Producing Success: Co-Management of a Marine Protected Area in Belize

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ABSTRACT:

Marine protected areas (MPAs) have proliferated in recent years, and are an increasingly popular tool for marine resource management and conservation. Co-management is often recommended as an ideal form of governance for marine protected areas. This paper analyzes the co-management of a marine protected area in southern Belize, the Gladden Spit and Silk Cayes Marine Reserve. Drawing on recent thinking about networks and the construction of scale, the co-management of Gladden Spit is analyzed as a network of social relations in which actors engage in politics of scale. These scalar constructions influence interpretations of the success of Gladden Spit. In contrast to instrumental views of policy, success is understood as an interpretation sustained by actors in the network. Gladden Spit is seen as successful because it supports multiple interpretations of knowledge and environmental problems at both the local and regional level.

KEY WORDS: *marine protected area; co-management; scale; network*

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INTRODUCTION

Marine protected areas (MPAs) are rapidly transforming the international seascape, changing both ideas and practices regarding management of the marine commons. In 1970, there were 118 legally designated MPAs (MPAs) in the world; by 1985 this number had increased to 430, by 1994 it was 1306 (Kelleher 1999), and in 2005, the estimated number of MPAs worldwide was 4600 (Wood 2008).[2] Although they cover only a small percentage of the world's oceans, MPAs are concentrated along coastlines where they impact fishers, the tourism industry, and other resource users. A form of enclosure, marine protected areas represent a range of property/governance regimes, including traditional/customary sea tenure, community-based management, co-management, centralized/state management and private management (Christie and White 2007).

The MPA literature is replete with analyses of MPA impacts (biological and/or social), assessments of management effectiveness, and various theoretical and empirical studies that consider how to design and manage MPAs successfully (e.g. Lundquist and Granek 2005; Stern 2006; Pomeroy, Parks, and Watson 2004; Christie and White 2007). Christie et al. (2003) refer to this work collectively as 'mandate-responsive' research, work that is designed to improve MPAs or increase their social acceptance, not to question their underlying assumptions. In the context of development work, Mosse refers to such efforts as taking "an *instrumental view* of policy as rational problem solving" (Mosse 2004: 641). MPAs are typically seen as policies to be implemented, their success something to be measured by comparing outcomes with prescriptions. In contrast, this paper builds on Mosse's (2004) argument with respect to development projects, asking not whether a MPA succeeds but *how its success is produced*.

This paper considers the case of the Gladden Spit Marine Reserve in Belize, interrogating its 'success' not as an instrumental outcome of a rational policy process, but as an interpretation whose persistence is dependent on networked relations and scalar politics. Encompassing 11 000 ha on the world-renowned Mesoamerican Barrier Reef, the Gladden Spit Marine Reserve includes both fishing grounds (primarily for lobster, conch, and spawning aggregations of snapper and grouper) and tourist sites (for snorkeling and scuba diving). It is co-managed by the Fisheries Department of Belize and a locally-based non-government organization (NGO), Friends of Nature, although various other actors are involved (including international environmental NGOs, fishers, tour guides, village councils).

CO-MANAGEMENT

The common property literature has devoted considerable attention to the question of success with respect to resource management, asking what types of property regimes

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[2] A *marine protected area* (MPA) is defined as "any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment" (Kelleher 1999: 12).

will lead to successful outcomes (i.e. both institutions and resources are sustained over time) and under what conditions (see Agrawal 2003 for a review). In complex systems such as the ocean, where assumptions of (relatively) complete biological knowledge do not hold and resource boundaries can be difficult to define, co-management is considered to be the best strategy (Baland and Platteau 1996; Pinkerton 1989; Singleton 2000; Wilson 2002). Co-management (or collaborative management) refers to "the sharing of power and responsibility between the government and local resource users" (Berkes, George, and Preston 1991: 12). Two of the commonly cited factors in favor of co-management include: (1) local knowledge and scientific knowledge, when combined, offer a more complete picture; and (2) monitoring and enforcement will be more effective because they will have local legitimacy, while still remaining accountable to state oversight (Singleton 2000). Several authors argue that these factors make co-management an appropriate institutional arrangement for most MPAs, rather than state or community-based management (e.g. Jones 2002, 2006; Rudd et al. 2003).

Although there have been some critiques of the common property conception of success (e.g. Goldman 1997; Johnson 2004; Steins and Edwards 1999), it too tends to take an instrumental view of policy. In addition, although much has been written about complexity within communities (e.g. Agrawal and Gibson 1999), the co-management literature tends to oversimplify 'the state' and 'the community' as distinct entities operating at discrete scales, rather than looking at the web of relations among heterogeneous actors that characterizes co-management in practice (Carlsson and Berkes 2005). "The network approach to co-management appreciates that it is the totality of such relations that make up the system, the co-management network" (Carlsson and Berkes 2005: 69). Following Carlsson and Berkes (2005), I take a network approach to analyzing co-management, viewing it as "a process rather than a fixed state" (Carlsson and Berkes 2005: 73). However, my approach will depart from theirs in that, like Mosse (2004), I see the instrumental view of policy as missing the ways in which 'success' is produced within networks as a social claim. Mosse (2004) argues that 'successful' policy interventions, regardless of their material effects on the ground (or water), serve to reinforce the effectiveness of prevailing policy priorities (in this case, MPAs). In this sense, success is not about how many fish are within a MPA, how many fishermen support a MPA, or whether the institutional arrangement supports efficient and sustainable resource use, but about how actors enlist a network of support for a MPA.

NETWORKS AND SCALE

We can think of these networks as networks of governance – what Igoe and Fortwrangler define as "interconnected actors and institutions who are involved in the formulation and implementation of policy" (Igoe and Fortwrangler 2007: 70). We can also think of these networks in terms of actor-network theory – as heterogeneous associations of humans and non-humans that extend across space and through time (Whatmore 2002; Murdoch 1997). Although actor-network theory was developed as an approach to studying the production of science, it is also useful for studying

environmental issues that intersect with scientific networks (Burgess, Clark, and Harrison 2000), such as MPAs.

In some ways, actor-network theory (ANT) challenges notions of scale by attempting to dissolve the local/global dualism, along with nature/culture and social/technical. In ANT, the idea that social life can be arranged into levels or tiers is rejected; everything is kept at 'ground level', all interactions are 'local' (Murdoch 1997). Distant actions can only impact on local interactions if they are connected through a network of subjects, objects, actors, and things (Murdoch 1997). Networks challenge any fixed concept of scale because scale will always depend on dynamic definitions of a network by multiple actors; through their linkages, an actor (e.g. a person or a tree) may be simultaneously local, regional, or global (Manson 2008). Rather than thinking in traditional metaphors of scale, such as the ladder, concentric circles, or nesting dolls, using a network metaphor allows a very different way of thinking about scale and scaled relationships in which particular places and actors may be seen as simultaneously global and local, regional and national, without being one or the other (Herod and Wright 2002: 8). Actor-network theory "directs our attention to the means by which scale becomes defined within particular networks" (Murdoch 1998: 362). Rather than assume scale as a given, it is the responsibility of the researcher to "empirically follow the work of localizing and globalizing" (Latour 1996: 240).

The literature on the social construction of scale (see for example Herod and Wright 2002; Marston 2000; Cox 1998) rejects any claims to scale as an ontologically given category (Marston 2000), focusing instead on how scales are represented and with what implications for material impacts (Manson 2008). Following McCarthy (2005), I will pay particular attention to the role of environmental NGOs in the construction of scale in relation to MPAs in Belize. In keeping with ANT, McCarthy argues that this is not simply a matter of adding environmental NGOs to a list of other actors already considered, but of embracing an ontology that accounts for both the human and the non-human, forgoing the social/natural dualism. There are, of course, several critiques of ANT, including its failure to attend to the differences among various actors in networks, particularly in terms of relations of power (Castree 2002). By examining the social construction of scale, which considers how "processes of scaling and rescaling are intertwined with struggles for dominance and control" (Bulkeley 2005: 888), it may be possible to account for these differences.

THE 'SUCCESS' OF GLADDEN SPIT: NETWORKS AND SCALAR POLITICS IN BELIZE

Belize, home to the world renowned Meso-American barrier reef system, has established fourteen MPAs (Cho 2005; Gibson et al. 2004). Eight of these MPAs are co-managed, meaning that the Belizean government shares management authority with various local non-governmental organizations (NGOs). These local NGOs are supposed to represent 'local' interests in resource management, while remaining accountable to the state and responsive to the interests (and funding) of international NGOs and scientists. I examine how a network emerged around one of these MPAs, the Gladden

Spit and Silk Cayes Marine Reserve, and consider how various actors within the network deploy scalar arguments to position themselves in relation to the reserve and to other actors in the network. This research draws on the preliminary results of eleven months of fieldwork, including participant observation, 68 in-depth interviews, and document analysis.

Emergence of the Network

In the early 1990s, a small group of residents in Placencia organized to protest the potential sale of a nearby island, Laughing Bird Caye, to a private developer. This caye (and the waters around it) was, and continues to be, used by both fishermen and a small but growing tourism industry. They petitioned the state to protect the island, and Laughing Bird Caye National Park was eventually declared in 1996 (see Figure 1). In order to support their work, the Friends of Laughing Bird Caye (as they called themselves) sought funding from the UNDP/GEF Small Grants Programme. They eventually become incorporated as a non-profit organization and later changed their name to 'Friends of Nature'.

Gladden Spit has also long been an important seasonal fishing ground for communities in southern Belize, especially Placencia. Since the 1920s, fishers have congregated here for a ten day period around the full moon in April, May and June to catch large quantities of snapper. They also reported sightings of large sharks. Based on interviews conducted with fishers in the late 1990s, scientists became intrigued by the "huge spike in mutton snapper landings in the spring". A team of scientists and local fishermen began investigating the phenomenon. "They found that the snapper came together to spawn, filling the water with milky eggs and sperm, and that the whale sharks – filter feeders – had come to eat the eggs – a combination of events both biologically important and thrilling" (Friends of Nature 2003: 1). Having learned of other spawning sites in the Caribbean that had been "fished to local extinction," the team of scientists appealed to the government of Belize to protect the area as rapidly as possible. On May 18, 2000, the government of Belize declared the Gladden Spit & Silk Cayes Marine Reserve, an 11 000 hectare area in the southern waters of Belize.

Scientists and Belizean government also wanted to ensure that there was local support for the reserve (and in the case of the state, a group able to take on day-to-day management responsibilities). They turned to Friends of Nature as a group that could do this – Friends of Nature was enrolled into the Gladden Spit network. Since then, it has grown considerably, and now has a staff of more than 10 people, a mix of people from Placencia and other nearby communities.

The scientists also had connections to international non-government organizations such as The Nature Conservancy and World Wildlife Fund – these groups were also enrolled into the Gladden Spit network as funders and supporters of both Gladden Spit and Friends of Nature.

Figure 1: Map of Study Area in Southern Belize
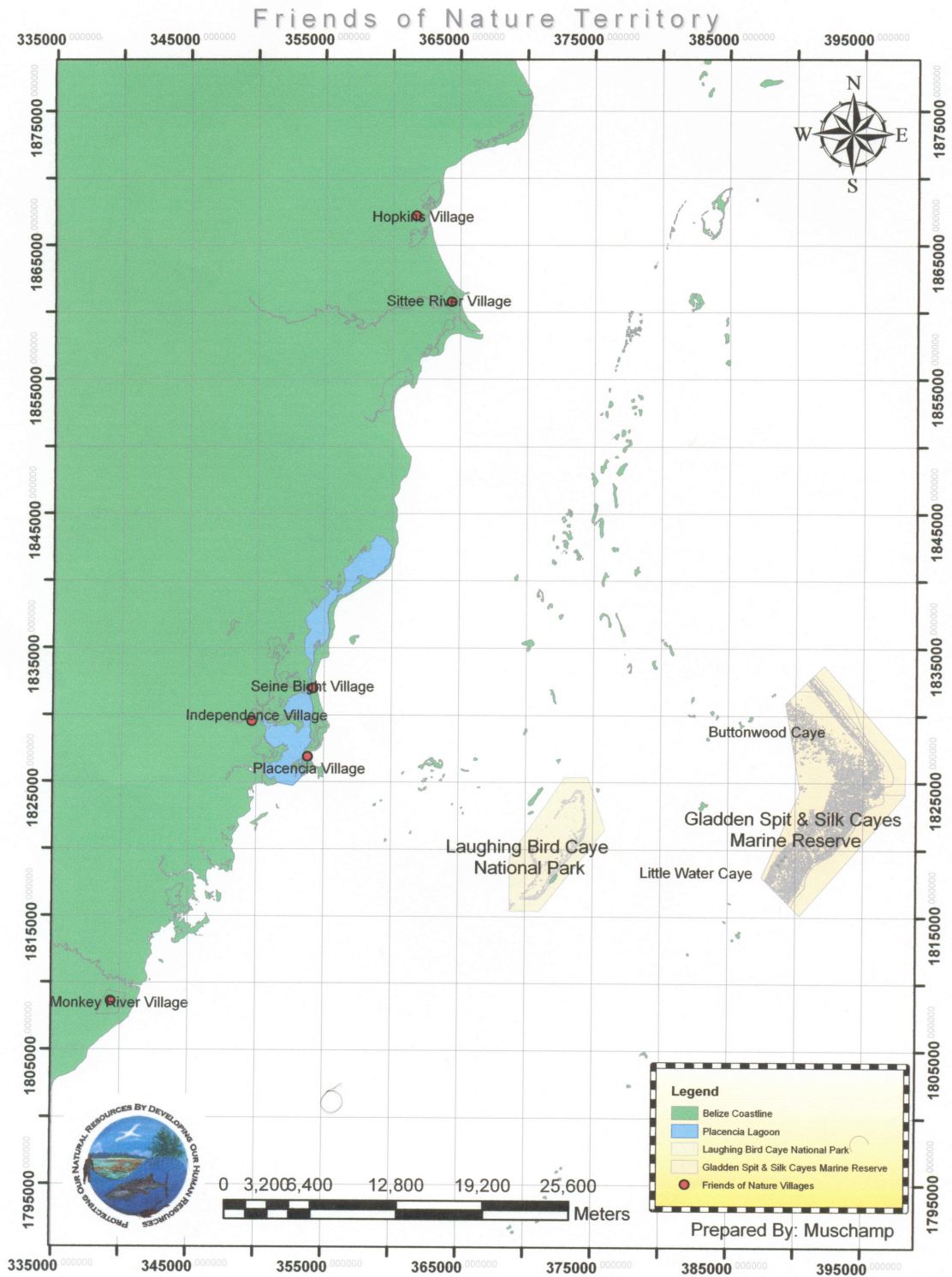
To point to particular actors involved with Gladden Spit and call them 'local', 'national', or 'international' misses how the network among them is formed, as well as how these actors construct scale in relation to Gladden Spit. This paper will focus on a few particular interactions in the network, on how ideas of success emerge from these interactions, and on how scale is constituted in these interactions.

Scalar Constructions and 'Success'

Let's return to the fish spawning aggregation. Based on preliminary research in the late 1990s, the scientists working at the site became concerned about what might happen to the population if it was not protected, based on awareness of the decline of spawning sites throughout the Caribbean. Subsequent research, including modeling of spawn dispersal and tags on whale sharks that showed movement south to Honduras and north to Mexico, reinforced this regional scale view. The seasonal convergence of both spawning fish and whale sharks at Gladden made it a site of regional importance – it is these congregations, rather than they physical site per se, that are notable. And it is the enrollment of these non-human actors in the network that underpin construction of Gladden as 'regional', and indeed, fix this space as a site of conservation and resource management.

International environmental NGOs such as the World Wildlife Fund (WWF) and the Nature Conservancy (TNC) were quick to support conservation efforts at Gladden, in part because it was emblematic of their regional-scale efforts focused on the Mesoamerican reef ecosystem. Working together, scientists and conservationists produced Gladden as a 'regional' site using what Brosius (2006) terms 'technologies of visualization', drawing on Scott. Gladden is promoted as a success in part because it has been integrated into these broader systems of representation currently circulating in conservation circles – of ecoregional planning and transboundary, science-based conservation. Importantly, it is also the scientists and NGOs who are empowered through this regional construction, because it is they who are able to 'see' at this scale.

However, the protection of this particular site has implications for the people who use it – the fishers. Although some fishers participated in the scientific research at Gladden Spit, many of them were resistant to the establishment of yet another marine reserve. As one respondent said, "these conservation people are shutting down a lot of the [fishing] areas". Fishers also disputed the definition of 'overfishing' as the problem at Gladden Spit. As one fisher said, "…there used to be 100 fishermen out there, but now there are may be 10 boats, 2 people per boat. And they fish with handlines, so "if the fish aren't hungry, they won't bite."

Another fisher said:
> "They're talking about conservation but they're not talking about gill net. [With a handline] "if the fish don't want to bite you won't catch him. You can't force a fish to bite. [It is the Hondurans who come up and fish with gill nets]; now they don't catch no fish [in Honduras], so now they're here, doing the same thing to us."

Many fishers made reference to the problem with 'outsiders' fishing in the area, both Belizeans from the northern part of the country as well as Honduran and Guatemalan fishers. According to fishers from Placencia, if overfishing is a problem, it is because of the number of 'outsiders' fishing in the area and the types of damaging gear that they use.

To the extent that the marine reserve helps to enforce fisheries laws and restrict incursions by outside fishers, it is welcomed by the Placencia fishers. Prior to the establishment of the marine reserve, there was very little enforcement of fisheries laws in the area. Now, with Friends of Nature rangers regularly patrolling the reserve, issuing warnings and occasionally arresting illegal fishers, fisheries laws are better enforced. In addition, in their efforts to placate the conservationists, Friends of Nature has helped to limit fishing at the Gladden spawning site to 'traditional fishers' from the Friends of Nature constituent communities, most of whom are from Placencia. Although local fishers contest the idea that they are personally responsible for overfishing, and resent the MPA enclosures, they do see the strategic value in having park rangers help to defend 'their territory'. The privileging of 'local communities' as the beneficiaries of the reserve is consistent with local fishers desire to restrict outside access to 'their' resources; the MPA is successful insofar as it suits fishers' beliefs about local entitlement to the resources contained within Gladden Spit.

Friends of Nature, the organization charged with responsibility for managing Gladden Spit (as co-manager with the Fisheries Department), is in many ways at the center of this network, mediating different interpretations – it is they who are most critical in holding together a 'coherent representation' of Gladden Spit as successful.

One area of tension is over the question of fishing the spawning aggregation. One scientist interviewed told me that 8 years of data show a decline in the spawning aggregation, but that "Friends of Nature does not want to hear it. They want to produce their own data." Unfortunately, according to this scientist, they "overestimate the abundance of fish."

A representative of Friends of Nature also discussed this, saying:
> "There are people, individuals and organizations, who would like to see fishing discontinued at Gladden Spit, or at least to fish the aggregations, but unfortunately they have not been able to show us where what we are saying is wrong. I would be the first to agree, and to comply, if the data was showing us that in fact there was some damage being done, but so far we haven't seen it, we monitor the numbers annually, and it's not showing change."

Elsewhere I am considering the politics of knowledge production and science related to MPAs. Here, I want to emphasize the contrast between what an instrumental and representational view of policy would suggest about this dispute. In an instrumental view, the answer to this dispute is vital to determining MPA success – is the spawning aggregation in fact being sustained?

But in the representational view, what we see is how Friends of Nature works within the network to sustain agreement on its success. They obtain support (both financial and technical) from international NGOs to monitor the spawning aggregation, collecting data and liaising with the regional conservation effort. To this end, they support the construction of Gladden at the 'regional' scale. They also work to maintain access for fishers, emphasizing the importance of local livelihoods and local participation. The success of the Gladden Spit marine reserve hinges on the ability of actors to maintain a coherent interpretation that is flexible enough to move through the network, accommodating multiple scalar constructions.

CONCLUSION

My efforts in thinking through networks and MPAs stem from (1) a dissatisfaction with instrumental views of policy, particularly the apolitical evaluations that circulate around MPAs, and (2) a dissatisfaction with critiques that question MPAs as dominant ideologies imposed from 'outside' onto 'local' people. I am trying to find an alternative analysis that accounts for how MPAs are produced.

By focusing on the process by which various actors interact to produce and maintain a co-management system, it is possible to see how ideas of success emerge through these interactions. It is also possible to explore two of the purported advantages of co-management: (1) combination of scientific and local knowledge and (2) effective enforcement through local legitimacy. Knowledge produced for co-management will be subject to interpretation; not only are 'scientific' and 'local' knowledge not necessarily easily combined, but even science itself is often uncertain and disputed. The 'success' of a MPA may not depend on supplementing science with local knowledge, but on negotiating agreement as to what knowledge will be produced and how it will be understood and used.

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