Co-Management of Marine Protected Areas

A Suggested Framework for The Bahamas

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Project Overview

This report is part of a larger project, "Advancing Effective Management of the MPA System in The Bahamas: A Baseline Assessment of Co-Management Arrangements with Recommendations for a National Co-Management Framework." Exploring the challenges and opportunities for implementing co-management of protected areas (PAs) in The Bahamas, the project also includes these other components:

- *Greater Effectiveness Through Co-Management of Marine Protected Areas: An Introductory Discussion for The Bahamas*
- *Transitioning Towards Protected Area Co-Management? An Analysis of Enabling and Inhibiting Conditions in Bahamian Laws*
- *Stakeholder Conversations about Involvement in Local Conservation: Overview of Visits to Abaco, Andros, Exuma, and San Salvador for Input About Protected Area Co-Management*
- *Stakeholder Involvement in Co-Management of Marine Protected Areas? A Stakeholder Analysis for The Bahamas*

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Abbreviations and Acronyms

AMMC	Antiquities, Monuments and Museum Corporation
AUTEC	Atlantic Undersea Test and Evaluation Center
BPPPBA	Bahamas Public Parks and Public Beaches Authority
BNPAS	Bahamas National Protected Area System
BNT	Bahamas National Trust
CCI	Caribbean Challenge Initiative
DMR	Department of Marine Resources
FU	Forestry Unit
GMP	General Management Plan
GOB	Government of The Bahamas
MMA	marine managed area
MPA	marine protected area
MSC	multi-stakeholder council
PA	protected area
RBDF	Royal Bahamas Defence Force
RBPF	Royal Bahamas Police Force

Executive Summary

Background

The Bahamas National Protected Area System (BNPAS) has seen enormous growth over the course of the last fifteen years. Between 2000-2015, the system expanded in area more than 35-fold from approximately 1,500 square kilometers (~580 square miles) to more than 53,400 square kilometers (~20,600 square miles). Not surprisingly given the country's archipelagic nature and expansive coastal and marine habitats, marine protected areas (MPAs) have accounted for much of this growth and now cover about 10% of the country's territorial waters. This coverage is expected to double over the next few years as The Bahamas strives to meet its "20 by 20" objective (i.e., 20% coverage by 2020) under the Caribbean Challenge Initiative.

MPAs, which are protected areas with some naturally submerged marine or brackish areas, are managed by multiple agencies within The Bahamas (Fig. 1, Tab. 1). The quasi-governmental Bahamas National Trust (BNT), as the entity that was chartered to manage the national park system, currently manages the majority (21) of MPAs that have been assigned to managing authorities.[1] The Department of Marine Resources (DMR) manages four fisheries reserves. The Forestry Unit has been proposed as a co-manager of some of the protected areas (PAs) declared in 2015, and is also in the process of designating "conservation forests" as part of the national forest estate. Conservation forests that include fully submerged mangrove habitat also qualify as MPAs. The Antiquities, Monuments and Museum Corporation (AMMC), which has jurisdiction over marine sites and objects of historical, anthropological, archaeological and paleontological significance, has also been proposed to co-manage some of the new PAs.

Although the BNT has made progress in recent years in developing management plans, installing park infrastructure, and growing its education and outreach programs, financial resources for active management of the MPA system in general have unfortunately not kept pace with the system's expansion. The archipelagic nature of the country also contributes to the management challenges of the MPA system. With too little financial resources to spread around equally, a few priority MPAs receive limited support, while many other sites remain neglected. Additionally, because most of the country's population, economy, and government are based on New Providence, resource management organizations also tend to be highly centralized in Nassau. This means that their interactions with MPA stakeholders in the Family Islands can be infrequent due to the extra logistics and expense of inter-island travel.

Co-Management

Co-management – ***the formal sharing of management roles and responsibilities between two or more partners*** – is a set of approaches to PA governance that has been used extensively around the world to address a suite of management goals. In particular, ***local co-management*** between national agencies and local MPA stakeholders offers the potential to

[1] As of this report, most of the new PAs declared in 2015 have not been assigned to a PA authority, though the BNT was involved in the public consultations that led to the designations.

- better engage local stakeholders, leading to better communications, understanding, and trust;
- channel stakeholder knowledge and enthusiasm into collaborations in support of greater MPA management effectiveness, including enhanced decision-making;
- increase long-term local support for local MPAs, leading to more compliance with regulations, and in-kind and financial support for MPA programs; and
- decentralization of the overall MPA system, and greater empowerment of marginalized stakeholder groups.

A second form of co-management, ***agency co-management***, offers the potential for more routine cooperation and sharing of responsibilities across national-level agencies, such as between MPA authorities and the Royal Bahamas Defence Force in support of enforcement within MPAs. A third subtype, called ***national co-management***, may also occur between national-level resource management authorities and national-level stakeholder groups, such as national fisheries industry associations that may advise the Department of Marine Resources.

All three forms of co-management can, in principle, embody a broad range of actual power sharing. At one of end of the range, ***consultative co-management*** occurs when the MPA managers retain all or most of the day-to-day management authority and the local partners mainly serve as formal advisors. At the other end of the range, ***delegative co-management*** occurs when the MPA managers cede most or all of the day-to-day management role and authority to their local partners. ***Collaborative co-management***, in between these extremes, occurs when there is more of a balance in the overall sharing of roles and responsibilities between the MPA managers and the local partners. These broad levels of co-management encompass a lot of diversity in specific arrangements. For example, a particular MPA may be described as having collaborative, local co-management because both the MPA managers and local stakeholders are highly involved in different aspects of management. Nevertheless, despite being overall "collaborative," any one component of management (e.g., outreach and education, or resource monitoring) may be largely delegated to a specific local partner, or left entirely to the MPA managers.

Suggested Framework

This document presents a framework for moving forward with MPA co-management in The Bahamas. To make this framework as practical as possible, it embodies a number of key characteristics and principles. Perhaps most importantly, because The Bahamas is geographically diverse, with MPAs located on islands with different human population densities and proximities, types of local economies, mixes of livelihoods and culture, and mosaics of marine habitats and ecosystems, the framework incorporates flexibility in order to be adaptable to a range of local conditions. The framework can therefore be viewed as showcasing adaptive management solutions, derived and modified from examples used elsewhere, to different scenarios found across The Bahamas.

Because co-management is essentially a new approach in The Bahamas, the framework advocates

- starting slow with one or more pilot projects;
- achieving initial success with small steps, and building on these;
- gradually adding additional structure and function as possible; and
- extracting and applying lessons learned to subsequent co-management efforts.

This model is also pragmatic given the likelihood of limited resources for investing in co-management early in the transition process. The framework is scalable, however, to accommodate larger investments of effort if/when more resources can be allocated.

Other important principles that the framework incorporates are transparency, inclusivity, and integration of multiple stakeholders, balanced by efficacy and economic opportunism. In practice, this means that initial outreach within communities should be as broad as possible. Subsequently, there should be a narrowing of focus on particular stakeholder groups that have more interest and incentive, due to economic self-interest or non-economic values, in better management of MPAs. For example, people involved in nature-based businesses, such as fishing guides, dive operators, tour businesses, and resort/hotel owners, as well as educational and research institutions and local conservation groups, tend to be especially interested in MPA co-management. Where possible, partnerships that leverage the particular strengths of key stakeholder groups can establish important foundations for MPA co-management. For example, fly fishing guides who have boats and spend time in certain flats habitat areas can possibly play more formal roles in certain forms of MPA surveillance, or the support of research and monitoring about key flats resources. Over time, additional partnerships between MPA managing authorities and new stakeholder groups can be added, possibly adding new functional dimensions to MPA management.

Different pathways for different places

This model of one or more ***bilateral partnership agreements*** between MPA managers and stakeholders may be the most sustainable co-management arrangement in many locations. In other places, however, there should be opportunities for MPA partnerships with multiple stakeholders to evolve into ***multi-stakeholder councils*** (MSCs). A key distinction between the two models is that in the first, all stakeholders interact directly with the MPA managing entity, whereas in the second, representatives of different stakeholders are part of an integrated council, which is a partner with the MPA managers. MSCs require more coordination to work as intended, but that coordination also allows for more concerted actions across stakeholders. In addition, MSCs can also become strong civic-minded institutions that provide additional benefits for MPA management and society at large.

Implementation steps

As mentioned above, the framework presented here is intended to be flexible, and opportunistic, both in leveraging economic self-interests, but also in being responsive to special opportunities to advance MPA co-management. This means that there is no one-size-fits-all plan for co-management implementation. Nevertheless, several basic steps for the implementation of MPA co-management are suggested:

- MPA classification, involving the identification of the appropriate spatial units of MPA co-management, through mapping associations between either individual or clusters of MPAs and potentially supportive human settlements in close enough proximity;
- Iterative site selection of pilot sites, involving comparisons of candidate sites to find the "lowest hanging fruit," so to speak, in terms of co-management potential. This potential may be due to some combination of size and proximity of settlements, existing interests and capacities of relevant stakeholder groups, and the presence of special sources of revenue to support co-management;
- Development, in consultation with potential stakeholder partners, of co-management policies by MPA management organizations;
- Selection of initial partners, based on group numbers, enthusiasm, and capacities, including the ability to engage in meaningful negotiations and forge actionable and mutually beneficial co-management agreements;
- Legislative support for initial co-management efforts through the interpretation of existing statutory language, and the strengthening of the legal foundations for co-management through the development of and advocacy for new bill language; and
- Fundraising for appropriate local, national, and international investments in MPA co-management.

Co-management of MPAs in The Bahamas promises to address a number of important national goals and objectives: increasing management effectiveness, better engaging and empowering of local stakeholders and communities, and more generally, contributing to a larger Bahamian vision of broad-based and decentralized involvement in conservation. But there are multiple issues – programmatic, social, financial, and legal – that need to be addressed for MPA co-management to take root. Once the rooting occurs, and additional, scalable investments are made in ongoing cultivation, MPA agencies should expect to see continuing positive returns from their efforts.

Background

The Bahamas National Protected Areas System

The Bahamas National Protected Area System (BNPAS) has seen enormous growth over the course of the last fifteen years. In particular, in 2002 the Government of The Bahamas (GOB) doubled the number of national parks and nearly doubled the areal coverage of the system to approximately 2,700 square kilometers (~1,040 square miles). This was followed by a tripling of the system in 2009 to approximately 8,600 square kilometers (~3,300 square miles). In 2015, the designation of additional protected areas (PAs), including some especially large marine areas, increased coverage of the BNPAS by over six-fold to more than 53,400 square kilometers (~20,600 square miles) (Table 1, Figure 1). These PAs were declared to protect special, vulnerable, and representative parts of Bahamian ecosystems and help the country meet its domestic goals and international biodiversity commitments.

As a party to the Convention on Biological Diversity, The Bahamas committed to protecting 10% of its national waters by 2020 (Aichi Target, 2011).[2] As a lead signatory of the Caribbean Challenge Initiative (2008), the GOB also committed to effectively conserve at least 20% of its nearshore marine resources by 2020 and increase its percentage of effectively managed marine protected areas (MPAs) to 50%.[3,4] The country currently has about 10% of its territorial waters declared as protected (Green *et al*. 2017).

The BNPAS includes MPAs under the authority of multiple management entities. These include

- Bahamas National Trust (BNT), the quasi-governmental organization with responsibility for management of the majority of the national park system;
- Department of Marine Resources (DMR), which manages fisheries reserves;
- Forestry Unit (FU), which has been proposed as a co-manager of some of the 2015 PAs and is designating national "conservation forests;" such forests that include fully submerged mangrove habitats will qualify as MPAs; and
- Antiquities, Monuments and Museum Corporation (AMMC), which has jurisdiction over marine sites and objects of historical, anthropological, archaeological and paleontological significance, and has been proposed to co-manage a new PA.

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[2] The United Nations' Sustainable Development Goals reiterate this target under Goal 14.

[3] The National Implementation Support Partnership (NISP) defined nearshore waters as territorial waters, which include the archipelagic baseline plus a twelve nautical mile buffer.

[4] The coverage of MPAs depends on the definition, and here, MPAs must include some natural brackish or marine subtidal habitat. MPA values also include several large marine managed areas (MMAs) declared in 2015, and the distinctions between MPAs, which can include zoning allowing different uses, and marine managed areas (MMAs), which are generally managed for multiple economic uses and may also include conservation zones, can be unclear. In The Bahamas, the degree of resource protection within MMAs has not yet been defined, but some people consider them to be a subcategory of MPA; in the US, MMA is considered a broader term, which includes MPAs as a subset that is more explicitly focused on resource protection and conservation. Due to their large contribution to the MPA system, the amount of resource protection that MMAs actually provide will matter for the overall protection of the MPA system.

Table 1. Current status of marine protected areas (MPAs) and marine managed areas (MMAs) in The Bahamas, including the management agency, year of establishment (and expansion), size, and year of completion of the general management plan (GMP). Under Management agency, "tbd" means that the management agency has yet to be determined. MPAs are shown in Figure 4 where they are identified by the numbers in the second column.

Island(s), part		MPA	Management agency	Established /expanded	Area, sq. km	GMP
Abaco, north	1	Black Sound Cay National Park	BNT	1988	0.01	draft
	2	Crab Cay Marine Reserve	DMR	2009	4.4	
	3	No Name Cay Marine Reserve	DMR	2009	4.9	
	4	Walker's Cay National Park	BNT	1980	24	draft
Abaco, central [2]	5	East Abaco Creeks National Park [2]	tbd	2015	54	
	6	Fowl Cays National Park	BNT	2009	13	draft
	7	Marls of Abaco National Park [2]	tbd	2015	866	
	8	Pelican Cays Land and Sea Park	BNT	1972	8.5	draft
Abaco, south	9	Cross Harbour National Park	tbd	2015	61	
Andros, north	10	Andros Blue Holes National Park	BNT	2002	162	
	11	Andros Joulter Cays National Park	tbd	2015	375	
	12	Andros North Marine Park	BNT	2002	20	draft
	13	Andros South Marine Park	BNT	2002	14	draft
	14	Andros West Side Andros National Park [2]	BNT	2002/2009	6,070	2013
Berry Islands	15	South Berry Islands Marine Reserve	DMR	2009	194	2013 [3]
Cay Sal	16	Cay Sal Marine Managed Area	tbd	2015	16,844	
Conception	17	Conception Island National Park	BNT	1964/2009	121	
Crooked/Acklins	18	Bight of Acklins National Park	tbd	2015	249	
	19	Southeast Bahamas Marine Managed Area	tbd	2015	24,496	
Exumas	20	Exuma (Jewfish Cay) Marine Reserve	DMR	2009	150	
	21	Exuma Cays Land and Sea Park	BNT	1958	456	2006
	22	Moriah Harbour Cay National Park	BNT	2002/2015	92	
Grand Bahama	23	East Grand Bahama National Park	tbd	2015	487	
	24	Lucayan National Park	BNT	1977/2015	7.8	draft
	25	North Shore / The Gap National Park	tbd	2015	947	
	26	Peterson Cay National Park	BNT	1968/2015	4.4	
	27	Green Cay National Park	tbd	2015	11	
Hogsty	28	Hogsty Reef Protected Area	tbd	2015	50	
Inagua	29	Inagua National Park	BNT	1963	890	
	30	Little Inagua National Park	BNT	2002	254	
	31	Union Creek Reserve	BNT	1965	25	
New Providence	32	Bonefish Pond National Park	BNT	2002	5.0	draft
	33	Southwest New Providence Marine Managed Area	tbd	2015	74	
San Salvador	34	Graham's Harbour National Park	BNT	2015	23	draft
	35	Green's Bay National Park	BNT	2015	2.4	draft
	36	Pigeon Creek and Snow Bay National Park	BNT	2015	20	draft
	37	West Coast Dive Site	BNT	2015	42	draft

Notes:

[1] sizes were sourced from various documents and spreadsheets. Conflicts in reported sizes sometimes differed among sources, so all values here should be considered estimates until they can be more fully validated.

[2] includes Hope Town district

[3] PA extends beyond the indicated part of the island

[4] GMP was completed in 2013, but GOB approved changes to reserve regulations in 2014 as a condition of private sale of Chub Cay Club

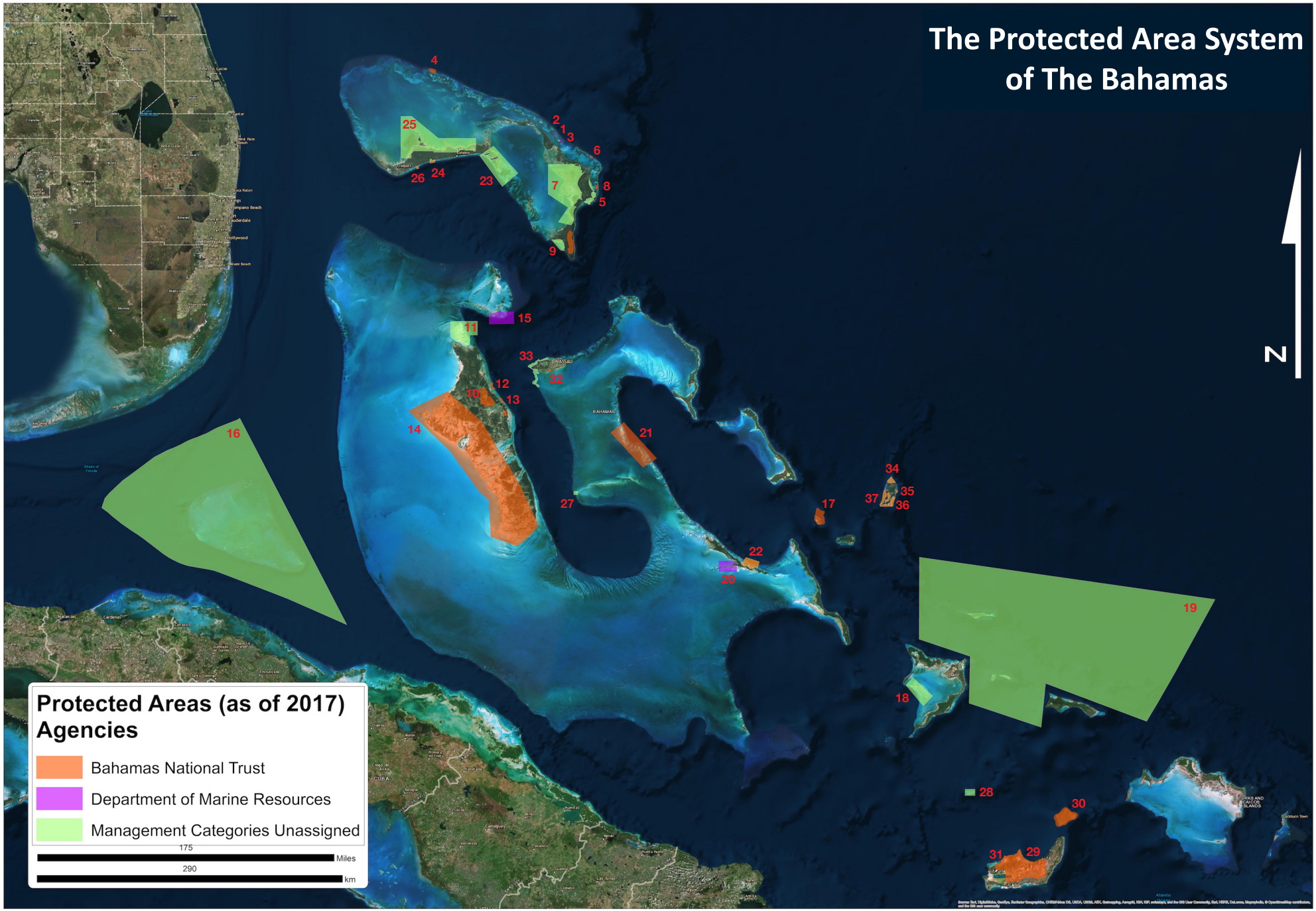

Figure 1. Map of the Bahamas National Protected Area System. MPAs are numbered (red) as in Table 3, including those managed by the BNT (orange), DMR (purple), and others waiting to be assigned to a management agency (green). Conservation forests managed by the Forestry Unit are still being designated and are not shown. Modified from map provided by Lindy Knowles, BNT GIS Unit.

With the exception of DMR, these agencies also manage terrestrial PAs, along with the Clifton Heritage Authority, which manages the Clifton Heritage National Park, and the Bahamas Public Parks and Public Beaches Authority (BPPPBA), which was established to manage recreational parks, urban green spaces, and beaches.

MPA management functions and challenges

Active MPA management includes many functions, but they are often categorized into management planning, outreach and education, monitoring of the status of important resources and human uses, enforcement of regulations, habitat management and restoration, development and maintenance of infrastructure, and administrative support for these components. Ideally, these categories are interactive and even cross cutting. For example, substantive outreach about PA regulations is often a first step before later enforcement actions. Similarly, education programs can promote and provide important opportunities for certain kinds of course-based monitoring within MPAs.

Although there are several managing authorities that, as mentioned above, have jurisdictions over MPAs (i.e., BNT, DMR, FU, and AMMC), only the BNT and DMR currently have any formally designated MPAs, and only the BNT has any moderately developed MPA management capacities. Consequently, much of the discussion of current MPA management gaps and challenges focuses on the BNT, with the understanding that the other MPA management authorities will ultimately face similar management challenges to the BNT, and may be able to learn and apply critical lessons from how it deals with its management challenges.

Principally, the three-fold increase in the number of PAs and the 35-fold increase in the total areal coverage of the BNPAS since early 2002 has not been reflected in the growth of the budgets and staffing of PA management authorities. For example, the system expansions that occurred in 2002 and 2009 were primarily through the addition of national parks under the BNT.[5] Although the BNT's budget and capacities have grown substantially since early 2002, much of the increases in staff and resources were necessary to simply begin to catch up with previous management responsibilities (e.g., the development of draft general management plans, GMPs, for national parks), let alone tackling new responsibilities from the expanded system. As a consequence, the BNT's strategic planning has required severe priority setting to determine which PAs have staff and other resources allocated towards management planning, the development of park infrastructure, and some level of on-the-ground presence, and which PAs remain essentially "paper parks" without any active management. In recent years, the BNT's annual operating expenses have grown from approximately $3.25-$3.5M to $4.5M, while the cost to effectively manage the national park system under their jurisdiction has been estimated at $10M/year (Mac Leod 2016, Blue Earth Consultants 2017).

Without a dramatic increase in funding, this budgetary shortfall will only worsen as The Bahamas continues to make progress towards the Caribbean Challenge Initiative's targeted 2020 MPA coverage. This means that The Bahamas may achieve its CCI coverage targets, but

[5] See note 1.

actual management effectiveness may become increasingly out of reach unless there are substantial increases in funding, staffing, and changes in management approach.

The archipelagic nature of the country and its MPAs also contributes to the management challenges. Most of the country's population is located on New Providence and to a lesser extent, Grand Bahama. Many of its MPAs however are located in the Family Islands, or even in remoter parts of the archipelago, such as Cay Sal or Hogsty Reef. These PA settings add to certain management difficulties, for example, in terms of sustainable staffing, maintenance of equipment and infrastructure, and access to law enforcement. Although some of these issues are inescapable in a large archipelago, they are arguably made more difficult by centralized management organizations based in Nassau. Conversely, greater decentralization – especially with respect to capacities in outreach and education, habitat management and restoration, and enforcement – would likely be beneficial to MPA management outside of New Providence.

Concepts of co-management

This situation – the likelihood of a growing gap between management responsibilities and capacities – along with other important social considerations, has inspired new attention in The Bahamas to additional management approaches. Specifically, the ***sharing of management roles and responsibilities between partnering entities*** – under the umbrella term of ***co-management*** – offers some potential to help fill certain management gaps and achieve additional benefits.

Although this framework adopts a broad definition of co-management, which includes various types of partnerships between diverse entities, others define co-management more narrowly. Some authors, for example, refer only to partnerships between resource users and government agencies,[6] or to certain types of cross-scale power-sharing arrangements between local- (e.g., community) and higher-level (e.g., national or provincial) groups[7] (e.g., Berkes 2002, Armitage *et al.* 2007).

In this framework, the umbrella definition of co-management includes three subtypes:

Agency co-management – partnerships between national-level entities, such as PA management bodies like the BNT, DMR, FU, and AMMC; law enforcement agencies like the Royal Bahamas Defence Force (RBDF), the Royal Bahamas Police Force (RBPF), and the Departments of Customs and Immigration; and other agencies like the Ministry of Tourism, and the Departments of Public Works and Environmental Health.

National co-management – partnerships between management authorities and national-level stakeholder groups, such as between a management agency and an industry

[6] The GOB's Draft National Policy for Fisheries and Aquaculture follows this government-resource user definition, citing OECD (1996).

[7] Other overlapping concepts include "collaborative management," "cooperative management," and "participatory management" or, more encompassing, "collaborative governance," where a distinction is made between *what* is done in pursuit of goals and objectives (management) and *who* decides about what is to be done and *how* these decisions are made (governance).

association that operates at the national level. The proposed National Fisheries Stakeholder Forum and the Fisheries Advisory Council, created by the draft Fisheries Act, also would be two national-level groups of stakeholders that formally advise DMR and the Ministry of Marine Resources and Aquaculture on fisheries policies; and

Local co-management – partnerships between management entities and local-level stakeholder or community groups, contributing to decentralization and devolution of some of the PA roles and responsibilities.[8]

Local co-management, and to a lesser extent agency co-management, are the main emphases of this framework for several reasons. First, the overall project is focused on assessing and framing how co-management could contribute to increasing management effectiveness of MPAs. Second, representatives from local stakeholder groups have commonly expressed interest in greater involvement in MPA management. In addition, representatives from national agencies, such as the BNT, DMR, the Forestry Unit, and AMMC recognize that there are substantial opportunities for them to work in more coordinated and collaborative ways to better manage the resources under their jurisdictions.

The nature of partnership agreements can also vary widely under the co-management umbrella. Towards one end of the power-sharing spectrum, ***consultative co-management*** has the main PA management authority retaining all of the actual day-to-day responsibilities, while the partner provides a formal advisory role. At the other end of the spectrum, sometimes referred to as ***delegated co-management***, the main PA authority allows its partner to undertake the vast majority of the day-to-day management and decision-making. Between these two extremes, ***collaborative co-management*** covers the range of scenarios where the partners substantively share management roles and responsibilities (McConney *et al.* 2003).

Co-management benefits

In addition to helping to address management gaps to achieve better resource management, these partnerships may provide wider benefits as well. For example, In the case of co-management partnerships between national PA entities, these kinds of efforts help to break down agency "silos" and generate more coordinated and integrated government decision-making and management in general. In cross-scale partnerships between national agencies (for example, the BNT, DMR, or AMMC) and local stakeholders or communities,[9] shared management also offers a number of other management and social benefits. These may include

- better public relations through improved communications, engagement, understanding, and trust between principal PA managers and nearby communities;

[8] Because of the emphasis on local co-management in this report, "local stakeholder partnerships" will often be simplified to "stakeholder partnerships." In this context, "stakeholder" also generally refers to non-governmental and other non-agency stakeholders, even though government offices and personnel are technically stakeholders as well.

[9] These are also called cross-level partnerships.

- enhanced decision-making, especially better problem-solving through knowledge sharing and routine consideration of a wider range of perspectives;
- increased stakeholder compliance with PA regulations; and
- greater empowerment of marginalized stakeholder groups affected by PAs and within civil society.

These benefits are discussed in substantially more detail in an accompanying project report.[10]

Stakeholders, and stakeholder variability

The identity and interest of stakeholder groups in co-management was explored through expert knowledge, literature sources, and semi-structured interviews and discussions at meetings with stakeholders in four family-island study locations.[11] This ultimately resulted in a list and descriptions of sixteen stakeholder categories, which largely reflect previous breakdowns of family island stakeholders (Table 2; Liebowitz 2007).

Certain stakeholder groups have specialized skills, interests, or capacities in certain PA management components. For example, groups that spend substantial time on the water for their livelihoods or businesses, such as fishing guides, dive operators, and some tour operators and resort owners are likely to be especially important partners for different types of surveillance and monitoring within MPAs.

The law enforcement group, including the RBDF and the RBPF, are uniquely positioned to help with PA enforcement. The Fisheries Resources (Jurisdiction and Conservation) Act [12], for example, authorizes that "Every member of the Defence Force, every officer of the revenue, every peace officer and every officer of the Department of Agriculture and Fisheries appointed for the purpose by the Minister by instrument in writing shall be a fisheries inspector for the purpose of this Act." Similarly, the Forestry Act 2010 allows the Minister in charge to "designate any public officer or gazetted person as an authorized officer for the purposes of this act." [13] The Bahamas National Trust (Amendment) Act, 2010 updated section 25 of the original 1959 act to specify that "appointed officers or wardens have the power, authorities and protection of… a constable," and that " 'officer' or 'warden' of the Bahamas National Trust shall be deemed to include… peace officers assigned or engaged in Bahamas National Trust matters."[14] Practical challenges with having defence and police personnel contribute, for example, to the enforcement of forestry or BNT regulations include (1) limited awareness of the fisheries,

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[10] Brumbaugh, DR. 2017. *Greater effectiveness through co-management of marine protected areas: An introductory discussion for The Bahamas* (Full Report). Report to The Nature Conservancy, Northern Caribbean Program, Nassau, Bahamas: 68 pp.

[11] Central & South Abaco, North & Central Andros, Great Exuma, and San Salvador. See other reports from this project for details about these visits.

[12] Fisheries Resources (Jurisdiction and Conservation) Act (LRO 1/2006, Chapter 244), section 3, p. 5,

[13] Forestry Act (No. 20 of 2010), section 22, p. 15.

[14] Bahamas National Trust (Amendment) Act (No. 31 of 2010), section 12, p. 11.

Table 2. Study-wide stakeholder groupings and summary characteristics, with relevance to opportunities and challenges associated with possible transitions to co-management of protected areas (PAs). Entries are derived from syntheses of comments during interviews, meetings, and other discussions. "Level of Support" generally refers to interpretation of a group's interest and willingness to do something on behalf of PA co-management, such as re-adjusting internal programmatic priorities and budgets, getting actively involved in some aspect of management through in-kind or financial support, or assisting in the facilitation of co-management itself.

Group Name	Description	Basis of Interest in Co-Management	Level of Support	Strategies for Increasing Support
Central Government (CG)	Personnel from other departments and ministries outside of the aforementioned resource management, education, research, and law enforcement sectors, regardless of whether they are based in Nassau or on a Family Island. Such ministries and departments include Tourism, Public Works, Customs, Immigration, Port Authority, and Finance.	Intersections between Ministry missions and PA management effectiveness, such as improving tourist attractions (Tourism and Public Works) and assistance with PA regulations (Customs, Immigration, and ports).	Low-moderate, with some exceptions, due to common "siloing" among and within hierarchical government bureaucracies and lack of widespread awareness about possible jurisdictional connections to PA management.	Outreach to forge relationships with key individuals, who may have some capacities for more collaborative planning and operations between their agency and partners at the local level; advocacy at higher levels for all agencies to improve coordination and cooperation on behalf of environmental protection.
Church (Ch)	Pastors of churches (though these people often have additional occupations as well), staff of national and international church conferences, and volunteer groups involved in community building.	Possibility of better stewardship of local natural resources (i.e., God's creation); interest in improvement of local economic conditions and local empowerment in general	Moderate; although particular pastors may have faith-based and practical interest in PAs and their importance for environmental and cultural protection, for many, resource conservation is not among their highest priorities.	Targeted outreach about how community welfare has long-term dependencies on environmental quality, which in turn depends in part on the active management of local PAs; greater support by the church could leverage broader community support.
Civic Group (Civ)	People associated with various civic organizations, such as community-development foundation (e.g., Exuma Foundation), Family Island Regattas, etc.	Co-management with local stakeholders represents a devolvement of authority, and establishes a new focal forum for different groups to come together, discuss, and make decisions about important societal issues. Some civic groups are also concerned about the link between environmental quality and the economy and livelihoods.	Moderate to substantial, with possibility that certain civic groups could play supporting/facilitating roles; support is mainly tempered because such groups either are juggling multiple projects and may be primarily focused on other priorities.	Make the argument that certain PA co-management processes are a key opportunity to foster civic engagement about core issues of environmental stewardship and health, and that civic engagement developed through co-management should spillover into other areas of civic concern.
Commercial Fishing (CF)	Multiple actors who participate in the supply chain of seafood products, including fishers who sell a substantial portion of their catches, seafood processors, warehouse workers, distributors, etc. Major commercial fisheries include spiny lobster (crawfish), queen conch, and reef fishes.	Variable, but concern about foreign poaching may motivate involvement in monitoring of others' fishing activities; day fishers who stay in the vicinity of their home island (e.g., San Salvador) are more likely to be supportive than those that visit other islands.	Low-moderate, but variable, for fishers; when the fisheries regulations, weather, and logistics allow for productive fishing, that is generally the main priority and there is little energy left for co-management activities. One general challenge is the relative lack of organziation and coordination among fishers, which makes it difficult for a "representative" to speak on behalf of a larger collective group.	Develop program where a small number of fishers, in exchange for some appropriate level of financial compensation, can enroll to assist in monitoring of particular remote PAs, such as Cay Sal or Hogsty Reef, or spawning aggregation sites during seasonal closures. Better coordination and cooperation of fishers, and the commercial fishing sector in general, may be possible through organization and leadership by those on the processing and distribution side of things.
Conservation (C)	Staff and active members of local environmental groups, such as Friends of the Environment on Abaco, ANCAT on Central and North Andros, the Elizabeth Harbour Conservation Partnership on Exuma, and the San Salvador Living Jewels Foundation.	Mechanism for renewed attention to more active management of local PAs; opportunities for local input and control over components of PA management	Substantial support in principle, with various caveats depending on the locale; some NGOs are wary of too much management responsibility thrust on them, and therefore want to be one of multiple players in co-management arrangements; some local conservation groups want national authroities to show some leadership in active management before they will get involved; some NGO members hope for more local control but with most funding coming from national authorities; others want local control of all funding raised locally.	Start up ongoing dialog about what the longer-term vision is for co-management, what the initial steps should be, and how these can build on existing interests in local enviornmental research, education, and outreach; help to build broader coalition of local PA co-management supporters, starting with smaller, more easily achieveable steps.
Developer (D)	People who are planning, proposing, building, or have built developments of permanent housing, vacation rentals, hotel properties, or other touristic development.	Economic self-interest from well-managed PAs that can provide amenities for new developments, including attractions and activities for residents and guests, and "green" marketing opportunities for developments that support PAs; possibilities of private-public partnerships with interconnecting trails, PA concessions, and other visitor services.	Likely mixed, ranging from low to substantial, depending on the business model. Developers of property adjacent or near to PAs value actively managed PAs as amenities that directly contribute to the value of their developments and future marketing; some concern that PAs will influence regulations of surrounding areas that make development substantially harder/more costly. For foreign investors, environmental concerns can be influenced by negotations with Central Government over approvals of development plans.	Outreach about amenities (e.g. ecosystem services) provided by PAs and the environment, and the need to follow best practices when it comes to development, especially in proximity to PAs; promotion of private PA sponsorship programs; support for long-term land-use planning and resulting zoning that provides some protections to PAs against encroachment of inappropriate development and more certainty to lower impact developers about where and how developments may be allowed.
Dive Operator (DO)	Owners and staff of businesses that are primarily SCUBA and snorkeling operators.	Economic self-interest from well-managed MPAs, especially enforced no-take reef areas where there are minimal conflicting uses, operators take diving and snorkeling groups, and there are "green" marketing opportunities for businesses that support MPAs.	Substantial support in principle, depending on the specifics; interests include installing and helping to maintain mooring and marker buoys in enforced no-take zones; monitoring of no-take areas.	In any given reef area, there are generally going to be only a few small-scale operators, at most, so co-management arrangements have to be structured so as to not impose an inordinate burden to the small buisness.

Group Name	Description	Basis of Interest in Co-Management	Level of Support	Strategies for Increasing Support
Education (E) & Research (R)	People associated with educational and research institutions or programs, such as the University of The Bahamas, Gerace Reseach Centre (San Salvador), Cape Eleuthera Institute, Forfar Field Station (Andros), and BAMSI (Andros).	PAs are "natural laboratories" for research and education, and therefore interest in greater PA management effectiveness, and appreciation for the roles of relevant and broad-based research, outreach, and education in supporting management effectiveness.	Substantial, when grant funding is accessible, making possible opportunities for partnerships to help support PA monitoring, other research needs, and public outreach; potential to better engage local students' families through students.	Discussions leading to formalized partnerships.
Fishing Guide (FG)	People who work as various kinds of sport fishing guides, including flats, reef, and deep-sea fishing. While flats fishing is generally catch-and-release, deep-sea fishing is often a mix of catch-and-release and catch-and-keep depending on the species and the particular activity (e.g., tournament), and reef fishing is generally completely consumptive.	Economic self-interest in protecting habitats and fish populations that livelihoods depend on; preventing other disruptive, incompatible uses of these areas; preventing outsiders from commercially exploiting local resources; preserving a viable way of life.	Substantial support, especially among many (though not all) flats fishing guides, for participation in surveillance of flats habitats.	Help support organizing of local groups of fishing guides to increase their capacities to participate as organizations within decision-making processes.
Law Enforcement (LE)	Enforcement and military personnel with the Royal Bahamas Police Force and the Royal Bahamas Defense Force.	Improving PA management effectiveness, through co-management or other approaches, means better respect for and enforcement of existing and new PA regulations, which in turn should ultimately help conserve valued Bahamian ways of life, including the sustainability of resources for subsistence by Bahamians.	Low-moderate, primarily because environmental protection and enforcement has not traditionally been a high priority of law enforcement and the judiciary. An exception is the existing partnership between BNT and RBDF for anti-poaching patrols, and RBDF's ongoing role in interdiction of foreign fishing vessels in The Bahamas.	Better outreach to law enforcement and the judiciary, from top political levels to officers on the ground, about the direct and indirect consequences of non-compliance on Bahamian resources (e.g., poaching of valuable wildlife or illegal dumping within PAs, that leads to further littering and general erosion of environmental stewardship values, and diminishment of economic values, through loss of tourism potential, etc.). Public recognition of law enforcement and judicial roles in PA enforcement may build enhance public appreciation and confidence in these groups.
Local Government (LG)	People who have been elected to Town Committees or District Councils, or who are civil servants working as local District Administrators. Although Administrators are representatives of the central government, their local focus and the diversity of sectors that they work across is arguably more similar to elected local government representatives than local representatives of other central government ministries. Note that both elected local government representatives and local Administrators often have additional businesses or occupations as well.	Alignment between local government as a convenor and facilitator of multiple local interests and multi-sector models of co-management;	Low-medium familiarities with local PAs with some Local Government officials; limited and sometimes delayed funding from central government restrict abilities for direct financial support, but help with convening and facilitating meetings of diverse stakeholders should be possible, depending on the skills and interests of the local gov. representatives.	Work with District Council members to include PA and other environmental issues within strategic planning. Given electoral and administrative turnover, need for continual outreach to LG representatives.
Natural Resource Manager (NRM)	Staff for governmental resource agencies (e.g., Antiquities, Monuments and Museum Corporation; Department of Marine Resources; and Forestry Unit) and non-governmental organizations (i.e., Bahamas National Trust). Most but not all of these stakeholder informants worked directly on PAs management.	Potential for inceased management effectiveness through partnerships with other management entities and local groups.	Mixed. While there is general support for the concept of co-managemen, there is also some skepticism that other stakeholders currently have the capacities to adequately take over aspects of PA management, and that effort spent to coordinate and build capacities of co-management partners might be better spent on direct management.	Discuss benefits of possible pilot PA co-management project, with an emphasis on learning how to effectively build local capacities in replicable ways; procure additional funding for NRM capacity building and piloting of co-management.
Other Business (B)	People involved in other local businesses and local chambers of commerce.	General interest to the extent that effectively managed PAs provide a greater attraction for both visitors and residents, thus helping the local economy; in some locations, achieving greater local control is viewed as an important positive as well	Low-moderate. Not active opposition, but cautious about the financial and organizational challengesto develop sustainable co-management.	Snowball strategy prioritizing development of financial underwriting from early business supporters, public promotion of this sponsorship, and popularization and normalization of broader underwriting within local business communities. As one business person said, when it comes to local fundraising, "success breeds success."
Resort/Hotel (R/H)	Owners and employees of businesses that range in size from smaller boutique hotels to large, luxury resorts. Many of the latter offer services such as snorkeling, diving, or other guided tours, but informants were included in the main resort/hotel group unless they were primarily associated with one of these other services.	Economic self-interest from well-managed PAs that can provide opportunities for attractions and activities for guests, disallow disruptive conflicting uses, and generate "green" marketing opportunities for businesses that support PAs.	Low-moderate, mixed. Although some owners are supportive of conservation measures, especially ones that protect or enhance their businesses, they also are unlikely to venture into enforcement. For foreign investors, environmental concerns can be influenced by negotations with Central Government over approvals of development plans.	Snowball strategy prioritizing development of financial underwriting from early business supporters, public promotion of this sponsorship, and popularization and normalization of broader underwriting within local business communities. As one business person said, when it comes to local fundraising, "success breeds success."
Second Home Owner (SHO)	People largely from the U.S., Canada, and to a lesser extent, Europe, who own property that they visit either seasonally (e.g., during the winter) or throughout the year.	Appreciation for the environment that attacted them to The Bahamas, and interest in protecting it from degradation.	Moderate to substantial; involvement in local conservation organizations, with collective influence due to economic clout	Seasonal outreach through homeowners associations, social media, local media, local conservation groups and other allies to encourage support for local PA co-management
Tour Business (TB)	Owners and employees of businesses primarily offering tours to visitors. The businesses range from exclusive nature-based tour operators to ones that offer a wider array of services to visitors, including vehicle rentals, hotel arrangements, and actual guided tours.	Economic self-interest in well-managed PAs with visible wildlife, scenic vistas, and recreational opportunities as attractions for tourists	Substantial support, especially among nature-based tour operators.	Through coalition formation, high interest, medium influence entities can achieve more influence; new co-management institutional structures could facilitate such coalitions.

forestry, and BNT acts and their regulations, and (2) the belief among many police officers that expanded duties should result in associated compensation in terms of financial renumeration or accrual of paid time off.

Local conservation organizations serve as delegated co-managers in other countries such as Belize (e.g., Mitchell *et al.* 2017), but the extent to which this form of co-management may be utilized in The Bahamas in the near future is unclear. Conservation stakeholders generally want to be involved in some way in co-management, and some groups engage substantively in environmental education and outreach. However, most groups currently tend to lack either the interest or capacity to take on the larger burden of being the principal manager of one or more PAs. One known exception may be the local conservation group, San Salvador Living Jewels Foundation, that has a demonstrated capacity to raise funds from visiting divers via a dive tag program. Members of this group mentioned the possibility of being able to contribute to co-management by funding the hiring of staff who could directly assist with PA management.

Due to the biophysical, socio-economic, and cultural geographic variability across the Bahamian archipelago, the mix of local stakeholders, their interests, and influence also vary on different family islands. On the least developed family islands, some stakeholder groups, such as the kinds of businesses that rely on a certain level of tourism development (e.g., dive operators) are not present. In other cases, stakeholder groups may be variously comprised of several smaller businesses or dominated by a single, larger business.

Suggested framework

In drafting the suggested framework for PA co-management, both design and social principles were first identified and synthesized to guide the development. The design principles are a set of pragmatic, priority attributes to guide the construction of the framework. The framework, in turn, can be viewed as a series of particular management solutions, derived and modified from examples used elsewhere, to the range of prevailing conditions found across The Bahamas. The social principles are important ethics and practices for the implementation of the framework (and interactions between management and stakeholders in general).

Design principles

Gradualism: a process embracing gradual reform rather than rapid change or revolution. Because co-management is, for the most part, a new approach to PA management in The Bahamas, the framework should recognize the desirability of starting with smaller, trial efforts, that can then grow strategically as further understanding, interest, and resources allow (Scarlett *et al*. 2013, Reddy *et al*. 2017).

Opportunism: finding and taking opportunities as they are encountered, rather than following a rigid, predetermined formula. The framework should also leverage stakeholders' economic and other interests in better management of their natural resources as much as possible. Experience from around the world demonstrates that co-management is more sustainable when the benefits of participation by stakeholders outweigh the costs.

Multi-stakeholder participation: substantive and integrated participation by multiple stakeholder groups. While acknowledging that multi-sectoral, multi-stakeholder co-management may not be possible in some Bahamian settings, the framework recognizes that multi-sectoral, multi-stakeholder participation, where possible, remains an important priority (e.g., Pomeroy et al, 2004, Lockwood *et al*. 2010). More diverse participation in co-management facilitates wider communications between PAs and the surrounding communities, expands the kinds of knowledge available for decision-making, and provides balance among different interests to ensure that PAs are managed on behalf of the wider public and are not "captured" by single interest groups. In addition, PA co-management that includes a multi-sectoral, multi-stakeholder forum may serve as a positive contributor to general civic integration.

Scalability & modularity: capacity to achieve a range of appropriate sizes or levels of complexity (scalability), in part through the repeated assembly of subunits with distinct functions (e.g., Miller and Elgård 1998). To accommodate the natural and human geographical variability within the country, the framework should be flexible enough to address the opportunities and challenges across different settings. The different subtypes of co-management mentioned above (i.e., between different national entities, and between national entities and different stakeholder groups), as well as different kinds of partnerships with different stakeholder groups, can be viewed as different co-management modules that can be assembled in different combinations. Co-management in different places, therefore, may end up looking quite different despite sharing many, though not all, of the same pieces.

Adaptability: ability to adjust to new, emerging conditions. Where possible, the framework should encourage learning, including co-production of knowledge, sharing of information, and adaptive decision-making, within individual co-management domains and across the whole BNPAS (e.g., Berkes 2007, Lockwood *et al*. 2010, Armitage *et al*. 2012). This may also drive co-management to look and function differently in different settings.

Authorization: based on written documents, including laws and contracts. Ideally, PA co-management in The Bahamas should be firmly based in statute and regulations (e.g., Lockwood *et al*. 2010, Borrini-Feyerabend *et al.* 2013, Vaughan and Caldwell 2015). Existing Bahamian laws provide substantial opportunities for moving forward with co-management planning and pilot efforts, but new amendments or other revisions to certain statutes could provide clearer authorization for the further development of PA co-management.[15] Because of the substantial time and effort involved in amending existing legislation (let along passing new laws), the framework should support pragmatic leveraging of existing legal scope while simultaneously encouraging the passing of new clarifying and strengthening amendments. In addition, specific co-management agreements should be written documents that include such elements as the partnership goals and objectives, structure, respective responsibilities and powers, and term of the agreement.

[15] For more details, see Brumbaugh, DR. 2017. *Transitioning Towards Protected Area Co-Management? An Analysis of Enabling and Inhibiting Conditions in Bahamian Laws*. Report to The Nature Conservancy, Northern Caribbean Program, Nassau, Bahamas: 27 pp.

Social principles

Respect & civility: recognition of the intrinsic positive abilities and qualities of all people (respect), and evenness and politeness in communications (civility). All participants in PA management discussions should treat others with respect (e.g., Jones *et al*. 2013). Where disputes may exist, participants should focus on discussing the substance of the disputed policies and not on disparaging other participants or organizations.

Fairness: treatment of all parties without favoritism or discrimination. Authorities should exercise power equitably and consistently, including (a) attention to diverse stakeholder views in decision-making and implementation processes, and (b) consideration of the distribution of benefits and costs of decisions, currently and in the future (Lockwood *et al*. 2010, Jones *et al*. 2013).

Transparency: the perceived quality of intentional sharing of information by a source. Major decision-making processes should be visible, accessible, and clearly communicated (e.g., Lockwood *et al*. 2010, Schnackenberg and Tomlinson 2014).

Inclusivity, balanced with efficiency: practice of including people who might otherwise be marginalized (inclusivity), with the understanding that certain discussions and decisions may also occur in smaller settings with a subset of the most relevant stakeholders. Consultative engagements with stakeholders about co-management should be as broad based as possible, at least initially and periodically thereafter. There also should be a clear imperative and mechanisms for moving forward after stakeholders have had chances to provide their perspectives (Lockwood *et al*. 2010).

Accountability: obligation of parties in entrusted roles to take responsibility, and be answerable and liable for their actions. Co-management partners should be continually reviewed to assess (1) how well people, organizations, and systems are functioning; (2) awareness of changing opportunities, threats, and risks; and (3) adaptive integration of new knowledge into decision-making for greater effectiveness (e.g., Berkes 2009, Lockwood *et al*. 2010).

Co-management pathways

The co-management system should be structured to be adjustable in form, both (1) across locations to accommodate the country's natural and human geographical variability as much as possible, and (2) over time to accommodate co-management growth and local economic and demographic changes. Although there are many different geographical variables in The Bahamas, much of the geographical diversity can be represented by the size and complexity of the local economy, including the diversity of interested stakeholder groups. Variation in the number, relative size, and enthusiasm of groups, therefore, may provide useful metrics for thinking about potential co-management pathways. For example, places with smaller economies tend to have fewer stakeholder groups with sufficient interest and capacity to get involved in co-management, whereas places with larger economies tend to have more groups, with more people, who have interest in and capacities for MPA co-management. This suggests

that there are differences in the amount of multi-stakeholder participation that might be naturally expected across locations. These stakeholder-diversity differences may affect which of two different kinds of co-management endpoints – *one or multiple stakeholder partnerships* versus a *multi-stakeholder council* – are developed as a longer-term organizational goal in a given place.

Stakeholder partnerships

Despite the importance of broad initial public engagement and the goal of involving as many stakeholder groups as practical, other framework-design principles, including gradualism, opportunism, modularity, and scalability, suggest co-management should initially be approached in a simpler form. By starting with initial partnership agreements with just one or perhaps two stakeholder groups with the right combination of interest and capacity, and focusing on smaller, more easily achievable goals, co-management participants can work through inevitable partnership issues more easily to achieve successes.

In most places in The Bahamas, given existing local interests and capacities, initial co-management partnerships are likely to be more consultative or collaborative rather than delegative. Consequently, these initial partnerships may be relatively limited in scope, and focused on topical areas where particular stakeholder groups have special skills or assets that can be used in particular aspects of MPA management. There may also be opportunities for negotiating and layering additional partnerships to assist with other management components. One theory of change is that with the establishment and demonstration of success of early-adopting stakeholders in initial co-management partnerships, a domino effect starts in which other stakeholder groups become increasingly motivated to organize and establish new partnerships with the principal MPA entity.

Last, it is important to note that with this structure of multiple stakeholder partnerships, there may be limited interactions between most of the stakeholders themselves. The partnership agreements are generally bilateral ones with the MPA agency, and most official governing interactions may therefore be between single stakeholder groups and the agency, and not among the wider set of partners. This is a significant functional distinction between this type of co-management arrangement that is composed of multiple, independent stakeholder agreements, and the concept of the multi-stakeholder council below.

Multi-stakeholder councils

Where possible and desired, a set of partnership agreements could be the basis for the transition to a multi-stakeholder council (MSC)[16], which would function as an integrated community-based co-managing entity. These councils, composed of representatives from key stakeholder groups as well as local *ex officio* representatives from relevant government agencies, would be authorized under a power-sharing agreement with the MPA authority.

[16] Note that this is just a descriptive functional name and that in practice, another name may be preferable to reduce any local confusion with District Councils or within the BNT, with their governing Council.

MSCs would meet regularly (e.g., weekly to monthly, depending on the need) and as necessary to discuss and make decisions about the management of co-managed MPA(s). As with other arrangements, MSC co-management agreements could range from consultative to delegated roles and responsibilities, with the latter requiring substantially more local time and effort.

Individual partnership agreements and MSCs are not mutually exclusive. Under the latter, specific stakeholder partnership agreements could be important for different components of management. These stakeholder partnerships would increase the claim of that stakeholder group to a seat on the council.

In delegated forms of co-management involving a MSC, stakeholder partnerships could be between stakeholder groups and the council rather than with the more remote MPA agency. Layered on top of stakeholder agreements, MSCs would provide additional elements of community engagement, policy discussion, better coordination with local communities and government, and broader community empowerment in MPA management. This developmental process from bilateral co-management partnerships to MSCs is illustrated in Figure 2.

The initial stakeholder and government agency composition of each council should be publicly discussed and ultimately negotiated between the MPA agency and local leaders within each MPA or set of MPAs that are to be co-managed together (see "MPA classification" below). The composition could change over time as stakeholder groups shift in terms of their interests, capacities, and influence, but a cap on total size may be useful to keep discussions and decision-making as efficient as possible. Stakeholders that have already demonstrated their interests through involvement via existing partnerships and other in-kind or financial support should be prioritized, as would other groups that are directly involved with MPA or nearby marine resources. This would likely include, but is not limited to, stakeholder groups involved in fisheries, nature-based tourism, and research and education.

Ex officio representatives from local government and central government could include the District Administrator, one or more Town Councilors, local staff or other representatives from the Ministries of Tourism and Environment & Housing (which may include appointees from the Forestry Unit, the Bahamas Environment, Science, and Technology [BEST] Commission, or Environmental Health Services); the Departments of Marine Resources and Public Works; and the RBDF and the RBPF. The involvement of such *ex officio* representatives on councils will be important. Local government representatives could help facilitate council interactions among diverse personalities and groups within their communities. Additionally, relevant government representatives should help make important connections in support of the MPA co-management unit (see *MPA Classification* below) with their home departments and ministries.

Because the MSC is the local partner to an MPA managing authority, however, it is important that the non-government stakeholder and community interests retain a majority if not all of the voting power on the council. Therefore, either numbers or voting power of *ex officio* representatives should be limited. This is intended to ensure that the community participants have real decision-making capacity, which in turn should contribute to more sustainable power-sharing partnerships with MPA authorities.

Some of the other challenges associated with MSCs include the need for and costs of coordination, recruitment of good stakeholder and government representatives, establishment of standard operating procedures (e.g., rules for discussions and decision-making), and perhaps special facilitation and conflict resolution by outside, neutral parties for particularly controversial subjects. Typically, once they become established, such multi-stakeholder groups decide on many of these issues themselves, such as whether decisions will be made by simple majority, super majority (e.g., two-thirds), or require complete consensus. Groups that are on the losing side of contentious decisions may occasionally feel tempted to leave the MSC in protest, but if the MSC is generally perceived to be balanced and has a good reputation within the community, these groups may nevertheless see more benefit in staying involved than in quitting.

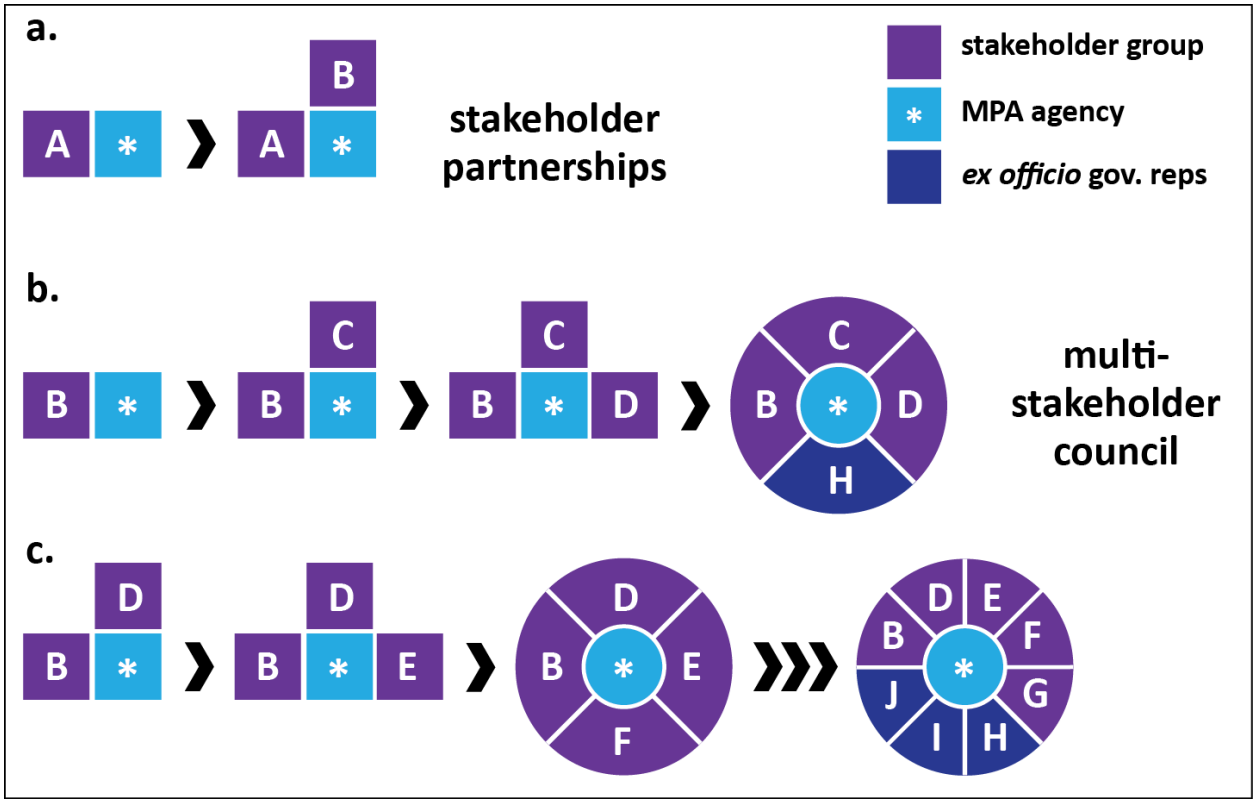

Figure 2. Schematic illustration of the growth of MPA co-management arrangements in three different locations, a-c. In all locations, co-management starts with bilateral partnerships between the MPA authority (light blue squares and circles) and either one or two stakeholder groups (purple squares and wedges). Over time, additional partnerships are added in each location. In two locations (b. and c.), multi-stakeholder councils are formed to become integrated co-managing entities. In c., this multi-stakeholder council continues to grow over time through the addition of representatives of other stakeholder interests and local ex officio representatives (dark blue wedges) from relevant government agencies. Letters identifying different combinations of stakeholders and ex officio representatives are arbitrary and are meant to illustrate how partnerships and councils may involve different combinations of interests in different places.

Suggested pilot implementation strategy

As mentioned above, gradualism and adaptability are both important design criteria in the framework, and they apply equally to the framework's implementation. Planning and implementing co-management in pilot sites is therefore strongly recommended as a way for MPA authorities and stakeholder groups to "get their feet wet" with this new governance approach before considering larger, more widespread investments.[17] In addition to allowing MPA authorities more time to transform to meet the broader challenges, the pilot experiences will provide invaluable learning opportunities to guide subsequent implementations.

Several simple stages in a suggested implementation strategy are described below. These are intended to provide relatively quick steps to guide thinking about how to move forward with the development of co-management within the BNPAS. The overall process, however, should also be highly responsive and adaptive to new information, lessons, and emergent opportunities along the way. For example, if sites with special opportunities are already apparent, then efforts to initiate co-management could start sooner at these pilot locations. The stages identified here are meant to provide guidance about where and how to start developing co-management, but where sites with good rationales for moving forward are already known, the completion of these steps should not be an impediment.

MPA classification

A first step in implementing the framework for MPA co-management is to group and classify MPA co-management units, either single MPAs or small clusters of MPAs that are geographically and otherwise conducive to joint co-management.

PA authorities, such as the BNT, already group MPAs within close proximity for the purposes of shared management planning, staffing, and other resources. The potential for co-management adds additional considerations, including MPA use by stakeholders, proximities to settlements and law enforcement, and proximities to staff of other national entities or other partner assets. Practical considerations and trade-offs in grouping MPAs within co-management units include being able to target a larger population of stakeholders in order to engage a critical mass of interested individuals, but at the potential cost of increasing the distance and effort for some of these stakeholders to be able to attend co-management meetings.

These information layers should inform discussions about where to prioritize MPA co-management, and what kinds (or modules) of co-management are most relevant. For example, with remote MPAs that are distant from stakeholders, the only potential partners may be other national agencies, such as the RBDF that could occasionally monitor the area by sea or by air. In contrast, MPAs in the neighborhood of multiple settlements with strong tourism economies

[17] Notably, the BNT has included piloting co-management in at least one protected area as an objective in their Draft Strategic Plan 2018-2022.

that support stakeholder groups, such as fishing guides, dive operators, and hotel/resort owners, may have multiple local partnerships in addition to the national and local law enforcement partnerships.

Initially, not all MPAs will be classified into potential co-management units, as co-management may not appear to be a feasible or useful management approach in all places. This is discussed further in the next section.

Iterative site selection

Initial MPA co-management efforts should be chosen strategically where there appears to be good overlap between the need for enhanced MPA management, sufficient active interest in at least one and ideally multiple stakeholder groups, and the availability of managers who can invest in coordination and capacity building as necessary.

To find the "low hanging fruit" that can serve as useful pilot sites for local co-management, multiple prospective MPA co-management units should be compared in terms of their proximity to settlements, the existing interests and strengths of relevant stakeholder groups (especially those in nature-based industries, such as conservation groups, fishing guides, dive operators, and tour businesses) that may be interested in forming initial partnerships. This should probably be a qualitative exercise, akin to a "strengths, weaknesses, opportunities, and threats" (SWOT) analysis, unless there are strong perspectives among MPA planners regarding how to score, weight, and combine different variables. To complete the SWOT-like analyses, additional discussions with key informants should be encouraged to help confirm, update, fill in, and generally sharpen the information about different prospective sites.

Note that this is an "as needed" analysis of only the more promising MPA units, rather than a comprehensive ranking of all possible places. Arguably, it makes little sense to invest in the latter given that co-management implementation is currently envisioned as an iterative process over time, where an agency could start with one or more pilot sites, learn from them, and then move on to other promising sites given what is learned.

This dynamic learning approach is important because knowledge about local co-management potential, as well as the facts on the ground at different sites, is likely to change over time, further undermining the value of a more laborious, comprehensive, but potentially static and quickly outdated analysis. Similarly, because resources for all MPA management, including the implementation of local co-management, are likely to continue to be limiting in the near future, and only a few areas are likely to be targeted for local co-management initially, there is no need to define a bright line, using thresholds of various criteria, between possible and unlikely local co-management locations. With each expansion of local co-management, more will be learned to inform the selection of additional sites, and how co-management could be approached there.

Sites that are persistently poor candidates for local co-management due to geographical factors may be candidates for other forms of partnerships, such as stronger agency partnerships

between MPA managers and the RBDF or other non-GOB entities (e.g., AUTEC, on Andros, or possibly the US Coast Guard) that could provide periodic surveillance of certain remote patrol or fly-over areas. Additional remote sensing approaches to surveillance should be periodically considered as well.

Development of co-management policies

The development of co-management policies by MPA agencies, ideally in consultation with stakeholders that may be potential partners, will help inform would-be participants about some of the standard expectations of shared management, and ensure that partnership agreements and activities are ultimately implemented as fairly and consistently as possible. Policies should be general enough to encompass a broad range of specific partnership agreements with different stakeholder groups. The BNT, working with consultants from Global Parks, developed a draft co-management policy in 2017.

Partnership selection, negotiations, and agreements

As mentioned above, the suggested framework highlights gradualism, opportunism, multi-stakeholder participation, and scalability and modularity as design principles for the initial development of PA co-management. Inclusivity, balanced by efficiency, was also included among a set of social principles for co-management participants to follow.

Combining these, it is recommended that an MPA agency initially and periodically engage widely with stakeholders, but also uses mechanisms (e.g., a facilitator) to readily make progress in identifying and taking next steps. For example, once a critical mass of key stakeholders have been identified for moving forward with co-management partnerships, some of the stakeholder engagement effort should narrow to focus on negotiations with these stakeholders. Periodic community-wide communications will still be necessary, however, to keep all stakeholders apprised of program developments.

Although partnership negotiations should focus on building mid- to long-term agreements (e.g., 3-5 years), initial partnership activities should strategically “start small” by focusing on discrete, achievable steps, being successful with these, and then building on these successes. As with most new efforts, the need for enthusiasm, learning and adaptability, flexibility, and patience should be emphasized. Partnerships between MPA authorities and initial stakeholders should be periodically evaluated for the degree of attainment by all parties of the negotiated, realistic, calibrated, and phased partnership terms. Demonstrations of successful partnerships should then be influential in attracting additional involvement from other stakeholder groups, thereby fulfilling the principle of multi-stakeholder participation.

Legislative support

As identified above, basing MPA co-management on a clear legislative foundation is an important design principle. Efforts therefore to clarify or create broad legal authorities for MPA

agencies to use co-management, through the passing of new laws or amendments to existing laws, are important steps in providing strong legal foundations.

At the same time, some agencies have existing or proposed statutory authorization that appear to allow them to proceed with this framework. These authorizing laws are reviewed in more detail in a separate project report.[18] Although such statutory language is often fairly general, and additional details in bylaws or regulations would assist these efforts, the basic legislative language arguably provides support for the initiation of co-management efforts. For example, as mentioned above, explicit provisions within the existing Fisheries, Forestry, and Bahamas National Acts (including their amendments) allow for the cooperation of police and other public officers, which represents an initial step towards a more fully realized form of agency co-management.

In addition, legal language allowing some forms of local involvement in MPA management can be found in existing and proposed acts. The Bahamas National Trust Act 1959 specifies that the BNT "may act in concert with and make any arrangements and agreements with any local authority... or with any residents or committee of residents in the neighbourhood" of any BNT land or property to achieve its management objectives.[19] Similarly, under the draft Fisheries Act 2017, the Director of the DMR may "appoint a management committee responsible for the management of an area" declared as a fisheries management area or marine reserve.[20]

Proponents of MPA co-management wanting to strengthen the legal foundation for this management approach could try to amend each authorizing law (e.g., the Bahamas National Trust Act, Fisheries Resources (Jurisdiction and Conservation) Act or the draft replacement Fisheries Act, Forestry Act, etc.). Alternatively, a more efficient legislative approach may be to craft a new "co-management bill" that, in one legal vehicle, tackles the necessary language changes in all of these natural resource management/PA laws. One broad concept to be embodied in such a bill would be that natural resource managers have the power, at their discretion, to define, establish, manage, oversee, and dissolve partnerships with other government agencies and private groups, either individually or in some combination, to achieve the resource management objectives of current laws and management organizations.

It is also important to recognize that even when there seem to be favorable conditions for new policies, the vicissitudes of political processes mean that proposed bills or regulations may nevertheless be stalled for long periods of time (e.g., Ayers and Kittinger 2014, Vaughan and Caldwell 2015). To the extent possible, co-management advocates should therefore be ready with solid drafts of desired policies, backed by a broad coalition of supporters, to submit to the appropriate minister when the political circumstances are most advantageous. And in the meantime, the management flexibility embodied in existing legal language should be interpreted broadly and confidently in support of initial co-management efforts.

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[18] *Transitioning Towards Protected Area Co-Management? An Analysis of Enabling and Inhibiting Conditions in Bahamian Laws* (Brumbaugh 2017).

[19] The Bahamas National Trust Act 1959, Chapter 391, section 23, CH.391-14.

[20] Draft Fisheries Act 2017, 20 February 2017, section 33(5)(a), p. 32.

Initial investments in co-management

As discussed above, financial resources for MPA management are frequently inadequate. This lack of financial resources is a common, though by no means exclusive, reason for manager and stakeholder interest in co-management. Unfortunately, some of this interest can sometimes be more hopeful than realistic. For example, MPA agencies sometimes perceive that local co-management will open up access to local financial resources, when at the same time, some local stakeholders believe that a partnership may create access to new government funding for their local MPAs. Co-management partnerships, therefore, need to be transparent about the financial resources that are likely to be available in the near-term. Partners can then develop joint longer-term strategies for additional fundraising from local, national, and international sources that may be newly accessible to co-managers.

The design and implementation of pilot MPA co-management programs require modest but scalable investments. Potential early costs may depend on social and geographic settings that influence which stakeholders need to be most involved, and what the travel needs will be. Other choices about how to initially structure, develop, and support the co-management partnership will also influence costs, especially staff time and other budgetary support for the following:

- planning,
- community outreach,
- negotiation and drafting of partnership agreements,
- development and implementation of trainings of partners,
- ongoing coordination of meetings and other communications between MPA and stakeholder partners, and

Training programs should ultimately be developed and adapted to the needs of the local co-management units and their partners, but training offerings can grow over time. Content development may target introductory background about MPAs and their management (e.g., a "MPA 101" mini-course), background about the MPA agency and its mission, and policies and protocols regarding personal safety, organizational communications, outreach and education, and monitoring techniques.

Ongoing costs of MPA co-management, beyond basic management costs (e.g., boats, fuel, installing and maintaining infrastructure, etc.), will include the expense of participation by stakeholder partners in regular co-management meetings. As mentioned above, the size of delineated co-management units may create trade-offs in the number of potential stakeholders versus their ease of participation due to travel constraints. To address this issue in part, meeting locations could shift within the area to make participation as equitable as possible. For example, a hypothetical co-management unit that includes MPAs from both Central and South Abaco could have meetings that alternate between the two districts and among their settlements. To lower the barriers for regular stakeholder participation even more, co-management budgets could also include covering partial reimbursement for local travel costs in

addition to providing other incentives, such as food and refreshments, for attending meetings. Although in person meetings have many advantages in breaking down barriers and building trust among participants, remote interactions through audio and video conference calls or internet discussion groups could also be used as appropriate for co-management tasks and as participant access to technology allows. Investments in such communications technology by MPA managers should be cost-effective due to likely savings in travel costs and time.

These kinds of programmatic costs should be seen as scalable investments, with future pay offs in terms of increased MPA management effectiveness. Although there is generally much value in starting new enterprises gradually and experimentally as suggested for pilot efforts above, the more resources that are wisely invested in co-management capacities, the more returns MPA managers can expect in various aspects of management effectiveness.

Adaptability

As mentioned above, PA co-management is a new approach in The Bahamas, and pilot efforts are likely to be important learning experiences for all participants. Ideally, initial projects should be designed and implemented to learn as much as possible, through a combination of experimentalism and evaluation. Results should then be applied adaptively to individual projects' planning and activities, but also to the suggested framework itself when the results are generalizable across MPAs within the BNPAS. The framework, embodying many imperatives and objectives, some of which may be in conflict, is an expression of current conditions and knowledge. As these change, the framework should also change and adapt. Revisions to the framework should also be informed by future assessments of protected area management effectiveness (PAME). Ideally, moving forward, these assessments will explicitly incorporate the extent to which MPA co-management contributes to management effectiveness.

Conclusions

Co-management of MPAs in The Bahamas promises to address a number of important national goals and objectives: increasing management effectiveness, better engaging and empowering of local stakeholders and communities, and more generally, contributing to a larger Bahamian vision of broad-based and decentralized involvement in conservation.

Recognizing that The Bahamas is geographically diverse and has traditionally relied on highly professional cadres of staff in its natural resource management agencies, the co-management framework suggested here embodies a gradual, flexible, and adaptive approach. The framework acknowledges that MPA co-management may only be possible in certain places, and that its trajectories are likely to be site-specific. Nevertheless, the framework identifies key building blocks and steps that should be useful in guiding how MPA agencies pursue, at least initially, new co-management efforts.

Importantly, the transition to and full implementation of MPA co-management should be approached as an ongoing investment. Its development and coordination will require resources, but these should leverage a larger return in terms of enhanced on-the-ground

management of MPAs, improvements in public relations, and better stewardship of PA resources. Given the current gap in management capacities, there is relatively little risk to MPA authorities in actively undertaking trial efforts of MPA co-management. Even in the unlikely cases (due to site prioritizations) where co-management is attempted but runs into problems that cannot be easily solved, the value of new knowledge that can be applied to other sites within the MPA system is likely to provide compensation for much of the initial investment.

The development of MPA co-management will necessarily be a process with short-, mid-, and long-term goals. As quickly as possible, pilot areas should be identified, and broad stakeholder outreach should begin. Many communities, despite uncertainty about what co-management will be, are interested and ready to get more involved with PA management. Other communities are frustrated by previously unmet expectations regarding the pace of developing on-the-ground management. The sooner that both of these situations can be addressed, the better for public relations, though managing future expectations will remain a critical challenge. Early outreach efforts should explicitly address achieving a balance between stakeholder interest and enthusiasm – both important for co-management success – and realism and patience regarding the slower-than-desired but largely unavoidable pace and need for fiscal year planning of budgets, staffing, etc., by PA agencies.

In the meantime, interested PA agencies should begin working with their ministers to start legislative efforts that may be required to clarify or strengthen the ability of agencies to pursue local co-management as a regular management option. In the case of some authorizing legislation, there is sufficient explicit language to unambiguously support co-management efforts; in other cases, broad language allows agencies and ministers substantial discretion and direction, which could include co-management, to pursue their mandated management responsibilities. In the latter case, advocacy within the ministries for favorable interpretations and approvals may be the first step, to be followed by subsequent efforts to draft clarifying and strengthening amendments. Where little or no supporting statutory language exists, starting and trying to expedite the potentially long process of drafting and passing an amendment may be the best recourse.

In summary, there are multiple fronts that need to be addressed for co-management of MPAs to take root. Once the rooting occurs, and additional, scalable investments are made in ongoing cultivation, MPA agencies should expect to see continuing positive returns from their efforts.

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Dr. Brumbaugh earned bachelors degrees in biology and art history at Stanford University and a Ph.D. and certificate, respectively, in zoology and conservation biology from the University of Washington. He is currently a researcher at University of California, Santa Cruz, and has taught courses in environmental and conservation science at the University of Washington, Santa Clara University, and UC Santa Cruz. Through a fellowship from the California Council on Science and Technology, he also recently spent a year as a staff member on California Senate's Environmental Quality Committee, where he analyzed proposed legislation and helped design hearings on a wide range of environmental issues.