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Organizational Implications of Collaborative Environmental Management

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Investigating the Organizational Implications of Collaborative Environmental Management

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Incorporating stakeholder engagement and collaboration into the environmental management process is an increasingly popular prescription for environmental conservation issues. However, the transformative influence collaborative processes have on organizational outcomes is not well understood. While the effects of collaboration on intermediate policy outcomes are well-studied, we know little about the organizational implications associated with the integrating collaboration into the management process. There is substantial room to improve our knowledge about the impacts collaboration can have on organizations' focus, motivations, and actions.

In this study, I investigate the implications of stakeholder engagement at the Georgia Department of Natural Resources (GDNR). This organization is tasked with managing environmental subjects in Georgia, and in doing so, runs several collaborative management groups out of its Coastal Resources Division. I focus on the Georgia Sea Turtle Cooperative which it coordinates on Georgia's barrier islands to promote sea turtle conservation. This group engages volunteers and local stakeholders with GDNR managers on each island, performing research, monitoring, and turtle management during the annual nesting season. The long tenure and high popularity of this program make it an ideal subject by which to study how the level of collaborative engagement impacts (A) the ability of organizations to effectively manage environmental subjects, (B) the motivations of different organizational agents, and (C) the potential for target fixation when managers' actions are biased by their personal motivations.

I employ a mix of qualitative data from various stakeholders engaged in the Sea Turtle Coop at GDNR. Triangulating data from semi-structured interviews and questionnaires conducted with volunteers, project leaders, and the program director, I develop a case study analysis to investigate these research questions.

The analysis demonstrates that collaboration is critical to sea turtle management at GDNR and contributes to management at the functional, information-dissemination, and decision-making levels. The results also show that many stakeholders, including managers, share the same alternative motivations that contradict the overarching goals set by the organization. These motivations are very persistent and remain embedded in individuals despite training and experience in the organization. Furthermore, they influence the actions of organizational agents. Alternative motivations can cause managers to act outside of, or contrary to, the management plan designed and directed by the agency. This creates potential for serious issues to arise.

These results demonstrate that while collaboration can yield significant and substantial benefits, it can have downsides as well. They need to be considered by policymakers when making decisions about collaborative environmental management. This analysis can have valuable implications both to researchers studying collaborative management, and to practitioners who need to decide whether, where, and when to incorporate collaboration in their management programs.

1. Introduction

Increasing anxiety about the condition of the natural world and a growing popularity for sustainable goals have resulted in abundant concern about the impacts humans are having on the environment worldwide. As issues of environmental deterioration continue to arise and intensify, implementing appropriate natural resource management systems is becoming more and more important. Understanding the implications of different management strategies is critical for maintaining the environmental subjects we rely on and benefit from, preserving system resilience, and achieving sustainable goals.

Collaborative management and stakeholder engagement are increasingly popular management approaches which are thought to be beneficial for dealing with complex environmental issues. However, the ramifications of utilizing collaborative techniques are not fully understood. We have little generalizable knowledge about the direct impacts they have on environmental subjects themselves (Carr et al., 2012; Irvin & Stansbury, 2004; Koontz & Thomas, 2006) and have only a fledgling understanding of the organizational implications they can carry. While the literature on collaborative management is continually expanding, there is substantial room for growth in developing our understanding of how collaboration impacts the focus, motivations, and actions of environmental managers. Identifying and analyzing these factors may be critical for making appropriate decisions for environmental conservation in the future.

In this analysis, I examine the Georgia Sea Turtle Cooperative, a case of long-term collaboration between local stakeholders and environmental mangers in the Georgia Department of Natural Resources (GDNR). This group has worked cooperatively to ensure the nesting success and conservation of sea turtles in coastal Georgia for over fifty years and it perceived as

highly successful. I study this case to investigate the impacts collaboration can environmental management in an organization by affecting managers' (A) ability to effectively manage, (B) their motivations for action, and (C) the actions they pursue. Importantly, this research can help reveal wither collaborative engagement can increase the management capacity of organizations, and whether it can lead to target fixation (an overemphasis and overinvestment in high-priority or charismatic subjects at the expense of less prominent ones in the system) among managers. This information can be useful to both researchers studying the impacts of collaboration on environmental outcomes and to practitioners tasked with deciding whether to embrace a collaborative approach.

2. Theory of Collaboration in Management and Organizations

2.1. Collaborative Management and Stakeholder Engagement

Incorporating collaboration in management is a policy structure which has rapidly gained favor and has been implemented in a variety of environmental management contexts (Ansell & Gash, 2008; McGuire, 2006; Newig & Fritsch, 2009). This strategy is designed to incorporate the public into the management process and has been heralded as an advantageous alternative to traditional, hierarchical systems where a single actor or group commands exclusive influence over the system and must make all management decisions on their own (Keough & Blahna, 2006; Norton, 1992). Incorporating collaborative elements in environmental governance and management is increasingly popular among practitioners and is becoming a common practice all over the world (Emerson & Nabatchi, 2015). In light of this shift, it is critical that we understand

the implications collaborative techniques can have on both environmental and organizational outcomes.

Stakeholder engagement provides an avenue for collaboration to take place across diverse scales of environmental management and can operate at various levels of intensity. While collaborative governance can require multi-party interaction at the goal-setting or decision-making level, stakeholders can engage in environmental management more broadly in a number of different forms. In this research, I follow the definition presented by Freeman (1984) and Reed (2008) of *stakeholders* as any actors who can impact, or are impacted by, a decision. Furthermore, they can be said to *engage* if they choose to actively get involved with that decision (Reed, 2008; Rowe et al., 2004).

This can occur during many phases of the management process. Collaboration can take place in the goal-setting level, the implementation level, or the information dissemination level. Arnstein (1969) described this spectrum as a "ladder of participation" upon which every level of engagement can be ranked in order of its impact on the management issue. This model of engagement dictates that higher levels of engagement are better and should be preferred over those in lower positions on the ladder. However, this may not always be the case. The impact each different level of collaboration has on the management process is dependent on the specific situation it is in; context decides the level at which collaboration will be most effective (Richards et al., 2004). Collaboration at any level can result in ripple effects which alter the entire management process. The typology of engagement types has since been reconceptualized as consisting of "consultative", "functional", "empowering" (Farrington, 1998), and "transformative" (Lawrence, 2006) participation. Importantly, this representation separates

"functional" participation as that which uses local resources, labor, and knowledge to benefit management implementation and success.

2.2. Benefits of Collaboration

Regardless of the type, or orientation, of collaboration, it can benefit efforts to manage ecological systems which span boundaries across space and time. There is evidence that including stakeholders and incorporating horizontal collaboration into the governance process increases administrative success in dealing with such complex problems (Ansell & Gash, 2008). Discourse and inclusivity make it possible to evaluate decisions more pluralistically and situationally, making them key attributes for dealing with boundary and value-spanning issues (Norton, 2005; 2015; 2017). By incorporating stakeholders into the management process, collaboration can help serve the public interest by defining it through consensus (Bozeman, 2007), contributing local knowledge and expertise when developing rules (Andersson & Ostrom, 2008), and fostering social learning (Leach et al., 2013; Lejano & Ingram, 2009) enhancing stakeholders' awareness and capabilities when dealing with local issues.

Collaboration brings many advantages for policy implementation as well. There is substantial evidence indicating that it benefits a large number of different intermediate outcomes associated with social components of environmental management. Engagement between managers and stakeholders helps build trust between different actors in the process and commitment to management decisions (Armitage et al., 2009; Olsson et al., 2004; Reed, 2008; Richards et al., 2004) and improves the legitimacy of outcomes in the public eye (Sabatier et al., 2005). It can also foster belief change in the stakeholder community (Leach et al., 2013), getting individuals to buy into management goals and improving the prospects of successful implementation (Richards et al., 2004). Collaboration can also allow co-generation of knowledge

between managers and stakeholders (Greenwood et al., 1993; Wallerstein, 1999), and facilitate social learning (Blackstock et al, 2007; Leach et al., 2013; Lejano & Ingram, 2009), creating positive externalities to the management process.

At the "functional" level of participation, collaboration offers substantial benefits. Such engagement can integrate local knowledge into management efforts (Andersson & Ostrom, 2008), providing more accurate and better informed information inputs to decisions (Reed et al., 2006; Reed, 2008), and contribute additional resources and localized support to implementation efforts (Hill & Lynn, 2013). This enables managers to more successfully satisfy local needs (Andersson & Ostrom, 2008) and can help unexpected issues be dealt with and mitigated more easily (Fischer, 2000; Newig, 2007). Incorporating collaboration and stakeholder engagement into the management process can provide a host of benefits and result in more appropriate environmental management in the long run (Bierele, 2002; Brody, 2003).

2.3. Potential Drawbacks

However, many researchers have pointed out potential problems and pitfalls for collaborative management. At the goal-setting level, bringing stakeholders into the process can subvert appropriate management decisions. Participation of inexperienced or ill-informed stakeholders can result in sub-par decisions when the opinions of experts are overridden, or economically interested parties dominate the discussion (Echiverria, 2001). Collaborative groups are also prone to favoring less stringent policies, trying to appease all their members with ineffectual "win-win" solutions that address numerous objectives and achieve none (Layzer, 2008). At the functional level, organizing and engaging in collaboration can be costly and time-consuming (Margerum, 2011) It can take considerable resources to maintain a suitable arena for coordinating all relevant stakeholders and overcome the transaction costs associated with such

engagement. It may also demand onerous commitments from the participating stakeholders themselves, discouraging involvement (Lawrence & Deagen, 2001). These potential disadvantages can be difficult to overcome, so collaboration is not suited well to every situation. Context is important in deciding the success of collaborative approaches.

Despite the depth of literature on collaboration, there are still areas in which our understanding needs to be developed. The impacts and implications of collaborative management are complex and wide-ranging; further research is necessary to improve our ability to discern when such approaches are appropriate. The organizational implications of collaboration are not thoroughly developed. I investigate how engagement interacts with the administration of environmental management in a public organization, most notably, how it can affect organizational capacity, motivations, and actions.

2.4. Modelling Organizations

Institutional perspectives have become popular in organizational theory (Mizruchi & Fein, 1999) and provide language and constructs which are highly relevant to subjects of collaboration. Institutional models of how organizations function emphasize the impact exogenous social factors can have on organizational behavior (Heugens, 2009). In this perspective, organizations' decision-making processes are developed and influenced by the socially constructed environment around them. Social and management context drives how organizations make decisions and act.

Organizations are affected by situational constructs and normative pressure placed on them by social forces (Zucker, 1987). The institutional environment in which an organization exists determines what impacts them. Hierarchically superior forces, such as laws, regulations, or market forces, have a strong influence on organizational decision-making (Thomas & Meyer,

1984), but for public agencies, public opinion can be a driver as well. Societal demands and influences can lead to the formation of "institutional elements". These elements can take the form of organizational structures, roles, or actions, and once in place, often become embedded in the organization, resisting change as the status quo (Zucker 1977). These elements can heavily sway an organization's' decisions, potentially subverting its management goals (Selznick, 1949; Zald & Denton, 1963).

Public voice and activity can be a major part of the institutional environmental landscape for public agencies. When the public engages with a topic, it exerts pressure on management organizations to apply themselves towards that goal. Direct collaboration or stakeholder engagement can further reinforce these impacts. Collaboration can influence the production of outputs such as plans for environmental managers (Beierle, 2002; Biddle & Koontz, 2014; Innes & Booher, 1999). This reinforcement can create path dependent benefits for environmental subjects or research programs. If collaboration or engagement generates additional organizational attention on a subject, or creates new resources to devote to that subject, opportunities for additional collaboration and management may arise. These opportunities and resources can be critical for organizational management efforts to function.

2.5. Managerial Motivations

The institutional elements shaped by organizations' environments are easily transmitted and internalized by organizational agents (Zucker, 1987). Individual managers are motivated by the goals of their organization, so when these shift, it is common for the managers' thinking to change as well. Ideally, managers of the natural environment are motivated to maintain environmental health for the subjects they deal with, but these motivations may be subject to change. As the institutional environmental around their organization shifts, exerting different

pressures on it and reshaping its goals, managers may adopt new motivations, or reprioritize which ones they see as important. Since collaboration and stakeholder engagement can drive institutional environmental structure, increased collaboration may alter the internal motivations of managers in an organization.

Additionally, environmental managers working in an organization may carry their own personal motivations on top of, or contrary to, those formally specified by their organization. These personal motivations may persist, influencing the way managers approach and interpret organizational goals. In this research, I try to answer whether collaboration can influence or change managers' motivations for action.

2.6. Target Fixation

If collaboration influences managers' focus and motivations in an organizational setting, then it may have additional implications for their actions. Humans have a limited capacity to take in and process information, and those limitations extend to the organizations they serve (March & Simon, 1958). Individual actors are boundedly rational, having access to a finite, and small, amount of computational power and are only able to handle a limited cognitive load (Simon, 1957). On their own, they can only process information serially, biasing their ability to search for and select different management options. Organizations are able to get around some of these limitations by diving up labor to address multiple issues in parallel (Jones, 2001), but this can only extend processing power so far. Organizational agents commonly practice satisficing when making choices, accessing information that is easily available and implementing decisions which require the least effort to acquire the desire result (Simon, 1972). When faced with complex situations, individuals tend to make simplifying assumptions to substitute them with simple

systems which they understand and are comfortable making decisions about (March & Simon, 1958).

These limitations subject individuals to *target fixation*, focusing all of their processing power on a single subject to the neglect of all others. What someone pays attention to is driven by what they want and value; at the same time, what they value is influenced by what their attention is focused on (March & Simon, 1958). When an institutional environment changes the goals and decision-making processes of an organization through social interactions such as collaboration, it may shift the focus of managers within that organization onto socially prioritized subjects. This may change the organization's goals and the motivations of the individuals within it, but it can also focus the organization's attention onto that subject. This focus may lead to an extreme emphasis on a single subject as managers continually have its importance reinforced on them by exogenous social forces and their own cognitive biases. Such a situation may represent a positive reinforcement, but it has the potential to create *target fixation* if this focus represents an overemphasis and comes at the expense of other subjects that organization is responsible for.

Furthermore, individuals who carry their own set of personal motivations are at risk of fixating on their own personal priorities rather than fulfilling organizational guidelines as they were intended. Even if an organizations' focus is unbiased, the individuals working within it might be. These personal, alternative, motivations may alter how an individual manager perceives goals, interprets guidelines, and implements managerial actions, changing organizational outcomes. Figure 1 presents a visual representation of how collaboration can influence organizational management and lead to the potential for *target fixation*. I investigate whether collaboration increases attention on socially-prioritized subjects, and if so, whether the increase in attention can result in disproportionate investment or management of those subjects.

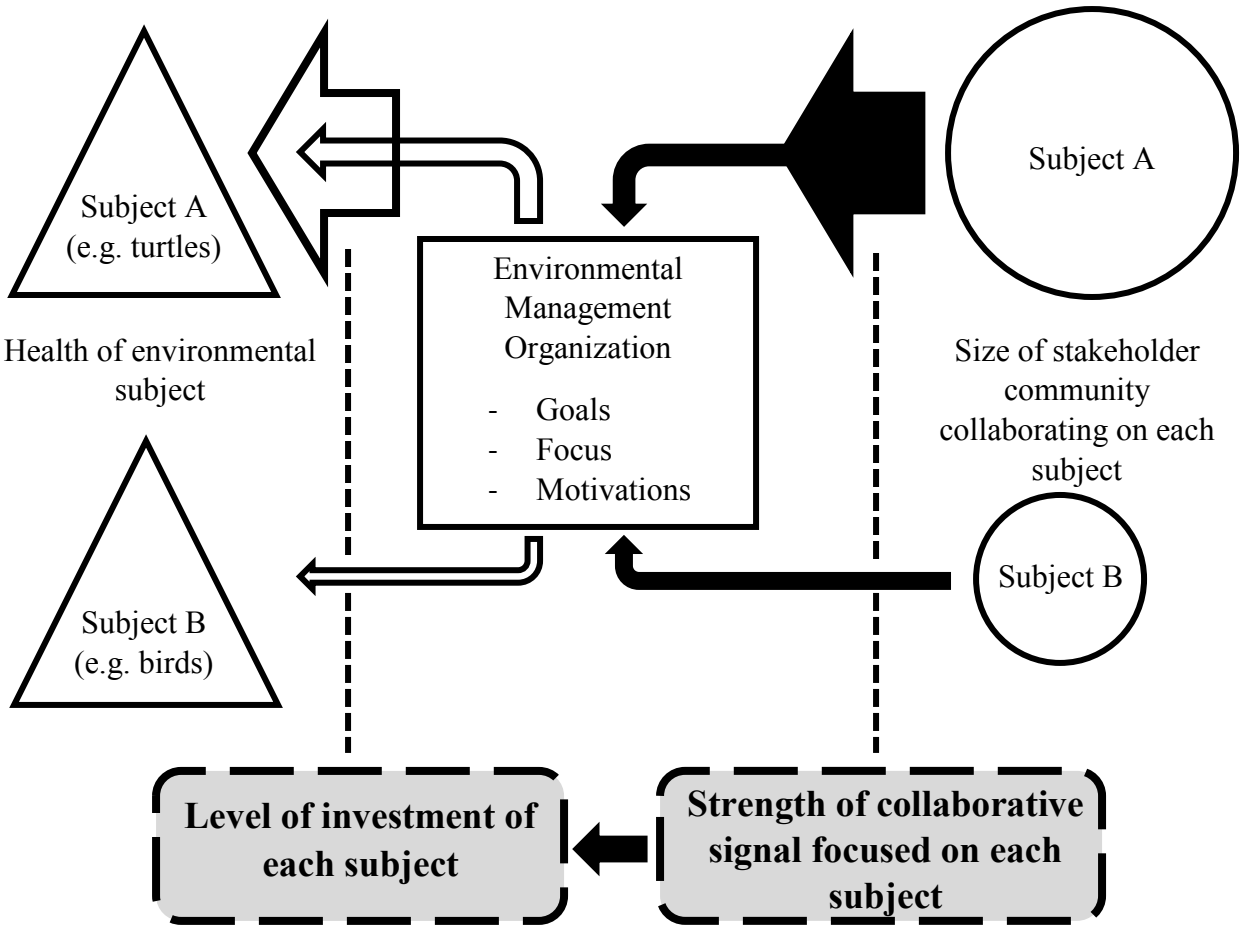

Figure 1: Organizational Implications of Collaboration

3. Research Context

3.1. Sea Turtle Conservation

Environmental preservation and sustainability have received increasing attention in recent years. However, we are realizing the value of many environmental subjects just as they slip past the threshold of recoverability. Much recent concern for conservation has been spurred by the realization that environmental losses could have profound consequences on human societies (Carpenter et al., 2006). Such concerns are often most apparent when focused around biodiversity conservation. There are few losses more unequivocal than the extinction of a species, and over the past few centuries we have seen the rate of global extinctions accelerate to a frenzied pace. It is estimated that we are currently losing species at somewhere between 1,000 and 10,000 times the historical background rate (Chivian & Bernstein, 2008). One current estimate predicts that 15-37% of the animal species in a terrestrial sample of about 20% of the Earth's terrestrial land will be "committed to extinction" by 2050 (Thomas et al., 2004). The International Union for Conservation of Nature (IUCN) Red List of Threatened Species reports eleven species of animal going extinct since 2015 alone (IUCN, 2018)[1]. This rate is expected to continue into the future and even accelerate further as the impacts of climate change become more pronounced and harm species populations (Berry, et al., 2002; Hannah et al., 2002; Harvell et al., 2002; Midgley et al., 2002; Peterson et al., 2002; Schwartz, 1992; Sekercioglu et al., 2008; Thomas et al., 2004; Urban, 2015).

[1] Species which were reported as extinct by IUCN since 2015: Christmas Island Pipistrelle (*Pipistrellus murrayi*), Lesser Stick-nest Bat (*Leporillus apicalis*), Bramble Cay Melomys (*Melomys rubicola*), Indo-chinese Warty Pig (*Sus bucculentus*), Guam Reed-warbler (*Acrocephalus luscinius*), Oahu Nukupuu (*Hemignathus lucidus*), Bridled White-eye (*Zosterops conspicillatus*), Pinta Giant Tortoise (*Chelonoidis abingdonii*), Floreana Giant Tortoise (*Chelonoidis nigra*), Barbados Racer (*Erythrolamprus perfuscus*), Gunther's Dwarf Burrowing Skink (*Scelotes guentheri*) (IUCN, 2018).

This trend is increasingly relevant to the world's remaining sea turtles. Of the seven recognized species, three are endangered or critically endangered, and the rest are vulnerable (IUCN, 2018). Anthropogenic impacts from fisheries (Lewison et al., 2004), beach degradation, pollution, and capture (Lutcavage et al., 2017) are responsible for huge amounts of turtle destruction, intensifying their vulnerability. Global populations have been rapidly declining, leaving these species at risk. Five sea turtle species are present in the state of Georgia, with three nesting on Georgian beaches (GDNR, 2018a). Table 1 depicts the status of each sea turtle species as well as their presence in Georgia.

Table 1: Sea Turtle Species in Georgia

Common Name	Scientific Name	Risk Level (IUCN, 2018)	Presence in Georgia
Flatback	*Natator depresa*	Data Deficient	Not present
Green Turtle	*Chelonia mydas*	Endangered	Occasionally Nests
Hawksbill	*Eretmochelys imbricata*	Critically Endangered	Frequents Waters
Kemp's Ridley	*Lepidochelys kempii*	Critically Endangered	Frequents Waters
Leatherback	*Dermochelys coriacea*	Vulnerable	Occasionally Nests
Loggerhead	*Caretta caretta*	Vulnerable	Commonly Nests
Olive Ridley	*Lepidochelys olivacea*	Vulnerable	Not Present

These turtles inhabit the waters along the Georgian coast and utilize a string of barrier islands it contains to nest (see Figure 2 for a map). These islands provide important nesting habitat for sea turtles and are critical for the stability of Loggerhead Turtle populations. They provide many crucial ecoservices for inland areas of the state as well, such as surge protection and shelter from oceanic storms, structure for coastal and wetland habitats, and ecosystems for native species (Feagin et al., 2010). However, these islands are particularly vulnerable to climate change (Martinez et al., 2008), and are popular destinations for human visitors, putting them at risk from anthropogenic degradation. Consequently, they are a continual subject of concern for

environmental managers and researchers in Georgia, particularly in the Georgia Department of Natural Resources (GDNR).

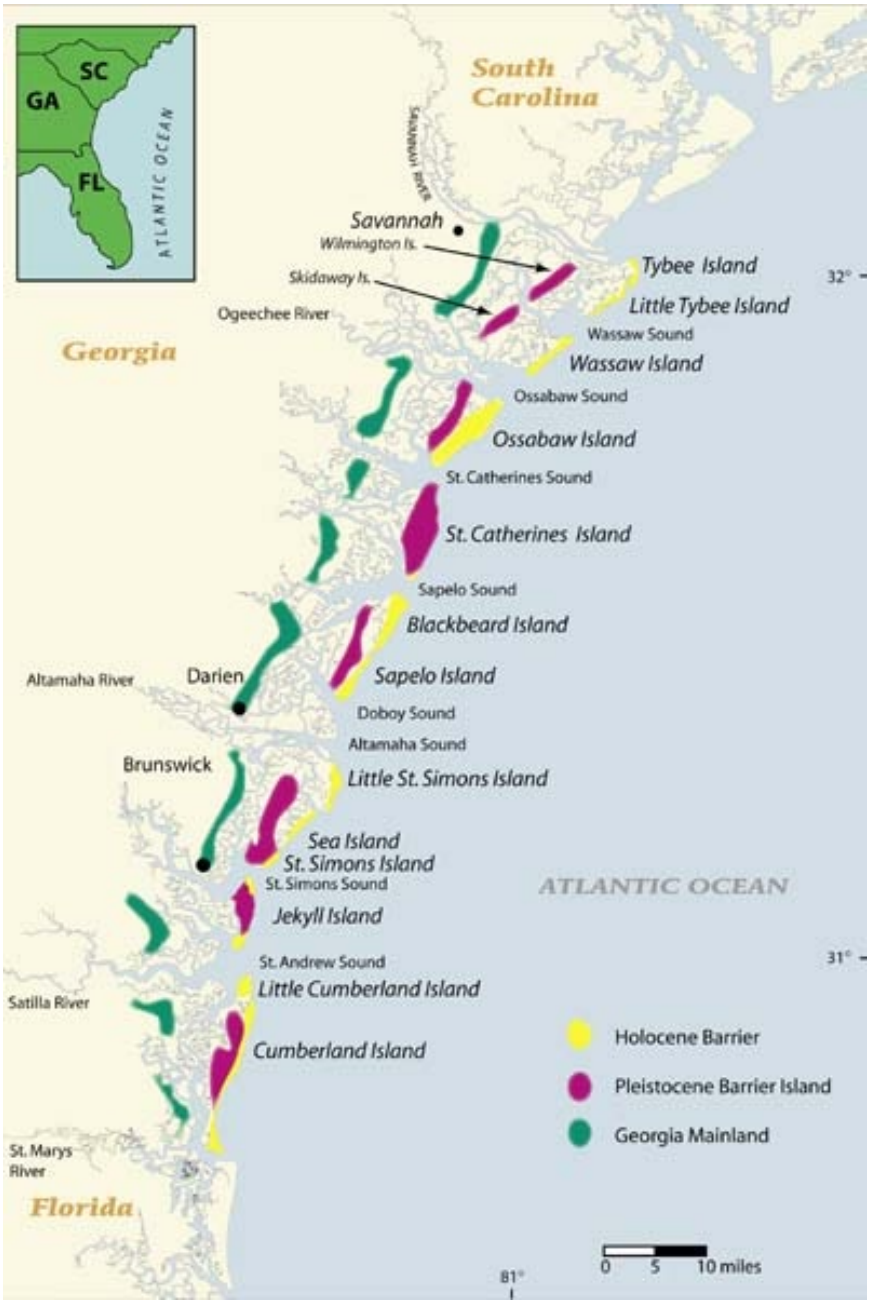

Figure 2: Map of Georgia's Barrier Islands

3.2. The Georgia Sea Turtle Cooperative

GDNR is a state agency responsible for overseeing and managing natural, historic, and cultural resources within the state of Georgia (GDNR, 2018b). Within this organization, the Coastal Resources Division (CRD) is tasked with managing the wetlands, fishery resources, and beaches along the coast, making it responsible for conservation of important nesting habitat on the barrier islands. Along with GDNR's Wildlife Resources Division, it runs coast-wide programs aimed at conservation. In this research, I focus on the case of one specific GDNR program, the Georgia Sea Turtle Cooperative, since it provides a unique look into collaborative management in an organizational setting.

The Georgia Sea Turtle Cooperative, or the Coop, is designed to organize local stakeholders, organizations, and agencies together with GDNR to manage Georgia sea turtle populations. It has existed for over 50 years bringing environmental managers, researchers, environmental agencies, private foundations, NGOs, and local stakeholders together to collaborate on turtle conservation. About 200 volunteers are enlisted in the program each year during the sea turtle nesting season from mid-May to mid-August (GDNR, 2019a). This allows local stakeholders to engage with and contribute to GDNR turtle management. Volunteers are primarily used to provide manpower to monitor nesting turtles, maintain turtle nesting sites, deter local predators, collect data, and implement other programmatic tasks as necessary.

However, some volunteers are also employed as project leaders in the Coop, offering a unique look into how stakeholder engagement can effect organization decisions and management implementation. The Coop is directed by a GDNR wildlife biologist, but it relies on 12 different project leaders to manage Coop operations on Georgia's 12 main barrier islands for turtle nesting. These project leaders come from a wide variety of backgrounds; some are volunteers with little environmental experience outside of the Coop while others are scientists working for

environmental non-profits, private management foundations, federal agencies, or GDNR itself. GDNR outlines explicit requirements for turtle management on each island and outlines what efforts and interventions should take place, but project leaders maintain some flexibility when applying them. While certain aspects of the management plan, such as data collection, are highly standardized and remain the same between islands, different project leaders can apply turtle management differently. This offers critical variance to explore different the relationships between project leaders' motivations and actions.

This coop is perceived by GDNR staff as being highly successful, both as a management tool and a social education program and is an important part of GDNR's sea turtle conservation program. While the Coop provides critical benefits for turtle conservation in the form of collected data and increased scientific knowledge about sea turtles, its success is visibly demonstrated by the recent trends in turtle populations in Georgia. GDNR data on Loggerhead Turtles (by far the most common nesting turtle in Georgia) indicate that Loggerheads are steadily recovering in Georgia (GDNR, 2019b). Allowing for natural annual fluctuations in breeding patterns, the annual number of Loggerhead nests in Georgia has continued to increase over the last decade. Many GDNR scientists and coop members attribute much of this long-term success to the management and research efforts undertaken by the Coop.

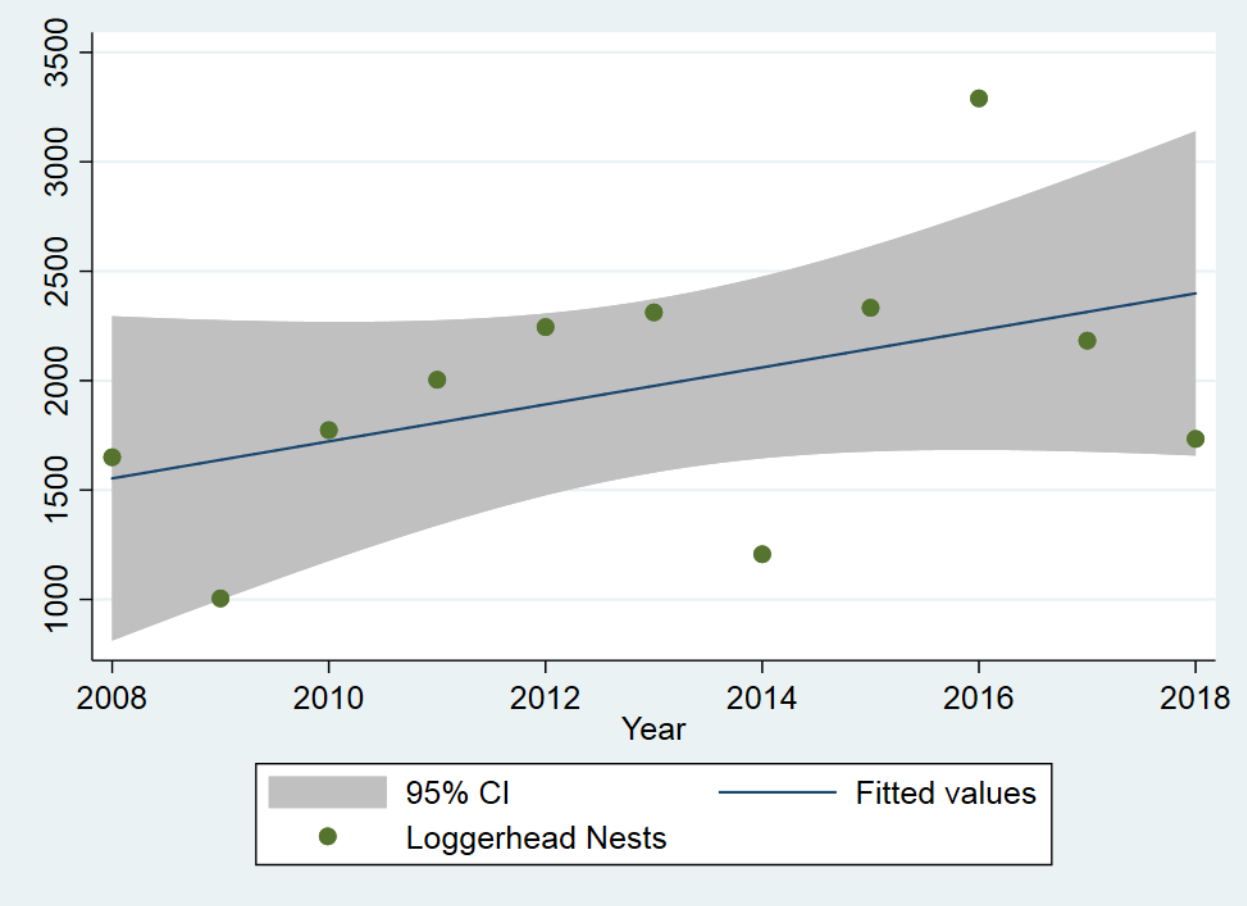

Figure 3: Loggerhead Recovery in Georgia (2008-2018)

4. Research Questions & Hypotheses

This program offers an excellent opportunity to study collaborative environmental management. It provides a useful context to examine the different ways engagement can contribute to organizational outcomes at the functional and information-dissemination levels, and the management capacity this offers organizations. Furthermore, it presents an ideal space to study the motivations and attitudes of different managers and investigate how those attitudes influence the management actions that are implemented.

In this analysis, I pursue these topics in three ways. First, I examine the different roles collaboration fills at the Georgia Sea Turtle Coop and describe the contributions collaboration provides the organization.

> *Hypothesis 1*: Collaboration through the Sea Turtle Coop increases the ability of GDNR to manage sea turtles.

Second, I explore the motivations of environmental managers in the program and investigate whether common interests among collaborating stakeholders pervade the organization. Environmental managers may become influenced by, and align their motivations with, the stakeholders they collaborate with. Alternatively, they may begin their involvement in management with pre-established personal motivations that persist despite the presence of contradictory goals established by the organizations they work for.

> *Hypothesis 2*: Environmental managers at the Sea Turtle Coop share the same motivations as the stakeholders they collaborate with.
>
> *Hypothesis 2a*: Managers' motivations change to align with those of collaborating stakeholders.
>
> *Hypothesis 2b*: Managers' alternative personal motivations persist despite the formalization of contradictory goals by the organization.

Third, I examine whether managers suffer from target fixation by analyzing how managers' motivations influence their actions outside of the goals set by the organization. If managers retain alternative motivations, their motivations may override organizational goals and cause them to act contrary to, or outside of, the mission pursued by the organization.

Hypothesis 3: Environmental mangers with alternative motivations will pursue different actions than explicitly directed by the Sea Turtle Coop.

5. Materials and Methods

I employ a mix of qualitative data in a case study research design to investigate these questions. I develop interviews and a questionnaire to explore the perspectives of various members of the Sea Turtle Coop. I conducted seven semi-structured interviews between February and March of 2019 with the program director and project leaders from a variety of backgrounds in the Sea Turtle Coop. Table 2 illustrates the involvement and position of each respondent.

Table 2: Respondent Categories

Number	Involvement	Position
1	Project Leader	Volunteer
2	Project Leader	Volunteer
3	Project Leader	Volunteer
4	Project Leader	Environmental manager at a private organization
5	Project Leader	Environmental manager at a non-profit organization
6	Project Leader	Environmental manager at a public organization
7	Program Director	Environmental manager at a public organization

These data allow me to examine each hypothesis from a variety of perspectives. Second, I administered a questionnaire to members of the Sea Turtle Coop on April 23, 2019 to explore the experience, motivations, and goals of engaged stakeholders across the program. This questionnaire includes data on the motivations of volunteers, associates, and project leaders and allows me to triangulate my findings with evidence from the interview data. Together, these data allow me to construct a robust qualitative analysis of this case study and test my hypotheses on organizational motivations and target fixation.

6. Results

6.1. Organizational Management Ability

Interview data clearly illustrate the benefits collaboration in the Sea Turtle Coop confers to GDNR's ability to engage in environmental management. Respondents universally agree that engaging stakeholders allows more successful management of sea turtles in Georgia. These benefits are most evident at the functional level, providing critical manpower that is needed by GDNR to operate its interventions in turtle management. GDNR lacks the staff to consistently run all of their turtle management efforts in-house, so they rely on local stakeholders to help collect data and manage turtle nest sites.

> *"You just don't have the staff* […] *especially from a state and federal standpoint if you're dealing with beaches that are managed from the state or federal agencies. They don't have staff on hand that could commit the time every day for six months of the season every season to do that kind of work. So those technicians and interns and volunteers are really key to continuing on at the level we're doing it statewide."* (Volunteer Perspective)

While the manpower volunteers contribute is important, project leaders in the Sea Turtle Coop who come from an environmental management background understand that engaging stakeholders can be costly. Organizing volunteers and training them to effectively contribute to a subject's management takes time, energy, and supervision from full-time environmental managers. For some projects, volunteers are not worth bringing on at all.

> *"There's a basic cost from the outset for any of these volunteer projects. And you just can't cut people loose on their own. There has to be some supervision. And so for some of the smaller projects, it's just not worth the startup cost. Whereas with the really big-scale projects over a large area where we need a lot of manpower, it's worth the startup cost of our time and energy overseeing the whole thing."* (Environmental Manager Perspective)

However, even with the added costs engaging stakeholders entails, volunteerism in the Sea Turtle Coop is perceived as creating substantial benefits. While training and supervision are necessary, these costs are perceived as being well worth it for the consistent contributions collaboration with volunteers brings.

> *"I think they're a huge help if you get the right ones, let's put it that way* […] *everybody loves sea turtles but you've got to get the people that love sea turtles that are also good at field biology and data collection. If you're going to have a program where you're going to utilize them to an extent where they're helping you to the maximum level possible, you've got to have somebody that you feel comfortable with."* (Environmental Manager Perspective)

Volunteers are necessary in order to consistently collect data, conduct daily surveys for turtles on beaches, and monitor and protect local nests, as well as to perform other program tasks. Project leaders in the Sea Turtle Coop from all backgrounds agree that the program would not be possible without the substantial help they receive from local stakeholders.

> *"These people are really the heart of our conservation efforts. They do the basic* […] *grunt work of conservation."* (Environmental Manager Perspective)

> *"Without them, we wouldn't get anything done, really. We wouldn't be educating. We wouldn't* [be doing daily turtle monitoring] *on the beach besides just the baseline state-required morning patrol. And as far as turtle rehab and everything – all the work wouldn't be possible without them."* (Volunteer Perspective)

Engaging stakeholders also benefits GDNR at the information-dissemination level. Increasing social awareness about turtle conservation is not the main goal of the Sea Turtle Coop, but it is deliberately pursued by GDNR and greatly facilitated by stakeholder engagement. Both volunteer and environmental manager project leaders see collaboration as an excellent way to facilitate social learning and education, and intentionally use it for that purpose.

> *"As far as engaging volunteers in the public or our guests, or whoever, it's just we consider that part of our outreach. And it's a wonderful way to educate the local community and get more people excited about conservation in general. So just the more*

> *people that care about the species, the more apt they are to survive in the long term."* (Environmental Manager Perspective)

At the decision-making level, collaboration is perceived as having a more limited impact. GDNR maintains strict guidelines over what must be done when managing sea turtles. Respondents from both volunteer and environmental management backgrounds agree that volunteers are typically removed from the decision-making process. The deliberative goal-setting used in some collaboratives is absent from the Sea Turtle Coop so overall goals are solely driven by GDNR and the leaders within the Sea Turtle Coop. However, project leaders report that stakeholders who are engaged in the program do help develop new ideas about how to pursue organizational goals. While the program's goals are set by GDNR, volunteers regularly help come up with better ways to meet them.

> *"We welcome input and their feedback, and we've refined our protocols and our methods based on that input. I wouldn't to say that they have changed our large-scale goals or mission or how we do the work, but they definitely helped us get quicker, safer, and clearer."* (Volunteer Perspective)

Project leaders with a background in management actually go further, describing how collaborators both help streamline existing procedures and develop new ideas about turtle management themselves.

> [They contribute to] *"Both little things and big things. I mean, little things in terms of just better ways to do surveys or just better ways to tie stuff on your ATVs* […] *but then also bigger things too* […] *coming up with really important ideas about management and how we manage nests, what nests we relocate when – and they're interacting with our co-op members who see things. A lot of times, science is nothing more than seeing patterns and then quantifying those patterns; basic descriptive kind of science. And so a lot of our cooperators are really good at that."* (Environmental Manager Perspective)

Collaboration is critical to management of sea turtles at GDNR. Engaging stakeholders through the Sea Turtle Coop generates substantial benefits at the functional, information-

dissemination, and decision-making levels and allows GDNR to pursue and implement key management and research projects that would otherwise be impossible.

> [Collaborators are] *"the backbone of our management. So they're like the engine that drives the whole thing, drives the train. So they're critical. We wouldn't be anywhere near where we are without-- and we're in a recovery period as a result of their activities."* (Environmental Manager Perspective)

6.2. Motivations for Action

GDNR is responsible for managing all of Georgia's natural resources, not only sea turtles. As such, the goals, and motives, espoused by the organization are expansive. GDNR scientists prioritize holistic thinking about ecosystems, working to save sea turtles no simply for their own sake, but in order to preserve the integrity and function of Georgia's marine ecosystems.

Conversely, many of the stakeholders who volunteer in the Sea Turtle Coop do so because they are passionate about sea turtle conservation. The interview respondents universally consider volunteers to be motivated, at least in part, by a personal attachment and care for sea turtles. Furthermore, volunteer responses to the questionnaire are highlighted by declarations of specific care and interest in sea turtle welfare. Over 83% of respondents reported "saving at-risk turtles" as one of their primary interests, while answers to open-ended questions about why they collaborate include responses such as *"I get to spend time with sea turtles!",* and *"I love sea turtles"*. Sea turtles are a highly charismatic group of species and have been popularized in social media in the past. One project leader even discussed seeing a rise in volunteerism in the Sea Turtle Coop after "The Last Song", a film promoting sea turtles, was released. For many people, sea turtles demand affection and devotion, spurring individuals' motivations to get involved in conservation.

> *"I think some of them just have a deep love for the coast and sea turtles. Some people are just really moved by handling eggs or handling hatchlings. It's like a life-changing experience for them, and you can see it when you've worked it a lot. And you have volunteers or interns that, the first time they ever handle a turtle egg or the first time they ever inventory a nest and see a live hatchling or the first time they see a female going up to nest, it really overwhelms them. And so those types of people, I believe that's why they continue to come back. They're people that they have that deep devotion to it."* (Environmental Manager Perspective)

Project leaders in the Sea Turtle Coop identify a few other motivations for involvement that appear among volunteers. Many people gain personal satisfaction from working and being in nature out on the beach, while others are driven by general environmentalism and concern for other subjects that occur alongside sea turtles.

> *"Most of them are pretty environmentally aware. And we talk about other environmental issues while we're on the project. Like we'll talk about the Right Whales and pollution, and they see the garbage that washes up on the beach. Oh, there's all kinds of opportunities to talk about environmental issues."* (Environmental Manager Perspective)

However, project leaders who come from both environmental management and volunteer backgrounds themselves report that engaged stakeholders are primarily driven by an interest and emotional attachment to sea turtles.

> *"They're all pretty out of their minds about sea turtles."* (Environmental Manager Perspective)

Project leaders in the Sea Turtle Coop have their own set of motivations for collaborating. Their motivations largely diverge between two groups: those that have a background in environmental science and management and those that became involved as volunteers themselves and lack scientific training. While scientifically trained project leaders typically align with GDNR's philosophy on management and express a motivation to prioritize holistic conservation of ecosystems rather than individual species, volunteer project leaders often share the same turtle-centric motivations as many of the stakeholders who they collaborate with.

> *"We really do have sort of two classes of cooperators. And one are sort of the professionals which are trained in biology, and you have a biological degree. Some of them have a master's degree and have done research. And then the second category with these, just someone, a member of the public who's just really interested in conservation and thinks turtles are cool and doesn't have any biological background*." (Environmental Manager Perspective)

Data from the questionnaire demonstrates that collaborators with a scientific or management-based background are more likely to prioritize system-level and holistic priorities and less likely to focus on individual subjects. Conversely, volunteers are more likely to prioritize individual-level subjects (e.g. specific concern for sea turtles, personal benefits) and less likely to prioritize system-level subjects (e.g. general concern for threatened species) or holistic subjects (e.g. coastal resilience). While individual-level and turtle-centric motivations occur in both groups, they are more common among volunteers. Table 3 illustrates the average percentage of respondents from each group that identifies individual-level, system-level, and holistic subjects as priorities.[2]

Table 3: Average Percentage of Respondents Prioritizing Types of Subjects

Group	**n**	**Individual-level**	**System-level**	**Holistic**
Scientists	11	54.7%	38.8%	66.4%
Volunteers	14	57.3%	34.5%	57.1%

When being interviewed, volunteer project leaders were not shy about their attachment to turtles. These respondents repeatedly discussed their emotional attachment to this specific group of species. This demonstrates a strong similarity between the motivations of volunteers in the

[2] Individual-level subjects: saving at-risk turtles, helping animals, sea turtle populations, social experiences, enjoying nature, fellowship/community
System-level subjects: terrestrial reptiles, shorebirds, marine mammals, invertebrates, fish, plants, threatened species, socio-ecological systems, local fisheries, climate change, enabling science
Holistic subjects: healthy ecosystems, coastal resilience, sustainability, conservation science, ecological management, environmental research, evolutionary function

Sea Turtle Coop and project leaders that came from a volunteer background. Both maintain alternative motivations in that they have different motivations for engaging in sea turtle management than GDNR.

> *"I've worked with other animals too, but there's just something very, very charismatic and mysterious about turtles."* (Volunteer Perspective)

> *"What keeps me coming back to the co-op? Yeah. It really is the turtles. It's the turtles.* […] *I don't think I would be there if there wasn't nesting sea turtles. That's probably the big draw, but it's a whole package, right? It's that whole being able to live and work in that ecosystem. It's an unbelievable opportunity."* (Volunteer Perspective)

Some scientifically trained project leaders also mentioned a personal love of turtles, but they more frequently talked about conservation at a broad scale, in which sea turtles are one component. However, they repeated the observation that many of their peers who came from volunteer backgrounds are primarily motivated by their personal attachment to sea turtles. One respondent estimated that 25% of volunteers and local project leaders in the Sea Turtle Coop fail to understand environmental management holistically and are driven by an emotional attachment to turtles. As predicted in hypothesis 2, many project leaders in the organization are driven by the same alternative motivations as the volunteers they collaborate with.

While the data strongly demonstrate that some project leaders in the Sea Turtle Coop share alternative interests with the volunteers they collaborate with, there is little evidence to indicate that they acquired these interests by collaborating with volunteers who thought this way. One volunteer project leader did note that being around collaborators who are passionate about a subject made them more aware, and interested in, that topic themselves. However, there is no compelling evidence that this altered their internal motives. More often, the project leaders with emotional attachment to sea turtles talk about their motivations being driven by personal preferences and experiences.

> *"I'm a turtle person* […] *I've always liked turtles. I've always cared for turtles.* […] *As soon as I saw really the first egg, not even the actual turtle, I was instantly hooked."* (Volunteer Perspective)

> *"When I got my first sea turtle job, I really wanted to work in the marine mammal section, but there wasn't any opening. And I just thought, 'Oh, I'll just work here till an opening comes up,' and that lasted about two weeks. Once you work with sea turtles you're hooked."* (Environmental Manager Perspective)

This indicates that project leaders with this kind of motivation acquire them either before becoming involved, or soon after beginning their work with turtles. GDNR managers and scientists in the Sea Turtle Coop aim to train these volunteers, reinforcing holistic environmental thinking, but these turtle-centric motives often persist. In the questionnaire data, experience in the Sea Turtle Coop does not appear to drive individuals' motivations. While stakeholders certainly learn while they are engaged in the program and interacting with trained environmental scientists, their motivations do not become more holistic or scientifically based over time. Collaborators at all levels of experience in the Sea Turtle Coop exhibit a mix of motivations, with emotional attachment to sea turtles appearing among groups of all age, experience, and tenure. While hypothesis 2a is not supported, as hypothesis 2b predicts, personal attachment to sea turtles persists as an alternative motivation despite exposure to scientific management and formalized organizational goals. Experience or tenure in the Sea Turtle Coop does not predict volunteer or project leaders' motives.

> *"We have people that've been working on Turtle Beach since before I was born for 50 years and who are still stuck in kind of the emotional-- yeah, can't really get to see the whole picture who still just care about turtles."* (Environmental Manager Perspective)

6.3. Target Fixation

Do these alternative motivations change the way environmental mangers act? If a manager has their own internal set of motives that are misaligned with the goals of their organization, they

may suffer from target fixation, focusing on the subjects they prioritize and working outside of, or even against, the management efforts prescribed by the organization. Do project leaders in the Sea Turtle Coop create issues for GDNR's overall management plan by focusing too much on saving individual sea turtles? This might occur in two ways. First, managers who are fixated on turtles might spend all of their time and energy intervening on the behalf of sea turtles, ignoring the conservation efforts needed by other environmental subjects in the area they manage or affecting them detrimentally. Second, a fixation on saving individual turtles might cause managers to implement different types of management interventions in the name of sea turtle conservation than are prescribed by their organization.

Project leaders with a volunteer background, those who are more likely to have alternative motivations surrounding sea turtles, do not describe this as a problem at GDNR. Volunteer project leaders indicate that the they strictly adhere to the organizational directions provided by GDNR on how to manage turtles, and that their management interventions take other subjects into account.

> *"We also share the beach with a number of species that aren't turtles, so we're working really closely with them to make sure that we can all have our eyes out there for the same research and management goals and also for the same conservation goals."* (Volunteer Perspective)

> *"We do think about other species. However, we're out here because we're dealing with species protected on the Endangered Species Act, so they're our priorities, but we do try to minimize risk to other species. For example, when we're out on the beach at night, we're keeping an eye out for plovers. So, we're trying to reduce disturbance that way, but the sea turtles kind of drive the issue for us."* (Volunteer Perspective)

While they relate that turtle conservation is their primary focus, they do not perceive any project leaders' efforts as exclusive to that subject. From their perspective, all management interventions are driven by strict GDNR guidelines. However, this opinion is not shared by

project leaders with environmental science and management backgrounds. Several of the project leaders with environmental training in the Sea Turtle Coop contend that turtle-centric motivations influence the actions of project leaders. They describe some managers engaging in emotional decision-making hen dealing with sea turtles and acting outside of the management goals set up by GDNR. Individuals' motivations influence their decision-making, and so can bias their actions.

> *"A lot of these people are doing this for emotional reasons, and so they make emotional decisions."* (Environmental Management Perspective)

This is not generally perceived to have negative impacts on other subjects in the Sea Turtle Coop. In this program, volunteer project leaders are tasked with managing sea turtles and nothing else. They are not responsible for dealing with other subjects so fixation on turtles does not divert them from other tasks. Furthermore, their activities are viewed as minimally invasive for other environmental subjects, so any negative externalities they might create for other parts of the ecosystem while managing turtles are not considered serious. However, this kind of singled out focus creates the potential for issues to arise. Single-focused volunteers, or managers, can have substantial impacts on other subjects in the environment they are working in, and can create serious problem for subjects if they do not pay careful attention to them while on the beach dealing with turtles. While the volunteers in the Se Turtle Coop is not perceived as creating these issues often, the potential for unintended abuse to other subjects is significant.

> *"They're out there doing the work, and they're the ones potentially having an influence on the other species. And so yeah, if they don't understand that, it wouldn't make a lot of sense to spend all the time and energy recovering loggerheads if we were removing some other part of the ecosystem. At the prop meetings, I always start the meeting by saying that the goal of the Endangered Species Act is not to just recover loggerheads or some other species that's listed. It's to recover the ecosystem upon which they depend. And the loggerheads are an indicated species, and they're telling us something. And so yeah, it wouldn't be consistent with the Endangered Species Act to be just saving loggerheads at*

> *all costs while other species were not doing as well. So, we try to make that point to them, but there's definitely some people in that room that you could say that all day long and it would never sink in."* (Environmental Manager Perspective)

Furthermore, from scientifically trained members' perspectives, this fixation on sea turtles can have substantial impacts on the management interventions individuals implement. Managers who are emotionally motivated to save individual turtles go overboard, spending an undie amount of time and resources on efforts to save individual sea turtles. When this occurs, it may divert the limited resources of the organization away from areas where they might be more effective.

> *"Each program is different depending on who's in charge of it and kind of what level of compassion they have for sea turtles. And so, you can see some management methods sometimes that you think are really over the top, and I think you can just relate that back to maybe one or two individuals that say, "Okay. We've got to do everything we can," almost to the point that it's too much.* […] *It's not a management thing more so than just a personal preference."* (Environmental Manger Perspective)

Emotional motivations also cause some project leaders, and the volunteers they organize to act outside of the directions outlined by GDNR scientists. This can get in the way of the organizations' management initiatives.

> *"That attitude would lead them to be more focused on getting to a certain nest and trying to get the hatchlings out of it rather than completing a survey that they needed to complete and doing a full survey for the day or something like that."* (Environmental Manager Perspective)

Not only can this disrupt agency management, but it can create long-term detriments for the sea turtles themselves. Acting outside of the organizational orders given to managers creates the potential for very serious environmental issues to arise in the long term.

> *A lot of our volunteers, as soon as that nest hatches, they want to dig in there and get all the babies in there that didn't get out, to get them out as quickly as possible. And so we say, "No, no, you got to wait. You got the let them come out on their own." And so, we wait five days, and that drives them insane. They'll get people that just can't stand it. And*

> *so, after the first day, they're like, "There might be some live babies in there. I don't care what DNR says. I'm digging in there and I'm getting them out." And so, they dig up the nest. And so, we find out about it and we say, "Look," we go through it again. "This is why we do it this way. And you could be actually hurting them by getting them out early. They need to emerge naturally and make their way down the beach. That may be when they imprint on their natal beach."* (Environmental Manager Perspective)

Holistic environmental management can require actions that make little sense to emotionally driven volunteers. Actions that save the lives of individuals are not always beneficial to the conservation of the species. For example, GDNR scientists are committed to recovering sea turtles as naturally as possible which sometimes requires turtle hatchlings which could be saved to be removed from the genetic population. In this management philosophy, hatchlings with genetic defects or disease that are not fit to survive and reproduce should not be artificially saved through management. Doing so runs the risk of weakening the populations' genetic integrity. However, emotionally driven stakeholders often fail to see it in this way and refuse to abide by GDNR rules.

> *"To convince my emotionally driven volunteers to rebury the thing in the ground and let it die, I mean, they're not going to do that. They're attached to these animals, and they're going to release them no matter what. So those are the kind of decisions that they make."* (Environmental Manager Perspective)

Different management philosophies guide the actions environmental managers take. If an individual is motivated by an individual-level philosophy that prioritizes saving the life of individual animals over broad environmental conservation goals, it can undermine a project. Emotionally driven managers and volunteers need not consciously work against organizational directives. Their personal philosophy and alternative motivations can cause them to interpret management directions differently than they were intended, biasing the actions they implement.

> *"People carry over this idea about – a lot of people, their conception of wildlife is that they're just animals like the pets they have at home, and that they need help, and they need assistance, and then they're going to get it to them not understanding that these are*

> *organisms that sort of evolved on their own without our help.* […] *And so, a more hands-off approach, less manipulative approach is often hard to get through to them, particularly the ones that don't have any training in natural resources management."* (Environmental Manager Perspective)

Alternative motivations give rise to alternative management philosophies. When these persist among project leaders and managers in an organization, they can undermine the organizations' programs. As hypothesis 3 predicts, emotionally driven managers act outside of formalized management plans, complicating the process and potentially giving rise to ecological issues.

> [In reference to managers' actions*] "On a big scale, it's driven by the organizations. But then you can just get an individual manager that just feels a certain way and has some experience that tells them, "Well, I need to do this." And a lot of times, it's contrary to the overall goals or missions of the larger organization."* (Environmental Manager Perspective)

The scale of these issues in the Sea Turtle Coop is quite small. These problems exist, but not to the extent where they are perceived as being significantly deleterious to the program. All the data demonstrate that the program has been wildly successful. Target fixation has the potential to create significant issues for collaborative environmental managers, but in this case it does not impede the success of the program. Collaborative programs can succeed even when beset with some target fixation.

7. Discussion

Collaboration has proven a very successful strategy for GDNR as implemented through its Sea Turtle Coop. Engaging stakeholders in turtle management creates substantial benefits at the functional level, by increasing available manpower, the information-dissemination level, by creating an outlet for social education, and the decision-making level, but gaining insights and

new ideas from volunteers. Collaboration is particularly useful at the functional level for GDNR as it provides critical manpower necessary to implement many of GDNR's programs. These findings echo and reinforce the expanding literature about the benefits collaboration can yield.

This study also illustrates how collaboration can create some negative side-effects for environmental management. Collaboration provides an avenue for alternative motivations, which contradict and displace organizational goals, to infiltrate organizations. Bringing in interested stakeholders involves many individuals who are motivated by different concerns than the organization itself. These motivations are critical for bringing in consistent support, but they can influence the decision-making actors and reinforce rival management philosophies in the minds of decision-makers. Furthermore, these motivations can be deeply ingrained in the minds of their hosts and are extremely difficult to train out of individuals. Even if they directly contradict the formalized goals that are enforced by the organization at large, these motivations can be persistent and remain the primary motivations of some individuals both at the volunteer and management levels.

Where they persist, they can lead to target fixation. Managers who are motivated by different interests than those espoused by the organization can interpret orders incorrectly and engage in management actions that are unsanctioned by the organization. This creates potential for managers to undermine their organizations management plan and be counterproductive to long-term ecological goals. Integrating these considerations in environmental policy decisions can help create more appropriate and effective environmental management in the future.

While the benefits of collaboration are well studied, these potential drawbacks have not previously been well-documented. This research introduces and describes the destructive potential of target fixation. While collaborative management is a great tool and can yield

substantial benefits, it can come with drawbacks. Target fixation has the potential to significantly undermine collaborative management programs. While this creates the potential for seriously deleterious effects, it does not necessarily cause them. The Sea Turtle Coop is highly successful despite dealing with some target fixation. As long as it is controlled or mediated, the impact of target fixation can be relieved. However, this requires policymakers and practitioners to think about when collaboration is appropriate for environmental management and to what extent it should be employed. Integrating these considerations in environmental policy decisions can help create more appropriate and effective environmental management in the future. Future research should investigate the extent, frequency, and intensity of target fixation in other collaborative management programs to investigate the generalized effects it has on environmental management.

8. Conclusions

As environmental issues continue to arise, implementing appropriate and effective environmental management initiatives is becoming increasingly important. Understanding the implications of different management strategies is critical. While collaborative management has many benefits, its implications for environmental management organizations are not fully understood.

In this analysis, I analyze the Georgia Sea Turtle Cooperative, a collaborative management program run by GDNR, as a qualitative case study. Triangulating data from semi-structured interviews and questionnaires conducted with a variety of different stakeholders and managers involved in the program, I investigate how collaboration impacts GDNR's ability to

effectively manage sea turtles, the motivations of its agents, and how their motivations influence their actions.

Collaboration creates numerous benefits for GDNR in its sea turtle management program, particularly at the functional level. Many of GDNR's initiatives could not be implemented without the help of collaborators. However, collaboration also opens the organization up to hosting alternative, emotionally driven motivations among its agents. These motivations can then lead to target fixation, undermining management plans and creating issues for ecological subjects. This will not necessarily dispatch a program. The Sea Turtle Coop is itself an example of a program which suffers from some target fixation yet is still able to be highly successful. However, target fixation has the potential to be significantly deleterious in other settings. Policymakers and practitioners need to acknowledge this issue and incorporate it into decisions about when and how to incorporate collaboration into environmental management initiatives.

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