Bahamas.

It is also notable that Eleuthera, Cat Island, Long Island and the Western Great Bahama Bank have no existing marine protection. The inclusion of these areas is important to help address ecological concerns related to connectivity, replication and representation of biological features across the system.

Areas of Interest

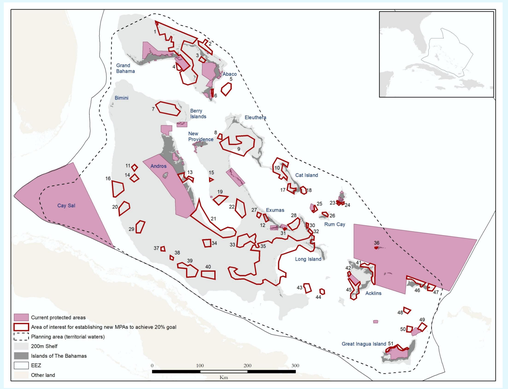

Figure 3. The Bahamas National Protected Area System and 51 Areas of Interest

The spatial analysis provided a range of priority areas representing more than 10% (or more than 28,035 km^2) of the territorial waters of The Bahamas.

From the highest priority areas, we delineated 51 "Areas of Interest" (AOI) that can be considered as focal areas in the process to establish new MPAs. These AOI represent 8% of the planning area (approximately 23,133 km^2). They include locations across the country and encompass a diversity of high priority conservation features.

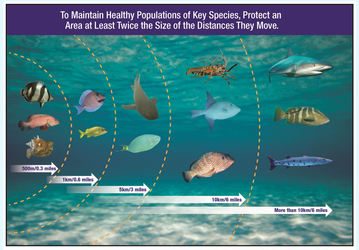

Figure 4 Illustrates an important biophysical principle for designing an MPA network

Conclusion:

This new and improved marine gap analysis for The Bahamas is intended to guide the expansion of the country's MPA network towards achieving the 2020 goal of protecting and effectively managing 20% of our marine and coastal environment.

The Bahamas can now use these 51 AOIs, along with the design principles, local knowledge and stakeholder input to identify, develop and propose legal boundaries for new MPAs.

To obtain the greatest benefit from these results, The Bahamas should consider increasing the percentage of fully-protected areas (i.e. fishery replenishment zones), which currently stands at less than 1%. It is also essential to focus future efforts on the effective management of the network.

Acknowledgements:

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Reference:

Knowles J, Green A L, Dahlgren C, Arnett F, Knowles L. 2017. Expanding The Bahamas marine protected area network to protect 20% of the marine and coastal environment by 2020: A gap analysis. A report to the Ministry of the Environment & Housing for The Bahamas.

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