Selling Conservation? The Role of Volunteer Tourism in Supporting Marine Conservation in Southern Belize

by

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A Thesis
presented to
The University of Guelph

In partial fulfilment of requirements
for the degree of
Master of Arts
in
Geography

Guelph, Ontario, Canada

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Abstract

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Volunteer tourism is a rapidly expanding sector advertised as an alternative to conventional tourism and as a way for tourists to contribute to conservation science. This thesis examines a volunteer tourism organization in southern Belize called ReefCI and investigates how multiple stakeholders perceive the contributions of this organization to conservation in using a case study approach. In particular, the thesis focuses on perceptions of whether and how the data produced by ReefCI is being incorporated into the management of the Sapodilla Cayes Marine Reserve in Belize. Using a survey, semi-structured interviews, and participant observation this thesis concludes that ReefCI can be understood as an example of the commodification of conservation science and the data collection experience. In light of this conclusion, this research provides insight to the problematic elements of volunteer tourism for conservation science and management. Commodifying conservation science within volunteer tourism may undermine data collection activities by volunteer tourists, calling into question the true purpose of volunteer tourism. The results show that through the case study of ReefCI volunteer tourism is not yet living up to its potential in terms of its impact on marine protected area (MPA) management. ReefCI has the opportunity to engage more fully in their involvement with marine conservation to provide a valuable source of knowledge production for conservation activities in Belize. More broadly, the case of ReefCI demonstrates that the commodification process may limit the contributions of volunteer tourism.
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Chapter One: Introduction

1.1 Research Context: Volunteer Tourism and Marine Conservation

The marine environment provides vital economic, cultural, and ecological benefits. Given this wealth, coastal environments are also increasingly the destination for tourism activities (Halpenny, 2002). Unfortunately, marine ecosystems are also encountering increasing impacts from tourism as well as other human activities such as overfishing, resource extraction, coral reef bleaching and damage, and climate change (Hawkins et al., 1999; Halpern et al., 2008; Bellwood et al., 2004). Marine protected areas (MPAs) are valuable tools for marine conservation, as regulated spaces dedicated to the management and conservation of marine ecosystems (Dudley, 2008; Lester et al., 2009). Effectively managed MPAs can increase numerical density of organisms, biomass, organism size, and species richness within those boundaries, and are increasingly the site of marine tourism activities (Halpern, 2014; Lester et al., 2009). Effective MPA management requires ongoing data collection and knowledge production to monitor the resources and understand the systems at work to better manage for and achieve conservation goals (Berkes et al., 2003). However, in a context of reduced state funding for conservation (Lorimer, 2010), alternative actors and approaches can be engaged to produce this knowledge and contribute to the management of MPAs. Volunteer tourism is one such approach.

Volunteer tourism involves tourists paying a fee to partake in holidays focused on development or environmental activities through research and labour (Wearing, 2001). Volunteer tourism operations often involve data collection and ecological monitoring, and marine environments (especially coral reef habitats) are popular volunteer tourism destinations (Halpenny, 2002; Lorimer, 2010). Volunteer tourism thus has the potential to contribute to conservation and management efforts within MPAs (Newman et al., 2003). This research
examines the role of volunteer-collected data for conservation purposes as one key aspect of
determining the quality and involvement of volunteer tourism in marine conservation. There is
an opportunity to consider the role of different types of knowledge producers in volunteer
tourism and MPA management. This research examines a case study of volunteer tourism in
producing knowledge for conservation and explores the implications of an increasingly
commodified scientific and natural world within volunteer tourism (Cousins et al., 2009).
Volunteer tourism provides an avenue for MPAs to secure data relevant to management interests,
however there is very little understanding or review of how volunteer tourism has contributed or
could contribute to MPAs. Volunteer tourism operates not only as a data collection process, but
also as an economic activity. The implications of including volunteer tourism within a MPA
framework requires analysis of how volunteer tourism is situated within a market. This research
examines the role of volunteer tourism within marine conservation, and explores of how
volunteer tourism produces, uses and commodifies knowledge, in order to enhance
understanding of whether and how it can provide meaningful support for MPAs.

While the literature surrounding co-management is extensive, especially in regards to the
role of local communities and local knowledge in management, the role of volunteer tourism
organizations in co-managed MPAs is not understood, either by the data collector or potential
co-management partner. This research examines ReefCI, a volunteer tourism organization that
collects data within the Sapodilla Cayes Marine Reserve in southern Belize. This research also
attempts to understand the relationship between ReefCI and the co-managers of the MPA. What
role does ReefCI, and the data they collect, play in the co-management of this MPA?

ReefCI provides all-inclusive SCUBA diving packages that focus on marine conservation
data collection (ReefCI, n.d). ReefCI operates within the Sapodilla Cayes Marine Reserve
(SCMR), an MPA co-managed by the Belize Fisheries Department and the Southern Environmental Association (SEA), a Belizean non-government organization (NGO). The coast of Belize is home to the world’s second largest barrier reef, which is responsible for 30% of Belize’s GDP through tourism, commercial and local fisheries, and coastal developments (Cho, 2005). This case study examined ReefCI as a volunteer tourism operator and provide insight into how volunteer tourism is perceived by those familiar with ReefCI and examine whether and how the data produced by ReefCI is used for MPA management.

1.2 Research Question and Objectives

How does volunteer tourism contribute to conservation and management within marine protected areas?

Objective One: To examine multiple stakeholders’ perceptions of the ReefCI volunteer tourism program, including perceptions of volunteer-collected data

Objective Two: To determine how ReefCI volunteer-collected data are incorporated into the co-management of the Sapodilla Cayes Marine Reserve, and identify opportunities for or constraints upon their use within management.

1.3 Thesis Outline

The next five chapters of this thesis address the objectives outlined above to answer the research question presented in Section 1.2. Chapter Two offers a comprehensive literature review to provide context for this topic. Chapter Three outlines the methods used to obtain and analyze the data for this research. Chapter Four reports the results of the research. In order to understand the results as they related to the previous chapters, Chapter Five provides a discussion of how the results relate to the question and objectives, including the barriers faced
by volunteer-tourist collected data. It also provides recommendations to the various actors involved to increase engagement in MPA management in order to increase knowledge production. This chapter also discusses the limitations of this research, and future opportunities for research in this field. The closing chapter resituates the research in the context of contemporary academic scholarship to demonstrate its contributions.
Chapter 2: Literature Review

This chapter situates the project in the context of three bodies of scholarship relevant to the study of volunteer tourism and marine conservation. Key findings within these three bodies of literature are reviewed, which include: (1) Volunteer Tourism; (2) Conservation and Commodity; and (3) Marine Protected Areas and Conservation Tools. Volunteer tourism often occurs within marine protected areas and is marketed as a tool for conservation. This chapter reviews the field of volunteer tourism and some of its benefits and critiques, the phenomenon of conservation commodification and how volunteer tourism fits within it, and the interactions between volunteer tourism and marine protected areas.

2.1 Volunteer Tourism

2.1.1. Overview of Volunteer Tourism Industry

Volunteer tourism is a type of tourism where tourists “volunteer in an organized way to undertake holidays that might involve aiding or alleviating the material poverty of some groups in society, the restoration of certain environments or research into aspects of society or environment” (Wearing, 2001, p. 1). There are many terms for volunteer tourism that include: alternative tourism, voluntourism, volunteering for development, and it can also fall within the ecotourism industry (Wearing & McGehee, 2013). Humanitarian and environmental projects are the main focus of volunteer tourism (Wearing & McGehee, 2013). This research project is focused on volunteer tourism that involves scientific data collection and/or other conservation-related activities, sometimes referred to as conservation tourism (Cousins, 2007). Non-governmental organizations ((NGOs), tour operators, academic groups and commercial operators operate and host volunteer tourism (Wearing & McGehee, 2013). The literature has focused
primarily on NGOs, especially those involved with ecotourism, with research mainly aimed at assessing and examining the role and impacts to the volunteer tourist through these organizations (Wearing & McGehee, 2013, Simpson, 2004).

Volunteer tourism exists within the larger commercial tourism industry. International tourism accounts for over one-twelfth of world trade and the largest movement of people across borders, as well as facilitating ideas of global citizenship through the exchange of cultures (World Tourism Organization, 2007). It is difficult to evaluate the scale of volunteer tourism within the global context, due to the difficulty of gathering relevant statistics (Tomazos & Butler, 2012), but it has been estimated that approximately 1.6 million people participate in volunteer tourism projects annually (Wearing & McGehee, 2013). This has amounted to approximately $2.3 billion (CAD) spent per year by volunteer tourists (Wearing & McGehee, 2013). Volunteer tourism is one of the “fastest growing niche tourism markets in the world” (Mostafanezhad, 2013, p. 150). The tourism industry may be global in scale, but the reality is that the flow of tourists is largely from the Global North to the Global South, reflecting many of the same flows from colonialism (Lorimer, 2009). This provides an important lens through which to examine volunteer tourism, as part of a historical and ongoing process whereby volunteer tourists may be echoing and reinforcing unequal relationships.

Volunteer tourism has been examined closely in terms of what motivates volunteers and some of the impacts of these motivations. These motivations are what differentiates volunteer tourists from conventional tourists; volunteer tourists seek to express their altruism through unique experiences while conventional tourism relies on seeking personal gain and enjoyment (Lee et al., 2014). Put differently, conventional tourism capitalizes on tourists’ self-interest; volunteer tourism, in contrast, is largely motivated by altruism. Self-interest, in the form of self-
actualization or resume building, is another important factor of volunteer tourism that coincides with altruism (Brown, 2005). The idea that volunteer tourism can marry an altruistic and self-interested incentive for volunteers is problematic. The critique of this concept is that by marketing based on a desire to do good, the desires and expectations of the volunteers surpass the needs of the community and indeed the main purpose of the volunteer tourism project in the first place (Lorimer, 2010; Sin, 2010). It can be argued that despite the altruistic motivations of volunteer tourism, the commodity market of conventional tourism still exists. Within volunteer tourism the commodification becomes entrenched within the experiences sought by volunteer tourists, whether they be motivated by altruism, resume building, or feeling good about their holiday. Understanding the potential outcomes that may result from volunteer motivations is important when examining volunteer tourism projects as they may demonstrate some of the systemic issues at play, such as neoliberal or neocolonial reflections. A good example is the popularity of working with the same organisms, such as lions and elephants, hunted by colonial occupiers in the 19th century (Lorimer, 2010). Volunteer motivations may thus provide insight into the larger global issues of development.

2.1.2. Volunteer Tourism and Conservation

In the context of conservation, volunteer tourism offers several benefits. First, volunteer tourism generates knowledge through data collection (Pattengill-Semmens & Semmens, 2003; Cousins 2007; Brightsmith et al., 2008). It has been asserted that data collection by volunteers can be easily taught and can result in precise and consistent results, as well as more committed and aware volunteers (Darwall & Dulvy, 1996; Newman et al., 2003; Pattengill-Semmens & Semmens, 2003). Volunteer tourism provides an experience for the tourist, the data collected can meaningfully add to the research for conservation, and with meaningful community participation
these conservation efforts can be successful (Brightsmith et al., 2008). Data collected through volunteer tourism initiatives can be used to deepen the research pool for academic use, through labour and funding that these projects provide (Newman et al., 2003; Pattengill-Semmens & Semmens, 2003; Brightsmith et al., 2008).

A second benefit of volunteer tourism is the provision of funding and resources for conservation projects. Given neoliberal restructuring, volunteer tourism is a viable strategy for scientists to obtain increasingly scarce funds; volunteer generated funding and labour may be a way to secure funding for scientific research (Dearden et al., 2005). Neoliberalism in conservation can be seen to be the “broader processes of de- or re-regulation, through which the state privatises and commodifies common resources, cuts back on public expenditure and delegates solving social and environmental problems to citizens...through their participation in market interactions and civil society organisations” (Lorimer, 2010). Neoliberalism in volunteer tourism explores nature of exchange through globalization and the impacts neoliberalism may have to conservation projects (Lorimer, 2010). The funding for conservation projects is one such example of neoliberalism within conservation including how conservation and volunteer tourism exist within a market driven research and conservation environment and the impacts therein (Cousins et al., 2009).

In addition to help with data collection, volunteer tourists pay for their stay therefore providing much longer term uninterrupted funding for research than standard research grants, though there is risk of fluctuating volunteer numbers impacting funding (Darwall & Dulvy, 1996; Brightsmith et al., 2008). The funding and resources created by volunteer tourism projects also provides researchers with the ability to present and connect with the data in a more engaging way through educating volunteers and sharing their projects with other researchers (Brightsmith
Reliance on funding from volunteer tourism does have downsides such the instability of volunteer numbers referred to above and researcher losing work-time to training and supervising volunteers (Darwall & Dulvy, 1996; Brightsmith et al., 2008). Despite the potential downsides, volunteer tourism may be a valuable way for conservation science to secure and provide long-term funding for research.

A third, perhaps more unexpected, benefit of volunteer tourism is the potential for tourists to engage with the conservation projects in meaningful ways. Volunteers may take their experience with data collection and/or conservation further with training and higher education to become a new generation of conservation professionals (Brightsmith et al., 2008). Involving the public in scientific research not only increases the amount of data that can be collected but increases the public’s awareness of environmental problems and increases their ability to understand scientific debate (Newman et al., 2003). Volunteers can become connected with their conservation work and provide funding and support for their host organization long after the volunteer work is done, which is a benefit for the long term feasibility of conservation projects (Brightsmith et al., 2008). Information from volunteer tourism projects can also be used to promote and manage further volunteer tourism projects in other regions (Brightsmith et al., 2008).

While these pragmatic benefits are important, it is also necessary to consider the broader process of commodification that enables them. Commodification in the context of conservation and nature refers to how markets have been created that enclose certain elements of the environment to enable a market exchange (Cousins et al., 2009). Nature, from the seed to landscape aesthetics, is becoming commodified, as natural resources and natural areas become more entrenched in the global economy (Wearing & Wearing, 1999). This commodification can
be argued to be responsible for some of the issues with neoliberal conservation and inequality that will be discussed in Section 2.2 (Lorimer, 2010; Sin, 2010). However, it has also been argued that responsible and engaged volunteer and eco-tourism can provide a method to decommodify volunteer tourism, if the ethics of volunteer tourism supersede the market mechanisms that control commercial tourism (Wearing & Wearing, 1999). Wearing & Wearing (1999) argue that, by following certain core criteria, volunteer tourism projects may be able to decommodify their program and avoid the pitfalls of commodification. These core criteria include programs that: are culturally and environmentally sensitive; realistically marketed; economic benefits are routed through the host community; benefits of larger scale tourism projects should include opportunity for the host community to participate in the project; culturally relevant education for volunteers; and interaction between volunteers and the host community. The idea that volunteer tourism can be a decommodified industry has been contested (e.g. Gray and Campbell 2007). However, basing interactions and practices on ethics of equality and respect for all participants can help to avoid some of the pitfalls of commodification. Whether volunteer tourism’s tenets of engagement are enough to decommodify what may be an inherently commodity-driven industry remains unresolved (see Wearing & Wearing, 1999 and Wearing et al., 2005). It may be that volunteer tourism is able to change what is being commodified, rather than disrupt commodification. I expand on this discussion in section 2.2.1 below.

Examining conservation efforts specifically, the volunteer tourism literature has shown that there is potential for benefits and positive outcomes (Newman et al., 2003; Dearden et al., 2005; Cousins, 2007; Brightsmith et al., 2008). Volunteer tourism can raise funds for conservation in a more consistent way than traditional funding schemes for research (Cousins,
2007; Brightsmith et al., 2008). Volunteer tourism provides a new way of connecting conservation efforts, creating a network of projects that benefits from an increased flow of funding and people (Cousins, 2007). Through the increased funding volunteer tourism can provide a means of creating a new generation of conservation scientists and advocates (Brightsmith et al., 2008). Enthusiasm for volunteering internationally and increased environmental concern is making conservation a global issue with global citizens at work, though this perspective can be seen as a negative outcome for some who are concerned that the conceptualization of conservation as a global issue can perpetuate historical colonial relationships (Lorimer, 2010).

2.1.2 Critiques of Volunteer Tourism

The research surrounding volunteer tourism predominantly focuses on the positive impacts of the industry. However, there are several potential negative impacts that should be discussed and examined (Guttentag, 2009). This section examines several potential theoretical and practical issues with volunteer tourism, including neocolonial and neoliberal ideologies, the reliability of volunteer-collected data, issues with taking work away from communities, and finally the lack of focus on the impacts volunteer tourism can have on host communities.

Volunteer tourism has been critiqued as a neoliberal and neocolonial industry based on the unequal exchange of people, knowledge, funding, and culture between the Global North and the Global South (Lorimer, 2010). Western-led volunteer tourism projects seek to provide development and environmental aid, which could have been previously fulfilled by the public sector of the host country (Lorimer, 2010). Taking the responsibility away from the state opens the functions of the project up to Western moralities and values, which may not be equivalent to the host community or country (Simpson, 2004; Lorimer, 2010; Sin, 2010). These dynamics
raise the question about the inequalities between the Global North and Global South, specifically whether volunteer tourism fulfills its promise of providing an opportunity for the equal exchange of people and knowledge (Lorimer, 2010). These potential infiltrations of Western values and moralities also bring about questions regarding the production of true capacity building within communities (Guttentag, 2009; Sin, 2010). The legitimacy of volunteer tourism projects may be questioned if their agendas do not meet the communities’ needs (Sin, 2010).

A major component of the idea of volunteer tourism is that the volunteers are providing aid, whether it is social or environmental (Wearing, 2001). However, while volunteer tourists are generally located within a community and are working with a community, the impacts on the community are not well understood (Guttentag, 2009). The literature does suggest that impacts to the host communities may not be beneficial, and may in fact be negative (Simpson, 2004; Sin, 2010). The influx of volunteer tourists from wealthy developed countries into developing ones, a common format for volunteer tourism, immediately creates an unequal dynamic based on dependency, tension, funding inequality between communities, and unknown social and cultural changes (Guttentag, 2009; Sin, 2010). There are also concerns regarding the impacts that volunteer tourists’ motivations may have on the host community, when a desire to have a unique travel experience may overpower the desire to provide meaningful aid and change in a community (Sin, 2009). Volunteering can be an important tool for conservation, but it should be remembered it is not a panacea for conservation efforts (Lorimer, 2009).

One benefit of volunteer tourism is the collection of scientific data by volunteer tourists in support of conservation. However, many of the same authors that argue for volunteer-collected data also acknowledge there are some shortcomings that may arise (Newman et al., 2003; Pattengill-Semmens & Semmens, 2003; Guttentag, 2009). Volunteer tourism packages
often do not require the volunteer to have the skills necessary to provide satisfactory work, and training programs take time and effort away from the project by participants with the necessary skills (Guttentag, 2009). Uncertainty with proper training raises questions about the quality of data being collected. Data quality in volunteer tourism may be compromised because data collection includes complex tasks, volunteers are unfamiliar with data collection and subject material, or inadequate training and data collection guidelines are provided (Foster-Smith & Lang, 2003). Another concern for volunteer tourists in particular, rather than professional scientists or researchers, is that repetitive tasks involved with data collection may result in a loss of interest and subsequently accuracy for data (Darwall & Dulvy, 1996). Volunteers can still make valuable contributions with appropriate methodology and supervision, providing benefits to scientists beyond data collection. For example, volunteers may provide new insights or knowledge, increase awareness of environmental problems, and attract media attention (Foster-Smith & Lang, 2003). The impacts to conservation science from inadequate or poor data quality collected by volunteers, however, is a concern that should be taken seriously when evaluating and considering volunteer tourism projects.

While lacking the skills necessary to perform rigorous and beneficial data collection is problematic, it also raises an important question of the kind of people participating in this work, and which populations are excluded. Volunteer tourists pay to work, which makes them preferred compared to workers who may demand to be paid, such as local residents (Pattengill-Semmens & Semmens, 2003; Guttentag, 2009). Local labour demand may decrease as volunteer tourists provide a free source of work, and as the volunteer labour force increases dependency may increase (Guttentag, 2009).
Volunteer tourists tend to be from much richer nations than those they volunteer in, and inherent inequality creates a dichotomy within which rationalizations of poverty may occur (Guttentag, 2009). A power-wealth dichotomy may also complicate where funding is allocated. Funding for conservation projects from volunteer tourism is biased towards charismatic species and destinations, often neglecting equally or more important research for projects that are less compelling to advertisers and tourists (Cousins et al., 2009). Lack of community-based projects and a focus on charismatic species degrades the legitimacy of volunteer tourism and the effectiveness of its projects.

2.1.3 Summary of Volunteer Tourism

Volunteer tourism is an important component of the conservation framework, and one that can provide positive outcomes in terms of the generation of knowledge and engaging people with conservation issues (Newman et al., 2003; Brightsmith et al, 2008). It is apparent from the above discussion that there are many opportunities and benefits related to volunteer tourism along with some concerning drawbacks, creating tension and debate in the field. This is an industry attempting to benefit the world and yet it exists within a context rife with complex inequalities of power and commercial interests. It is clear that attention is needed to examine the influences of volunteer tourism and whether it could become an important factor in the management of ecological systems where conservation is needed.

The literature surrounding volunteer tourism and knowledge production has focused on the data collection process (e.g. volunteer training, data quality and reliability) and the benefits to both the volunteers and conservation science. However, little work has been done to examine how the knowledge produced by volunteer tourism is used beyond the scope of the volunteer tourism operation and to inform conservation policy-making or management such as MPAs. This
research aims to broaden the understanding of the application of volunteer-collected data into its uses for the management of conservation areas. Understanding how attitudes surrounding volunteer tourism impact the work being done (Objective One), as well as how data collected by volunteers can support management initiatives (Objective Two), will be helpful for understanding how volunteer tourism can contribute to conservation science.

2.2 Conservation and Commodity

There is a tension apparent between the literature of volunteer tourism and volunteer tourism promotional materials. Organizations that provide volunteer tourism opportunities, like Earthwatch, Global Vision International (GVI), and Pod Volunteer, offer a platform for potential volunteers to choose from a variety of projects and provide support for the volunteers before and during their volunteering experiences. The rhetoric surrounding volunteer tourism by these types of organizations uses very specific language: ethical, opportunity, knowledge, empowering, science, (Earthwatch Institute n.d.; GVI Canada, n.d.; POD Volunteer, n.d.). Many scholars of volunteer tourism are quite critical about these claims (Pattengill-Semmens & Semmens, 2003; Guttentag, 2009; Lorimer, 2010; Sin, 2010). The ability of volunteer tourism organizations and projects to provide good quality data collection or social programs from often quite short term volunteers is examined and found wanting, especially when considering the substantial amount of money being paid by volunteers for these projects. The purpose of this section is to examine volunteer tourism as a commodity.

2.2.1 Commodification and Volunteer Tourism

Commodification within tourism, and arguably volunteer tourism, refers to the process through which natural resources and host communities are “commercialized and reduced to
marketable products, valued only for the revenue they can be made to yield” (Coren & Gray, 2012, p.223) Commodification in the non-human world is where markets are created that enclose elements of the environment in order to bring them into a market exchange (Cousins, 2009). Some scholars have argued that volunteer tourism has successfully escaped the commodity market of commercial tourism, suggesting that the altruistic motives and alternative consumption model of volunteer tourism “decommodify” (Wearing & Wearing, 1999; Wearing et al., 2005). By engaging in meaningful experiences and exchange between volunteers and communities, volunteer tourism offers something other than consumption and thereby escapes commodification (Wearing & Wearing, 1999). Gray and Campbell (2007), however, found that volunteer tourism is neither commodified nor decommodified; it is both. Existing as both commodified and decommodified is largely subjective within the volunteer tourism project and who values which attribute, such as altruism or aesthetical consumption of people and environments (Gray & Campbell, 2007). Beyond these arguments, the fact remains that volunteer tourists do pay for their experience, which makes it commodification no matter what efforts are put into ‘decommodifying’ the experience.

Impacts of commodification within volunteer tourism can be examined by looking at how nature itself can be commodified. One author, Castree, describes six ways in which nature is being commodified: 1) externally as a resource; 2) directly as a purchased commodity; 3) as a characteristic that affects the price of something else; 4) internally by producing new technologies that manipulate the environment; 5) through the human body as a commodity; and 6) as knowledge about the environment becomes traded (2003). Castree’s characterizations of nature are interesting because they provide new ways of understanding how nature can become a commodity beyond the relatively simplistic trading and economic value of natural resources,
such as acknowledging the value of a beach view. Another example Castree (2003) uses is a genetic database that becomes a commodity through transfer and use. This, Castree argues, becomes problematic when control over that genetic information is lost and others profit or take advantage of that control. When information or knowledge becomes part of a market, those who produced or have a connection to that knowledge, may lose control over how the information is used. Commodifying knowledge can create an abstract, globalized resource, torn out of its spatial and social historical contexts (McAfee, 1999).

The irony inherent in the commodification of nature for conservation activities and science, is that conservation is supposed to counter-act the effects of commodification through resource extraction, and yet conservation becomes commodified through tourism as an experience to be consumed on holidays. Building on Castree’s analysis, Cousins et al. (2009) would argue that volunteer tourism through conservation science would fall within the sixth type of commodified nature, as the experience of generating environmental knowledge, of experiencing local cultures, exotic locales, and volunteer satisfaction is sold to volunteers. This may be appropriate if the volunteer organization participates in the trading or exchange of knowledge produced, but how might commodification apply to a volunteer tourism operator that does not commodify the knowledge itself, but the experience of collecting the knowledge? The commodification of data collection experiences may present a new type of commodification with conservation.

The consequences of this commodification of environmental knowledge through volunteer tourism include: volunteers being used to collect data rather than local people (Guttentag, 2009); the preference for projects with ‘charismatic’ animals or causes (Cousins et al., 2009); and volunteers’ desires for unique experiences superseding the community’s needs
The commodification of nature through volunteer tourism is also a concern when reflecting on the critiques surrounding the volunteer’s ability to conduct quality data collection (Newman et al., 2003; Pattengill-Semmens & Semmens, 2003; Guttentag, 2009). If the information, the supposed science being conducted by volunteer tourists, is commodified, and given the chance that the data quality is poor, its commodification may have serious ramifications for the scientific community as that information is used and spread (Pattengill-Semmens & Semmens, 2003; Guttentag, 2009). While poor quality data are a concern, a related and more serious concern may be that the data collection experience comes to be valued more than the resulting data. The risk, therefore, lies less in the commodification itself, and more so with the risk that commodification may lead to poor data quality and the production of data simply for the sake of providing a commodity (the volunteer tourist experience) rather than contributing to science or conservation.

The role of commodification in conservation is most relevant in examining how commodification may be a barrier to effective use of data. The rise of volunteer tourism is exhibiting a rise in more commercial and profit driven projects, leading to conservation projects motivated by volunteer interests rather than conservation necessity (Cousins et al., 2009). Prioritizing volunteer interests prioritizes the production of only certain kinds of data being produced for conservation. There is also a concern that the commodification of nature leads to the privatization of data; data becomes a commodity that is traded amongst those with the means and opportunity to acquire and trade it (Castree, 2003). Given that volunteer tourists tend to be from developed and usually economically and politically more powerful nations, and go through volunteer tourism organizations from these nations, when compared with the host nations where volunteer tourism takes place, the issue of control over data and its commodification has
troubling possible consequences for local control over resources (Castree, 2003; Sin, 2010). Commodification of knowledge of nature and its products, like biological data produced by volunteer tourism, can create barriers to data being included in and available to local management plans and decisions.

2.2.2 Volunteer Tourism and Critiques of Neoliberal Conservation

Equally concerning to how nature is commodified through information is how commodification of nature and conservation can be understood as part of the neoliberalization of conservation; the commodification of nature and its outputs (like conservation data) can be seen as a way to commercialize and privatize nature (Roth & Dressler, 2012). Neoliberalism refers to the “broader processes of de- or re-regulation, through which the state privatizes and commodifies common resources, cuts back on public expenditure and delegates solving social and environmental problems to citizens…through their participation in market interactions and civil society organizations” (Lorimer, 2010, p.314). Neoliberalism is intertwined with processes of globalization, whereby global markets are seen to regulate industry, and state intervention is rejected over private enterprise (McAfee, 1999). Tourism itself is easily understood through a neoliberal lens by examining how tourists, often from more developed nations, have shaped developing nations through the creation of tourist friendly destinations, shaping these countries through the needs and wants of tourism through a global economy (Lorimer, 2010). Further, volunteer tourism involving conservation tourism fits well within a neoliberal model, as citizen scientists and volunteer tourism operators (both non-governmental and for-profit) begin to contribute more to the scientific process and governments continue to take a lesser role in conservation science (Lorimer, 2010).
The link between conservation and neoliberal processes has been made by several authors. The new relationships being made by conservation organizations and business in order to add value to “nature” is one example, examined by both Brockington and Duffy (2010), and Igoe and Brockington (2007). The former discusses the challenge of examining neoliberalism in conservation, needing thorough and diverse ethnographies to understand its impacts and even presence in conservation projects around the world, while the latter discusses neoliberal conservation policy and its impacts (Igoe & Brockington, 2007; Brockington & Duffy, 2010). It is also noted that the policies and regulations developed for and by conservation efforts are made under the influence of neoliberal ideals, namely privatization and capitalism (Brockington & Duffy, 2010). This understanding, conservation created through and by capitalism, is in direct opposition for how conservation is usually seen to operate as a direct defiance of these values (Buscher et al., 2012). As Buscher et al (2012) illustrate, the link between neoliberalism and conservation is inherently contradictory as well as vitally important to consider; understanding how conservation fits within neoliberalism allows opportunities to either take advantage of a value based nature or provide transformative alternatives that challenge a nature-commodity market.

The above examples provide some context in relation to protected areas, as it has been observed that the shift away from centralized management of protected areas is a result of neoliberalism; the commodification of nature and increased marketization of its various products (including through ecotourism and volunteer tourism) are a process of neoliberalism (Roth & Dressler, 2012; Brockington, 2004). The critiques of neoliberalism illustrate how privatization and/or deregulation have reinforced or exacerbated inequality between the Global North and the Global South (Lorimer, 2010). Neoliberalism has been reinforced even within conservation
policies, often to the detriment of local communities (Igoe & Brockington, 2007). In relation to volunteer tourism, neoliberalism reflects a colonial mindset; white affluent volunteers experience the “exotic”, while simultaneously reinforcing the very social structures they claim to work against (Sin, 2010, Lorimer, 2010). The inequality and myths of exchange inherent within critiques of neoliberalism are concurrent with the commodification of nature through volunteer tourism (Lorimer, 2010).

The commodification of nature, its products, and knowledge about it, and the neoliberalization of conservation more generally, are reflected in the increase of volunteer tourism within protected areas. How commodification penetrates different aspects of volunteer tourism, from the volunteer’s experiences and community impacts and benefits (Gray & Campbell, 2007), to how information from nature through data can become a commodity (Castree, 2003), and the neoliberal influences on protected area management (Roth & Dressler, 2012), all have impacts on the efficacy and impact of volunteer tourism. Volunteer tourism sells experiences, one of which is the collection of data, and understanding perceptions and consequences of this will lead to better understanding of the role of volunteer tourism in protected areas management.

2.2.3 Summary of Volunteer Tourism, Conservation and Commodity

There are consequences to viewing volunteer tourism and its products as a result of the commodification of nature. Volunteer tourism organizations, as outlined above, market themselves as an alternative to traditional commercial tourism, especially in regards to how their projects, like data collection, benefit the scientific community. This research project aims to understand how multiple actors perceive a volunteer tourism organization and its data collection (Objective One) and whether the data are used meaningfully within MPA management
(Objective Two). If scientific data collection is merely an experience to be marketed to potential volunteers, rather than a genuine contribution to either science or MPA management, this may reflect a failure of volunteer tourism to live up to its purported benefits and promises.

2.3 Marine Protected Areas and Co-Management

2.3.1 Marine Protected Areas as Conservation Tools

Increasing pressure is being put on the oceans, exacerbated by a large percentage of the world’s population living in coastal areas and marine tourism exceeding the growth rate of other forms of tourism (Halpenny, 2002). An MPA is a “a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (Dudley, 2008, p.8). MPAs provide managers with the ability to address many marine and coastal challenges, from overfishing to the prevention of coastal development, and have many applications from strict no-take zones to mixed use zones that include fishing and tourism (Thorpe et al., 2011). The number of MPAs worldwide has increased dramatically since 1970, from 118 to more than 12,076 as of 2014 (Thorpe et al., 2011, Juffe-Bignoli et al., 2014). Given the rise of international tourism concurrent with the creation of so many MPAs, and the role of MPAs as a tourist attraction (Halpenny, 2002), understanding their relationship requires examination.

MPAs are seen as a tool to manage human impacts on coastal and marine areas with the understanding that biodiversity, economies, and food security are at risk without effective management (Christie & White, 2007). Implementation of MPAs has led to increases in numerical density of relevant species, biomass, organism size, and species richness within those
MPA regulations, and enforcement of those regulations, vary widely, however even less regulated MPAs have seen improvements in biodiversity as compared to unprotected areas (Lester et al., 2009). Despite these successes, MPAs have faced similar criticisms as terrestrial protected areas, with concerns for impacts on local livelihoods and access to resources and privatization of ecological areas being at the forefront (Christie & White, 2007, Bown et al., 2013). The implementation and management of MPAs must ensure all stakeholders, human and non-human alike, are considered.

The biggest challenge for MPAs to be successful in their aims, generally to reduce impacts on coastal and marine areas, is a lack of effective enforcement (Thur, 2010). Paper parks, protected areas with little to no management, regulation, or enforcement, are a sobering reality of protected areas, MPAs included (Thur, 2010). With many tourism activities like SCUBA diving and sport fishing causing damage to coral reef ecosystems, effective management of tourism impacts on MPAs is imperative to prevent further damage to reefs (Hawkins et al., 1999). SCUBA diving in particular presents a unique problem. SCUBA is often offered as a form of ecotourism despite assertions that reefs are suffering long-term degradation from SCUBA activity (Hawkins et al., 1999; Hammerton & Bucher, 2015). The intersection of responsible diving tourism and effective MPA management are apparent.

MPAs fall under several types of management schemes, not only in terms of activities allowed or not allowed, but also in terms of governance structures. Levels of extraction, from no-take to multiple-use (including fishing), vary across MPAs globally (Christie & White, 2007). Governance of MPAs also varies from formal to informal arrangements, usually involving the state and other actors such as fishers or NGOs, through models such as top-down (state-led) management, co-management, and community-based management (Christie & White, 2007;
Bown et al., 2013). Each model of MPA governance presents challenges and limitations and the attitudes and objectives of the managers for MPAs largely guides the success and effectiveness in terms of conservation, economic, and cultural outcomes for the MPA users (Christie & White, 2007).

**2.3.2 Co-management as a Governance Approach for MPAs**

Co-management is one such management scheme relevant to the case study of this research, as it is a common form of management for MPAs, and ReefCI operates within a co-managed MPA in Belize. Co-management, the sharing of power and responsibility between the government and local resource users, is a response to the shortcomings of the top-down approach to environmental management implemented in the past (Berkes, 2009, Weible et al., 2004). Co-management systems are meant to operate as partnerships between the government and resource users in order to share responsibility (Carlsson & Berkes, 2005). It operates by creating a system of shared governance of resources between the state and self-governing institutions, which can be a highly effective management technique in MPAs (del Pilar Moreno-Sanchez & Maldonado, 2010). For meaningful co-management to take place it should attempt to form a network of cross-scale interactions between multiple actors, including state agencies and resource users as well as NGOs, which would better capture the management needs and boundaries (Berkes, 2002).

As with all management schemes, there are limitations to successful co-management strategies. Co-management may be difficult to implement in instances where there is strained or negative relationships between resource users as trust can be a main determinant of success (Carlsson & Berkes, 2005). Communities are rarely “coherent or homogenous units” and thus the actions of resource users and managers can be unpredictable (Carlsson & Berkes, 2005). In this
sense, managers should be aware that communities and stakeholders will not behave or benefit in a homogenous fashion, especially between different management areas (Carlsson & Berkes, 2005). This lack of homogeneity provides challenges to management as well as cooperation between and among management actors as they react to management challenges. Co-management faces failure when it does not integrate flexibility or adaptive capacity into its framework, as the ability to react to new or unexpected challenges is necessary for management between multiple users (Bown et al., 2012, Berkes, 2009). There is also a concern that co-management will be seen as a panacea for management, regardless of the above issues (Beem, 2007).

Despite the limitations of co-management described above, it does provide many benefits to those involved. The most basic, and perhaps most crucial, benefit of co-management is the shared power among users. Responsibility, decision making, rights, and duties are shared among the resource users, and built into this distribution is collaboration and communication so all users are informed and involved (Carlsson & Berkes, 2005). As a result of the unpredictable nature of not only the resource users but also the environment being managed, co-management has responded by being inherently adaptive; problem solving is necessary (Berkes, 2009). It should also be noted that shared power is a potential beneficial outcome of co-management, but it is also a key challenge involved in implementing co-management, as power between actors is very rarely distributed equally or easily.

Co-management is a governance structure that involves many different roles and voices, and in this way involves new and often neglected forms of knowledge (Berkes, 2009). Local and indigenous knowledge, often ignored for not adhering to a Western positive scientific framework, has a place within co-management as another framework to use for creating the best
management practices possible (Weible et al., 2004; Berkes, 2009; Ban et al., 2011). Creation of new knowledge and further research is also built into co-management through the concept of co-production of knowledge and the idea that knowledge is dynamic and evolving alongside the problems management is trying to address (Berkes, 2009). Co-production of knowledge is the idea that knowledge producers engage in a mutually beneficial relationship, usually between researchers and community members, in order to promote power-sharing between knowledge producers, further dismantling the top-down hierarchy of traditional management (Berkes, 2009).

In order to maintain the best practices of management, all actors involved should be striving to provide new and collaborative knowledge to best inform their decisions and actions.

The increased integration of knowledge is seen as a major goal for marine management schemes as the belief is that management decisions should not be made without incorporating the knowledge and requirements of local stakeholders; not doing so would not represent the best possible management practices for that particular MPA (Cho, 2005). Increased integration of knowledge not only allows for local stakeholders to be acknowledged, it leads to more critical use of knowledge for decision making purposes (Cho, 2005). The management of marine ecosystems, which include human actors, should necessarily require the best possible inclusion of knowledge types to aid in providing the best possible management.

The issues faced by MPA management, especially the issues with unequal representation, responsibility, and trust have been well described in the literature (Carlsson & Berkes, 2005; Ferse et al., 2010). Trust is an integral aspect of co-management frameworks; collaboration and power-sharing becoming increasingly difficult if the resource users have little confidence in the other resource users, such as government (Carlsson & Berkes, 2005). Inequalities between resource users also complicate a primary objective of co-management, a shared basis for
responsibility and cooperation (Carlsson & Berkes, 2005). One recommendation for improving management systems for MPAs is to strengthen the capacity of stakeholders involved with decision making, thus acknowledging that the systemic issues of inequality among stakeholders is an issue (Bown et al., 2013). Other recommendations made by Bown et al. (2013) included the enhancement of sense of ownership and duty towards marine resources, diversification of resources users, and increasing education for the public.

2.3.3 Volunteer Tourism and Co-Managed Marine Protected Areas

Volunteer tourism can provide a new way of collecting scientific data that is both scientifically rigorous and useful for management practices (Darwall & Dulvy, 1996; Newman et al., 2003; Pattengill-Semmens & Semmens, 2003; Brightsmith et al., 2008). The inclusion of knowledge generated through volunteer tourism in co-management would echo efforts to include local and indigenous knowledge sources (Bryant & Wilson, 1998). The inclusion of new and diverse knowledge sources is part of what makes co-management schemes successful. Likewise, within the context of MPAs, volunteer tourism can provide a consistent and long-term source of data collection and funding, making volunteer tourism an integral part of conservation efforts (Brightsmith et al., 2008). Including volunteer tourism collected data as a form of knowledge to be included within co-management frameworks and integrating volunteer tourism collected data to inform MPA policy and management is well within the spirit of co-management integrating multiple forms of knowledge and voices (Berkes, 2002). Thinking of co-management as a governance network, inclusion of the volunteer tourism industry allows for a source of knowledge and participation within the protected area, which may inform decision-making, and is in keeping with new multi-stakeholder governance arrangements (Berkes, 2002). Understanding the role of volunteer tourism produced knowledge within the co-management of
MPAs can contribute to understandings of co-management networks and the integration of new knowledge types.

The main relationship between volunteer tourism and marine protected area management explored will be how the data collected by volunteer tourism can support and inform policy for management. Creating policy that is informed by relevant data, both for the area and that represents real public concern, has been a challenge and may be a symptom of unequal and distrustful relationships between different actor groups (Kinchy et al., 2011). While co-management partnerships may work to provide actors with more equalized power and trust, the fact remains that MPA management and policy requires relevant biological data to support the management objectives, goals, and activities (Cho, 2005). Biological data are important for policy creation because it provides information necessary to inform managers about information such as species abundance, natural mortality rates, and growth rates, information which helps inform management decisions including no-take zones and enforcement (Gaines et al., 2010; Garrison et al., 2011). It should be noted at this point that biological data, or data collected by scientists, is not the only valuable or necessary data for management and that local and indigenous knowledge can, and does, include many of the same factors that Western science offers. Increased cooperation between actor groups involved with MPAs means the inclusion of more relevant information for MPA management decisions and policy, a goal that should be held beyond even co-management areas.

2.4 Summary

Volunteer tourism can provide a valuable resource as a source of data collection for conservation purposes. As volunteer tourism often takes place within MPAs, as is the case for ReefCI, the subject of this research, there is an opportunity for volunteer tourism to play a role in
providing not only data and knowledge for MPA managers, but a role in the management of MPAs through co-management partnerships. Volunteer tourism, however, also exists within a neoliberal global market where commodification exists through many exchanges. Most notably, volunteer tourism capitalizes on the volunteers’ altruism, a desire to do good. This research examines the consequences of this altruism, to consider whether and how the commodification of the experience of data collection impacts the very conservation efforts that volunteers are purporting to support.
Chapter 3: Research Design & Methodology

3.1 Case Study Approach

In order to investigate the contributions of volunteer tourism to MPA management, this research uses a case study approach. This method allows for the examination of a variety of data sources and examines the phenomenon in question, in this case knowledge production by volunteer tourism, in order to speak to issues that extend beyond the particular case (Baxter & Jack, 2008). A descriptive case study is best suited for the proposed research as it provides not only a detailed descriptive methodology but also considers the broader context for the phenomenon (Yin, 2014) and allows for a comparison with other cases as they become available (Ban et al 2011). A large benefit to choosing a case study approach is the ability to describe a case holistically, beyond individuals, to focus on the case as it can be described from observation and interaction (Patton, 2002).

Bounding the case study is largely driven by the objectives and the samples essential to acquire the data necessary to meet the objectives. The perceptions of volunteer-collected data and the use of that data will be bounded within the same case study, thus a single case with embedded units will be used as the case study design (Baxter & Jack, 2008). For the purpose of the identified research question and objectives, this research was bound by the unit of analysis, the volunteer tourism organization ReefCI, which operates in southern Belize. It is also bound by the time period of May 2015 to August 2015, as prescribed by funding and the requirements of the research program (Patton, 2002). ReefCI might not be ‘representative’ of all conservation volunteering experiences, but neither is it unique, using ReefCI helps to understand broader opportunities and challenges associated with volunteer tourism.
3.2 Study Area

3.2.1 Belize and Tourism

Belize is a nation on the eastern-coast of Central America, bordered by Mexico and Guatemala. Belize gained independence from Britain in 1981 and as a result remains part of the British Commonwealth. With an estimated population of 368,310 in 2015 Belize has a diverse make-up of ethnic groups, including Mestizo, Creole, Maya, and Garifuna (SEA Belize, 2010; Statistical Institute of Belize, 2015). Belize is divided into six districts: Belize District, Cayo District, Orange Walk District, Corozal District, Stann Creek District and Toledo District. ReefCI was based out of Punta Gorda, the capital of Toledo District, until August 1, 2015 when it transferred its office to Placencia in Stann Creek District.

Tourism accounted for 39.2% of Belize’s GDP in 2015 (WTTC Economic Impact Report, 2015). Principal in attracting tourists to Belize is its location alongside the world’s second largest barrier reef, the Mesoamerican Barrier Reef System, and its rich and diverse ecosystems. While there are few reputable numbers to reference, ecotourism is a large part of the commercial tourism market in Belize. There is ample evidence that Belize has been developing its ecotourism market, evidenced within its MPA management plans and development (Diedrich, 2007). Ecotourism can be defined as “responsible travel to natural areas that conserves the environment and improves the welfare of local people” (CREST, 2015). Ecotourism strives to promote more responsible travel practices, however, there has been criticism that ecotourism in Belize is an example of neoliberal conservation, as examples of devolution of government, privatization of resources, commodification of nature through conventional tourism and ecotourism, and inclusion of engaged local people is lacking (Moreno, 2005; Medina, 2015). As the largest contributor to economic growth in Belize, the tourism industry warrants examination.
3.2.2 Protected Areas in Belize

A large attraction for tourists visiting Belize is its diverse and rich ecosystems. Belize has been recognized internationally for establishing both terrestrial and marine protected areas, with 14 Marine Protected Areas (MPAs) created since 1982 (Cho, 2005; Hastings et al., 2015). Belize’s coast includes a large portion of the Mesoamerican Barrier Reef System (280km long and 1,400km²) and ten years ago this marine diversity hot spot accounted for 30% of Belize’s GDP through tourism, commercial and local fisheries, and coastal developments (Cho, 2005). Statistics suggesting that in 2015 tourism accounted for 39.2% of GDP give a sense of the importance of the reef and tourism to the economy of Belize (WTTC Economic Impact Report, 2015). The Fisheries Department of Belize, as well as the Forestry Department in some cases, oversees the management of the 14 MPAs, and has entered into co-management agreements with several NGOs in Belize in an attempt to involve local interests in management (Cho, 2005).

3.2.3 Sapodilla Cayes Marine Reserve

This study focuses on the Sapodilla Cayes Marine Reserve (SCMR), the southern-most MPA in Belize, which was established as a protected area in 1996 (see Figure 1). The SCMR covers approximately 15,619 ha and surrounds fourteen sand or mangrove cayes (SEA Belize, 2010). The SCMR was designated a UNESCO World Heritage Site in 1996 (SEA Belize, 2010). The SCMR contains many ecologically important species, including critically endangered marine species and important commercial species such as lobster and conch (SEA Belize, 2010). The 2011-2016 Management Plan for the SCMR was written by the Southern Environmental Association (SEA), a Belizean NGO, as they are to this date the official co-managers of the SCMR (Hastings et al., 2015). SEA works to improve environmental stewardship and environmental integrity of marine areas in Belize, and are involved in the co-management,
Figure 1: Map of Belize, with location of Sapodilla Cayes Marine Reserve and Tom Owens Caye indicated.
through data collection, enforcement, and monitoring, of three MPAs in Belize, including the Sapodilla Cayes Marine Reserve (SEA, n.d.). Interview data gathered from the Fisheries Department as part of this research suggest this relationship is no longer ongoing, however no official published documents confirm this.

The Sapodilla Cayes Marine Reserve has one main goal: “To conserve and protect biodiversity of the Sapodilla Cayes Marine Reserve for the sustainable use of present and future generations” (SEA Belize, 2010). The SCMR is divided into four zones: General Use Zone, Conservation Zone I, Conservation Zone II, and Preservation Zone (SEA Belize, 2010). The General Use Zone encompasses 84.2% of the protected area and is designated for recreational use, research and fishing. Conservation Zones I and II encompass 1.7% and 12.7% of the reserve, respectively. Marine life is fully protected in these zones, with no extractive recreational activities allowed, though catch and release and subsistence fishing are allowed in Zone II. Finally, the Preservation Zone covers 1.4% and no access or activities are allowed in this zone (SEA Belize, 2010).

The staffing of the SCMR has been updated since the Management Plan was prepared (pers comm). There are four staff members of the Fisheries Department employed in the SCMR, one manager or head ranger, and 3 rangers. These staff members are involved in the day-to-day operations of the reserve, including data collection, visitor fees and logs, and enforcement of reserve regulations. The base for staff and a research facility are located on Hunting Caye, within the reserve (SEA Belize, 2010).

The SCMR is a compelling MPA to examine because of its invaluable biodiversity and location within the Caribbean Barrier Reef system, its co-management governance arrangement (even if this is uncertain), its active management (as evidenced by a current Management Plan
and active presence of staff), and the presence of a volunteer tourism operator collecting data. Efforts to collect data to support management, as ReefCI claims to do, should be verified to ensure best management practices are being engaged.

### 3.2.4 ReefCI

ReefCI, also known as Reef Conservation International, is a registered non-profit non-governmental organization (NGO) based in Belize. Notably, while ReefCI identifies as a non-profit the lack of a board of directors and their limited scope beyond their operation makes them appear much more like a private company. This is notable because NGOs have been at the forefront of the volunteer tourism literature and examining ReefCI provides not only new depth to the literature but provides an example of an atypically run non-profit NGO (Cousins et al., 2009). Their main office was located in Punta Gorda, Belize for 13 years, but was relocated to Placencia, Belize on August 1, 2015 (see Figure 1). While volunteering with ReefCI, tourists stay in guest accommodations on Tom Owens Caye, shown in Figure 2. ReefCI was founded in 2003 by Polly Alford to blend her passion for diving with her interest in citizen science. ReefCI’s website describes their program this way: “The ReefCI trips are ‘laid back’ and focused on conserving the environment, at the same time as enjoying a well-earned break! You can get involved in non-intensive or more intensive marine conservation work!” (ReefCI, n.d.). ReefCI does not refer to their volunteers as volunteers, but as ‘guests’, demonstrating their desire to make volunteer tourism appealing to a broad audience.

ReefCI trips are highly customizable, offering trip options as short as one week or as long as guests would like. Weeks run from Monday through Friday and are diving intensive, with three dives offered Tuesday and Thursday, four on Wednesday, and one each on Monday and Friday (ReefCI, n.d.). Dive instructors are employed to offer PADI dive certifications to guests,
from Open Water Certifications through to Divemaster (ReefCI, n.d.). Leisure activities outside of diving include snorkeling and kayaking around Tom Owens Caye, volleyball and other activities suited to small sandy islands.

Volunteers are encouraged to participate in the diving, training, and data collection as little or as much as they want. ReefCI is a member of Reef Check, a non-profit which provides methodologies and support to conduct reef biological surveys, and in 2012 ReefCI adapted the Reef Check survey into the ReefCI Check survey, one of the surveys done by volunteers during their week of diving (ReefCI Annual Report, 2013). Other surveys conducted by ReefCI volunteers were either developed by the onsite marine biologist or by the Fisheries Department (ReefCI, n.d.). Data are collected on the Caribbean Spiny Lobster, Queen Conch, and Lionfish, and surveys are also conducted to measure reef health and commercial fish species abundance. The data are compiled into the Annual Report, written by Polly Alford and the staff marine
biologist. ReefCI collects a marine reserve fee of $25 USD per person each week, regardless of the age of the guest or duration of stay, in order to dive and stay in the Sapodilla Cayes Marine Reserve. ReefCI then gives these fees to the Fisheries Department.

At the time of the fieldwork in summer 2015 the staffing at ReefCI was heavily weighted towards Belizean staff members. Polly Alford and the two dive instructors were the only non-Belizeans employed by ReefCI. The rest of the staff included a marine biologist, a boat captain, two chefs, and a caretaker. Two marine biologists were employed over my time with ReefCI in summer 2015 (one left the organization in August); both had been trained and educated in Belize and both had experience working with the Fisheries Department of Belize.

ReefCI makes a compelling case study for two reasons: (1) ReefCI is classified as a non-profit NGO, however they run much more like a commercial private company, as they do not currently have a board of directors, providing a unique perspective within the volunteer tourism literature; and (2) ReefCI operates within the Sapodilla Cayes Marine Reserve, an ostensibly co-managed MPA in Belize, and provides a source of biological data for the reserve.

In order to clarify the day-to-day operations of ReefCI, from the perspective of a volunteer, the following sections from participant observation notes provide some background information regarding the types of data collection conducted by ReefCI, a typical day at ReefCI, and group interaction and dynamics.

3.2.4.1 Types of Data Collection

There were several types of surveys and data collection activities conducted with ReefCI. Below I outline the different surveys, the type of data being collected, and other information relevant to understanding how ReefCI volunteers participate in data collection.
• Lionfish Spearing and Dissection: Lionfish are a highly invasive species in the Caribbean and efforts have been made to eradicate this species in this region. Lionfish spearing was done on nearly every dive, even when other surveys were taking place. When a lionfish was spotted the dive instructors would choose a volunteer to spear the lionfish. To maintain safety and ensure the lionfish is caught volunteers would spear the lionfish and pin them to a sandy area, where the dive instructors would collect the spear and transfer the lionfish to the bag. On land the lionfish would be dissected, as illustrated in Figure 3,
and a volunteer would assist with recording the following information: sex, egg presence, full length to base of tail, noodle presence (indicates maturity), and stomach contents. The fins and spines were often cut off to be dried for use by artisans.

- **Queen Conch**: Queen Conch are a key commercial species for export and local markets. Surveys for Queen Conch involve dive sites with sandy bottoms and a timed thirty-minute survey. Information was recorded on a slate (an underwater writing device, example illustrated in Figure 4). The buddy pair who spotted the conch is responsible for recording the following information: shell length, spiral length, lip thickness, and egg presence/absence.

![Figure 4: Example of slate used to record data.](image)
Lobster Survey: Caribbean Spiny Lobsters are key commercial species for export and local markets. Data collected include: carapace length, total length, sex, presence of eggs, and depth found.

Commercial Fish: Surveys for commercial fish are done using a “roving diver” technique, where each buddy pair is given a slate and they record spotted relevant species as they are observed during the dive. Divers record the number of each species spotted along with an estimated length in centimeters.

ReefCI Check: The ReefCI check has been developed by ReefCI to understand the condition of patch coral reefs within the SCMR. There are three components measured in the ReefCI check: presence and abundance of key fish species, presence and abundance of key invertebrate species, and an examination of substrate. Groups are chosen early in the week and practice dives are done to familiarize the volunteers with the species or conditions they will be surveying for. On the day of the dive the marine biologist sets out a 100m transect line divided into four segments with 5m and 0.5m indicators along the line. Each of these groups collected their data on a slate with the appropriate information. The marine biologist or dive instructors were responsible for entering the data from the various surveys into Excel spreadsheets during the week. Interested volunteers were able to enter the data if they expressed that interest, but otherwise the task was left to staff.

3.2.4.2 Typical Day

ReefCI typically offered three to four dives per day. The first dive was often a lionfish spearing dive, as those were the simplest data collection activity first thing in the morning. Breakfast was served after the first dive around 8:30am. Training for data collection was held
between dives and meals. Dive briefs for the next day were held after dinner to let the volunteers know what the plan was for the next day.

3.3 Data Collection

My field season for research was May 23rd, 2015 through August 15th, 2015 in Belize. I spent 4 weeks with ReefCI on Tom Owens Caye as a participant-observer; June 1st – 5, 8th-12th and August 3rd – 7th and 10th – 14th. These dates were chosen mainly due to ReefCI’s availability. When not with ReefCI in June I was located in Punta Gorda, where ReefCI’s operations were based. Punta Gorda is where I conducted two interviews, one with the Fisheries Department and one with a staff member of the Toledo Institute for Development and Environment (TIDE), another local NGO. In July I spent time in Belize City to conduct another interview with the Fisheries Department. Mid-July I changed my base to Placencia, where ReefCI was moving their operations, and conducted an interview with a representative of SEA, the NGO co-manager of the SCMR.

I used three methods of data collection: interviews, a survey, and participant observation. Participant observation notes were limited to my time with ReefCI, and a survey was conducted of volunteers with ReefCI. Interviews were the main source of data. These methods are discussed in further detail below.

Approval for this research was obtained from the Research Ethics Board at the University of Guelph prior to any data collection in the field, and all participants provided their informed consent. The consent forms used are located in Appendices B and C. Interviews were recorded and saved on an encrypted laptop and hard drive, and transcriptions were saved likewise.
3.3.1 Survey

The volunteer tourist was assumed to be largest group to be researched within the field season, thus a survey was used to ascertain the attitudes and perceptions of the volunteers themselves (related to both Objectives). Prior to the field season it was assumed that the sample size for surveys would be large and interview data would be used to supplement and inform survey data. This assumption proved false in execution, as the field season yielded a much smaller sample then originally thought, with an estimated sample size of less than 40 volunteers available to the study. It was intended that surveys would be completed by volunteers even when the researcher was not present, from mid-June to August, with announcements made by the dive instructor and marine biologist with the dive instructors collecting completed surveys and delivering them to me on weekends. Three surveys were collected by the dive instructors during the last two weeks of June. The number of volunteers present during these two weeks were quite low, around 8-12 volunteers (with four repeat volunteers from my two weeks). However, since the total sample size of these weeks was unknown, these three surveys were not included in the calculation of response rates. No surveys were collected in July 2015.

The reasoning for including a survey with only the volunteer tourists was to determine volunteer motivations, experience levels prior to ReefCI, and information they received about their experiences. This provided a valuable baseline of information about the volunteer tourists and gave ReefCI the opportunity to collaborate on the creation of the survey for their own purposes. The value of a survey in this context is also the ability to control researcher and partner organization bias, that is, to ensure that the researcher and partner organization are not guiding the survey to obtain either favourable answers or misleading data, as well as provide for standardization for analysis (May, 2011). For the purpose of this research, which examines
perceptions, knowledge, and behaviour, an attitude survey type was used, which helps frame how questions attempt to understand and measure attitudes of the volunteer tourists (May 2011). Appendix A includes the survey that volunteers were asked to complete. The survey was printed out and available for volunteers to complete during their free time.

Surveys necessitate the questions be framed in a way that makes the answers measurable, that is, surveys measure facts, attitudes and behaviours in a way that can be categorized and quantified for analysis (May, 2011). The survey included questions about the volunteer’s first exposure to the concept of volunteer tourism and volunteer tourism collected data, if they had prior volunteer tourism or data collection experiences, what they hope to gain from their experiences with ReefCI, and their perception of ReefCI in collecting volunteer-collected data. The survey attempted to ascertain the volunteer’s motivations for participating in data collection and if their motivations shape their perceptions of volunteer tourism more broadly.

The same survey was used to determine volunteers’ perceptions of volunteer-collected data, including questions that attempt to determine the volunteer’s attitudes or knowledge surrounding the use of volunteer-collected data, either more broadly within volunteer tourism or specifically for ReefCI.

Twenty-three surveys were collected over the course of the fieldwork. During the first two weeks I volunteered with ReefCI, there were 11 volunteers and 8 returned surveys. During the second two-week period, there were 15 volunteers with 12 returned surveys (with one volunteer bridging both those time periods, counted with the second group of volunteers). Surveys were anonymous and voluntary. The availability of the surveys was announced at the beginning of each week at ReefCI, and several reminders were made throughout the week.
Surveys were displayed on a table in the main sitting room of the house on Tom Owens Caye where ReefCI is located. In order to comply with ethics guidelines, volunteers were required to seal their completed surveys in envelopes that were available next to the surveys. Participants were instructed to place completed surveys in a box, which was checked and emptied every day. Completed surveys were kept in the sealed envelope until I returned back to Canada to enter the information in an Excel file, saved on an encrypted laptop and external hard drive.

Response rates were calculated by dividing the number of surveys returned by the number of volunteers. The response rate for the June fieldwork was 8/11, or 72.7%. The response rate for the August fieldwork was 12/15, or 80%. The response rate for the full four weeks of fieldwork (excluding the three extra surveys due to lack of knowledge of sample size) is 20/26 or 77%. Twenty-three surveys were returned, and pertinent demographic information was collected. Fourteen women and nine men returned a survey, with ages ranging from 13 to 66 with an average age of 29 years. These demographics are not necessarily representative of all ReefCI volunteers, however, it does include respondents that represent a range of relevant characteristics.

Response rates during June and July were low for two reasons: 1) lack of researcher presence to provide context and meaning to the research and 2) the month of July at ReefCI was booked by a youth camp called Road Less Travelled. This camp largely consisted of minors, and their scheduling of time and activities as well as a lack of researcher presence made it difficult for the dive instructors to promote participation.

Analysis of survey data was done in Excel, using basic descriptive statistics, since the sample size was small and the sample was not random, because survey respondents’ self selected. Each survey was numbered and data was entered into a table.
3.3.2 Interviews

Interviews provide a space for reciprocity, relationships, and trust between the researcher and participant, allowing for a conceptual space to be created where engagement with issues, arguments, beliefs, and behaviour can inspire dialectic of collaboration and exchange (Belsky, 2004; Galletta, 2011). Interviews are also appropriate for case study research as case studies focus on human affairs or issues and interviews can provide a space for insight and depth into those affairs and issues (Yin, 2014).

Semi-structured interviews allow for clarification and understanding, which is important when the researcher’s views or expectations may differ from the participants’ (Galletta, 2012). The ability to seek clarification on important points or questions may lead to new venues for inquiry, increasing the breadth of the research. The ability to probe for elaboration is one of the strengths of semi-structured interviews (May, 2011). Semi-structured interviews also allow for more theoretically driven questions, which may produce data that grounds the participant within their experience, allowing for a more reflexive and open-ended process (Galletta, 2012).

Semi-structured interviews were valuable for investigating the first objective (related to perceptions of and attitudes toward data) because they allowed for the participants to investigate their own narratives through retelling their experiences (Galletta, 2012). The interviews with the volunteers allowed for reflection on their motivations for participating in volunteer tourism and how their expectations and motivations may influence how they perceive volunteer tourism and its knowledge production. Semi-structured interviews were also employed to investigate perceptions of volunteer-collected data from the staff and operators of ReefCI, the Fisheries Department of Belize, and representatives from Belizean NGOs. These outside actors
were critical in understanding how and if the knowledge produced by ReefCI is seen as a legitimate form of knowledge by other actors.

The flexibility of semi-structured interviews was also useful for the second research objective when interviewing the volunteer tourists, as they had varying amounts of knowledge surrounding how the data they collect is used. However, volunteer tourists were also able to provide a perspective about their level of concern regarding the integration of their data into conservation. Since the use of the data may not be explicit or obvious to some or any of the participants, the flexibility of a semi-structured interview provided opportunity for researcher prompts and open-ended responses (Galletta, 2012).

I conducted twenty-three interviews over the course of the field season. I interviewed fourteen volunteers during the four weeks that I was participant-observer with ReefCI, and I conducted five interviews with ReefCI staff. I recruited volunteer interviewees by first announcing the project to the volunteers at the beginning of the week on Monday night, and then offering short reminders throughout the week. Volunteers with interest in participating were approached to arrange an interview time. Interviews with volunteers were typically 15-45 minutes long. Staff members of ReefCI also attended the weekly announcements of the research, and those interested were approached to arrange interview times.

Direct quotes from interviews are used in Chapter Four to illustrate each participant’s perspectives, observations, and opinions. Fourteen volunteers were interviewed and their responses were coded by perceived opportunities and constraints for volunteer tourism and ReefCI. Using opportunities and constraints also reflects how the volunteers identified with the questions asked of them in the interviews, as they generally spoke about their experiences through that lens. Identifying the attitudes surrounding opportunities and constraints provides a
clear binary from which new or adapted approaches for improvement may be made for ReefCI and other volunteer tourism programs in Belize.

Five ReefCI Staff members were interviewed during the field season: two dive instructors, the head chef, the founder and managing director Polly Alford (who consented to be named in this paper), and the current marine biologist. The marine biologist was hired on between my third and fourth week with ReefCI; he was very new to ReefCI, but not new to volunteer tourism, having worked with TIDE Ridge to Reef and Blue Ventures, both Belizean NGOs with volunteer tourism programs.

Two staff members with the Belize Fisheries Department were interviewed during the field season. The first interview was conducted in Punta Gorda (Fisheries Employee 1), and the second (Fisheries Employee 2) in Belize City. Fisheries Employee 1 was less aware of the data collection and data use aspect of the relationship with ReefCI, but he did have a working knowledge of volunteer tourism and ReefCI. Fisheries Employee 2 was much more familiar with ReefCI’s programs and data along with other volunteer tourism projects in Belize, being responsible for receiving data and distribution of research permits. What was apparent through the interview process was that both staff members had a good relationship with ReefCI, Fisheries Employee 1 speaking about there being a very collaborative and social relationship and Fisheries Employee 2 acknowledging the strong working relationship developed over the years. One interview with Fisheries Department staff was arranged with help from a staff member from ReefCI with ties to the Fisheries Department, the other was arranged through email correspondence.

Two staff members from NGOs in Belize were interviewed: A representative of Southern Environmental Association (SEA) who works on Laughing Bird Caye, and a
representative for Ridge to Reef, a volunteer tourism project operated by the Toledo Institute for Development and Environment (TIDE). The interview with the TIDE representative was not recorded, and as such no direct quotes from the interview are available. The NGO interviews were arranged either through email correspondence or community connections.

The method of data analysis for these semi-structured interviews was coding for key themes. Coding qualitative data is useful for identifying key themes through data reduction and organization (Cope, 2005). Analysis of interview data was done with NVivo, a qualitative data processing software that enables the researcher to code for themes and to identify connections among themes. Themes were identified as they related to the research objectives and interview structure. The first round of coding identified constraints and opportunities noted by interviewees in relation to ReefCI’s programs as well as any mention of data as it pertained to ReefCI or the Fisheries Department. Further sub-coding identified additional themes, as shown in Table 1. Themes that emerged through coding included positive or negative attitudes surrounding volunteer-collected data, specific applications of the data, indications of partnerships or management relationships that stem from ReefCI, and other observations related to co-

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Table 1: NVivo coding and sub-coding used to identify main themes
management and volunteer-produced knowledge. The themes identified in Table 1 helped inform the two major themes used to explore the Research Objectives: The Tourist Experience, and Data Use for Conservation. The two broader themes incorporate information from the codes identified in Table 1 as well as the three main bodies of literature identified in Chapter Two: Literature Review.

3.3.3 Participant Observation

Participant observation is useful for understanding the everyday, context specific, lived experiences of the participants from a situated and observational point of view of the researcher (Shurmer-Smith, 2002). Participant observation may be specifically useful for studying ecotourism to gain an understanding of power dynamics and politics from the perspective of the participants (Belsky, 2004). Writing extensive and detailed field notes is an essential component of participant observation (Shurmer-Smith, 2002). There are many challenges to using participant observation as a methodology, including learning how to interpret behaviour and its coded meanings and finding a balance between observing and participating (Shurmer-Smith, 2002). Participant observation must be undertaken with a clear purpose, intent and statement of positionality, with a reflexive approach (Shurmer-Smith, 2002). However, participant observation may provide insights into behaviour that more formal interviews may not elicit (Belsky, 2004).

Participant observation was useful for understanding the potential ways perceptions of volunteer-collected data evolve day to day as the volunteers learn more and become more comfortable with the data collection process. Participant observation of the perceptions of the staff of ReefCI as well as marine reserve staff and managers allowed for a less formal
observation than sit-down interviews, and provided the opportunity to observe any changes in perception over the field season.

In the course of my fieldwork I had the opportunity to participate as a volunteer with ReefCI. I spent four weeks with ReefCI, two weeks in early June 2015 and two weeks in early August 2015. During these four weeks I participated in all of ReefCI’s offered programming for a typical volunteer, including all the surveys they conduct. These surveys included lionfish spearing and dissection, Caribbean Spiny Lobster survey, Queen Conch survey, ReefCI Check survey, Coral Health Check survey, and Commercial Fish survey. For participation in these surveys I also attended all the corresponding training and information sessions for each survey, and participated in most dives. I did not take part in any formal PADI training, having already achieved an Advanced Open Water certification some years prior. I wrote detailed notes about the activities, the guests’ interactions with the activities, and my own observations and feelings. This exercise helped to inform my interviews with volunteers and staff, as these observations helped me understand which questions and prompts to use during interviews.

Excerpts from ethnographic notes are used to interpret my own observations as a participant observer. The perceptions and attitudes towards data collection were not only revealed in interview settings, but also in the data collection training sessions, data collection activities, and through casual conversation. Following the example of Emerson et al. (2011), I quote excerpts from my fieldnotes and explain them in order to illustrate: a typical day as a volunteer, the different data collection activities; and experiences with training for data collection.
3.4 Positionality

There are several challenges to undertaking international fieldwork; chief among them may be the potential inequalities that may become clear between the researched and the researcher (Chaco, 2005). While this research did not include the participation of at risk communities, reflexivity and awareness was necessary to reduce the potential for unequal power relations (Chaco, 2005; England, 1994). Total objectivity is impossible, both from the perspective of the researcher and the participants; age, class, gender, race, sexual orientation and a myriad of experiences and worldviews can determine interactions from all aspects of fieldwork from conception of the project to analysis (England, 1994; Mirftab, 2004). This fieldwork was conducted with the utmost attention given to understanding the power dynamics involved within this research project.

I entered into this research with a background in examining how humans and the environment interact, through my work in the oil and gas industry and my background studying anthropology and environmental studies. I’ve come to see the importance of examining how human activities not only impact the environment, but also how our activities may be able to enhance it. The opportunity to study volunteer tourism felt like a natural fit to further my understanding of the human-environment intersection, along with better understanding my role as a tourist.

This was not my first experience working in a foreign country, or my first experience confronting my position as a privileged white woman from Canada. In 2010 I worked as a volunteer in Botswana through Uniterra, who provided a week-long orientation prior to departure which included many conversations and exercises pertaining to privilege and working with the
disadvantaged or new and different cultures. Yet, recognizing privilege and positionality means accepting it as a continuous process.

Being reflective and aware of my position of privilege within my fieldwork meant acknowledging that at times my status as a white mid-upper class female Canadian provided me with a specific and skewed view of the world. Opportunities to interact with a more diverse population and worldview led to reflection on my place of privilege. The opportunity to conduct this research again reflects a place of privilege. This project required speaking to a wide variety of people from different economic and cultural backgrounds, though for the most part participants were from developed, economically strong nations. A minority of my participants were Belizean, and those interviewed were only interviewed through the lens of their employment, to minimize social distinctions and provide them the opportunity to speak on as equal a footing as possible. My position as a student may have also provided an equalizing platform for some of the participants, as they could relate to me peer to peer, as many of them were also students at various levels.

This research was designed, conducted, and written with an attempt to be careful with wording, assumptions, and stereotypes. I attempted to be mindful of my positionality throughout all my interactions with study participants and as I analyzed the data. The experiences and world view of my participants differed in many ways, especially from participants from Belize. In particular, my perspective has been largely as a tourist, not as a support worker in a tourism based economy. This understanding helped me explore the impacts this kind of relationship may have on how certain processes work in Belize.
Chapter Four: Results

This chapter presents the results. The interviews were analyzed by identifying key themes. These themes are used to organize the presentation of results; within each theme, results are organized by actor group, though each actor may not appear within each theme. Two major themes were identified: 1) The Tourist Experience, and 2) Data Use for Conservation. The data included under each theme come from ethnographic notes, volunteer survey data, and interview data. Themes were developed by examining the most strongly supported opinions or observations within or between the codes identified in Section 3.3.2 in Table 1.

4.1 The Tourist Experience

The results discussed under the theme The Tourist Experience largely inform the first Research Objective, which pertains to the attitudes and perceptions of volunteer tourism and volunteer-collected data through ReefCI as the case study. First, the volunteer’s motivations for choosing ReefCI and volunteer tourism are explored.

4.1.1 Priority of the Guest Experience

The main motivation reported by survey respondents for choosing volunteer tourism was travel and adventure, chosen by 9 of 23 respondents, with self-development (resume building, learn new skills) chosen by 6 of the 23 respondents, and commitment to conservation/environmentalism reported by 5 of the 23 respondents. While the biggest draw to consider volunteer tourism was travel and adventure, the most common motivation for choosing ReefCI, (reported by 10 respondents), was the types of conservation opportunities (data collection and conservation education) ReefCI offered, and 5 of the 23 reported that Belize as the
destination was the main motivation for choosing ReefCI. The volunteers clearly showed that the more classic tourism experience, of travel and adventure, was a priority.

Creating a fun and enjoyable experience alongside the data collection was seen as being valuable in order to spread a conservation message through the volunteers from ReefCI, however good reviews and new business were also goals for providing a good experience for the guests.

Both dive instructors spoke about the importance of positive interactions between themselves and the volunteers to create a positive and fun environment.

“I think the main challenge is essentially the same as anything in tourism; it’s just making sure the guest is happy. At the end of the day they take time off work and it may be the only holiday time they have that year, they’ve paid money, in some cases a lot of money to get here, this is pretty remote, and so it’s just making sure that they having a good time while their here.” (ReefCI Staff 1)

Volunteer enjoyment and expectation about that enjoyment is a large part of how Polly runs ReefCI:

“But it’s also in the name Reef Conservation International, it says what we do. Everything on our social media and marketing is geared towards that, but it is hard to get a balance because we also have to treat it like a business even though we’re a not for profit, because we have to, without our guests we can’t survive. So we have to market that, like “wow we’ve seen whale sharks today” or “we just had an amazing dive”. So you can see that in our marketing as well.”
It was clear from these conversations that keeping the volunteer happy was beneficial to the business and its perpetuation of the program, but was valuable as a way to exchange valuable information about science and culture as well as spreading a conservation message worldwide. However, the spreading of awareness and exchange of ideas and culture were not at the forefront of ReefCI’s programming, but a beneficial happenstance. The following section explores the theme of exchange of knowledge.

Volunteers reacted strongly to the adaptability of ReefCI’s trips for its volunteers with four volunteers remarking that you could be as involved or uninvolved as you wanted in regards to data collection:

“ReefCI does a good job of making you feel like you’re on a vacation while doing some sort of data collection … They [ReefCI] make you feel comfortable. If you want to help out, they let you help out, if you want to sit and relax they let you sit and relax. They do not expect anything from you but to have a good time and respect the place that you are in” (Volunteer 2).

“I mean they do a good balance of vacation and the research but at the same time they’re not overwhelmed by so many people, it’s a small group. With the week you can get to know people very well and most people stay more, most people stay two weeks so you do get to know people. I think that’s a little bit more unusual at least, and I think the island is a big draw. Having this as home is a little special and being a little more isolated and immersed in what you’re studying is very cool and very successful for ReefCI.” (Volunteer 7)
Volunteers responded well to adapting their trips, and saw it as a benefit to volunteer tourism, one that provided them with the perceived ability to help with a cause while enjoying themselves:

“It is good; I think it’s the best sort of tourism in terms of helping stuff out. I think for ReefCI it’s a good idea because so many people are interested in scuba diving and just this reef that you get much more, like we go out there three times a day, and how much would you pay for that every tour every day, you may as well go out there and collect data which is even more fun.” (Volunteer 10)

Volunteers expressed that ReefCI provided a valuable tourism experience with data collection as a perk. The survey indicated that a small majority of the volunteers (14/23) said they would have enjoyed the trip without the data collection, most all of them agreed that it was an essential part of the trip (22/23). This indicates that there were a number of pleasurable aspects to the trip but data collection was a central activity and draw for the volunteers.

Diving was also seen as one of the main draws for attending ReefCI, and the opportunity to advance one’s dive training was expressed as being a benefit to the volunteers’ experiences:

“I think it’s [ReefCI] a great experience; it’s a great way to get diving in. As I’m on a budget it’s a great way to get multiple dives in, at most you can get 14 a week, if you do the night dive” (Volunteer 2).

In some instances, the volunteers interest in obtaining their diving certification led them to choosing ReefCI: “I thought that it [ReefCI] was interesting, I’d always wanted to learn to dive, and to incorporate that and volunteering seemed like an interesting way” (Volunteer 4). When asked about what made ReefCI stand out from other volunteering options, this volunteer noted:
“A few things – mainly I had never scuba dived before, and it gave you the option of becoming an open water diver.” (Volunteer 12). A diving certification was also seen as a beneficial take-away of the volunteers’ experience:

“I didn’t get to dive just once or twice; I was able to get a certification here. It’s something I could actually take away, so I could contribute but also take away, not just experience but like a certification I can use elsewhere” (Volunteer 1).

The intensive scuba diving program at ReefCI, tied in with their conservation work, inspired volunteers to improve their diving abilities, but was also one of the main motivations for volunteers to choose to attend ReefCI. Providing the option to obtain many levels of PADI Certifications through the dive instructors employed by ReefCI was a large draw for volunteers who attended.

4.1.2 Data Collection as Tourism

The volunteers did believe their data was useful to MPA management; 15 of 23 volunteers stated strongly in the survey that even if it is not used for decision making it is still important for tourists to have the opportunity to participate in biological data collection. Understanding how MPAs are managed may have been hampered by the fact that 15 of 23 volunteers responded they had not seen any type of policy or enforcement of policy within the Sapodilla Cayes Marine Reserve.

Volunteers had a strong reaction to how collecting the data added to their trip; the data collection became a vector for altruism. When asked how they felt about the data being collected four volunteers expressed a positive reaction towards how they felt about their trip, and one volunteer remarked:
“It felt like what we did help, especially when they explained [why the data collection is important], I mean the lionfish one [project], but also the commercial fish surveys. Yeah, no all of it, it [ReefCI] definitely makes sense why we do it [the data collection], and that it helped the overall health of the coral reef system” (Volunteer 14).

For this volunteer, the data collection was an important part of why they chose ReefCI, and they found the experience of diving and collecting data to contribute to the enjoyment of their trip:

“I think it’s the fact they [ReefCI] make it fun. Like, all my friends ripped me for it, they were like, it’s gonna be really boring and I was like, actually it is really, really good and sure enough it was, it was kind of, they make it fun and stuff and it’s not all about the conservation which I think is nice ‘cause it gives a good balance.” (Volunteer 13)

For most of the volunteers ReefCI and their time in Belize was a holiday, one they hoped would provide a benefit in some way, but a holiday nonetheless. The opportunity to adapt their trip with ReefCI to be more or less intensive was appreciated by the volunteers.

While the responses were largely positive in regards to ReefCI and its projects, volunteers did identify some constraints. Lack of resources, including the size of the island and accommodation style and a strong lack of confidence that the data collected was being used were the strongest responses.

4.1.3 Funding and Resources

It was apparent to many volunteers that the main limiting factor to improving on or expanding ReefCI’s programs was funding. Issues with accommodation, inefficient engines, lack
of resources for presentations, and limits on the size of the island and boat were brought up by
most volunteers in the interviews. One volunteer remarked:

“From what I’ve heard or perceived during my five weeks it’s probably funding,
because getting volunteers here is not a big issue, it’s been pretty full most of
the weeks I’ve been here, but it’s probably funding because it costs so much to
run, even though a lot of volunteers are coming it still costs to run.” (Volunteer
4).

One volunteer noted that the resources on the island presented some barriers to watching and
participating in presentations:

“Maybe I guess the technology with the presentations, I know it’s kind of a
deserted island, but sometimes it’s hard to see and read…But if you’re struggling
to see it might be harder to pick it up, like I kind of had to get the forms for the
coral because I still didn’t know what they looked like, so I had to get the pictures
and look at them. So that’s a little more difficult. But we are on an island with
limited technology.” (Volunteer 9).

It was apparent from the accommodation and amenities on the island that funding was a huge
limiting force on the comfort of guests, and limited how ReefCI could market themselves within
the volunteer tourism industry. A volunteer spoke about some of the issues with accommodation
on Tom Owens Caye:

“I think right now in terms of their operations it’s just the comfort of the guests
at the same time as…. they have this balance that they’re trying to portray with
the conservation at the same time as a vacation with comfort and what not. For
the most part they do a good job with it but some kids [other interns] are upset about rooms or what not or want a little more personal space so some kids wanted a cabana instead of being in the house or some people wanted to be in the house instead of being in a cabana.” (Volunteer 7).

The amenities on Tom Owens Caye were important to the volunteers’ experience, and were a large part of the interview discussions.

4.1.4 Value of Volunteer Tourism

The value of volunteer tourism was also discussed by the staff of ReefCI and NGO representatives. The marine biologist and head cook, the only native Belizeans interviewed in the staff, both remarked that volunteer tourism provided an opportunity for an exchange of information which would lead to a richer experience for volunteer and staff alike.

“Getting to meet new people, when you meet new people you find out about what life is like out there and then you tell them about your life here in Belize. Telling them about their culture, just having that nice experience because then you have some people, like me sometimes I will be in the kitchen singing and people are like “how can you be so happy?” I tell them it’s something I love; it’s my job that I love... I prefer that because they share information with me and I share information with them.” (ReefCI Staff 3)

Staff Member 4 remarked:

“I really hope that it [volunteer tourism] really spreads. That is creates opportunities for students or different people, the opportunity to learn about the
marine area and help with their skills to help, for example, identifying conchs or coral or fish.”

Polly Alford also noted that ReefCI’s type of volunteer tourism provided benefits for Belize as a whole:

“We’re definitely adding to the economy. The other thing is we don’t fit into that volunteer tourism niche fully, we’re not like an NGO who has a load of outsiders come in and set up a program. The other thing is where we enhance Belize, most of the people who come here as guests, and they’re paying guests, most of them come here because of ReefCI, they’re not here in Belize already, we don’t have an office.”

Polly also noted ReefCI makes efforts to hire and train Belizeans in order to enhance Belize and the communities involved with ReefCI. A volunteer also noted that volunteer tourism can not only raise awareness for conservation, it provides education in the form of broadening volunteers worldviews:

“And I think it’s [ReefCI] fantastic for conservation, even if, truly, this data doesn’t get used, it helps people come down and see that it’s needed and they go home and they talk about it and it spread the word and I think it allows people to just be a little more aware and open minded to the fact that there are problems outside of their own little world, and my own little world, whatever it is.”

(Volunteer 2)

The TIDE staff member was quick to praise the benefits of volunteer tourism specific to TIDE: there are more hands in the field and the overworked rangers and researchers who have
very little funding get help and a new funding source. She also spoke about the benefits of volunteer tourism to Belize, with the main benefit being that it promotes a more beneficial form of tourist in Belize by providing conservation support, money, and jobs. She also stated that TIDE has a good relationship with ReefCI, they often borrow tanks and equipment for diving and have good social relationships.

The SEA staff member spoke about the challenges faced by SEA in order to manage the Laughing Bird Caye Reserve: “I would say acquiring funding, trying to become self-sustainable in everything. That’s one of the major challenges. Another challenge is keeping your community up to date, because it’s a very small organization, with only so many employees you can only be so many places at once.” He stated that while he had not worked with volunteer tourists before, only independent researchers who are working on data collection within reserves, he expressed interest in working with volunteer tourists because working with other data collectors has been beneficial to them as an organization: “I would say it saved us resources; you have more money to help out at the Cayes. They really save us some time too because not every time you are busy sometimes and they can go out when you’re busy they can go out and collect data.”

These conversations about the value of volunteer tourism relates to examining the perceptions and attitudes of different stakeholders surrounding volunteer tourism.

4.1.5 Summary

The results related to Objective One, perceptions and attitudes surrounding ReefCI’s program, were quite positive overall from the ReefCI staff and volunteers, Fisheries Department representatives, and NGO representatives. The volunteers responded very positively to the flexibility of the ReefCI program, enjoying the ability to do as much or as little data collection as the volunteers wanted. Staff perceived their work to be both an enjoyable tourism experience and
important for conservation. While the intensive diving and dive training were benefits to volunteers, the data collection was perhaps the most positively discussed theme.

Volunteers noted that the ability to do data collection was a draw for them and an important part of their experience. The staff acknowledged that the data collection was an important experience for their program but it was not forgotten that volunteers were necessary for continuation of ReefCI, and staff acknowledged that a main goal was to provide a positive tourism experience in order to garner good reviews and new and repeating customers for the program. Notably volunteers focused on how funding and resources impacted their experiences with ReefCI, further highlighting the emphasis the volunteers had on the tourist experience through their comfort on the island.

Education and exchange were seen as benefits from ReefCI staff and volunteers and the NGO representatives. The Belizean staff interviewed also provided a positive attitude towards tourism in general in Belize, seeing new guests and tourists as vectors for exchange of not only money, but of ideas, perspectives, and friendship. Volunteers perceived volunteer tourism as a way not only to raise awareness, but to broaden their own understandings and worldviews.

The Fisheries Department staff members interviewed were more subdued about their feelings of volunteer tourism and ReefCI, but were largely positive about the program and concept in general. The main concern was volunteer tourism programs who began to focus too much on the ‘tourism’ aspect, letting the science and quality data collection become an afterthought. Both employees stated that volunteer tourism can be good for Belize as long as strict monitoring and quality is maintained, in the case of ReefCI with the Annual Report being submitted to ensure the reissuing of their annual research permit.
The NGO staff members also had positive attitudes about volunteer tourism and ReefCI. The participant from TIDE mentioned a positive relationship with ReefCI, often borrowing equipment for diving. TIDE also noted that volunteer tourism goes beyond conventional tourism to provide not only jobs and money to Belize, but support for conservation and relief to overworked rangers and researchers. The representative from SEA had less experience with ReefCI or volunteer tourism, however he noted that volunteer tourists in the past had provided valuable support to the rangers by collecting data when the rangers were occupied with other duties. This is different from ReefCI, who operate without direct Fisheries Department oversight beyond their research permits and provide only marine reserve fees from guests as direct financial contributions to the SCMR.

Overall, the participants involved in this study had positive perceptions and experiences with volunteer tourism and ReefCI. There was a clear prioritization of the guest and data collection experience, which when paired with the discussions of a lack of funding and resources, emphasized the participants lack of interest and engagement with the data use.

4.2 Data Use for Conservation

The results that informed the theme Data Use for Conservation served to explore Research Objective Two, which aimed to determine how ReefCI volunteer-collected data are incorporated into the co-management of the Sapodilla Cayes Marine Reserve, and identify opportunities for or constraints upon their use within management.
4.2.1 Volunteer Lack of Awareness

When asked about the role of volunteer tourism and science in MPA management, the most common responses indicated a lack of awareness. Over half the volunteers did believe tourism should be allowed within MPAs, with 11 of 23 responding agreed and 4 strongly agreed. Only one volunteer disagreed with tourism being allowed within MPAs, though 6 reported they were uncertain. Fourteen of 23 volunteers believed that volunteer tourism supports MPAs through the payment of fees by volunteers.

Within the survey questions of data use related to how volunteers may or may not understand how data can and does support MPAs and the SCMR. 21 volunteers agreed or strongly agreed that MPA management should be based on science and 12 agreed that volunteer tourism is beneficial to MPAs by collecting relevant scientific data. All respondents agreed that they were concerned about the health of coral reef ecosystems. Twenty of the 23 respondents were familiar with MPAs as a conservation tool. However, management of MPAs and its effect on local communities was not as familiar a topic for the respondents, with 11 indicating they were uncertain about “Decisions about marine protected area management must not negatively impact local stakeholders (e.g. fishers)”. The majority of volunteers believed that MPAs are an excellent way to protect coral reef ecosystems: 19 of 23 agreed or strongly agreed. However, volunteers were less sure of how MPAs should be implemented, with 9 volunteers uncertain if fishing should be allowed within MPAs.

The above survey data suggests that the volunteers were familiar with threats to oceans as well as MPAs as a way to manage these challenges, however, there was a lack of knowledge into how MPAs are managed, their rules enforced, and what role science may play with MPAs.
While the volunteers showed a strong association with data collection improving their diving abilities and providing a deep sense of altruism through conservation, there was little evidence that the volunteers understood where the data they were collecting were going and how the data were being used. Eight of the fourteen volunteers expressed some knowledge that data from ReefCI were sent to the Fisheries Department in some form or another.

“Well I know they put it into an annual report. I’m not sure how they use it; I assume they just submit it. So yeah maybe they could emphasize that a little more. I yeah I think I kind of assume what they’re doing with it.” (Volunteer 10).

Of the remaining six volunteers, two knew ReefCI created an Annual Report from their data, and four had no knowledge of what happened to the data after they were collected.

“Yeah. I think we have pretty good interaction with the data, we just don’t really know where it’s going per se. Because yeah, lionfish for example, alright we’ve all gone out there and collected it ourselves, and okay we have 37, these ones are 30cm long, this one is a male, this one has eggs. It’s like okay, I think I have a good understanding of it, but it’s like this is going to the annual report, and that’s about the extent of my knowledge.” (Volunteer 10)

None of the volunteers expressed any knowledge of how the data were used beyond their inclusion in ReefCI’s Annual Report; no knowledge of how the Fisheries Department uses the data or Annual Report was mentioned by any of the volunteers interviewed. When asked if they knew how the data was used beyond being sent to the Fisheries Department, the following were common responses: “Unfortunately no, they probably have mentioned it and I didn’t realize or
remember” (Volunteer 11); “Beyond doing it no. I haven’t seen what happens to it yet” (Volunteer 8), and one had noted that she had not heard of how data was used beyond being sent to Fisheries despite her interest and involvement: “I did hear and I helped write the data and save it and stuff, but yeah no I kind of wish I had learned a bit more. Further on in the process with the data” (Volunteer 4).

When volunteers responded to survey questions about data use it was clear they believed that science should be used to inform MPA management as 22 respondents agreed that the data they were collecting was valuable for the Sapodilla Cayes Marine Reserve, which provides an interesting parallel to their lack of confidence in how their data may compare to scientists. This parallel may exist mainly as an example of volunteer altruism; volunteers want and hope they’re making a contribution and yet concede they may not be as qualified to contribute as trained scientists. Regardless, 17 of the volunteers believed that the data collected by volunteer tourists should be shared with decision makers for MPAs and 10 agreed that decisions for MPA management should be based on data collected by volunteer tourists.

There was lots of interest from volunteers about learning how the data they were collecting was used:

“Yes, I think it’s good, it’s good when they collect that knowledge it’s good to know where it’s going and what it’s doing. Otherwise it’s just people spearing lionfish or looking at conch, they have no idea the importance of the work going on.” (Volunteer 6)

“Well I know they put it [the data] into an annual report. I’m not sure how they use it; I assume they just submit it. So yeah maybe they could emphasize that a
little more. Yeah, I think I kind of assume what they’re doing with it.”

(Volunteer 10)

A repeat and long-term (12 weeks) volunteer noted that there had been inconsistencies with how they educated the volunteers about the data and that more consistency with how they educate their volunteers would be beneficial. As there is interest in further education, as illustrated above, this may be an opportunity for ReefCI to further educate its’ volunteers.

“Yeah they could do with a lot more consistency in how they speak about it [data]. I didn’t know a ton going in to what they do. At the beginning when I first came here I knew nothing, I just picked it up as I went along. I had no idea with what they do, I saw them dissect the lionfish and write it down on the slate, but after that nothing.” (Volunteer 6)

4.2.2 Lack of ReefCI Engagement

As for input into data use for MPA management, there was not much information. Polly Alford acknowledged they submit data to the Fisheries Department and ECOMAR’s Coral Watch program, a Belizean scientific research charity (ECOMAR, n.d.). However, she was unable to identify how the Fisheries Department used the data sent in:

“GB: We have talked about expanding the data; you want to start expanding that. Do you think that data is being fully used at the moment?

PA: With Fisheries do you mean?

GB: Yes.

PA: The answer is I don’t know. I hope so. But we have no idea. I would like to see it being used more.”
However, despite not knowing how the data were being used, Polly Alford did mention some plans for the future and opportunities for ReefCI to start engaging with research more meaningfully:

“I’m hoping our new marine biologist will do a bit better doing outreach and expansion on what we’re doing, and do more. And we have enough people coming here from other universities that we can start linking up with them. A good example is we did more lionfish [surveys] than anyone else in Belize, any other organization in Belize.”

The Fisheries Employee 2 Coordinator spoke about the data ReefCI produced and its use as a baseline for comparison by the Fisheries Department: “We get it, we get their reports, and we compare. If we need the raw data we ask them also, but we use their raw data when we are comparing also.” In terms of data quality, he mentioned that was fully on the shoulder of ReefCI and their marine biologist, but that he trusted their methodologies as sound due to their employment of a qualified marine biologist. The Fisheries Department has no input into methodology for any surveys. He also mentioned that this trust is not infallible and that research licences can be revoked if he felt the organization was not producing quality data:

“Once they start to get sloppy we bring it to our attention. Some years ago we have Coral Caye Conservation, something like ReefCI but on a bigger scale, but in the end I think there was a slack in the plan, they started to party more. They started to party a lot…The entertainment part took over more than the science part, so we had to take away their license.”
Fisheries Employee 2 spoke about how ReefCI sends their Annual Report as the main source of data, and their yearly research license issuance is reliant on the Annual Report being handed in. It was emphasized that consistency and quality of the reports and data are trusted only through a reliance on ReefCI’s marine biologist as a control. There was no indication that the Fisheries Department uses these reports to inform their management of marine reserves, the data was only used as a baseline year-to-year comparison.

Fisheries Employee 2 was unable to speak to the data being collected by ReefCI, but did speak to the value of volunteer tourism in Belize:

“Yeah it is because I think, I’m not too sure how they really operate, because I think there were people who came down [indistinct] based on the research and I think that different times they stay at different places [indistinct] and they miss collecting the same things and in the summer high school kids come down. But it generates some income, but its’ beneficial and different from the regular tourism if it can be strict I think it could be something that could be a good, some good cash for the area, to that specific type of tourism.”

Notable in the above quote is the idea that the data produced by ReefCI could be useful to Belize in the form of economic benefits.

4.2.3 Data Quality Concerns

The survey reported that the volunteers identified the following as their experience levels, from the options of, from PADI Open Water to Divemaster, were: 4 Open Water; 14 Advanced Open Water; 4 Rescue Diver; and 1 Divemaster. A high school education or equivalent was the most chosen education answer with 10 respondents, with a Bachelor’s degree following with 6.
Twelve of the respondents had participated in a volunteer tourism project previously, and eleven had not.

A theme that arose was how a diver’s ability, or lack thereof, impacted the ability to collect data accurately. New divers are more likely to struggle with buoyancy and staying in control underwater, leading to issues with kicking coral, certainly not a conservation objective. The dive instructors spoke about (in person and in interviews) how they ensure those they train are able to maintain good buoyancy and are educated about responsible diving practices, yet it appeared to me that with so many (from 8-14) divers in the water usually conducting a survey, it was difficult for the dive instructors to keep an eye on poor diving practices and address them (unless the poor diving was threatening the safety of the individual or group).

Having two qualified dive instructors employed full-time was beneficial to ReefCI, as it allowed them to provide SCUBA certifications to guests, and provided two fully capable and skilled leaders in the water. However, with so many divers, sometime there would be 7 or 8 divers per dive instructor, in the water it was not always possible for them to provide one-on-one guidance, especially if that diver was already a fully certified diver. The dive instructors spoke about the importance to provide a fun and personable experience with ReefCI, and perhaps their friendliness with the volunteers made it more difficult to provide constructive criticism.

Volunteers connected with the opportunity to begin or advance their dive training, and identified two opportunities related to dive certification in particular: the dive training having an emphasis on conservation education and data collection as a motivator to improve diving competence. One volunteer remarked:

“I think they [the dive instructors] definitely talk about it [conservation] a lot in, not kicking the coral, be aware of your surroundings. Everyone that I’ve seen in
the last few weeks that’s gone through their open water came out really good:
very aware, good buoyancy, just observant divers.” (Volunteer 2)

Being a good diver was seen as being integral to collecting good data, with several
volunteers expressing an interest in improving their diving to participate in data collection and
become better data collectors.

While the staff were overwhelmingly positive about ReefCI and its operations throughout
the interviews, there were concerns regarding data quality and use that were brought up. There
was evidence that there was a large reliance on the previous marine biologist employed by
ReefCI to ensure accuracy and good quality data, as he was the only trained scientist within the
organization.

“Like the only things against it would be ensuring that like the accuracy of your
data and methodologies, because you’ve got people who aren’t necessarily
trained or have experience in it, but then that’s why we have [previous Marine
Biologist] who’s a marine biologist and has training in all that and can delegate
and explain procedures and make sure that they’re followed through” (ReefCI
Staff 1).

The new marine biologist had experience working with volunteer tourists before and
remarked that while they had created the methodologies for data collection with beginners in
mind, data collection was still a concern in terms of accuracy. “I guess there was medium, not
very accurate but it was the best data as their ability” (ReefCI Staff 4). However, this quote also
asserted another attitude about the data collection, which was a lack of accuracy was anticipated
and built into the surveys being done. The director of ReefCI spoke about the challenge in
developing these methodologies, the necessity of adaptation, and volunteer commitment:
“It [data collection] has to stay simple, that’s important, so there’s less room for error. But I think we’ve been doing it long enough to not really have to worry too much about that. I think we’ve evolved to overcome our challenges. One of our challenges at the beginning was doing the Reef Check surveys, because we couldn’t do them all the time; we might not have had enough people, the weather might not be good enough, or guests might not be here long enough to know their species. So now our focus is very much on, we still have those methodologies and those initiatives particularly for the coral reefs, but I think that most of our volunteers, guests, are focused enough on what we’re doing that we have simple enough data that we can collect.”

Dive experience and its link to data collection was discussed with staff members. The diving ability of a volunteer was seen as a barrier to conducting data collection but also as an opportunity to teach better diving techniques. The diving instructors especially seemed to have a focus on conservation while teaching the introductory diving courses, emphasizing good buoyancy, not touching the reef, and a respect for the environment. Both dive instructors and the director spoke about the necessity of ensuring the volunteer is clear about the expectations when completing their PADI Open Water Certification before taking part in the conservation, best expressed in the following quote:

“It can be a bit of a balancing act, but we actually find it’s better here in this environment than in a regular dive centre. Because the focus here is on the marine conservation and collecting the data, it means the focus is on the divers being good divers because if their buoyancy isn’t good and their air isn’t good they can’t really contribute to the study as much. And because they’ve come
here to do that that’s sort of their primary motivation, then they won’t get what they want either.” (ReefCI Staff 1).

Balancing volunteer expectations with diving and conservation work was a theme throughout discussions with staff members. Giving the volunteers a positive experience is seen not only as a way to ensure repeat customers and good reviews, but a way for ReefCI’s conservation message to spread.

“But I think the volunteers are critical because it spread it worldwide. It makes other countries other people know from word of mouth “you’ve got to go to Belize, you’ve got to do this”, even if they just say “you’ve got to go to Belize, [indistinct], go to ReefCI”, then someone else can hopefully take something away from that” (ReefCI Staff 2).

The data collection, whether of good quality or not, was a way for the volunteers to feel as though their trip was providing a positive impact on the environment within Belize. Concerns about data quality were rarely brought up unprompted and volunteers appeared to trust ReefCI’s process to ensure data quality. A volunteer, when asked about data quality and reliability, remarked:

“I think I trust it to be valid as a supplement for what they’re doing. I do not think that, like for example if Belize Fisheries were to have a really specific and hard to implement methodology for data collection and wanted ReefCI to do the same, then you would get what you need. But I think in this case anything is a good enough supplement to what they are doing” (Volunteer 5).
Volunteers expressed that they trusted the marine biologist and other staff to supervise and provide comments to improve: “Yeah, I guess would the data, maybe it could be a bit problematic with data error because of the training and that. But that’s pretty minor I guess because you always have your off-sider, your trainer with you” (Volunteer 9). Another volunteer agreed with this sentiment: “I thought it [dive training] was good, it was, let me think, it was good when there was a marine biologist there…I felt like he knew more, you could ask him stuff and he would be able to answer” (Volunteer 4).

Volunteers did show some reservations with their ability to collect data, especially during surveys that rely heavily on memorization such as the ReefCI check and commercial fish survey. Diving experience and data collection had a link with how comfortable volunteers felt with collection quality data. Newer divers felt less confident with their and other new diver’s data collection skills:

“But if you have a group of people who are beginner divers it takes away from the amount of people collecting data, which then reduces the amount of data that, or if you have a bunch of people running around swimming all over the place, and someone is trying to corral people, then your surveys become, they’re just not as accurate I would assume, or lengthy. I don’t know.” (Volunteer 2)

There was some discussion about how some surveys were easier to do then others, and that this distinction may create a lack of confidence:

“Exactly, it’s [referring to lobster, conch, and lionfish surveys] a lot more physical, whereas the coral and the fish, it’s much more subjective because we obviously aren’t professional biologists so it’s like “I think that might be a black
grouper, but it might not be…” So when you’re reading that data you lose a bit of confidence in it, whereas with the lionfish it’s like yeah, there’s a shrimp in the lionfish’s stomach, I can see it with my own eyes.” (Volunteer 11)

However, while there was some trepidation noted by newer divers, there was an acknowledgement that ReefCI’s training and practice helped prepare the divers better, especially over time:

“It was pretty good, I felt quite confident going out, but it is different seeing it on a presentation than being in the water and that kind of backs it up as well. And I think since I’m here for four weeks we get to practice that a lot.” (Volunteer 9)

“Yeah it was pretty clear, and they stopped all the time to ask questions if you were confused. And with the lionfish spearing they let you practice on land with a coconut, which is a lot more useful. And they’ve got pretty much every book under the sun for conservation, so if you need help with fish ID, everything is there for you.” (Volunteer 12)

This trepidation or lack of confidence felt by the volunteers surrounding the quality of the data they were collection was also apparent when the spoke about their contributions to conservation through ReefCI. There was a perception that even if the data they collected was not used or of good enough quality that their trips had a positive impact:

“Yeah, and for effective data collection you have to be trained in whatever you’re doing, and there’s not exactly more than 24 hours in a day. I’d like to think though at the end of the day that my contribution is there, just because I’m
here, that I’ll go home and talk about my experience and, yeah, participate that way. And the money I spent being here I think is used wisely, to keep this place going.” (Volunteer 1)

“I think the main upside is in addition to getting data you’re involving and engaging people; they take on an advocacy and awareness position that goes beyond the value of the data. I think to me the trade off between the reliability and this awareness/advocacy is very much in the positive. Two or three scientists or MPA operators who would be doing much more rigorous data collection and doing some advocacy, yeah more reliable and they could do some advocacy but nowhere near what a large growing group of volunteers could do.” (Volunteer 5)

As illustrated, many of the volunteers noted that ReefCI provided education in order to create and promote awareness of these issues, and that perhaps this conservation education was just as important as the data being collected.

Of the 23 survey respondents, 15 volunteers agreed that the training they received from ReefCI made them confident in their data collection abilities. However, 9 of the volunteers were not certain of whether or not the data they collected was on par with data collected by scientists. All respondents except one stated they would be likely to undertake a future volunteer tourism holiday based on their experiences with ReefCI. Volunteers were confident in their training abilities, but were sceptical that their abilities were comparable to the level of professional scientists.

As previously stated training presentations were built into the times between dives, or the surface intervals; the time needed for the body to process the excess nitrogen released during
a dive (Scuba-Tutor, n.d.). Lionfish spearing training and ReefCI Check training were generally done outside the main house on the island, while all fish/coral/invertebrates identification training was done in the main house, either in the sitting room or dining room. Figure 5 shows a training session in progress.

Training for data collection was mandatory for all divers interested in data collection, though participation in data collection was not mandatory. Staff communicated training times in the dive briefs which were held either after dinner or breakfast, and a chalkboard with this information was updated every day. Participation in the training times during the four weeks I attended ReefCI was high, with some exceptions: 1) long-term or repeat guests who felt they had a firm grip on the subject or 2) guests not participating in data collection. My notes surrounding training were largely centered on the ReefCI staff conducting the training, for example:

“At 10:30am we did a Fish ID presentation where [Staff Member] went through all the main families and main species from each family to be surveyed. He also showed all the hand signals for each. At the end he did a mini quiz to make sure people were paying attention, but also acknowledged how difficult it can be. The volunteers all had different levels of familiarity with fish ID and signals, and [Staff Member] accounted for that with the questions he asked certain people.”

(August 5, 2015)

Quizzing, as stated above, was used during training. The marine biologist or dive instructors would ask questions to the group or certain people to answer about the material being covered. More advanced material questions were directed to longer-term guests, and often these guests would participate in the training by providing information to the rest of the group. Quizzing was effective because it kept people’s attention and ensured they were engaging with
the material in a way they could feel responsible for. The ability to present information in an engaging and informative way was a limiting factor in how effective the training presentations appeared to be. Limited technology and space for presentations made it more difficult for volunteers to pay attention:

“They only had one computer to do the PowerPoint presentations this week, so [Staff Member] had to use the Fish ID book for her presentation, which was limiting. The dive instructor ran through each group of fish for the survey and tested the volunteers. The volunteers appeared to struggle to pay attention during the presentation.”

Figure 5: Training for data collection in the main house on Tom Owens Caye.

Holding up the fish identification book for training purposes made seeing the specimens difficult, and held up the training while she had to flip through the book. While the dive instructor made efforts to quiz the volunteers, by asking questions about the material already covered, such as
signals for certain fish or defining characteristics, there were times when it was clear the
volunteers were not as engaged. This was evident with volunteers appearing distracted either on
their phones or cameras, or simply not looking at the presenter or materials. The oral quizzing
seemed effective at times to keep volunteers’ attentions, however, there was no accountability or
tracking of volunteers’ actual knowledge. While technology and space made it difficult to
present effectively, experience with public speaking and communication was another factor I
observed to limit the volunteer’s ability to learn and engage with the material.

“[Staff Member] doesn’t seem as effective at doing presentations as the other
staff – they may improve with time and familiarity with the program. English
was not this staff member’s first language which seemed to present a barrier, and
their quiet and stilted presenting style made following the presentation difficult.
The volunteers seemed to more easily lose steam/interest with the presentation
due to the manner of presenting. The volunteers did appear to want to learn –
after the presentation they were using available books and materials to try and
learn the subject before the survey.”

This was confirmed later:

“A couple volunteers, even a long-term one (second year with ReefCI, had been
with ReefCI for 3 months in 2015), remarked that they didn’t feel too confident
about their survey skills and that sometimes it was a guessing game. I also felt
that especially for this one [coral watch survey], examples of coral bleaching
and severity were not well explained. During the dive my buddy was obviously
unsure, and we both were not confident in our slates accuracy.”
During the four weeks with ReefCI volunteers remarked several times that they were not comfortable with their ability to identify certain species, such as banded coral shrimp (*Stenopus hispidus*) or black grouper (*Mycteroperca bonaci*), or they did not like a survey. However, I did not witness any volunteers bringing up this discomfort with the marine biologist or diving instructors. Several volunteers spent time on their own studying the identification materials available in free time, but most often these training presentations were the only education volunteers were given to conduct data collection. Likewise, no procedures were in place for the dive instructors or marine biologist to ensure the volunteers were capable of conducting surveys, beyond practice surveys only held for some of the identification dives.

Notable is that in the conversations with volunteers surrounding reservations in regards to data collection and training, the concern was never extended towards whether or not their data was being used, which links back to the lack of awareness and interest shown by volunteers in regards to data use. Volunteers understood that a main part of their role at ReefCI was to collect data, and yet they showed very little interest or knowledge of what that data was used for. This lack of concern may be linked to the lack of education surrounding data use, decreasing the responsibility volunteers felt they had to produce good quality data.

### 4.2.4 Summary

The results pertaining to objective two, determining how ReefCI volunteer-collected data are incorporated into the co-management, showed that ReefCI has little to no input into how their data are included or used by the Fisheries Department or other conservation partners, and volunteers were largely more concerned with how the data collection activities enhanced their holiday than how the data was used for conservation or management purposes. Some concerns with data quality were apparent, but in general all stakeholders acknowledged that ReefCI’s
training program and employment of a trained marine biologist provide enough assurance to the data quality.

The volunteers were largely unable to identify whether or not ReefCI’s data were used to support MPA management in Belize. Some volunteers knew that ReefCI created an Annual Report that was sent to the Fisheries Department, but none could identify any specific use for that Annual Report. Many of the volunteers expressed an interest in understanding more about the data and their use when prompted, however, this did not appear to be a priority in their experiences. The data collection experience was a priority for the volunteers as well as the staff in order to provide volunteers with an enjoyable and fulfilling visit. Staff were more aware of the issues surrounding data collection and its quality and use, acknowledging that using inexperienced data collectors was a challenge for data quality and consistency. A reliance on the staff marine biologist to provide appropriate methodologies for volunteer tourists was apparent. ReefCI sends its data to ECOMAR and the Fisheries Department, but had no knowledge about how the data were used. As efforts to provide a good experience for the volunteer was prioritized heavily, as observed with a reluctance from dive instructors to be to harsh or strict with diving rules, data quality may become undermined and lose value.

The Fisheries Department spoke about how they used ReefCI’s data as a baseline for comparison by the Fisheries Department. Unfortunately, it is not known how the Fisheries Department uses the baseline data, such as if they react when there is a change, whether it triggers more research, or if it provides any policy changes. ReefCI did assert that their data, especially on commercial key species such as conch and lobster, helps to inform fishing quotas and measurements allowed for fishing, however, the Fisheries Department did not confirm this assertion. It was understood that beyond collecting the Annual Report each year the Fisheries
Department did not process the data any further. It was not apparent if the Fisheries Department had any input on the format of the ReefCI Annual Report, or provided any direction on types of data collection conducted by ReefCI.
Chapter Five: Discussion

The key focus of this research project was to determine what different stakeholders thought or felt about volunteer-collected data through ReefCI and to determine if ReefCI was contributing to MPA management in some capacity. Section 2.1 discussed the many potential contributions of volunteer tourism to development and conservation, as well as many of the potential concerns and problems with the industry, and Section 2.2 explored the potential issues facing conservation by commodification.

The following discussion inserts ReefCI within this debate by analysing the results in Chapter 4 and the barriers ReefCI faces. Discussed in this context is whether ReefCI falls within the concerns considered in Chapter 2 as well as meaningful engagement and participation within the Sapodilla Marine Reserve (SCMR). The discussion addresses alternatives for participation and co-management with the Fisheries Department for the SCMR in Belize. The section concludes with a brief summary of the study’s contribution, its limitations and possibilities for future work.

5.1 Discussion of Key Themes

The following section discusses the results as they pertain to the three bodies of literature reviewed in Chapter 2: Volunteer Tourism; Commodity and Conservation; and MPA Management.

5.1.1 Volunteer Tourism

ReefCI provides a distinct model of volunteer tourism, by attempting to balance conservation work with tourism amenities and pleasures. This is done intentionally by ReefCI, who call their volunteers ‘guests’ rather than volunteers, in order to provide an enjoyable
experience while also providing an opportunity to engage with marine conservation (ReefCI, n.d.).

Many of the criticisms of volunteer tourism outlined in Section 2.1.2 involve inequalities between the host country or community and the home country of the volunteers or organization. ReefCI is a small organization located on a small Caye, where volunteers have little to no interaction with Belizeans during their week with ReefCI, other than a few ReefCI staff. Efforts are made by the organization to employ native Belizeans, and efforts are made to train Belizean youth in diving skills to further their employment opportunities. ReefCI also sells its lionfish to local communities and works with local jewelers by providing lionfish spins and fins for jewellery making; an economic empowerment project for women in Belize. In this sense, ReefCI may avoid some of the criticisms, such as the rationalization of poverty to entice volunteers (Guttentag, 2009), the adoption of Western morality and values by the host community (Simpson, 2004), and an unequal exchange of money and knowledge (Lorimer, 2010). Being so removed from a community may actually be a disservice to the volunteers and ReefCI by reducing the amount of beneficial exchange and sharing that could take place. From my understanding the profits from ReefCI go back into the operations of ReefCI, mainly into the expensive rent they pay on Tom Owens Caye and purchasing the fuel for dive boats and the generator on the island. It is not understood how much, if any, of the profits are filtered into the community beyond the wages paid to local employees.

ReefCI makes efforts to not only train the volunteers to do surveys and data collection, they attempt to educate the volunteers about issues related to marine conservation in Belize. Volunteers engage with this topic intimately, spearing the invasive and destructive lionfish on nearly every dive and seeing examples of coral bleaching and death. Engaging with these issues
through data collection provides the volunteer context and connection, potentially allowing them to raise not only their own awareness of the issues but bring that education home (Newman et al., 2003).

The Belizean staff members interviewed did offer a hopeful view of volunteer tourism in Belize. They mentioned that the ability to share knowledge and experience with the volunteers provided an opportunity to learn and share; the marine biologist mentioned this process helped inform scientific methodologies. Another staff member noted that speaking with volunteers from other countries allowed her to share her worldview and vice versa which was a process she spoke highly of. Countries deeply entrenched in a tourism economy, like Belize, may have adapted the processes of neoliberalism, such as a reliance on private interests taking charge of both management and data collection, by recognizing the value of tourism to provide learning opportunities and knowledge exchange (Medina, 2015). There is a risk that incorporating volunteer-collected data and volunteer tourism into marine planning and management will result in neoliberal and neocolonial relationships such as wealthy volunteer tourists with a disproportionate say in Belizean marine conservation. Further understanding of how volunteer tourism can be incorporated into co-management partnership is needed to understand the impacts of this potential neocolonial relationship, but as of yet this is not the case with ReefCI.

The quality of the data produced by volunteer tourism projects should be of paramount concern when contemplating the inclusion of this data in management or policy. Management of MPAs and other protected areas requires extensive and continuous collection of data and the efficacy and reputability of those management schemes depends on quality data collection and analysis (Carlsson & Berkes, 2005). At ReefCI there are several barriers to collecting good quality data, including thorough training, adequate supervision, as well as complicated and
unclear tasks. As a participant-observer I not only observed volunteers struggling with understanding certain data collection tasks, but I also experienced a lack of confidence in some of the surveys I participated in. The training facilities and materials were lacking, and the varying levels of experience and comfort with surveys such as fish identification or coral watch likely impacted the quality of the data from the volunteers. Some surveys, such as the Queen Conch and Caribbean Spiny Lobster survey were much easier for the volunteers to participate in and were highly supervised by either the dive instructors or marine biologist. The focus on one species and with a simple survey technique likely contributed to more comfort with this survey type (Newman et al., 2003).

Unfortunately, I was unable to discuss the data quality from ReefCI with the staff marine biologist who had been responsible for several years of entry and analysis (he left the organization in August 2015), but the Fisheries Department was confident in ReefCI’s ability to create methodology for volunteer tourists and verify its value. Longer-term volunteers were more likely to feel comfortable with data collection and at the end of four weeks my comfort with certain tasks had increased. It has been demonstrated that over time volunteers become more competent and effective data collectors (Darwall & Dulvy, 1996). With a trained marine biologist supervising the data collection, entering and analyzing the data, and assurance from the Fisheries Department that this process produces data that can be trusted, data quality may not be a large issue for ReefCI in terms of their continued involvement as data collectors for the SCMR. However, the purpose of this study was not to assess the validity of the data collected, but to examine perceptions of these data in relation to volunteer tourism experiences and whether and how these data are and should be used in MPA management.
5.1.2 Commodification and Conservation

ReefCI markets itself as a tourism experience that provides data collection to support conservation efforts in Belize. Interviews with staff and the Fisheries Department in Belize illustrated that the data collected by ReefCI volunteers are reported to the Fisheries Department but not used to inform management decisions, and that ReefCI has little to no input in how their data are used or in how the SCMR is managed. While there is opportunity for ReefCI to expand their engagement with MPA co-managers (the Fisheries Department and SEA) regarding their data and its potential applicability for management, as discussed above, it is concerning that their program relies on the continued participation of volunteers who are under the impression the work they pay to do for ReefCI produces policy-relevant conservation science. By providing a data collection experience for their guests, without ensuring that the data produced inform either scientific research or management, ReefCI is commodifying conservation science as part of the tourist experience.

The interview with Polly Alford indicates a strong belief in the program and the quality of data, but ReefCI have equally chosen to focus on the balanced tourist experience. However, in their attempts to attract new volunteers and provide a balanced tourism/conservation experience for current volunteers, they may be focusing more on the volunteer’s motivations and desires than the needs of conservation science (Guttentag, 2009). The reason for this is understandable; as volunteer tourism becomes more popular, competing for volunteers becomes a larger concern, especially for a small organization like ReefCI (Cousins et al., 2009; Guttentag, 2009). Likewise, as volunteer and conservation tourism becomes more popular, there has been an increase in volunteer projects with no conservation value taking advantage of a new revenue stream, creating doubt and questions about the scientific legitimacy of volunteer tourism as a whole. 
(Cousins et al., 2009). ReefCI may fall into this trap due to their lack of resources to engage with the data beyond its delivery to the Fisheries Department.

The volunteers are also complicit within the commodification process, as was reflected within the survey and interview data presented in Chapter 4. Volunteers saw the data collected as important to their experience, but also noted that they would have enjoyed their time with ReefCI even without those activities. They emphasized the tourist amenities and the flexibility of the trip provided by ReefCI as much as the data collection activities. Most notably the volunteers responded very well to the ability to achieve dive certifications and dive experience, but they were mostly ambivalent about how the data they collect are used. The data collection experience is extremely valuable to the volunteers, for many it was the reason they went on a holiday and chose ReefCI, yet it seemed that the data collection was an activity they were experiencing rather than a contribution they were making to science.

The volunteers’ ambivalence towards meaningful data collection, that is, engaging with the data beyond the collection process and understanding how they can be and are used for conservation purposes, reflects back to neoliberal conservation and commodification. A lack of engagement with conservation science through data collected by ReefCI, both by ReefCI and the volunteers, illustrates how neoliberal policies of moving away from government funded scientific enterprise to private citizens conducting and funding science lacks the structure and accountability necessary to ensure actual scientific contribution (Lorimer, 2010). ReefCI market themselves as an alternative to traditional commercial tourism especially in regards to how their projects, like data collection, benefit the scientific community. In Section 2.2 some barriers commodification creates to data use were identified. ReefCI appears to be an example of commodification creating a barrier by prioritizing the volunteer tourism data collection
experience over conservation science. Commodifying the scientific component of the ReefCI experience, through the marketing and volunteer motivations, has actually created a barrier for ReefCI to ensure their data are being used. The struggle to keep volunteers happy with their expectations fulfilled and their operations running at full capacity, again to fulfill volunteer expectations about their tourism amenities, has prioritized the data collection experience for the volunteers over the conservation science.

The volunteer tourism process is thus inherently contradictory to the needs of conservation science according to the definitions of commodification and neoliberalism. Volunteer tourist operators, and organizations who connect volunteers to project, advertise their programs as an opportunity for data collection that feeds into management or conservation, but because they are ultimately a tourism outfit they must ensure the volunteers have an enjoyable experience beyond the data collection. This was illustrated through the emphasis ReefCI places on providing a positive tourism experience and in the volunteers corresponding enjoyment of the balance created between data collection and a more traditional tourism experience. The attitudes of the volunteers regarding the accommodations also supports the assertion that regardless of the altruistic motivations that lead them to ReefCI, ultimately the relationship is of commodity exchange; one where the experience of data collection becomes a commodity to purchase.

5.1.3 MPAs and Tourism

The Fisheries Department is responsible for managing the Sapodilla Cayes Marine Reserve (SCMR), where ReefCI runs its volunteer tourism program and collects biological data. According to a Fisheries Department employee, while the SCMR used to be co-managed between the Fisheries Department and SEA, that is no longer the case. However, no information about this change in management was found in any policy documents. Regardless of the formal
co-management status, another interview with Fisheries Department staff indicated the co-
management relationship between the Fisheries Department and SEA only existed on paper and
SEA had no day-to-day involvement in the management of SCMR. ReefCI is the only volunteer
tourism organization that has facilities within the SCMR, located on Tom Owens Caye. With the
Fisheries Department only employing four full-time rangers who collect data in addition to their
patrol and enforcement duties in the SCMR, ReefCI provides the most consistent and
comprehensive data collection in the area. ReefCI may provide a potentially valuable source of
data on the SCMR, but Chapter Four demonstrated that not only does the Fisheries Department
not use this data for management purposes, there is very little engagement or communication
between ReefCI and the Fisheries Department regarding the potential uses or implications of this
data.

The SCMR Management Plan includes many types of data, most referenced is data
collected by SEA; ReefCI is not included within the management plan. The plan includes many
statements that the SCMR wants to strengthen the data collection for the reserve in order to
create a better understanding of activities, such as illegal and legal extractive fishing, and
monitoring. This is where ReefCI may be the most valuable, especially since the management
plan also speaks to the collaborative attitude held by SEA in order to develop the management
plan, stating they hope: “To increase communication, cooperation and coordination with other
conservation organizations and research partners involved in management, research and
monitoring on the Belize reef – particularly in the Southern Belize Reef Complex” (SEA Belize,
2010, p.179). The management plan includes data sets that describe coral reef health and cover,
fish species including information about endangered species like the Nassau grouper
(*Epinephelus striatus*), economically important species including Caribbean Spiny Lobster
(Panulirus argus) and Queen conch (Strombus gigas) as well as key commercial fin fish species (SEA Belize, 2010). ReefCI collects data for each of those species. The SCMR Management Plan sets conservation targets, identifies the biggest threats to biodiversity, provides monitoring strategies for conservation targets, and sets the management goals, strategies, and objectives for the reserve (SEA Belize, 2010). Increasing the depth of data and improving collaboration are goals within the plan; incorporating ReefCI data would help to meet these goals.

There are many potential barriers for volunteer tourism organizations to participate in MPA management schemes. Some of those barriers can be extrapolated from Section 2.1.2, and include: unverified or poor quality data; the prioritizing of volunteer interests over conservation needs, impacts to local communities and lack of local involvement in projects to name a few (Newman et al., 2003; Lorimer, 2009; Sin, 2009). Beyond these concerns is also the simple question of whether the volunteer tourism organization and government are willing and capable of participating in a partnership for management. Volunteer tourism claims to provide an experience for volunteers that will have positive impacts, and ReefCI is no different. There are multiple instances on ReefCI’s website where the organization claims that the data they collect goes directly to the Fisheries Department, ECOMAR, and the Project AWARE Whale Shark project, as well as claims that this information is used to develop and support protected areas in Belize (ReefCI, n.d.). For example, the website claims that for the queen conch survey that:

“The information assimilated for this project is allowing us to map out the key biologically important areas of the Marine Reserve, in terms of conch populations and activity. In time this information will be highly beneficial to the government in implementing the conservation and preservation zones. Once
This has been enforced there should be a general increase in conch numbers for the marine reserve and connected areas.” (ReefCI, n.d.)

ReefCI also claims that volunteers involved with the internship program, which was underway during my two weeks as participant-observer in August 2015, would have the opportunity to get: “experience in working with Belize Fisheries department” and “practical insight into Marine Park Management and liaising with fisheries officers” (ReefCI, n.d.). There was no indication during my time or in my conversations with staff that the interns would be speaking with anyone from the Fisheries Department or engaging with information relating to park management. These assertions are one of the ways ReefCI markets itself and acquires new paying volunteers.

As stated before, it is unlikely that ReefCI is knowingly deceiving their volunteers and potential volunteers through its marketing. Based on the findings presented in Chapter 4, it seems more likely that ReefCI lacks the resources and funding necessary to devote the time and energy to both provide meaningful data and analysis to engage with the Fisheries Department as well as provide management input and to liaise with other co-management partners such as SEA. Since ReefCI operates within the SCMR and collects data relevant to the SCMR, it seems pertinent and beneficial to include them in some way in the co-management of the MPA. As day-to-day users of the SCMR since 2003, ReefCI not only has a stake in the management decisions, but has a shared responsibility for the health of the SCMR (Carlsson & Berkes, 2005). There is already a positive relationship between the Fisheries Department and ReefCI which may lay a good foundation for the trust necessary for effective co-management to operate (Carlsson & Berkes, 2005). The inclusion of unconventional management partners, in this case a volunteer tourism organization, represents the possibility for co-management to include new forms and sources of knowledge (Berkes, 2009).
My recommendation for ReefCI to take an increased role within the SCMR comes not only from my own bias from spending time and enjoying ReefCI and hoping to see a more beneficial role for them, but also from conversations with Polly Alford about her desire to grow and expand their programming. This desire is a pre-requisite for success and for taking on the work that will be required to realize the goal of having ReefCI’s data be more useful to management. Polly stated in our interview that she is hoping to set up a board of directors and/or a partnership with a university or research institution to expand their educational outreach and recruitment for new volunteers. She wants to publish papers and do more presentations to expand ReefCI’s profile in the conservation industry. This interest shows that ReefCI recognizes there is room to improve and that they want to be more involved in conservation and provide more opportunities for their volunteers and the conservation community to understand the challenges faced in the SCMR. It is for these reasons they may be able, with investment of both funding and resources, to participate in some capacity within the management of the SCMR.

5.2 Recommendations for Volunteer Tourism in MPAs

This section draws on the results presented in Chapter 4 as well as the literature in order to make recommendations for the effective incorporation of volunteer tourism in MPA management. These recommendations are for: ReefCI, policy-makers, volunteers, NGOs, and marine conservation volunteer tourism more broadly.

5.2.1 ReefCI

ReefCI can make several changes to increase their participation in the conservation community and SCMR management. Their data is already trusted to be of good quality by the Fisheries Department, and given their thirteen years of a good relationship (evidenced by ReefCI
obtaining annual research permits), there is an opportunity for an increased level of communication and engagement from ReefCI. This commitment to deeper involvement with the Fisheries Department will take an increased commitment of resources from ReefCI in order to meet and coordinate with members of the Fisheries Department responsible for the management of the SCMR, other relevant policy-makers in Belize (including SEA, the SCMR co-management partner), and Fisheries staff working within the SCMR. However, this commitment will transform into the knowledge their data are being used responsibly and effectively and impacting the issues they are aware of within the SCMR.

Dissemination of research through education is valuable to scientists in order to deepen their own knowledge of the issues their research bears (Brightsmith et al., 2008). ReefCI can attempt to increase the breadth of their education program beyond their volunteers and engage with the conservation community in Belize and globally. ReefCI sends their coral watch survey data to ECOMAR, a Belizean marine conservation charity, which is one avenue through which they may be able to engage further with the Belizean conservation community and their contributions to academia and policy. Creating a partnership with other volunteer tourism organizations in Belize, such as TIDE’s Ridge to Reef and Blue Ventures, may also be an opportunity to represent volunteer tourism in Belize and its possible contributions to MPA management in Belize.

ReefCI’s volunteers were excited to learn about and participate in ReefCI’s conservation programs, however they expressed less interest, as per the surveys, in how ReefCI used the data collected, or indeed how MPAs support marine conservation. ReefCI may benefit from attempting to educate its volunteers about how its data supports marine conservation and provide deeper context for the volunteers about how their data collection activities impact conservation.
This deeper understanding may aid ReefCI as well as conservation science, as more engaged and educated volunteers help raise awareness about issues important to them, and they may be more likely to return to ReefCI or encourage others to attend (Newman et al., 2003). Likewise, if ReefCI encourages volunteers to commit to longer-term timeframes it may promote deeper understanding of data collection requirements (Darwall & Dulvy, 1996). There is also the possibility that volunteer tourists have the ability to contribute new ideas and methodologies to conservation science; ReefCI may benefit from being adaptable to this possibility but volunteers should likewise be open to collaboration in volunteer tourism projects (Kennett et al., 2015). ReefCI may also want to strive to ensure their marketing materials best reflect the work they do and the contributions they make so as to most truthfully market their program to potential volunteers (Cousins et al., 2009).

This increased engagement with the Fisheries Department, other conservation NGOs (including SEA as co-manager of the SCMR), and volunteer tourism operations by ReefCI will require funding and resources ReefCI may not have. However, with conservation being a main message and goal of ReefCI’s program, it would be beneficial to ensure the work they are doing is meaningful and actually contributing to conservation efforts in the SCMR and Belize. ReefCI is in the best position to ensure that their programs are effective for conservation and MPA management, that their volunteers are engaged and educated in conservation issues, and that they promote themselves in a way that is truthful. Most simply, investments into educational resources for the volunteers, such as a projector for presentations, a dedicated device to view and study presentations, and more innovative species identification techniques, would aid the volunteers in feeling more comfortable with the material and more confident in the quality of their data.
5.2.2 Policy Recommendations

The Fisheries Department in Belize is responsible, along with the Forestry Department and NGO co-management partners, for managing the MPAs along its biodiverse and ecologically and economically significant barrier reef system. The Fisheries Department has largely had positive relationships with the volunteer tourism operators in Belize and understand the services these organizations can provide in terms of data collection. By working more closely with ReefCI within the SCMR, the Fisheries Department may benefit from increasing the quantity and scope of data available for their policy decisions. Increasing the amount of data available relevant to the SCMR will aid the Fisheries Department by providing up-to-date and continuous information about biodiversity and health, these are important factors not only for conservation activities but for tracking presence and quantities of commercially valuable species and relevant for both local and commercial fisheries markets. ReefCI had a demonstrably good relationship with the Fisheries Department in the past and has the capacity at the moment to provide continuous relevant data from the SCMR, which the Fisheries Department trusts as good quality. Inclusion of ReefCI’s data into management decisions and policy for the SCMR is beneficial to the Fisheries Department from a management perspective.

MPAs in Belize have already engaged in co-management frameworks, however, recommendations have been made to devolve their administrative and authoritative responsibilities onto community organizations and other stakeholders (Cho, 2005). Incorporating ReefCI into a co-management arrangement, perhaps at first as a data collector, provides the opportunity to share decision making with a long-term resource user, thus acknowledging their rights and duties to the SCMR (Carlsson & Berkes, 2005). ReefCI is only one actor within the SCMR, yet they could be a valuable one in order to inform the management goals and plans for
the reserve. This partnership also provides the opportunity for the Fisheries Department and ReefCI to work together and keep abreast of changes and developments to promote adaptive problem solving both within the SCMR and policies (Berkes, 2009).

5.2.3 Volunteers

Volunteers interested in ReefCI, and even volunteer tourism more generally, would benefit from holding these organizations accountable for the claims made by their marketing. The volunteers interviewed showed interest in understanding more about their contribution through data collection, but few demonstrated efforts to learn more. Volunteers would best serve their interests by ensuring that they understand the potential ill effects of volunteer tourism; a topic of recent interest in not only academic literature but in numerous online articles (Guttentag, 2009; Sloat, 2013; Kahn, 2014). ReefCI providing more education and relevant marketing may aid volunteers in acquiring a better understanding of the potential contribution they can make in the future, which has potential to create more engaged and aware volunteers.

5.2.4 Volunteer Tourism Operators

Volunteer tourism operators working in marine environments, assuming their data collection programs produce valid and reliable products, may benefit from attempting to adopt many of the suggestions made for ReefCI. First engage often and meaningfully with government agencies responsible for MPA management. Second, provide relevant education and engagement with volunteers. Third, engage with other conservation NGOs and volunteer tourism operators in the region to coordinate efforts to educate and ensure meaningful adoption of data produced for conservation (Wearing & Wearing, 1999).
5.2.5 NGOs

Conservation NGOs may consider using volunteer tourism in order to collect data in the future. My findings reflect those of Newman et al., (2003) who recommend that NGOs should ensure any volunteer tourism operation they design is one that provides methodology easily taught to potential volunteers in order to ensure the data collected is of good quality. Lionfish and Caribbean Spiny Lobster surveys, for example, posed fewer challenges than the ReefCI Check or Commercial Fish Survey for volunteers at ReefCI. Programs could also be designed with longer-term volunteer commitments, as data collection accuracy increases over time (Darwall & Dulvy, 1996). These organizations may also make efforts to ensure that their advertising matches their true conservation outputs, allowing volunteers to clearly understand the true impacts and value of their work (Cousins et al., 2009). These organizations would benefit not only themselves but their conservation partners to ensure that the data they collect is relevant to conservation interests in their regions, is useful for conservation policy-makers, and ensure they promote collaborative and adaptive relationships with their partners (Carlsson & Berkes, 2005; Cousins et al., 2009).

5.3 Contributions

The literature on volunteer tourism has focused on the motivations of volunteers, the efficacy of certain volunteer tourism projects, and the potential impacts or benefits of volunteer tourism (Wearing & McGeehee, 2013). This research has broadened our understanding of volunteer tourism and how the data volunteer tourism produces are incorporated into conservation, specifically MPAs. The literature is moving into deeper analysis of the reality of the commodification of conservation and volunteer tourism (Cousins et al., 2009, Coren & Gray, 2012). This research contributes to our understandings of commodification within conservation,
by drawing our attention to how the data collection experience is part of the commodification processes shaping volunteer tourism. Most significantly, this research demonstrates how the commodification of the experience of science ironically creates a barrier to the practice of good data collection. This research also contributes to the literature surrounding the role of volunteer tourism in MPAs. This should help inform future research to understand how volunteer tourism may be able to engage in an increased role in MPA management and provide recommendations to improve. The literature is currently lacking in case studies that provide examples of how volunteer tourism can be incorporated into co-management partnerships within MPAs. This research informs future research to the possibility of volunteer tourism inclusion in co-management schemes and provide insight to the barriers to volunteer tourism inclusion to co-management. This research also provides a new understanding of how commodification operates within volunteer tourism, conservation, and MPAs and provides a more robust understanding of how these fields work together to the field of MPA and conservation management.

5.4 Limitations of Study

Time, sample size, and resources were the most limiting factors of this research. The four weeks spent with ReefCI only provided a sample size of twenty-six volunteers available for interviews. While surveys were intended to be available to volunteers between my time with ReefCI, a youth-camp with different programming to ReefCI’s typical week made surveys difficult to advertise and ethically problematic as the campers were all minors.

Plans were made to visit Hunting Caye in order to interview one or more Fisheries Department staff members stationed there. However, neither ReefCI nor the Fisheries Department had the resources to make this trip possible. This limited my understanding of the SCMR’s day to day management and policies. The second interview with a Fisheries Department
representative was limited by time; another staff member had been contacted for an interview on that date but had been called out on an emergency, and the staff member interviewed did it without an appointment. This limited the amount of time available to interview this staff member, and also limited the depth and breadth of topics to discuss. The lack of time and thus lack of depth in the interview with Fisheries meant I was unable to ascertain certain details pertaining to Fisheries Department use of data collected by ReefCI and specifics about their involvement and oversight with ReefCI.

5.5 Future Work

This research only focused on one volunteer tourism organization and examined how or if the data it collects is used to inform policy in the Sapodilla Cayes Marine Reserve. Further research about a larger number of volunteer tourism organizations and their involvement in MPA management would be beneficial in understanding how volunteer tourism can support environmental management and conservation efforts. The increasing role of public expenditure on research, as opposed to government funded research, includes volunteer tourism and efforts should be made to best understand how it can contribute to meaningful MPA management and policy (Lorimer, 2010).

A further examination of the consequences of the commodification of science through volunteer tourism will inform the value and efficacy of volunteer conservation tourism. This examination may provide the volunteer tourism industry with a way to evaluate the effectiveness of volunteer tourism projects. Further examination into Wearing’s (2005) assertion that volunteer tourism can become de-commodified, such as Gray & Campbell’s (2007) and Coren and Gray’s (2012) research, should be done to determine how, or perhaps if, volunteer tourism can adapt to become de-commodified and disrupt the commodification process.
Chapter Six: Conclusions

This project examined the attitudes and perspectives surrounding volunteer tourism and explored the reality of volunteer tourism’s data products integration into MPA management policy. By situating the research within co-management literature it was clear that co-management is a process that requires ongoing knowledge production, trust between partners, and the ability to engage thoughtfully and effectively with management objectives, which I believe ReefCI is able to achieve with the Fisheries Department of Belize (Berkes, 2002; Carlsson & Berkes, 2005). This research also examined how science can become commodified through volunteer tourism, and provided an example of this phenomenon. By providing suggestions to ReefCI to engage further with their data and its use by the Fisheries Department and other conservation organizations, the consequences of commodification are lessened. Decommodification of volunteer tourism through effective engagement and exchange through education and meaningful relationships has been questioned (Gray & Campbell, 2007), and may not be possible given the continued sale of an experience, but ReefCI may be able to mitigate the doubts surrounding their legitimacy by being more engaged with their conservation products, providing for a partial decommodification.

ReefCI offers an example of the potential volunteer tourism has to provide meaningful and effective conservation science to support MPA management. Unfortunately, due to several factors, mainly funding, resources, and business objectives, they have been unable to ensure the data they collect is used to its fullest extent by policy makers and enforcers. There are other factors which have created barriers to increasing ReefCI’s engagement with their data; the Fisheries Department and SEA have not included ReefCI data into previous management plans despite assertions they trust and value the data. My lack of time with the Fisheries Department
means I was unable to ascertain why they do not use ReefCI data more fully, and I cannot confidently make an assumption to this point. ReefCI is a small organization which has lacked the resources and capacity to engage with the Fisheries Department and SCMR management. The issue, perhaps, lies in the fact that this lack of engagement exists despite marketing that claims otherwise. Another issue is a clear focus on providing a balanced tourism experience for ReefCI volunteers, making ReefCI a clear example of the commodification of conservation science. Commodifying conservation science within volunteer tourism undermines data collection activities by volunteer tourists by calling into question the true purpose of volunteer tourism. Volunteer tourism is a growing market and examples of volunteering projects capitalizing on this new revenue stream without any true conservation value are appearing (Cousins et al., 2009).

ReefCI holds a unique position in Belize as one of a few volunteer tourism organizations and the only one located in the Sapodilla Cayes Marine Reserve that operates year-round. Located along the world’s second largest barrier reef, ReefCI’s data collection is relevant not only to conservation activities but local and commercial fisheries which are part of the economic backbone of the country. MPA management in Belize is largely operated through the Fisheries Department, and co-management schemes have been embraced to include NGO’s and other local actors in the management process (Cho, 2005). ReefCI has a positive relationship with the Fisheries Department, and I believe there is opportunity for ReefCI to enter into a co-management relationship with the Fisheries Department in order to ensure the data they collect is used and their observations and connection to the reserve is recognized and valued.

Funding for conservation research is increasingly coming from private or NGO led sources (Lorimer, 2010) and volunteer tourism may provide an opportunity not only to increase
funding for research through fees and donations but provide an increase of bodies providing quality data collection (Newman et al., 2003; Brightsmith et al., 2008). Marine environments are being impacted by human activities, increasingly by the tourism industry, and volunteer tourism may be a solution that not only provides ongoing data collection surrounding these activities that may lead to more effective policy solutions to mitigate impacts, but it also provides an opportunity to educate the public about marine conservation (Hawkins et al., 1999; Newman et al., 2003; Brightsmith et al., 2008). This research provides an example of how volunteer tourism may not be effective in terms of incorporating volunteer-collected data collection into MPA management or policy, however, it may provide a pathway to improve the industry. The data collected by volunteer tourism operators has direct relevance for policy makers and practitioners who support marine conservation on the ground. ReefCI has the opportunity to engage more thoughtfully in their involvement with marine conservation to provide a valuable source of knowledge production for conservation activities in Belize.
References


Appendices

Appendix A: Volunteer Survey

You are invited to participate in a research project that examines volunteer tourism in marine protected areas (MPAs). Marine protected areas are parks established for the purpose of protecting marine resources and habitats, while volunteer tourism is a form of tourism in which volunteers participate in research and conservation activities. Ideally this research will result in contributions to the academic fields of volunteer tourism and marine conservation and inform better practices in these fields, both in Belize and elsewhere.

Who is conducting this research?
- Georgia Brander, a graduate student from the Department of Geography at the University of Guelph, in Canada. You can reach her at branderk@uoguelph.ca
- Her supervisor is Dr. Noella Gray. You can reach her at grayn@uoguelph.ca or 1-519-824-4120 ext 58155.
- Please contact us with any questions about the project.

Who is Supporting this Research?
- This project is funded by the Social Sciences and Humanities Research Council of Canada.

What am I asked to do and why?
- You are invited to take part in this research in order to share your views as a participant in a volunteer tourism program.
- This project will include all ReefCI guests who visit Belize between June 1 and August 15, 2015.
- If you choose to participate, we will ask you to complete a survey. It will take about 15 to 20 minutes.
- The researcher may also contact you at another time to ask about your willingness to participate in an additional interview. You may also request a follow-up interview if you have more information to share.

Benefits:
- There is no direct benefit for you, but we hope that the results of this research will help ReefCI to document how their programs are contributing to marine conservation in Belize and to inform others interested in MPAs and volunteer tourism.
- We do not know of any risks for you if you participate in this study.

See next page…
What will happen with the information I provide?

- Your name will not be recorded and no one will be able to identify you based on your answers.
- The researcher is not working for ReefCI or the government of Belize. The results of all of the surveys will be shared with these groups in a report. You may also request a copy of this final report.

What else should I know?

- Your participation in this project is voluntary. You are not required to complete the survey as part of your trip with ReefCI.
- If you agree to participate, you may skip any question you prefer not to answer. You may also stop completing the survey at any time.
- After the survey is complete, you cannot withdraw from the study because your survey cannot be identified (it will not have your name on it).
- The data collected for this study will be stored at the University of Guelph for seven years, after which it will be destroyed. It will be included in reports and publications.

If you have questions regarding your rights as a research participant, contact:

- Research Ethics Director
  - University of Guelph
  - 437 University Centre
  - Guelph, ON N1G 2W1
  - Telephone: (519) 824-4120, ext. 56606
  - E-mail: sauld@uoguelph.ca
  - Fax: (519) 821-5236

You indicate your voluntary agreement to participate by completing and returning this questionnaire.

If you are willing to complete the survey, please go to the next page.
Volunteer Survey

Please indicate your main motivations for going on a volunteer tourism holiday. Please check the box for all that apply. Please indicate which of these motivations was most important to you by circling the one that was *most* important (please circle only one).

- ☐ Travel and adventure
- ☐ Commitment to conservation/environmentalism
- ☐ Self-development (resume building, learn new skills, etc.)
- ☐ Help other people and places
- ☐ To learn about a new country/culture
- ☐ Cultural Immersion
- ☐ Family bonding
- ☐ New experience
- ☐ ReefCI program was appealing
- ☐ Other (list in comment section below)

Comments?

What motivated you to choose ReefCI? Please check the box for all that apply. Please indicate which of these motivations was most important to you by circling the one that was *most* important (please circle only one).

- ☐ Destination (wanted to come to Belize)
- ☐ Commitment to conservation
- ☐ Amenities
- ☐ Type of conservation opportunities (e.g. fish identification, species surveys, etc.)
- ☐ ReefCI was recommended by someone I know
- ☐ Other (list in comment section below)

Comments?

Have you ever participated in a volunteer tourism program previously?

- ☐ Yes
- ☐ No

If yes – where, and what did you do?
How did you learn about the ReefCI program? (e.g. internet search; word of mouth; advertisement (indicate where you saw the ad); travel agency; etc.)

What have you liked best about your trip with ReefCI so far?

What have you liked least about your trip with ReefCI so far?

Please indicate the level you agree or disagree with the following statements:

I am concerned about the health of coral reef ecosystems.
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

I am familiar with marine protected areas (MPAs) as a conservation tool.
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Marine protected areas are an excellent way to protect coral reef ecosystems.
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Fishing should be allowed within marine protected areas.
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Tourism should be allowed within marine protected areas.
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Decisions about marine protected area management should be based on science.
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Decisions about marine protected area management must not negatively impact local stakeholders (e.g. fishers).
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Volunteer tourism supports marine protected areas because volunteers pay to visit.
☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree
Volunteer tourism supports marine protected areas because volunteers help to collect relevant scientific data.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Please indicate the level you agree or disagree with the following statements:

Data collected by volunteers is reliable, on par with data collected by scientists.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

The data collection training I received at ReefCI made me confident in my data collection abilities.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Data collected by volunteer tourists should be shared with decision makers for marine protected areas.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Decisions about marine protected area management should be based on data collected by volunteer tourists.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Even if data collected by volunteers is not used by decision makers, it is still important for tourists to have the opportunity to participate in biological data collection.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Participating in biological data collection was an essential part of my experience with ReefCI.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

I would have enjoyed my trip with ReefCI even if it did not involve biological data collection.

☐ Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

Have you witnessed any type of policy or enforcement of policy (i.e. enforcement officers, signs, documents about the reserve, etc.) during your time on Tom Owens Island, in the Sapodilla Cayes Marine Reserve, or in Punta Gorda?

☐ Yes ☐ No ☐ Uncertain

In the space below please list and/or describe any examples of policy you have witnessed.

Do you believe the data collection activities you participated in with ReefCI are valuable for conservation within the Sapodilla Cayes Marine Reserve?

☐ Yes ☐ No ☐ Uncertain
Explain:

How likely are you to undertake a future volunteer tourism holiday after your experience with ReefCI?
☐ Very likely  ☐ Likely  ☐ Undecided  ☐ Unlikely  ☐ Very unlikely

General Questions:

What is your gender?  ☐ Male  ☐ Female  ☐ Other

How old are you? _______ Years

What level of PADI certification have you completed? ____________________

For how many years have you been a certified scuba diver? ____

On average, how many times per year do you go scuba diving? ______

What is the highest degree you received? (Please check one).
☐ None
☐ Elementary school diploma
☐ High school diploma or equivalent
☐ Associate degree
☐ Bachelor’s degree
☐ Master’s degree
☐ Professional degree (e.g. MD, LLB, JD, MBA)
☐ Doctorate degree (PhD or equivalent)

If this was a university degree, in what discipline or field did you receive this degree?
_____________________________________________________________________

Please feel free to provide any additional comments related to the questions on this survey.

Thank you for taking the time to complete this survey – your assistance is appreciated!
Appendix B: Volunteer Consent Form

CONSENT FORM TO PARTICIPATE IN RESEARCH

You are invited to participate in a research study conducted by Georgia Brander, a Masters student from the Department of Geography at the University of Guelph, Canada. The research is being conducted under the supervision of Dr. Noella Gray.

If you have any questions or concerns about the research please feel free to contact Georgia Brander at branderk@uoguelph.ca or Dr. Noella Gray at +1 (519) 824-4120 ex. 58155 or grayn@uoguelph.ca

If you volunteer in this study, we would ask you to do the following:

1. Participate in an in-person interview that will last approximately 45 minutes to 1.5 hours (scheduled at your convenience).
2. With your permission, this interview will be audio recorded in order to create a transcript of our conservation.

This research intends to explore the intersection of two increasingly prevalent conservation strategies: marine protected areas (MPAs) and volunteer tourism. Marine protected areas are parks established for the purpose of protecting marine resources and habitats, while volunteer tourism is a form of tourism in which volunteers participate in research and conservation activities. Ideally this research will result in contributions to the academic fields of volunteer tourism and marine conservation and inform better practices in these fields, both in Belize and elsewhere.

You may feel uncomfortable answering questions about specific experiences with which you have been involved.

In order to avoid/lessen this discomfort please be aware:

- Your involvement in this study is voluntary.
- You may withdraw your participation at any time throughout the interview and the study itself without repercussions.
- You may skip any question(s) that you feel uncomfortable answering without repercussions.
- The researcher is working independently as a research assistant for the University of Guelph and is not in the direct employment of ReefCI or the government.
- You may request a follow-up interview if you have anything further to share.

Once the interview is complete, the audio files will be transferred to a password protected, encrypted computer and deleted promptly from the original recording device. The recordings will be transcribed within one month and the original audio recording will be deleted from the researcher’s computer. Any physical audio or written files or backup devices will be locked and secured within the researcher’s field site accommodations and be transported back to the University of Guelph upon completion of the research term. Here the collected data will only be accessible to the research and her faculty advisor.
Portions of the interview transcript may be used in future publications (in the form of direct quotations). However, your name will never be used in reference to the selected quotations. Comments may use broad descriptive statements such as “a volunteer with ReefCI said that her experience was rewarding”.

The data collected for this study will be stored at the University of Guelph for seven years, after which it will be destroyed.

If you have questions regarding your rights as a research participant, contact:

Research Ethics Director    Telephone: +1 (519) 824-4120, ext. 56606
University of Guelph    E-mail: sauld@uoguelph.ca
437 University Centre    Fax: (519) 821-5236
Guelph, ON    N1G 2W1

SIGNATURE OF RESEARCH PARTICIPANT

I have read the information provided for the study “The Contribution of Volunteer Tourism to Marine Conservation” as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

______________________________________  ______________
Signature of Participant      Date

PHOTOGRAPHIC CONSENT

I have read and understood that the researcher may use photographs and/or video clips that include pictures of me in her final research documents and/or presentation. I give my consent for her to use these pictures/videos.

______________________________________               _______________
Signature of Participant     Date
Appendix C: Non-Volunteer Consent Form

CONSENT FORM TO PARTICIPATE IN RESEARCH

You are invited to participate in a research study conducted by Georgia Brander, a Masters student from the Department of Geography at the University of Guelph, Canada. The research is being conducted under the supervision of Dr. Noella Gray.

If you have any questions or concerns about the research please feel free to contact Georgia Brander at branderk@uoguelph.ca or Dr. Noella Gray at +1 (519) 824-4120 ex. 58155 or grayn@uoguelph.ca

If you volunteer in this study, we would ask you to do the following:

1. Participate in an in-person interview that will last approximately 45 minutes to 1.5 hours (scheduled at your convenience).
2. With your permission, this interview will be audio recorded in order to create a transcript of our conservation.

This research intends to explore the intersection of two increasingly prevalent conservation strategies: marine protected areas (MPAs) and volunteer tourism. Marine protected areas are parks established for the purpose of protecting marine resources and habitats, while volunteer tourism is a form of tourism in which volunteers participate in research and conservation activities. Ideally this research will result in contributions to the academic fields of volunteer tourism and marine conservation and inform better practices in these fields, both in Belize and elsewhere.

You may feel uncomfortable answering questions about specific experiences with which you have been involved.

In order to avoid/lessen this discomfort please be aware:

- Your involvement in this study is voluntary.
- You may withdraw your participation at any time throughout the interview and the study itself without repercussions.
- You may skip any question(s) that you feel uncomfortable answering without repercussions.
- The researcher is working independently as a research assistant for the University of Guelph and is not in the direct employment of ReefCI or the government.
- You may request a follow-up interview if you have anything further to share.

Once the interview is complete, the audio files will be transferred to a password protected, encrypted computer and deleted promptly from the original recording device. The recordings will be transcribed within one month and the original audio recording will be deleted from the researcher’s computer. Any physical audio or written files or backup devices will be locked and secured within the researcher’s field site accommodations and be transported back to the University of Guelph upon completion of the research term. Here the collected data will only be accessible to the research and her faculty advisor.
Portions of the interview transcript may be used in future publications (in the form of direct quotations). However, your name will not be used in reference to the selected quotations. Comments may use broad descriptive statements such as “a government representative said that MPAs are effective conservation tools”. The researcher will take measures to ensure your confidentiality within the final publication but it is still possible that specific details you use in the interview will indirectly identify you. Please be aware that once the information has been published your words cannot be retracted.

For this reason, complete confidentiality is not possible within this research project. As a result please ensure that you are sharing details and information that you are comfortable making public.

The data collected for this study will be stored at the University of Guelph for seven years, after which it will be destroyed.

If you have questions regarding your rights as a research participant, contact:

Research Ethics Director  Telephone: +1 (519) 824-4120, ext. 56606
University of Guelph  E-mail: sauld@uoguelph.ca
437 University Centre  Fax: (519) 821-5236
Guelph, ON  N1G 2W1

SIGNATURE OF RESEARCH PARTICIPANT

I have read the information provided for the study “The Contribution of Volunteer Tourism to Marine Conservation” as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

______________________________________  ______________
Signature of Participant      Date

PHOTOGRAFIC CONSENT

I have read and understood that the researcher may use photographs and/or video clips that include pictures of me in her final research documents and/or presentation. I give my consent for her to use these pictures/videos.

______________________________________               _______________
Signature of Participant     Date