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Learning through experience: Non-implementation and the challenges of protected area conservation in The Bahamas

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ABSTRACT

Marine Protected Areas (MPAs) are increasingly promoted as policy tools to counter such problems as declining fisheries, habitat destruction, and biodiversity loss. Many proposed MPAs become stalled in the implementation process, highlighting the need for further research into the processes leading to *non-implementation*. This paper focuses on two proposed MPAs in The Bahamas undergoing protected area enclosure: one highly controversial MPA in North Bimini that was proposed in 2000, but with an uncertain future; and a second enclosure in Andros Island initiated in 2002 and enlarged in 2009 after years of outreach and assessment. Although both locations seek to protect an area of shallow seas within The Bahamas archipelago, each area is significantly different in its management goals as well as social and institutional frameworks. A comparison of the two MPAs underscores the challenges in implementing changes in marine governance while illustrating opportunities for adaptive social learning in resource management processes. There are three goals to this analysis: (1) to explore the processes leading to non-implementation of proposed MPAs; (2) to identify some conditions for success and failure of MPAs within The Bahamian context; and (3) to search for evidence of individual and institutional learning in how conservation agents have approached the later Andros MPA. Research suggests that while there may be ample opportunity to learn from failed conservation attempts, individual and institutional constraints inhibit successful conservation planning frequently leading to non-implementation.

1. Introduction

There is increasing concern worldwide over the health of marine ecosystems and fisheries [1]. In the Caribbean, several commercial species are threatened, including the top three commercial species: Nassau grouper (*Epinephelus striatus*), spiny lobster (*Panulirus argus*), and the queen conch (*Strombus gigus*). In the Wider Caribbean, national governments and conservation organizations have placed considerable emphasis on protected areas as critical policy tools to promote marine conservation and decrease the rapid depletion of economically and culturally important fisheries, habitat destruction, and biodiversity loss [2–7]. Often MPAs are put forth as an ecosystem-based management tool for conserving ecosystems and protecting biodiversity, while employing the promise of increased tourist dollars and expanded economic opportunity [8–10]. Although MPAs are popular tools among marine managers, their efficacy depends on complex social and institutional frameworks. Many proposed MPAs become stalled in the implementation process, highlighting the need for further research into the processes leading to *non-implementation*.

In September 2012, the International Union for Conservation of Nature published a short news release asking the question, "When is a Marine Protected Area really a Marine Protected Area?" [11]. The article proposed stricter adherence to the guidelines for applying the IUCN Protected Area Management Categories; however the question raises deeper concerns about aligning management processes with conservation goals, and ultimately about measuring successful protection. According to the World Database on Protected Areas, over 20 nations have established marine reserves with management regimes that range from grassroots to centralized government mandates, protecting an estimated 3.6% of the world's oceans [12]. Historically, there has been a shift in protected area management from "fortress conservation," (state mandated restricted preservation areas in which no extractive activity is allowed), toward increased stakeholder participation, multiple use, and decentralized management [13]. This move toward adaptive co-management requires social learning, which is a complex and contextual process [14–16]. While MPAs increase in number, there remains uncertainty in the efficacy and success of protected area conservation. The "paper park" phenomenon is well documented and has led to considerable research into factors

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leading to successful MPAs. In order to fully understand the complexities inherent in MPA policy, it is necessary to examine the proposal, design, implementation (*and non-implementation*) processes from initial conception of the park onward. Moreover, it is crucial to examine MPAs in context – in particular the contexts of local and national systems of resource tenure, perceptions of ownership, and existing social networks.

This paper focuses on two proposed MPAs in The Bahamas at different stages of enclosure: one highly controversial MPA in North Bimini that was proposed in 2000 but was never fully implemented; and the Westside National Park (WNP) in Andros Island, declared in 2002, and enlarged in 2009. Although not without controversy, WNP's implementation process was arguably more successful; in that the implementation process progressed beyond the planning stage, and the area was recognized by government officials in 2009. Both protected area projects engaged many of the same individual and institutional actors within the small island nation over a seven year time frame. A comparison of the two MPAs underscores the challenges in changing management practice, while illustrating the opportunities for adaptive learning in resource management processes. There are three goals to this analysis: (1) explore the processes leading to non-implementation of proposed MPAs; (2) identify some conditions for success and failure of MPAs within The Bahamian context; and (3) search for evidence of individual and institutional learning in how conservation agents approached the later Andros MPA. The paper contributes to knowledge of effective MPA management by examining the process of *non-implementation* in the context of marine management in The Bahamas.

1.1. Background

Much research has been done on factors leading to successful MPAs (for example see [17–19]). Many scholars argue that the success of Marine Protected Areas depends on several interrelated factors, including: participation, favorable institutional frameworks, open dialog among interested parties, and a design that allows for adaptive learning, flexibility, and change [20–26]. Recent marine conservation approaches emphasize resource user participation and decentralized governance as feasible management strategies given responsive institutional frameworks [28,29]. Furthermore, an MPA has a greater chance of success if there is regulatory compliance and benefits sharing, and if residents and resource users are integrated into the protected area planning and managing processes early on. However, research has shown that participation is a complex and multi-faceted process, often resulting in limited and imbalanced representation [30].

Research further indicates that targeted outreach and educational efforts can lead to an increase in support and positive opinions about MPAs [27]. This paper focuses on two MPAs in The Bahamas, looking for evidence of institutional learning among managers. Implicit within the idea of learning is that people are not only able to learn from experience, but that they have the capacity to apply that learning through practice. While there may be ample opportunity to learn from failed conservation attempts, individual and institutional constraints inhibit successful conservation. To create conditions that are favorable for a successful MPA, participants—whether conservation agents, residents, scientists, or government officials—are required to recognize, integrate, and respond to these external forces through an adaptive learning process.

As is true elsewhere, institutional frameworks in The Bahamas emerge from specific and complex socio-ecological conditions. Both people and institutions are required to learn from past experience and engage with new ideas. It may not be enough for managers to use participatory management strategies while ignoring both personal and institutional obstacles to effective conservation. Chuenpagdee and others suggest closer examination of the planning stage of MPAs [31]; what Chuenpagdee and Jentoft call Step Zero [32]. Examining MPA proposals that have been significantly stalled in the implementation processes builds understanding in what factors lead to non-implementation.

This paper begins with a brief overview of Marine Protected Area theory and changes in governance approaches as they relate to participation and the complexities of representation. It then goes on to explore two case studies of areas undergoing proposed enclosure in The Biminis and Andros. Finally, this paper asks the question: in what ways (if at all) have conservation agents and The Bahamas government changed their approach to marine conservation over the course of seven years and two MPA initiatives?

1.2. Marine Protected Areas

Both terrestrial and Marine Protected Areas are designed to regulate the fluid and ever-changing interactions between humans, wildlife, and their habitats: they are designed to manage behavior as well as resource use. In this way, protected areas do not simply reflect regional socio-cultural institutions such as regulatory structures or resource tenure, but are social processes in of themselves [31,33].

In an attempt to more effectively manage marine resources, policy has evolved toward an ecosystem-based approach, multi-use zoning, increased participation, and adaptive co-management [34,35]. Shifting socio-political conditions require changes in governance [36]. Co-management theory is based on the concept of distribution—of authority as well as the costs and benefits of resource conservation. The concept of co-management refers loosely to a decentralization of authority; however the specific resource governing arrangements such as community-based management or participatory management are not always fully understood by their users [17]. The general concept of co-management can mean a variety of co-management strategies that operate on continuum [17,37]. Co-management approach refers to the *intention* to use some type of co-management, rather than to any one specific participatory strategy, or any measurable standard of participation.

In The Bahamas, managers claim to employ community-based conservation techniques when implementing MPAs. In practice, these techniques vary and can range from some type of outreach or town meetings to participation in mapping areas, or employing local residents to survey, monitor, or enforce the MPA. Generally, participation focuses heavily on the inclusion of interested and affected parties such as resource users. Just how relevant users are identified and integrated into the planning system remains a challenge and often open to much critique.

1.3. Marine Protected Areas in The Bahamas

Within the Caribbean, MPAs have gained momentum as management tools in response to concerns about development pressure, depleted fisheries, and possible effects of climate change [38]. In The Bahamas resource managers promote MPAs as effective tools to protect viable commercial fisheries and biodiversity.

In 2000, The Bahamas Department of Fisheries initiated the proposal of a network of five “no-take” MPAs located in North Bimini, Berry Islands, South Eleuthera, Exuma Cays, and North Abaco Cays, totaling 800 square kilometers [39]. In addition to habitat diversity and ecological importance, the assessment team examined social conditions for locating each MPA. These characteristics included: impacts on fishing, management capacity, potential benefits to the communities, and estimated levels of support for conservation [40]. As a result, the “no-take”

designation limited any extractive use of resources in the area while still allowing for recreational or other uses considered non-extractive, including tourism and scientific use. By utilizing a network system of MPAs, The Bahamas government hoped to reduce user conflicts and achieve the same ecological goals through smaller reserve design [41].

1.4. Case studies

1.4.1. The Biminis MPA

Project led by Department of Fisheries. North Bimini was chosen to be the first MPA to be implemented within the network because of its long history of scientific research, diverse economy, and a seemingly supportive residents [40].

The Bahamas government chose North Bimini as the first of five MPAs proposed in 2000. Resource managers considered the area ideal in large part because of the island's historical involvement with marine research and its comparatively small subsistence fishing industry [42]. The Biminis site was not chosen as the primary implementation site because of its biological significance; rather conservation officials selected North Bimini because it was hoped there would be high public support for an MPA [43]. The government, in partnership with the quasi non-governmental organization, The Bahamas National Trust (BNT), held several meetings in the Biminis to introduce the idea of an MPA and learn about people's opinions; however there was very little meaningful discussion about community participation during the design phase. The early outreach projects emphasized educating individuals about new park boundaries and MPA zone regulations rather than incorporating community members into the actual management plan. Not surprisingly, the proposal met with resistance. Although there was a high degree of support for an MPA, people voiced concerns about displacement from traditional fishing grounds and limited employment opportunities [44].

1.4.2. Andros Island Westside National Park (WNP)

Project led by The Bahamas National Trust in partnership with The Nature Conservancy and other conservation organizations. Part of the larger national park network in Andros.

In 2002, The Bahamas government approved a series of protected areas, this time in the form of national parks, proposed by BNT, the Andros Conservancy and Trust (ANCAT), and The Bahamas Sportfishing and Conservation Association (BCSA). The largest area slated for enclosure was the West Side National Park (WNP)—an enclosed area that runs the western length of Andros, encompassing 68,257 ha of both terrestrial and marine habitat. The Nature Conservancy (TNC) helped to develop an outreach campaign and management plan for the WNP, which was planned to incorporate multi-use zoning and extensive, although as of yet undefined, community engagement (Phillips, pers. comm. 2006). It is uncertain whether the WNP will succeed. There appears to be some local support for the MPA [45], but many of the problems North Bimini faced are also evident in Andros, including: limited participation in design stages of MPA, lack of organizational transparency, encumbered communication processes, and a social history fraught with colonial conflict, unequal representation, and economic hardship. On the other hand, Andros exhibits stronger institutional frameworks, which may facilitate increased opportunities for participation. Just how the WNP in Andros fares relies on several factors including political will and public support. Successful implementation also depends heavily on whether resources managers and conservationists trying to implement the MPA in Andros have learned from the mistakes made in The Biminis.

2. Methods

A mixed method approach was used in this research including: document analysis, ethnographic field work, and semi-structured surveys. Focusing on the wider Caribbean, an extensive review of secondary literature on Marine Protected Areas and community-based conservation was performed. Articles, management reports, and gray materials were collected and analyzed in order to develop an overview of successful policy approaches and identify particular issues relevant to marine conservation and management in the region. Archival materials, including meeting minutes, government and NGO notes were gathered on the MPA projects in both The Biminis and Andros. Multi-sited fieldwork was conducted in The Biminis, Andros and New Providence, among other islands from 2003–2010. During that time, researchers interviewed key stakeholders, conservation agents, and management officials. Thirdly, semi-structured interviews ($n=150$ in The Biminis[2]; $n=130$ in Andros) were performed to assess resource use patterns and attitudes toward the proposed MPAs. Interviews were conducted with residents, scientists involved with conservation projects, and representatives from national and international conservation organizations. Each of these methods emphasizes different components of how residents, scientist, and resource managers view and approach Marine Protected Area conservation in The Bahamas.

3. Results

In comparing the two proposed MPAs in The Biminis and Andros, there appears to be evidence of institutional learning; however there remain significant barriers to successful implementation of MPAs. Participatory processes were increased and refined from the Bimini case to Andros. Management strategies shifted from a strict “no-take” to multi-zone use planning. Finally, conservation agents moved forward with the protected area plan before reaching consensus. While this limited participation among Androsians potentially affected by the MPA, it reduced ambiguity in management schemes which contributed to the continued failure of The Biminis case study.

The sheer size of Andros Island and its perceived abundance of space and resources contrast starkly with The Biminis case. Evidence of high levels of consensus in North Bimini suggested support for the MPA and a potentially successful enclosure process; however several factors lead to non-implementation indefinitely. Obstacles to implementation include foreign development and corruption within the permitting process, inadequate participation, shift in political agenda, and weak institutional frameworks.

3.1. Non-implementation

Today, after years of research into the potential benefits and effects of protected areas and outreach to promote learning among coastal residents, the future of the North Bimini MPA remains uncertain. Although the area was listed as an MPA by BNT in 2009, no further progress toward protection has been made and a mega-resort continues to encroach on the protected area. The North Bimini MPA became stalled early in the planning process due to intra-agency conflict, tourist development priorities, and economic uncertainty. In North Bimini there was ample public support for the MPA; however lack of institutional support and uneven participation led to non-implementation. According to

[2] This period of research was in conjunction with a larger NSF funded Bahamas Biocomplexity Project

research conducted on the Biminis under The Bahamas Biocomplexity Project in 2002–2003, overall support for the proposed MPA was high at 84 percent of people surveyed [44]. Many respondents exhibited a sophisticated level of knowledge about the ocean and ecological functions. This suggests that many community members had access to information (including experiential) about the marine environment. Knowledge was often linked with occupation, and fishers were considered the community experts. This finding supports the argument that knowledge about the environment contributes to how people perceive and therefore respond to resource problems [46].

Given the level of community support for the proposed MPA, it is surprising to find that no progress has been made to implement the protected area. While there was significant support for the MPA within the Bimini community, confidence and momentum has since waned. During interviews, there was a high level of concern about ever decreasing fish and conch stocks, however little confidence in the government's engagement. The park has become indefinitely stalled.

3.2. Outreach efforts/stakeholder participation

There were considerable outreach efforts surrounding the proposed MPA in the Biminis. The Bahamas Reef Environmental Educational Foundation (BREEF) was involved from the onset, organizing educational and outreach materials and integrating marine reserve education into their existing teacher workshops. Local government was involved in small-scale outreach programs about the project, such as producing informational fliers, public notices, and organizing town meetings. The first public meeting was held in March 2000. The level of community support was reportedly high [47]. The Bimini government held a second meeting just one month later, in April of 2000. There was then a long period of no activity. A third meeting was not held until a year later in 2001. People reported frustration over not hearing about the MPA for so long between meetings, particularly because the original implementation date was June, 2001 (ibid). At the third meeting, people in favor of tourist development voiced their opposition to the MPA. This coincided with a foreign developer's plan to build a mega-resort, golf course, casino, and cruise ship dock in the northern most of the island, just bordering the MPA site. The developer claimed the resort would provide ample employment opportunities and increased tourism for the island, which led to support among community members. Park boundaries had not yet been decided and with an alarmingly close implementation date, Biminites were concerned about threats to their livelihoods (ibid). A pro-development group emerged within the community. They were opposed to any MPA that hindered development and stall possible employment with the new mega-resort. In the course of one meeting, much of the previous consensus about protecting Bimini's marine resources disintegrated [47,48] and future meetings were held in Nassau. Of those interviewed, none reported attending any of the meetings held in Nassau. Participatory meetings that began as regional approaches to consensus building became national political volleying points about development policy.

In Andros, there appeared to be less coordinated outreach relating directly to the proposed Westside National Park; however there was a great deal of tangential research conducted between 2002 and 2009. The outreach efforts that did occur spanned national and local government, educational institutions, and local and international non-government organizations. In 2005, national and regional conservation organizations coordinated The Science Alliance Conference in an effort to "to discuss and learn about scientific developments pertaining to Andros Island" and to "foster a sense of empowerment among local people who attended" [49]: 1). Although the conference did not pertain exclusively to the WNP, organizers used the opportunity to discuss recent research performed in the area. Andros residents were invited to attend for free in return for contributing time and resources to research projects on the island.

In 2007, multi-disciplinary researchers and students from the College of The Bahamas conducted a rapid social assessment regarding the WNP. The aim was to perform 300 socio-economic surveys asking questions about resource use and support for the MPA. The focus was narrowly defined as active resource users, concentrating on fishermen and crabbers. There was little discussion among residents about research projects in Andros and no distinction has made between people engaged with foreign development projects and those promoting conservation: they were all simply perceived as "outsiders." Conservation projects were seen as another attempt to, "take away what we got" (male *resident, 45*). Residents interviewed generally grouped researchers with other foreign investors interested in some type of resource extraction (i.e.: hunters, sport fishers, developers, and long-term tourists).

Between 2002 and 2009, The Bahamian government and BNT conducted a series of stakeholder meetings. In the fall of 2005, The Caribbean Regional Environmental Program (CREP) conducted a five day participatory monitoring and evaluation workshop in Andros. In an effort to build capacity for local participation in the national parks project, CREP also performed a stakeholder analysis and created a board of representatives [45,50]. Although CREP is no longer in operation, their initial organization efforts helped to identity potential interested parties in the MPA process and initiated dialog.

4. Discussion

The discussion addresses points of difference among the two Bahamian MPAs, taking as a key point of reference the non-implementation process in The Biminis and possible reasons for subsequent changes in approach to the Westside National park. Table 1 outlines the possible reasons for the failure to implement an MPA in the Biminis are several including: a change in the ruling government party and conflict with the nation's tourist agenda.

The failure is due, in large part, to inadequate participation and diverse interests among community members, as well as weak institutional frameworks in place to support actual implementation. While it is difficult to pin point the exact cause of non-implementation, these factors combined created significant obstacles to the implementation process as well as contributed to public uncertainty about the proposal.

4.1. Political shift

During the time of this research, The Bahamas had two main political parties, each with a passionate support base: the Free

Table 1
Differences in obstacles to implementation.

	The Biminis MPA	Andros MPA
Political shift	X	
Conflict with national tourism agenda	X	*Conflict with tourism addressed through participation*
Limited participation – gender bias	X	X
Institutional constraints and local representation	X	X
History of scientific research	X	X
Charismatic regional leadership	X	X

National Movement (FNM) and the Progressive Liberal Party (PLP), which was in power during the time of the Biminis proposal. Changes in the political party quickly derailed conservation agendas, as was evidenced by the government's fluctuating attitudes toward the 2000 MPA proposal. Before the proposal had the opportunity to get off the ground, the governing parties changed in 2002, leading to a new government agenda. The Ministry of Fisheries under the FNM party was behind much of the early planning for a marine reserve network; however as governmental bodies changed, agenda priorities were re-evaluated and tensions grew between tourism and protection.

The Bahamas central governmental agencies were hierarchically nested and change with the party in office. While politically savvy, Ministers are not necessarily experts in their field. Instead, the Prime Minister appoints individuals to each department based on his own personal choice. For example, the minister of the Ministry of Agriculture and Marine Resources (MAMR) in 2006 had formerly been the Minister of Trade and Industry. He was newly appointed and brought with him strong opinions about the nation's need for diversified industry in The Bahamas, but marine conservation was not a priority.

4.2. Conflict with national tourism agenda

The Bimini MPA project conflicted with a newly proposed resort development on the small Bimini Island. The Bimini Bay Resort and Casino received permission to build a luxury resort and casino on the far north of North Bimini, bordering the proposed MPA boundaries. Although the initial plan observed the estimated park boundaries, actual construction of the resort spread into the protected area, covering a total of one tenth of the island. Today, the resort development continues to grow into the protected area [51,52]. The controversy surrounding the resort served to divide the community between those with hopes for employment opportunities versus those who relied on the fishing industry, and who suffered as a result of the destroyed conch beds and mangrove habitat. The conflict effectively stalled any further talks about marine protection. The shift in government, coupled with the development of a mega-resort and casino on North Bimini hindered any progress implementing an MPA in the area.

4.3. Limited participation – a gender bias

Overall, support for the MPA in Bimini was high at 84 percent, however 76 percent of those in support were male [44]. Gender and knowledge about the marine environment were determining factors for support of the MPA. In general, people who were not in support of the MPA believed the ocean to be a common pool resource, in good health and not in need of protection. More women than men perceived the ocean to be in good health, indicating the outreach material on the urgent need for marine protection may not have reached women. There is some indication that social divisions based on gender promote specific informational pathways. These results highlight two issues: (1) information about resource scarcity was not as readily available to women in their daily experience; and (2) outreach campaigns did not target women perhaps because they did not fit into the traditional category of resource user. Stakeholder identification and inclusion processes appeared to ignore women as resource users, instead focusing on men as direct extractors. Most outreach activities focused on direct harvest activities which were traditionally male dominated. The commercial fishing communities in Bimini and Andros are primarily made up of men, however field observations suggest that women are the leading purchasers and household decision-makers. Boat fishing is considered to be men's business; however women are active in land-based subsistence fishing whether off the dock or in the intertidal areas [53].

Two years after the original 2000 initiative, conservation outreach projects operated in the same way in Andros—overwhelmingly targeting men as the main resource users without taking into account the role of women in decision-making. Unfortunately, in Andros, the approach to participation did not change to reflect any experience gained from the north Bimini case.

4.4. Institutional constraints and local representation

Conservation efforts in The Bahamas, as in many other places, are deeply embedded in the country's historical and political structure. Favorable institutional frameworks can facilitate effective and collaborative resource management [54]. Bahamian management institutions such as government, conservation organizations, and research facilities, wield government-sanctioned power as well as a legacy of colonial authority. Conservation of natural resources has a long history as a colonial concern, and as such, is often linked with political segregation and socio-economic inequality. In The Bahamas, as elsewhere, management institutions are able to produce and reproduce powerful conservation ideologies as well as social inequities.

Both international and nation organizations dedicated to marine management and conservation in The Bahamas. In 1959, the British Commonwealth government of The Bahamas established through an act of parliament, the nation's first conservation organization, The Bahamas National Trust. The Audubon Society conceptualized, spearheaded and funded BNT, in response to international pressure to protect the West Indian Flamingo. BNT had a largely foreign membership and remained at the center of conservation in The Bahamas. Historically, BNT has been responsible for creating, monitoring, and enforcing laws as well as developing a conservation ethic in the Bahamian archipelago. Today, BNT functions as the central management organization for all protected areas and national parks in The Bahamas.

For the past 50 years, BNT staff is responsible for delineating, managing, and at times, appropriating natural resources for all Bahamians. Although the organization had strong resources available, including a large international membership and both private and government financial support, BNT faced difficult constraints including perceived ties to colonial governance, elitism, and racial conflict. The organization made significant efforts to combat these perceptions including hiring a black Bahamian director and project leaders; however many people interviewed continued to described BNT as a primarily elite institution representing only foreign interests. BNT was involved with both the Biminis' and Andros MPA projects, but its influence appears to be greater in Andros, perhaps as a result of their fulltime onsite representative on the island.

Similar criticism was given to the Bahamian branch of The Nature Conservancy. A large international conservation organization with regional branches around the world, TNC was also described as representing foreign and elite interests. The Bahamas branch works in partnership other organizations to provide both financial and institutional support for large-scale conservation projects nationally. TNC's goal was to facilitate conservation projects, ultimately transferring management authority to regional governing organization. In this way, TNC can work as a central authority during planning and implementation stages, but then is able to shift its ample resources onto another project, leaving monitoring and enforcement to other nationally-based groups. In theory, TNC had the political influence and financial resources to aid the successful implementation of an MPA. In practice, their involvement in the WNP project was controversial and lead to conflict and eventual dissolution of established conservation alliances. Again racial politics were cited as a cause for failure, as well as a political infighting among conservation organizations.

In addition to the larger national and international organizations, the WNP was supported by the regional conservation group, the Andros Nature Conservancy and Trust (ANCAT). Founded and directed by an Androsian native, ANCAT began in 1995 and formally organized in 1997. Since then, the group has been involved with all conservation projects on the island including the original WNP and its enlargement. ANCAT may become the administrative organization for the Andros park system although TNC voiced some concern about their capacity to manage the island's entire park system. ANCAT worked closely with other conservation organizations regarding outreach projects, research and management of the protected area plan.

In Andros, there exists a strong local conservation framework evident through the ANCAT organization. In addition to providing on-the-ground support for conservation research, ANCAT underscores the role of local participation and regional representation. Androsians viewed ANCAT as a local institution, founded and operated by residents. This perspective is in contrast to how many Androsians view other conservation groups including BNT, as large-scale international groups imposing foreign interests on local processes.

Also significant to marine conservation efforts in Andros is the well-known, locally owned dive lodge, which also supports ecotourism, environmental education projects, and research on the island. Established in 1960, the lodge provides facilities for locally-based environmental initiatives and logistical support for researchers when possible. Although the founder was originally Canadian, the family has become deeply integrated into the community through marriage, financial investment and over 40 years of residency. The lodge employs several island residents and facilitates the exchange of environmental and community information among residents and visiting researchers.

Of significance was BNT's fulltime employee on Andros. His job was to coordinate ongoing conservation projects on the island. While BNT's past ties to colonialism and foreign membership remained controversial to many Bahamians, the organization's employment of at least one fulltime resident improved relations with the residents of Andros.

4.5. History of scientific research

Overall, many of the research organizations in the Bahamian islands are not fully integrated into the communities and are considered by many Bahamians to represent yet another foreign interest. Although there is some resistance to research agendas because of this perceived divide between foreign elite interests and local island concerns, fieldwork on both Andros and The Biminis suggests that a history of scientific research in the area provides opportunities for informational exchange and education about the environment. In turn, this exposure may generate increased interest in marine affairs and stronger support base for some conservation projects.

Interaction between scientists and residents allows for exchange of information, as well as insight into different perceptions and experiences. Many of these events are informal; however it likely contributes to the possibility of collaborative thinking and broader perspectives between foreign researchers and Bahamians. This degree of informational exchange and exposure to the consequences and results of scientific research cannot be underestimated.

The Biminis' history of scientific research contributed to its selection as the first premier location for the series of MPAs in 2000. Avid sport fisherman and naturalist, Michael Lerner, was the first to conduct scientific research in The Biminis when he brought a team of scientists from The American Museum of Natural History scientists to study the Blue Marlin (*Makaira nigricans*) in 1938. The success of this research and Michael Lerner's fondness for Bimini led to the establishment of the Lerner Marine Laboratory in 1948. The field station was an active research facility until its closure in 1972. Today, scientific research remains part of the island's legacy and economy. The Bimini Biological Field Station conducts research on the marine environment and local shark species. Many of the older residents on the island remember the Lerner Station and most people are familiar with the Field Station. By proposing an MPA in Bimini, it was hoped that the existing research framework would facilitate the implementation phase of the reserve and ultimately lessen costs of enforcement by recruiting researchers as monitoring agents.

Andros also has several environmental and research entities including The Bahamas Environmental Research Center (BERC). BERC is a non-profit research organization founded in 1995 by The College of The Bahamas and George Mason University. In addition to providing outreach and educational opportunities, BERC provides support and facilities for international natural and social science research projects. The center's mandate emphasizes its responsibility to the people of Andros.

BERC is firmly embedded in the political and social framework of central Andros. The director can be seen at every community event, often organizing educational activities for students and promoting local conservation practices. A native Androsian, she is well respected and often asked to mediate between resident island concerns and The Bahamas government or foreign researchers.

There are also several U.S. schools that conduct student trips on Andros Island. A UK-based environmental volunteer program, Greenforce, provides volunteering holidays for students in Andros. These points of contact further promote exchange of information between residents and visitors as well as underscore the importance of Andros' natural and social history.

4.6. Charismatic regional leadership

In Andros, management agencies engaged in sporadic participation efforts and capacity building regarding the proposed WNP since 2002, although there appears to have been limited coordination across agencies. Because of the existing research facilities and ongoing research projects in north Andros, there was ample opportunity for education and outreach with Androsians. Foreign researchers often hired residents or College of The Bahamas students as local guides and research assistants. Also in favor of Andros WNP was the presence of dynamic and charismatic leadership figures with global resources and highly localized priorities. These individuals were able to encourage cooperation among the varied and often discordant actors involved in conservation in this small, low-lying archipelago.

5. Conclusion

In both the Biminis and Andros, the criteria linked to successful implementation and management of MPAs were complex. Many of the same approaches that lead to non-implementation in North Bimini were repeated in Andros. The same management institutions that attempted to implement the Biminis MPA were involved in the WNP in Andros. Historical and political contexts and public outreach efforts were similar as well. Despite their similarities, field research suggests there was potential for greater success in Andros, primarily because of increased institutional support, charismatic regional leadership, history of scientific research, and the remote location of the MPA on a comparatively large island. While the same resource management organizations such as BNT and the central government were involved in both islands, individuals within these organizations attempted to incorporate new conservation ideologies. In short, while many institutional frameworks remained rigid, unwieldy, and resistant to change, individuals were shown to be more likely to absorb new

information and react in response—in essence, they were able to learn from previous experiences.

While institutional goals may emphasize transparent negotiations, shared knowledge, and local participation, the reality of conservation in The Bahamas is complex, social and often inhibited by both individual and institutional constraints. Like many other regions, institutional frameworks in The Bahamas can lack integration within the larger community, thereby undermining legitimacy and reducing the hope of meaningful participation.

Although the participatory efforts in Andros and the Biminis can be noted as good faith attempts to engage the islands' communities in knowledge generation and conservation, participation was limited, and highly stratified by race, class and gender. After Bimini failed to engage women—a large sector of the community engaged with the fishing market—there has still been no discussion about broadening the terms *resource user* to incorporate a greater representation of the resident population in Andros or elsewhere.

In The Bahamas conservation is often perceived as an elite interest. As the North Bimini and Andros cases illustrate, historical and political contexts remain central to any conservation project. Although the initial WNP proposal in Andros was a collaborative project among BNT, TNC, ANCAT and BSCA, the partnership weakened due to intra-agency conflict, accusations of racism, and unequal distribution of benefits. It is possible that commercial interests and professional competition hindered cooperative action. This incident highlights the tenuous linkages between organizations as well as the significance of such social institutions as race and class in developing collaborative institutional projects.

Finally, in response to the question: in what ways (if at all) have conservation agents and The Bahamas government changed their approach to marine conservation over the course of seven years and two MPA initiatives? There has been a great deal of effort made on the part of both national and international NGOs, central government, and Bahamian residents to implement a successful protected area in The Bahamas.

Since the non-implementation process in North Bimini, conservation organizations employed similar, but significantly different approaches to the design, and in particular the outreach, for the newly proposed WNP in Andros. Many of the same flawed policies were repeated, suggesting an institutional failure in learning alternative approaches to marine resources management. Despite the repeated mistakes, the Andros case is hopeful in many respects. While institutional frameworks continue to approach conservation in the same ways, some individuals appear to have learned from previous experience. Institutional constraints and ecological feedbacks may inhibit new approaches to protected area conservation; however individual actors may be able to learn from previous experience and incorporate it into new conservation practices. Institutional complexity as well as individual experience may inhibit learning on both the individual and institutional levels. Research in The Bahamas indicates that while certain individuals may seek out participatory approaches and flexible and adaptive conservation designs for protected areas, institutional barriers discourage real application of adaptive learning.

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