

**Establishing a Socio-economic Baseline of Sea Turtle Ecotourism
in Baja California Sur, Mexico**

by

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Abstract

Baja California Sur provides vitally important habitat to five of seven species of sea turtles. All five species have long been subject to direct and indirect exploitation in the region, and federal intervention has largely failed to address conservation goals. A powerful opportunity exists to incentivize sea turtle conservation by means of ecotourism, as locals can use turtles non-consumptively to their socio-economic benefit. However, ecotourism is a complex multi-faceted endeavor built upon a mix of social, economic, and environmental factors. Community participation, a central component of ecotourism, depends on local perceptions and realities, but is often overlooked in ecotourism implementation. The purpose of my research is to describe and contextualize community perception and involvement in sea turtle ecotourism, with existing infrastructure and resources in the region. To achieve this goal, oral surveys, semi-structured interviews, and participant observation techniques were administered in communities throughout Baja California Sur during the summer of 2008. My findings suggest that local perceptions of ecotourism are highly optimistic but vary significantly between communities, as do existing tourism infrastructure and resources. Current local participation is low, but desire to participate is high among communities. Drivers to participate are based on a variety of economic, social and conservation factors. These findings will advise on proper implementation of sea turtle ecotourism in the region in order to maximize community involvement, and will provide a baseline from which to measure future successes and failures of sea turtle ecotourism.

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I. Introduction

Status of Sea Turtle Species occurring around Baja California

Baja California Sur (BCS) provides vitally important habitat for five of the seven extant species of sea turtles that occur globally. Loggerheads (*Caretta caretta*), leatherbacks (*Dermochelys coriacea*), hawksbills (*Eretmochelys imbricata*), olive ridleys (*Lepidochelys olivacea*) and Pacific black turtles (*Chelonia mydas agassizii*) find refuge in BCS's nutrient rich offshore waters, sargasso seaweed mats, reefs, seagrass beds and nesting beaches (e.g. Comer and Nichols 2007; Gardner and Nichols 2001; Nichols 2003; Seminoff and Nichols 2007; Seminoff et al. 2008).

Some species migrate hundreds or thousands of miles to use Baja's rich foraging habitats, such as Japanese loggerheads that spend their ontological stage growing and feeding on pelagic red crabs off the Pacific coast of Baja (Bowen et al. 1995; Nichols et al. 2000; Peckham and Nichols 2002; Resendiz et al. 1998). Pacific black turtles migrate from important nesting grounds in Colola and Maurata, Michoacan, Mexico to the Gulf of California's nutrient rich waters to forage on marine algae and invertebrates (Nichols 2003; Nichols et al. 2000; Seminoff et al. 2000a, 2002b). Other species, such as leatherbacks and olive ridleys, use Baja's coastline for breeding and nesting purposes. Principal proximal nesting beaches of olive ridley turtles include Los Cabos region at the southern tip of Baja, and Mazatlan, Sinaloa (Lopez-Castro et al. 2004; Seminoff 1994). Proximal leatherback nesting aggregations occur on the Pacific coast between Mexico and Costa Rica and sporadic nesting occurs around Los Cabos in southern Baja (Fritts et al. 1982; Seminoff 1994; Spotila et al. 2000). Hawksbills have been known to forage on sponges, such as *Haliclona* sp., in various protective bays throughout Baja, including

Bahia de Los Angeles (Seminoff et al. 2003b). But little is known about principle nesting areas for the dwindling Eastern Tropical Pacific hawksbill population, although Proyecto CAREY!, founded in 2007, has initiated a comprehensive survey of nesting and foraging populations throughout the Eastern Pacific and has successfully attached ten satellite tags to juveniles and adults.

Unfortunately, all species are currently listed as “Vulnerable” (olive ridley), “Endangered” (loggerhead and Pacific black), or “Critically Endangered” (hawksbill and leatherback) under the International Union for Conservation of Nature’s (IUCN) Red List (Table 1). Of further concern is the uplisted status of Pacific blacks and olive ridleys in the Eastern Pacific with regards to their global status (Table 1). Some species have witnessed an 80% or greater decline in the Eastern Pacific over the last 20-50 years. Around 1,500 Eastern Pacific leatherback (Sarti Martinez 2000), 1,000 Japanese loggerhead (Nichols 2007), and a marginal number of Eastern Tropical Pacific hawksbill nesting individuals remain (Mortimer and Donnelly 2008). With the exception of olive ridley turtles, nesting populations contributing to Baja’s foraging populations have declined significantly in the last 20 to 30 years (Seminoff et al. 2008). These species face a multitude of threats such as habitat alteration, global climate change, disease, incidental capture in fishing gear, direct harvest, pollution, and natural mortality. The remainder of this section will address the implications of intentional and unintentional capture of turtles by humans.

Table 1: National and International Status of all five sea turtle species occurring around Baja California. *Under the U.S. Endangered Species Act *C. mydas agassizii* and *L. oliveacea* are listed globally as Threatened, but locally, on the Pacific coast of Mexico, as Endangered. (Table adopted from Seminoff et al. 2008).

Species	IUCN Red List Status	U.S. ESA Status	CITES Category
<i>D. coriacea</i>	Critically endangered	Endangered	1
<i>C. caretta</i>	Endangered	Threatened	1
<i>C. mydas agassizii</i>	Endangered	Endangered*	1
<i>L. oliveacea</i>	Vulnerable	Endangered*	1
<i>E. imbricata</i>	Critically endangered	Endangered	1

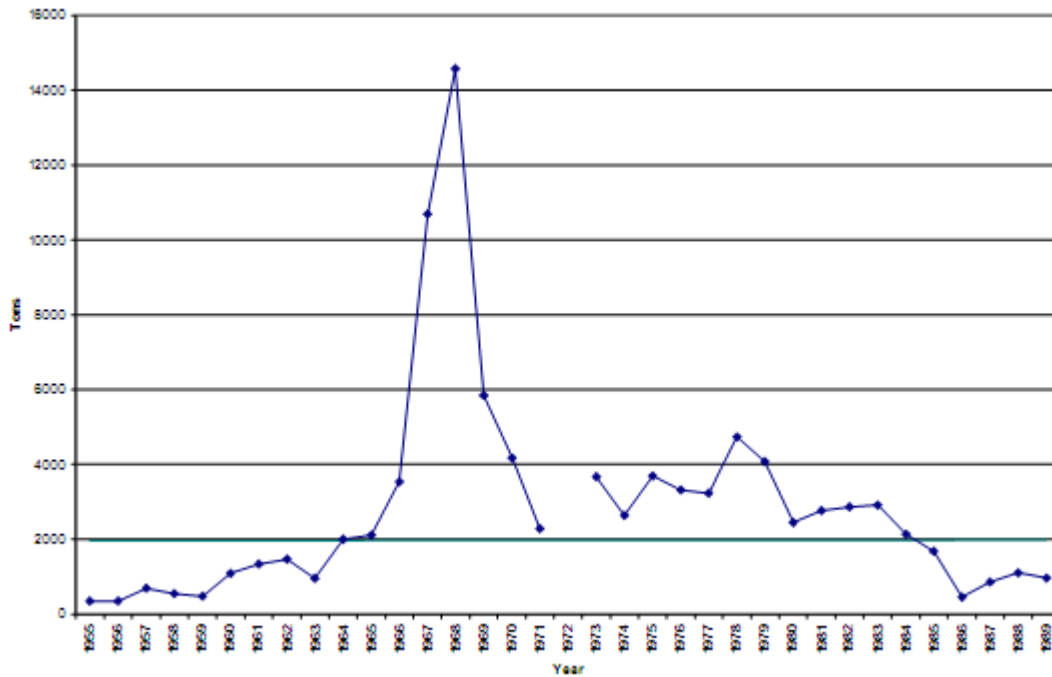
Human Induced Population Decline

Sea turtle use in the Gulf of Mexico and Baja California Sur originated as a non-wasteful subsistence harvest as turtles were exploited for their meat, eggs, oils, skin and carapace. For example, the Seri Indians, or Comcaac Nation, have occupied the harsh land-sea interface of the Sonoran Desert and nearby islands for more than 500 years, as a hunter-gatherer society relying primarily on marine resources. Since the early 1400s, sea turtles have been extremely important to the Seri culturally and economically (Garcia-Martinez and Nichols 2000). The Seri traditionally harvested Pacific black sea turtles for consumption of their meat and eggs, and for the use of other products such as the stomach and carapace (Caldwell 1963; Felger and Moser 1987). Leatherback sea turtles, an important cultural icon for the Comcaac, were used (non-lethally) for worship in a four-day ceremony (Garcia-Martinez and Nichols 2000). Turtle eggs and turtles have been important for consumption in other coastal indigenous communities for medicines, household appliances and food for several hundred years (Ernst and Barbour 1989).

Following World War II, in the late 1940s and early 1950s, sea turtle fisheries began to develop throughout Baja in response to the introduction of new technologies, such as gillnets, outboard motors, and refrigerators. By this time, annual catches were in the order of 500-600 tons (Marquez et al. 1992). Before the introduction of new fishing technologies and expansion of the commercial sea turtle fishery, sea turtle resources

throughout Baja were perceived to be inexhaustible. However, shortly thereafter, the situation took a turn for the worse. By the 1960s, after industrial exploitation commenced in the Pacific, the average annual capture grew from 810 tons, between 1955- 1963, to 2050 tons between 1964-1965 (Trinidad and Wilson 2000). In 1968, 15,000 tons of sea turtles were taken in a single year (Trinidad and Wilson 2000; Figure 1).

Figure 1: Commercial turtle catch in Pacific Mexico after the onset of the fishery's industrialization. (Figure from Trinidad and Wilson 2000).



The drastic increase in turtle exploitation in the late sixties can be attributed to increased availability of new technologies such as gillnets and outboard motors, the migration of rural folks to coastal communities, and the burgeoning international demand for sea turtle products. In fact, at this time Mexico was supplying more than 50% of the world market of sea turtle products (Marquez 1977, 1996a, 1996b; Marquez et al. 1992, as cited in Trinidad and Wilson 2000). Sea turtle leather slowly began to be substituted

for crocodile leather on the international market in the early 1960s, and by 1968 most turtles were exported internationally for skin and shell trade, with much of the meat being wasted (Hernandez et al. 1989). The commercialization of sea turtle exploitation engendered an inherent redistribution of wealth, leading to inequality among sectors (Trinidad and Wilson 2000). The centralization of market power tended to benefit the processors and distributors with price mark ups, and adversely affected the fishers. This could have further driven the supply of sea turtles, as fishers would be inclined to fish more to compensate for falling wages. By the late 1960s and early 1970s it became clear that all sea turtle populations around Baja were declining rapidly and thus the federal government tried to intervene.

Failure of Government Intervention

Because of the rapid decline, on 28 May 1990, the President of Mexico, Carlos Salinas de Gotari, declared an outright ban on the capture of sea turtles and on the trade of all sea turtle products (Aridjis 1990). Maximum charges entail up to nine years in prison and fines of \$15,000 USD (Anonymous 1996, as cited in Mancini and Koch 2009). This federal mandate proved to be largely ineffective in curbing the sea turtle harvest, consumption, and trade throughout Baja, as the market was simply forced underground (Trinidad and Wilson 2000). The cause of the establishment and persistence of the sea turtle black market can be traced back to before the outright ban in 1990. In the early 1970s, when the Mexican government first decided to redistribute power to state fishing cooperatives via sea turtle permits and concessions, several critical flaws ensued. First, cooperative leaders were often appointed by government officials and

many oversaw corrupt practices, leading to distrust and inequity, resulting in the unfair distribution of concessions (Trinidad and Wilson 2000). Second, cooperative numbers grew even as sea turtles continued to decline. As the cooperatives grew in size and number, the government's allocation of concession rights to each cooperative grew smaller. As a result, the maximum permit quotas were so low that revenues were often not enough to cover operational costs (Trinidad and Wilson 2000). This phenomenon forced many fishers to leave legally permitted coops and relocate to the black market fishery, even before the ban was established in 1990. At the same time, the government set the cooperative price for sea turtle harvest much lower than the black market price (Trinidad and Wilson 2000). Illegal poachers were usually hired directly by distributors and were paid about \$130 USD/day, while cooperative members only received \$18.7 USD/day (Trinidad and Wilson 2000). All these above described factors drove much of the sea turtle harvest underground.

By the time the ban was set in place by 1990, many fishers had few to no alternative opportunities for income. In fact, regional development in Baja during the mid 1900's was driven primarily by turtle exploitation, first through private enterprises, and then by the state cooperatives (Trinidad and Wilson 2000). Therefore, local rural communities were dependent on the sea turtle economy when the ban was set, and suffered tremendously thereafter, further bolstering the underground market. Included in the National Program for the Protection, Preservation, and Research of Marine Turtles in 1990, was a job retraining and subsistence re-orientation plan which was set in place to help cooperatives search for other viable alternatives (Marquez et al. 1992). This program appeared to have limited success (Trinidad and Wilson 2000).

Flaws in the government environmental enforcement body, PROFEPA, also help to undermine sea turtle conservation in Baja. Lack of funding, insufficient human resources, and poor coordination are prevalent themes in this government entity. PROFEPA is not only charged with the management of sea turtles and marine systems, but forestry, wildlife, and terrestrial issues. There is often a shortage of PROFEPA inspectors operating in each state, thus making enforcement extremely difficult. For example, between 2000 – 2005, the state of Oaxaca had only six PROEFPA inspectors for the entire region (Trinidad and Wilson 2000). Currently, in Baja California Sur, there are fewer than twelve inspectors operating in the entire state. This creates a large disconnect between rural communities and the federal government, as government presence in rural towns ranges from a couple hours to a couple days once a year.

Administrative bureaucracy also undermines conservation efforts because in order to prosecute an individual and make an arrest, inspectors have to make written requests that follow due process and often stagnate over long periods of time. Furthermore, corruption of government officials is still prevalent in Baja California with regard to sea turtle management. Fishermen throughout Baja California Sur indicate that PROFEPA would turn a blind eye to a sea turtle poacher if they were compensated adequately (Mancini and Koch 2009). In fact, since the ban was set in place in 1990, there have been only 39 infractions reported by PROFEPA agents and 10 sentences actually carried out (Mancini and Koch 2009). Fishers also express frustration that PROFEPA holds the right to punish people for hunting turtles when they hunt turtles themselves. Because sea turtle meat is an emblem of status and culture, when a government official is visiting a community, it is common to serve sea turtles to show respect. Furthermore, due to its

cultural significance, sea turtles are commonly eaten during holidays such as Easter, or during birthdays and weddings (Gardner and Nichols 2001).

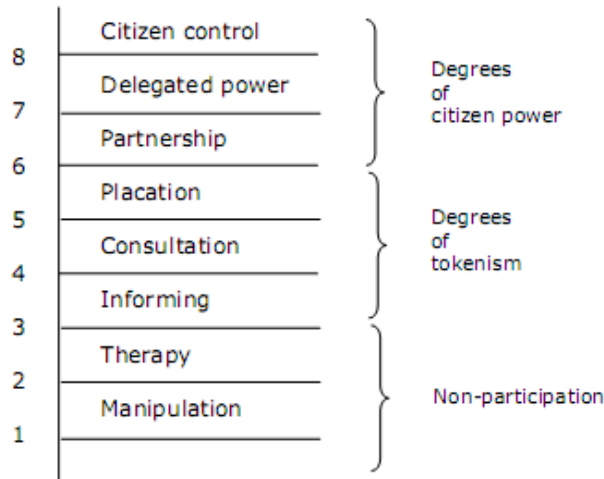
Due to the strength, coordination and history of the black market, and the flawed federal management mechanisms, sea turtle poaching still persists in BCS (Koch et al. 2006; Mancini and Koch 2009). A recent study suggests that between 10,000-33,000 turtles are killed annually and enter the black market, representing a gross revenue of \$540,000 USD for fishers and \$947,000 – \$1,080,000 for middlemen (Mancini et al. unpubl. data). Turtle meat is valued between 4 – 12 USD kg⁻¹ depending on the species and distance from the source of the capture (Mancini and Koch 2009).

Recently, more attention has been drawn to the effects of incidental capture of sea turtles in artisanal fisheries and its inherent impact on turtle populations around Baja. During 2006 and 2007, one artisanal longline fleet and one artisanal gillnet fleet were observed for loggerhead bycatch on the Pacific coast of Baja (Peckham et al. 2007). Based on extrapolations from this study, an estimated 1,500 to 2,950 loggerheads die annually due to fisheries interactions on the Pacific coast of Baja in just these two fleets (Peckham et al. 2007). Live turtles caught as bycatch are often kept for consumption or sale (Koch et al. 2006). Therefore there are few incentives to avoid sea turtle bycatch. Considering the sheer numbers of Baja artisanal fleets, minimal fisheries management capacity, and fewer than 1,000 nesting loggerheads remaining in the northern Pacific Ocean, coastal artisanal fisheries pose a major problem for sea turtle conservation in Baja.

The Rise of Community-Based Conservation

There is much evidence that government efforts are undermining any attempt to conserve sea turtle resources, and to manage human–sea turtle interactions. Given the failure of government policy and enforcement, a new strategy, known as Community-Based Conservation (CBC), involving the empowerment of coastal communities and their conscious decision to conserve sea turtles, is needed. Various definitions of CBC exist, however, definitions usually involve at least one of the following terms: local-level, voluntary, people-centered, participatory, decentralized, or village-based management (Little 1994, as cited in Campbell 2002 and Campbell and Vainio-Mattila 2003). CBC can be characterized by two main objectives: 1) enhancing of wildlife and the environment, and 2) providing incentives (normally economic) for local people to participate (Campbell and Vainio-Mattila 2003). Although language of community empowerment is often associated with CBC, there are varying levels of community involvement inherent in this conservation strategy. This phenomenon is perhaps best conceptualized by Arnstein’s (1969) Ladder of Citizen Participation (Figure 2). The eight rungs of the ladder represent varying levels of participatory involvement, the base representing non-participation and the top representing citizen control or empowerment. Quite commonly, CBC strives to achieve participatory involvement at the empowerment stage.

Figure 2: Ladder of Citizen Participation. (Figure from Arnstein 1969)



The CBC movement in Baja California Sur first began to take form in the late 1990s. Coastal communities began to see the dire situation of the declining sea turtle populations around the same time that several influential conservation biologists started studying in the area, most notably Jeffrey Seminoff and Wallace J. Nichols. Shortly thereafter, a group of concerned biologists, fishers, and citizens convened in the small town of Loreto on the Sea of Cortez. This marked the beginning of a highly influential bottom-up sea turtle conservation movement in Baja California Sur: the birth of a non-profit organization, Grupo Tortuguero. Now the group has expanded to include over 300 members from over 30 coastal communities around Mexico (Figure 3). The group has recently expanded to ally with biologists and fishers in Japan and Hawaii, and local and international Non-Governmental Organizations or NGOs. Grupo Tortuguero’s approach to conservation embodies a world-renowned model integrating knowledge, communication and networks (Nichols 2006). Grupo Tortuguero also uses community-based marketing techniques to disseminate information in a manner accessible to the locals, via ad campaigns, comics, children’s books, and festivals. In 2006, fishers in Puerto Adolfo Lopez Mateos, Baja California Sur, declared a sea turtle foraging hotspot

in the Pacific as a “Fishers’ Turtle Reserve.” This phenomenal effort demonstrates how community empowerment can yield conservation successes that government action cannot facilitate.

Figure 3: Map of communities active in Grupo Tortuguero research, monitoring and outreach projects throughout western Mexico. Currently, there are more than 30 active communities. Map credit: Grupo Tortuguero.



Arguably, the majority of sea turtle conservation efforts and changes in local attitude is a direct result of this grassroots movement and not government intervention, but there are several inherent problems in taking an approach such as this. When conservation operates exclusively at the local level, there can be a disconnect between federal and local activity, which can undermine conservation efforts. In the case of the “Fishers’ Turtle Reserve” this is merely a self-proclaimed reserve and is not yet

enforceable by jurisdictional standards. Therefore, outsiders are able to fish in the zone without legal prosecution or consequences. Local NGOs are currently trying to push this reserve through State and Federal process to preserve its integrity under legal mandate, but this has proved difficult for many of the reasons outlined above. Similarly, while many communities and organizations continue to work hard in turtle conservation efforts, poachers' behaviors are rewarded when a politician enters town and demands a sea turtle feast, or when PROFEPA engages in corrupt practices. In this regard, the disconnect between federal and community intentions are stifling grass roots conservation progress.

The Potential for Ecotourism

Another increasingly popular and viable sea turtle conservation alternative lies in the promise of the private sector: ecotourism. In Baja California Sur, ecotourism has the potential to facilitate the community protection of sea turtle resources for use in a non-consumptive manner for the community's socioeconomic benefit. Ecotourism is inherently a CBC strategy aimed at directing tourism to protected areas and species and channeling a portion of funds back to the communities (Campbell and Vainio-Mattila 2003). However, the application of ecotourism is a complex multi-faceted endeavor whose integral nature is based on a mix of social, economic, biological, and conservation dimensions. Exact definitions of ecotourism have long been disputed. The International Ecotourism Society defines ecotourism as "responsible travel to natural areas that conserves the environment and improves the well-being of local people," and asserts the following principles: minimizing impact, building environmental and cultural awareness and respect, providing positive experiences for both visitors and hosts, providing direct

financial benefits for conservation, providing financial benefits and empowerment for local people, and raising sensitivity to host countries' political, environmental, and social climate (TIES 1990). In recent years particular attention has been focused on ecotourism's objectives of sustainable community development and local participation in ecotourism planning and management (eg. Campbell 1999; Lai and Nepal 2005; Scheyvens 1999; Simmons 1994). Some argue that ecotourism should only be regarded as successful if the local community holds a certain measure of control over implementation and if benefits are distributed to locals accordingly (Scheyvens 1999). These objectives, concerning local community well-being, are the focus of my study.

In 2008, a non-profit program, SEETURTLES.ORG, has partnered with Grupo Tortuguero, Pro Peninsula, and other local and regional NGOs to facilitate a sea turtle ecotourism movement in Baja. SEETURTLES.ORG was originally conceived under Ocean Conservancy, the United States' oldest marine conservation non-profit organization, but has recently been moved to Ocean Revolution, an NGO dedicated to empowering future ocean conservation leaders. The project's interests lie in the facilitation of low-impact tourism that can allocate funds to local conservation efforts and provide viable alternative economic support for fishers. SEETURTLES.ORG's role is to strengthen the profile and increase awareness of the project, in addition to providing ecotourism best practice guidelines to local tour operators and tourists. Grupo Tortuguero's and Pro Peninsula's role focuses on capacity building among fishers, securing funds, and spurring local interest. Regional tour outfitters such as Baja Expeditions and Journey Mexico book sea turtle tours with local enterprises, and tour guides and skiff drivers are often hired directly from local fishing cooperatives. The

project is currently underway in San Carlos, Laguna San Ignacio, and Puerto Adolfo Lopez Mateos in Baja California Sur. The project has also been implemented under similar conditions in Trinidad and Tobago and Costa Rica.

Recent studies show a high demand for sea turtle ecotourism in particular. Tourists are attracted to volunteer sea turtle tourism by science, conservation, aesthetic, humanistic, and experimental values (Campbell and Smith 2006). Evidence shows that sea turtles attract people who might not normally engage in environmental activities (Campbell and Smith 2006). This suggests that with proper advertising, a project such as SEETURTLES.ORG can generate adequate interest for sea turtle ecotourism in a region such as Baja.

However, ecotourism is commonly implemented with little regard to best practices or guidelines, thus creating substantial room for subsequent environmental degradation and local socio-economic downfalls (Godfrey and Drif 2001). Improper implementation and monitoring of ecotourism projects can result in 1) adverse impacts on wildlife and ecosystems (eg. Ellenberg et al. 2006; Iverson et al. 2006; Lusseau et al. 2006; Mann et al. 2000), 2) breakdown of local cultural traditions, 3) few economic benefits to local people and only a select few of local individuals profiting (eg. Campbell 1999; Jaffe 2006; Young 1999a), and 4) aggravated conflict over resources use and subsequent resource degradation (eg. Young 1999a, 1999b). Furthermore, several studies have indicated that local participation and CBC are difficult to implement in ecotourism projects due to low levels of local ownership and high levels of economic leakage (Campbell 1999; 2002; Young 1999a, 1999b), and success stories have been weakly documented (Kiss 2004).

Baja California Sur has a long, complicated history of ecotourism, commencing in the early 1970s when fisheries began to collapse and locals realized the benefit in exploiting whale tourism. From the start, the whale tourism market in Baja, concentrated in the small towns of Bahia Magdalena and Laguna San Ignacio, had been dominated by foreign enterprises (Young 1999a). Over the years locals began to open small businesses, rent out skiffs, and become guides (Young 1999a). But this “tragedy of the commons” generated conflict between local and foreign enterprises, and was the major cause of severe disorganization of the industry, the unfair distribution of benefits, marginalization, too many users, environmental degradation, and limited local participation (Young 1999a). Economic leakage, or a low level of funds generated by ecotourism staying within the host community, also posed a major problem for whale ecotourism in Baja. For example, in 1994 \$3.3 million USD were spent by tourists visiting Laguna San Ignacio through foreign enterprises (Young 1999a). Of these revenues, \$40,300 (1.2%) stayed within the community and was spent on salaries and supplies purchased onsite (Young 1999a). In contrast, during 1994, local enterprises netted a marginal amount of \$2,000-6,000 USD from whale ecotourism (Young 1999a). This study concluded that economic benefits of gray whale ecotourism were not sufficient to reduce pressure on local fisheries, thus defeating the objectives of ecotourism in the first place (Young 1999a).

Similarly, a study focused on island ecotourism in Northwest Mexico, reports that in 1993, ecotourism businesses running trips to islands, were comprised of 35% Mexican nationals (Tershy et al. 1999). However, a majority of the Mexican nationals were employed as boat captains, crew members, guides or naturalists and only around 7% of

the reported nationals were business owners themselves, suggesting a marginal number of local enterprises competing in the market (Tershy et al. 1999).

Research Justification and Purpose

The justification for my research lies in several important concepts inherent in the practice and limitations of ecotourism. First, community participation is a central component of the concept of ecotourism, and furthermore, participation during the development process will ensure benefits are distributed evenly among host communities (Simmons 1994). However, as demonstrated in the previous section, local participation is often overlooked or difficult to achieve in the implementation of ecotourism. Second, the extent of local participation is determined by perceptions and realities within the host communities. Specifically, the extent of local participation in ecotourism is determined by perceived barriers or accessibility to the project (Campbell 1999), and the perceived significance of benefits (Campbell 2000). In short, if locals perceive an ecotourism program as beneficial they will more likely become involved in the process (Campbell 1999). Local environmental, social and political realities may play an equally important or greater role in defining community participation (Lai and Nepal 2005). Third, communities are often assumed to be homogenous in terms of opinions, needs, and desires (Campbell 1998; Young 1999b). This is often not the case, creating the potential for resource conflicts and necessitating the study of community structure and networks before implementing a project such as ecotourism.

The purpose of my research is twofold: First, I aim to advise on proper implementation of sea turtle ecotourism in Baja California Sur, in order to maximize

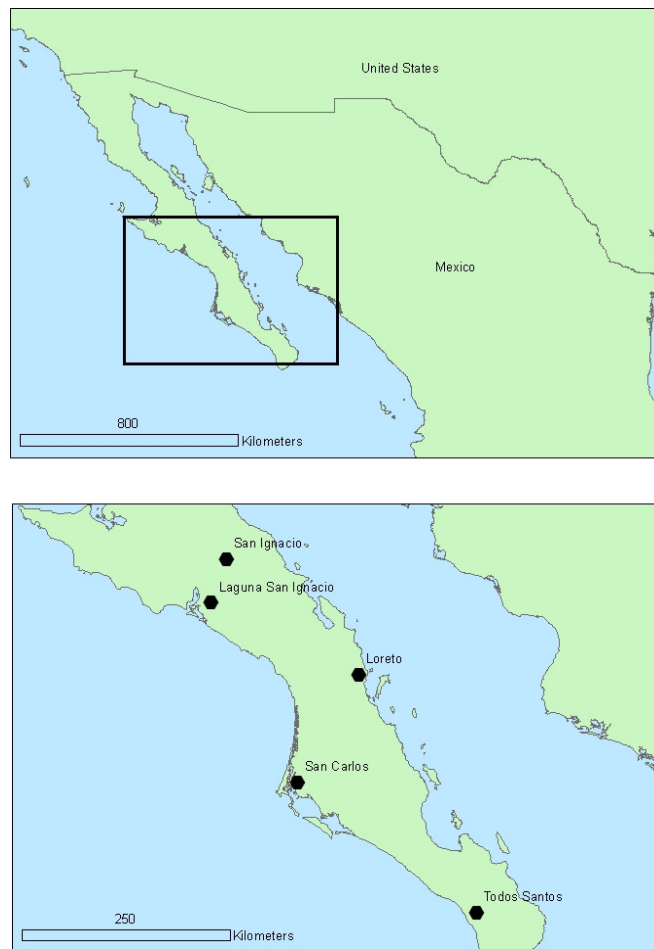
community involvement and benefits, and second, I aim to develop a proxy, or baseline, from which the future successes or failures of sea turtle ecotourism in BCS can be measured. These objectives were achieved by first assessing the status of the infrastructure, resource base, support, governance and capacity for ecotourism in the region, and second by assessing community perceptions and involvement in sea turtle ecotourism. The following section will detail my methodological framework in which I carried out my project's objectives.

II. Methods

I employed a diverse methodological framework to achieve my objectives between May 10 – June 15 2008. I conducted research in several coastal communities in Baja California Sur, including: Loreto, San Ignacio, Laguna San Ignacio, Todos Santos and San Carlos (Figure 4). My framework can be divided into three main methods: 1) participant observation of sea turtle ecotourism, 2) community surveys, and 3) semi-structured key informant interviews. I employed each method to address specific objectives associated with the research. Participant observation was used to experience sea turtle ecotourism first hand. Community surveys were employed to assess and describe community perceptions of ecotourism in general, including: 1) perceived ecotourism definitions, 2) perceived beneficial and negative impacts, and finally, 3) how stakeholders would like to see sea turtle ecotourism develop in the future. I conducted semi-structured interviews to describe a baseline of the following community characteristics: 1) existing tourism resources, 2) infrastructure and local natural resources, 3) institutional support, 4) local, regional and national governance, and 5) the capacity of

fishers. The exact implementation of each method will be described in detail in the next section, followed by a discussion of my research positionality and how this influenced the research.

Figure 4: Map of study area: Baja California Sur. Research was carried out in the communities of Loreto, San Ignacio, Laguna San Ignacio, Todos Santos and San Carlos.



Participant Observation

The exact meaning of participant observation is difficult to pin down, although in its simplest terms it is referred to as “observation carried out when the researcher is

playing an established participant role in the scene studied” (Atkinson and Hammersley 1994). However, this definition is controversial as there are varied levels of researcher involvement described in a four-fold typology: 1) complete observer, 2) observer as participant, 3) participant as observer, and 4) complete participant (Gold 1958; Junker 1960, as cited in Atkinson and Hammersley 1994). Furthermore, a valid argument stems from the concept that all social research is inherently participant observation because we cannot study a phenomenon without being a part of it (Hammersley and Atkinson 1983). Although the temporal extent of my participation in the sea turtle ecotour was short with respect to traditional participant observation studies (only three days), I would nonetheless classify this methodology as participant observation based on Hammersley and Atkinson’s (1983) argument.

Participant observation of a promotional sea turtle ecotour was carried out June 9-11, 2008 in San Carlos, a small fishing town of the Bahia Magdalena complex. The purpose of this participant observation study was to experience first hand the dynamics and logistics of sea turtle ecotourism in the region. My role in the experience was biased towards participation, and not observation. I helped with camp setup, gillnet setting, sea turtle captures, sea turtle morphometrics and tagging, sea turtle release, and other duties that an ecoguide or tourist would be involved in. However, semi-structured interviews were conducted opportunistically with tour guides, beginning with standard survey questions and evolving into free discussion as important topics surfaced. Because the research was conducted from a participant standpoint, few observational notes were taken during the study. However, interview and survey data were transcribed for later analysis.

Community Surveys

Community surveys were intended to describe and contextualize local perception and involvement in sea turtle ecotourism in Baja California Sur. Specifically, surveys aimed to address the following four concepts: 1) perceived meaning of ecotourism, 2) perceived benefits, 3) perceived negative impacts, and 4) desired trajectory of sea turtle ecotourism in the region. In addition, surveys aimed to elucidate similar perceptions about whale ecotourism in order to apply lessons learned to sea turtle ecotourism. During the survey design stage, a similar questionnaire implemented in the nearby town of Puerto Adolfo Lopez Mateos by a Grupo Tortuguero researcher was consulted for standardization of research results. The questionnaire was also consulted in an effort to include questions and answers most appropriately designed for the region, including language level, income brackets, etc. At the completion of the survey design process, a draft was reviewed and passed by the Institutional Review Board at Duke University (see Appendix), and edits made by survey and social scientist experts at Duke University were incorporated. Thereafter, the survey was translated to the Spanish language, paying close attention to local Baja dialect.

Upon arrival in the first town surveyed (Loreto, Baja California Sur, Mexico), the survey draft was reviewed by several contacts and key informants to check for Spanish grammatical errors and appropriateness of content and language. A focus group was held May 14, 2008 in a small restaurant with five students recruited from the alternative tourism program at the local university (Universidad Autonoma de Baja California Sur). I was the primary moderator of the focus group and benefitted from the help of a co-moderator, a local peer working within the tourism industry. Minimal edits suggested by

the focus group were incorporated into the final survey draft for Loreto. Most notably, the focus group determined that the first survey question, asking for the definition of ecotourism, needed to be reworded to sound less like a quiz question. The focus group was also helpful in determining what answers should be read aloud to respondents and which should be left open-ended (see Appendix).

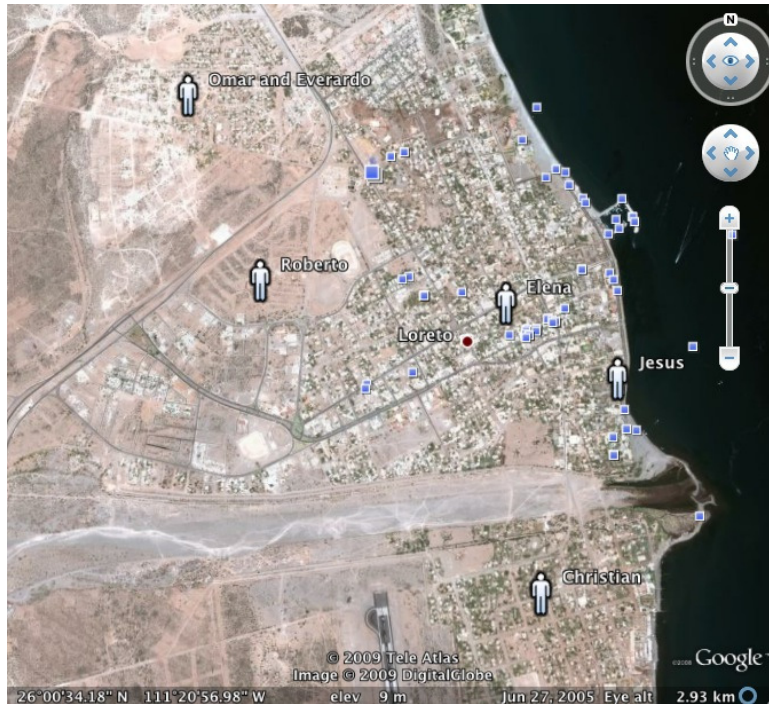
The same individuals that participated in the focus group volunteered to help with survey implementation in the town of Loreto. All volunteers were familiar with the town geography and two had experience administering surveys previously. The focus group was extended into an informal training of survey administration. Further follow-up training was planned, but was never realized due to various logistical factors. Important best practices stressed during the informal training included maintaining a neutral tone, clear explanation of what was to happen with the survey results, anonymity of respondents, the fact that choosing to answer the survey questions was voluntary, and the importance of surveyors' safety (see Appendix). I made contact with each surveyor after he/she pre-tested the first five surveys. Survey implementation strategies, as well as survey design, were discussed after the pretest, and it was determined that the survey was fit for implementation (see Appendix).

The chosen method of survey administration was face-to-face (in person) oral implementation for several important reasons. First, face-to-face surveys have widely cited advantages including 1) flexibility, as the interviewer has the ability to probe for more detail or can explain unclear questions, 2) greater complexity, as the survey can include complex questions while the interviewer can provide explanations and lists of alternative responses, 3) ability to contact hard-to-reach populations, and 4) assurance

that instructions are followed (Rea and Parker 2005). Disadvantages of this method have been cited as high cost, interviewer-induced bias (this will be thoroughly addressed in a later section), respondent's reluctance to cooperate, greater stress and less anonymity (Rea and Parker 2005). However, in this case, benefits seemingly outweighed the costs, and thus, in person survey was the preferred method. Furthermore, oral administration of the surveys was chosen, as respondents' reading levels were unknown and most surveys were implemented in rural areas. Thus, reading survey questions to respondents seemed the most appropriate method of implementation in the particular setting.

Achieving a random sample of survey respondents (surveying every n^{th} household) was impossible due to lack of time, few volunteers, and geographic patchiness of the town. Therefore, intercept style surveys were administered in various neighborhoods throughout the town of Loreto. Intercept surveying, a common type of non-probability sampling, is defined as an in-person survey conducted in the course of the potential respondent's normal behavior pattern and without prearrangement of an interview time with that respondent (Rea and Parker 2005). Each volunteer was assigned a neighborhood and administered 25 intercept surveys in the specific neighborhood (Figure 5). Each volunteer was debriefed after survey administration was completed and answered questions such as: What sort of people did not want to participate in the survey? Where there any questions that were skipped repeatedly or that people chose not to answer? What are your final thoughts about the survey?

Figure 5: Neighborhoods surveyed by volunteers in Loreto. Each volunteer conducted intercept style surveys in their assigned neighborhood.



One volunteer, Jesus Roberto Muro, accompanied me to each of the communities surveyed thereafter (San Ignacio, Laguna San Ignacio and Todos Santos). Upon arrival in each town, we looked over the survey draft with a key informant to assure relevance and accuracy with respect to the specific town. For example, the survey had to be changed significantly in Todos Santos, as this community had yet to implement sea turtle ecotourism, but the community was particularly active in turtle nesting beach protection (see Appendix). After changes were incorporated to the draft, the town's geography was assessed, and specific neighborhoods were identified. Intercept surveys were then administered in each neighborhood. In some cases, surveys were administered at fishers' beaches or launch points before and after their daily fishing trips because this demographic was hard to target during normal hours within town. After completing

surveys in each town, Jesus Roberto Muro helped to code and enter survey responses onto a spreadsheet. He also helped to clarify difficult translations or local dialects.

Previous to my research, I was warned about “survey fatigue,” as the region has been host to a large number of social science surveys pertaining to sea turtle conservation. Survey fatigue can dissuade respondents from participating in survey research. Porter et al. (2004) report the following commonalities in survey fatigue literature: 1) the prospect of multiple surveys reducing the response rate, 2) as time spent participating in surveys increases, survey non-response will increase, 3) the number of previous surveys may have an impact on current survey response. To address the possibility of survey fatigue, each respondent was asked the number of times previously surveyed and in what themes. These results were then examined in the analysis stage.

A total of 300 surveys were administered in all: 127 in Loreto, 73 between San Ignacio and Laguna San Ignacio, and 100 in Todos Santos. Surveys generally took no more than 10 minutes to complete, unless the respondent chose to elaborate on a specific issue. All survey responses were coded (see Appendix) and entered into a spreadsheet for analysis. Statistical analyses were conducted within Excel and JMP (a statistical software program).

Key-informant Interviews

Semi-structured interviews were intended to describe a baseline of the following community characteristics: 1) existing tourism resources, 2) infrastructure and local natural resources, 3) institutional support, 4) local, regional and national governance, and 5) capacity of fishers. Interviews were conducted with key informants, or knowledgeable

individuals on the subject matter of my research. Therefore, in each town, government officials, biologists, NGOs, ecotourism personnel, and fishing cooperative directors and members were interviewed to obtain information. Key informants were identified by a “snowball” sampling method, defined as a type of non-probability sample in which the researcher identifies a few informants and asks them to identify others who might qualify as informants. For example, upon arrival in each town, I had a least one contact key informant whom I would meet and interview. At the conclusion of the interview the key informant would suggest other informants I should interview. Each subsequent informant would suggest other potential interview subjects and so on. Hotel staff were also surveyed and interviewed to determine capacity, prices, busiest season, and local ownership. For a complete list of interview questions please see the Appendix. A total of 50 key informant interviews were administered including hotel informants, and 20 key informant interviews were conducted excluding hotel owners. Interviews were conducted in the same towns surveyed (Loreto, San Ignacio, Laguna San Ignacio, and Todos Santos). Interviews were also conducted during my participant observation of a sea turtle ecotour in San Carlos.

I administered all of the interviews myself, but in some cases I was accompanied by my volunteer assistant, Jesus Roberto Muro. Having a Mexican male counterpart benefitted the interviews, in many cases because he could help with translations, in addition to helping the respondents feel more comfortable interviewing with an American female graduate student. Interviews would range from five minutes to over an hour. Funding did not allow the purchase of a voice recorder, so interview responses were recorded by hand. Since, the interview questions were mostly structured, this did not

present a significant problem. In some cases, the informants cared to elaborate on specific issues or tangents. Similarly, one survey respondent wished to discontinue the survey and speak about the issue in a non formal manner. I encouraged this behavior and would quickly change the methodology from the formal survey technique to open, unstructured interviews. These responses were transcribed to the best of my ability and coded by hand to analyze common themes and parallels.

Research Approach and Positionality

Before presenting my findings, it is important to first discuss my research approach, positionality, and potential sources of bias inherent in my methodologies. As the developer of my research questions and methodological approach, I have molded this research to my interests and philosophies. Therefore, it is necessary to address this in my analysis. I have approached this particular study in both a realistic and idealistic fashion. Idealism seeks to “explain patterns of behavior through an understanding of the thoughts behind them” (Kitchin and Tate 2000, p. 21). Thus the survey reflects this approach because I am describing and analyzing perceptions of ecotourism in an effort to understand drivers of community participation. In contrast, realism is concerned with the underlying mechanisms and structures of social relations, (i.e., policies and practices, Kitchin and Tate 2000, p. 21). Therefore, the key informant interviews are examples of this approach, as the main intent was to understand the infrastructure and resource base of ecotourism existing throughout the region. Therefore, my endeavor to establish a social and economic baseline of sea turtle ecotourism can be characterized by this two-fold methodological approach.

My positionality has further sculpted my research in that my background and philosophies are reflected in my methods and findings. My background as a female, Caucasian, graduate student at the Nicholas School of the Environment has been pervasive throughout the research process. This situation also pertains to my set of philosophies as an ecologist, conservationist, and humanist. All these characteristics drove my research and methodologies throughout its infant stage, implementation stage, and analysis stage. Specific attention should be paid to how my positionality could have introduced bias at the implementation stage. My gender, ethnicity, and status as a graduate student could have influenced how respondents answered the survey and interview questions. Survey and interview administration in a second language could have further complicated surveyor/respondent interactions. To address this potential source of bias, I enlisted the help of a male Mexican college student, (Jesus Roberto Muro) who is studying alternative tourism. He assisted throughout the implementation process and, in specific cases, helped me directly in the administration of interviews that were potentially sensitive, or when local dialect and accents were particularly strong. Furthermore, surveys were coded as to who administered each survey, and correlations were tested between responses and administrators. In this way, potential sources of bias resulting from my positionality can be addressed in my findings.

III. Findings

Status of the infrastructure, resource base, support, governance and capacity for ecotourism: Three Case Studies

i. Loreto

With an exponentially growing population about to approach 12,000 inhabitants (INEGI 2005), and ever burgeoning tourism infrastructure, the least of Loreto's worries lay in the environmental and social impacts of ecotourism. Loreto is known for its rich history as indigenous territory, the capital of Baja California, "Head and Mother of the Missions of Upper and Lower California" and vast ranch terrain occupied by European settlers. In addition to its cultural appeal, Loreto abuts the 799 square mile National Park of Loreto Bay, recently declared a world heritage site, and home to over 800 species of marine life, some of which are endangered. For many of these reasons, Loreto has been a main vacation attraction for decades, and is now becoming a popular region for expatriots to buy and develop land. Tourism is extremely diversified in the region including services catering to sport fishing, whale watching, kayaking, diving, snorkeling, island touring, bird watching, church touring, and observing cave paintings. Tourist season peaks during winter when blue whales arrive to calve and again in the summer when an abundance of dorado, marlin and sailfish supply sport fishing demand. Each tourism business reports receiving between 500 to over 1,000 tourists every year. Loreto has ample room for lodging tourists with over twenty five hotels ranging from \$25 to over \$430 per night.

In fact, the town is now inundated with countless tourism mega-development projects. FONATUR, the Mexican federal tourist development agency, responsible for

overdevelopment in Cabo San Lucas, parceled out desert and mangrove forests surrounding Loreto in the 1980s to make “the next Cabo.” Unfortunately, this plan has been close to realized, as projects are underway all along the region. In fact, Loreto’s population is expected to increase from 12,000 to 150,000 in the next 20 years. This poses major environmental and social problems for the region. The town sources its water from a single underground aquifer which only fills every two years and is currently operating at extractive capacity. With an increase in development and the expected population boom, Loreto is forced to face the prospect of building a large desalinization plant. Garbage and pollution is yet another major threat to the area. Despite its size, Loreto lacks a sophisticated garbage and recycling plan, and most waste is burned or ends up scattered across the dried arroyo (Table 2). Social problems also plague the area. Major development has necessitated the immigration of workers from the mainland, posing problems with housing and resources, and allegedly leading to an increase in crime. Clearly here, environmental impacts of “ecotourism” are not the biggest concern.

Table 2: Survey respondents were asked what infrastructural improvements were needed for proper ecotourism implementation in Loreto. The most commonly cited responses were garbage and recycling services, improvements in the town port, more places to lodge tourists and controlling pollution. See Appendix for a detailed table of Loreto’s tourism infrastructure, resources, and capacity.

Loreto		
	Community improvements needed	% responses
1	Garbage and recycling services	30.2
2	Improve port	23.7
3	Places to lodge tourists	15.1
4	Control pollution	10.1

However, the potential for ecotourism still exists. The region is well-set up with its protected waters and extensive institutional support. Due to the proximity of the

marine park, CONANP, the National Commission of Natural Protected Areas, has an office right in town. One of CONANP's major objectives is to link the National Sea Turtle Conservation Program with sustainable tourism strategies (Comision Nacional de Areas Naturales Protegidas). PROFEPA, Mexico's environmental enforcement body, also has an office in downtown Loreto. This is rare as federal resources and agents are limited, especially in rural areas throughout Baja.

The town also hosts a vast network of NGOs and Civil Associations such as Grupo Tortuguero, Eco-Alianza, Niparaja, Grupo Ecologista Antares (GEA), and La Asociacion de Guias, all offering potential support for sea turtle ecotourism. La Asociacion de Guias (Association of Guides), started in May 2007, aims to promote nature tourism, professionalize services, and create ecotourism infrastructure in Loreto. Sea turtle ecotourism remains underdeveloped in Loreto, but a recent study suggests a strong potential to strengthen the industry, due to the frequency of turtle sightings (Comer and Nichols 2007), and an increasing number of olive ridley nests during summer months (GEA, pers. comm.).

Loreto could potentially benefit from the successful implementation of sea turtle ecotourism, assuming that ecotourism could fortify sea turtle conservation. Most interview respondents (some more optimistic than others) indicated that although the black market for turtle meat was declining, it was nonetheless present. One fisher, who has fished and hunted sea turtles for over 70 years, reported catching hundreds of turtles and sharks in the past, but now will rarely catch turtles for special occasions. The general consensus among biologists, NGOs, and government officials was that 5-15% of the community was still directly involved in sea turtle harvest. One interview respondent

posited that over 50% of the community was involved in consumption of sea turtle meat, corroborated by recent studies (Comer and Nichols 2007; Mancini and Koch 2009). The respondent also suggested that 5-6 turtles were taken each weekend for consumption and that government officials would accept money to keep quiet. Similarly, another interview respondent indicated that bigger boats with richer owners could hunt more turtles without penalty because they had money to pay off officials. Whereas small-scale fishers catching fewer turtles don't have enough money to pay off officials and are therefore penalized and stigmatized by the community. Therefore, incentivizing sea turtle protection may be of substantial benefit to Loreto.

ii. San Ignacio

The small town of San Ignacio (population ~ 4,000) nestled in a date palm oasis, and its adjacent counterpart, a smattering of fishing and ecotourism camps on a lagoon opening up to the mighty Pacific (referred to as Laguna San Ignacio, population ~ 600; Figure 6), are posed with drastically different realities with respect to the town of Loreto. Both the town and the lagoon are subject to highly seasonal tourism. Whale ecotourism commences in January when gray whales migrate into the lagoon for calving. Their ephemeral presence causes the close of tourist season in March. Therefore, San Ignacio's economy (especially at the Lagoon) revolves around the presence of gray whales during the winter. It is common to hear wisecracks in Baja California Sur that poke fun about the "lazy" nature of San Ignacio. This is not an issue of laziness, but rather a lack of year round employment opportunities. In fact, most people are employed in the ecotourism sector during winter months, and revert to fishing and other odd jobs during off season.

One survey respondent at the lagoon indicated that he was employed as an ecotourism guide, fisher, mechanic, and pastor. Such behavior is referred to as a diverse livelihood approach, and is thought to lead to self-management of natural resources, as people can migrate among sectors during declines in natural resources (Allison and Ellis 2001). However, this phenomenon may not hold up to its sustainable potential, as the lagoon's fisheries have been subject to encroachment of outsiders and subsequent tragedy of the commons (Young 1999b).

Figure 6: Laguna San Ignacio is composed of seven fishing and tourism camps: La Laguna/Campo Pachico, La Base, La Fridera, Ejido Echeverria, El Cardon, Boca de Los Cardones, and El Delgadito.



Resources and infrastructure, at the lagoon in particular, are limiting. The lagoon is completely off the grid, and all electricity and water services are located within each fishing camp. Electricity is derived from small wind turbines at each camper or house,

and a select few have a solar panel providing extra energy. Ecotourism camps also obtain energy in this manner. Water is desalinated on a very small scale and there are no sewage, garbage, or recycling services (Table 3). Everything is trucked in on a rough 60 kilometer dirt road from the town of San Ignacio. Few tourism resources exist outside the scope of the seven small camps. There is no central town for tourists to visit at the lagoon, and therefore no restaurants, shops or other attractions, somewhat confining tourists to their respective camps.

Table 3: Survey respondents were asked what infrastructural improvements were needed for proper ecotourism implementation in San Ignacio. The most commonly cited responses were garbage and recycling services, improvements in water and electricity, training and education for guides and paving the road between San Ignacio and Laguna San Ignacio. See Appendix for a detailed table of San Ignacio’s tourism infrastructure, resources, and capacity.

San Ignacio		
	Community improvements needed	% responses
1	Garbage and recycling services	15.9
2	Improvements in water and electricity	15.9
3	Training/education	13.4
4	Pave highways/roads	12.2

Despite Laguna San Ignacio’s importance in the larger 2.5 million hectare El Vizcaino Biosphere Reserve established in 1988, conservation in the region is hard to enforce (Young 1999b). The town and lagoon lack CONANP and PROFEPA offices, virtually eliminating the potential for federal enforcement and support, as there are only 12 PROFEPA agents operating in the entire state and are reported to almost never visit the lagoon. Furthermore, politicians and enforcement agents ask to consume turtle when they visit. One interview respondent was extremely frustrated with the situation of government corruption. He reported that PROFEPA came to the lagoon only to punish

fishers when reported turtle bycatch was high. Meanwhile, the PROFEPA agents would hunt turtles themselves during their visit.

Support for conservation may stem from other avenues such as the various NGOs operating in the region, including Grupo Tortuguero, Pronatura, Wild Coast, and NRDC. However, one fisher expressed distrust and feelings of isolation from the NGO community. The fisher conveyed that few people in the community were involved in the NGOs' work, and that fishers were not adequately involved in sea turtle monitoring as he felt they should be. Although this constitutes only one respondent's opinion, it should not be overlooked. This presents an interesting situation, as only NGOs have access to sea turtle monitoring permits which is the optimal method of leading sea turtle ecotours. Without monitoring permits, guides cannot bring sea turtles aboard the boat, and viewing must happen in-water. Conflicts among resource users have a long history in San Ignacio, initiating from whale ecotourism in the 1970s (Young 1999a), and may have the potential to persist in sea turtle ecotourism.

However, benefits associated with ecotourism in San Ignacio* are many, and likely outweigh the costs. Until several years ago, the lagoon's education system consisted only of a primary school. A visiting ecotourist felt a strong propensity for San Ignacio and was compelled to donate money for the construction of a middle school, or "Telesecundaria." The school's internet and other resources are paid for by continual donations from ecotourism businesses. Additionally, key informants indicated that ecotourism earnings were much higher than those of fishing, especially with declining fish stocks.

* Tourism infrastructure in San Ignacio and Laguna San Ignacio is tightly linked due to the main attraction of whale ecotourism at the lagoon; therefore, in the remainder of the paper, the use of "San Ignacio" will refer to the town and the lagoon unless otherwise specified.

Economic incentives for fishers to participate in ecotourism during summer months would benefit conservation in the area, as sea turtle bycatch remains a huge problem. During the summer months when sea turtles migrate into the lagoon, bottom-set gillnet fishing for guitar fish commences, resulting in significant sea turtle bycatch mortality. Fishers reported catching over 50 turtles in a single haul. Evidence for sea turtle mortality in fishing nets is conspicuous in vast numbers of sea turtles carcasses and bones on the beaches. The potential for hiring fishers as guides is likely with the establishment of a guide cooperative. In 1994, when whale ecotourism was dominated by foreign enterprises, only one local fisher was hired as a skiff driver (Young 1999a) yet now twenty five fishers participating in the guide cooperative have the potential to become involved in sea turtle ecotourism.

iii. Todos Santos

Todos Santos (N = 4,078; INEGI 2005), located on the Pacific coast 81 kilometers from La Paz, and 75 kilometers north of Cabo San Lucas, provides a different setting to evaluate the potential for sea turtle ecotourism. While Loreto and San Ignacio provide important foraging, or in-water habitat, Todos Santos also provides important nesting habitat, specifically to olive ridley and leatherback sea turtles. During peak season, from the middle of June to the middle of September, four to ten olive ridleys climb the beach each night to lay eggs. There are several active permitted NGOs in the region that run nightly monitoring programs and protect turtle nests. NGOs are also involved in public education and outreach through the facilitation of “liberaciones,” educational programs in local schools, and recycling services. “Liberaciones,” translated

directly as liberations, provide the opportunity for community members to come to the beach and watch the release of turtle hatchlings. Although NGOs in the region have played a major role in instilling a conservation ethic within the community, several remain divided over access to monitoring permits and other conflicts. Similar to the situation in other communities, government resources are limited and only one PROFEPA agent is employed to operate throughout the entire Los Cabos region.

Although mass tourism is fairly developed in Todos Santos, ecotourism resources remain underdeveloped. Todos Santos boasts home to popular surfing beaches and the original “Hotel California,” and is proximally located to Los Cabos, attracting large quantities of tourists each year. Yet only two businesses in Todos Santos refer to themselves as “ecotourism” outfitters. These two businesses provide a diverse portfolio of activities such as kayaking, snorkeling, surfing, fishing, waterfall hikes, horse back riding, cave painting observations, bird watching and whale watching. Both businesses expressed interest in becoming involved in sea turtle ecotourism. The potential also exists for permitted NGOs to bring tourists on nightly beach monitor walks.

However, several infrastructural flaws must be addressed for successful implementation of sea turtle ecotourism (Table 4). First, beaches can be accessed only by vehicle, are poorly marked, and far from the town proper. Second, there is an alleged problem with vehicular traffic on the beach during sea turtle nesting season. Third, sewage disposal and treatment has posed a problem in recent years coinciding with an increase in development (Figure 7). Fourth, whale ecotourism has been difficult to administrate because there is no functional jetty in town, beaches are steep, surf break is big, and the point of entry is highly dangerous for tourists. Thus, in order for in-water

viewing of sea turtles, and in an effort to increase the involvement of fishers, an alternative would have to be considered. Although many fishers request the construction of a jetty, this should be implemented cautiously, or not at all, due to potential impacts to the coinciding turtle nesting beach. Finally, although there are garbage and recycling services slowly developing in town, turtle nesting beaches have a substantial problem with litter. Most notably, fishers frequently drop used oil containers in the sand due to a lack of proximal garbage receptacles, creating a less than optimal scenario for sea turtle nesting and tourist viewing.

Figure 7: Sewage outflow into a coastal ecosystem due to underdeveloped sewage infrastructure in Todos Santos. Photo courtesy of Patricia Baum.



Furthermore, increased capacity building of fishers was commonly cited among interviewees as a necessity for the proper development of ecotourism. Specifically, a director of a fishing cooperative reported that ecotourism in Todos Santos would greatly

benefit from guide and boat captain training and education. He placed special attention on the need for English language classes, as currently, a lack of English speakers, was perceived as critical to fishers' involvement in ecotourism. Tershy et al.'s study in 1999 pertaining to island ecotourism in Northwest Mexico asserted this issue as well, reporting that English speaking was the most important factor for increasing the likelihood of hiring Mexican nationals (Tershy et al. 1999).

Table 4: Survey respondents were asked what infrastructural improvements were needed for proper ecotourism implementation in Todos Santos. The most commonly cited responses were garbage and recycling services, taking care of turtles and the environment, controlling pollution, and training and education of local guides. See Appendix for a detailed table of Todos Santo's tourism infrastructure, resources, and capacity.

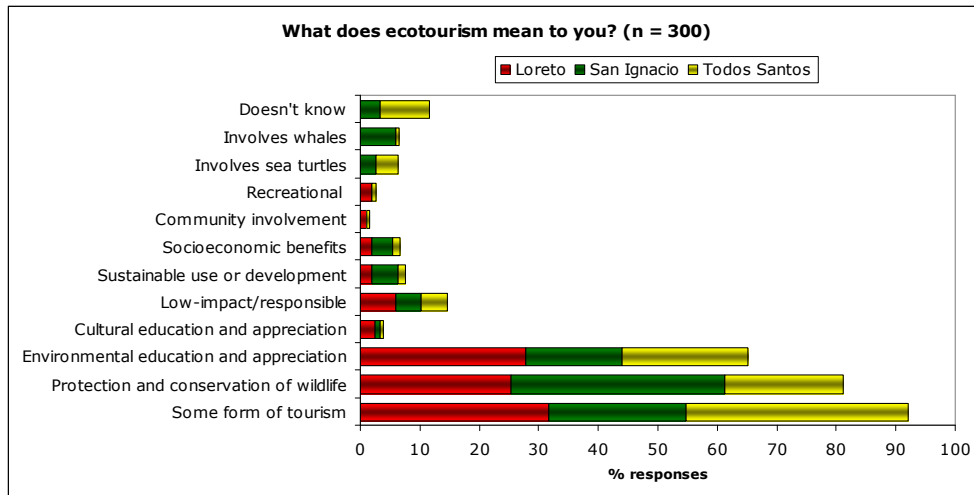
Todos Santos		
	Community improvements needed	% responses
1	Garbage and recycling services	47.9
2	Take care of turtles, beaches and environment	15.1
3	Control pollution	10.9
4	Training/education	5.9

Community Perceptions

Overall, communities perceived ecotourism as a form of tourism involving the protection and conservation of wildlife through environmental education and appreciation. Respondents did not seem to recognize ecotourism's intentions to involve local communities and bring economic gain (Figure 8). Complexity of respondent definitions was determined by counting the number of coded categories per response (see categories in Figure 8). For example, if a respondent indicated that ecotourism meant a form of tourism involving whale watching, the complexity of the response was coded as 2. Mean response complexity per community ranged from 1.68 in Loreto to 1.56 in

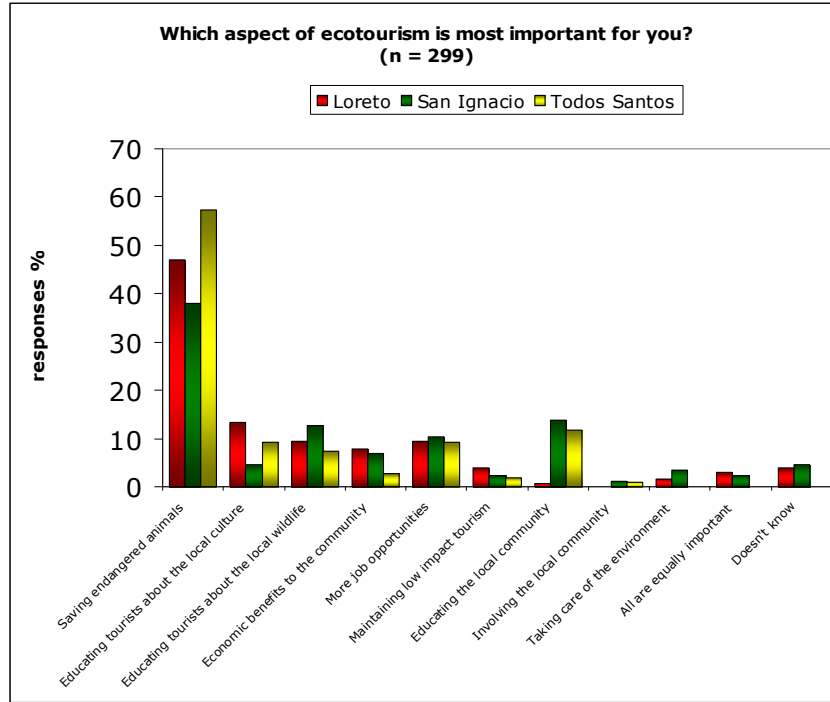
Todos Santos, showing no significant difference (F-test, $P = .098$). Therefore, one community did not demonstrate a better understanding of ecotourism over another.

Figure 8: Respondents' definitions of ecotourism generally consisted of a form of tourism involving the protection and conservation of wildlife and environmental education and appreciation.



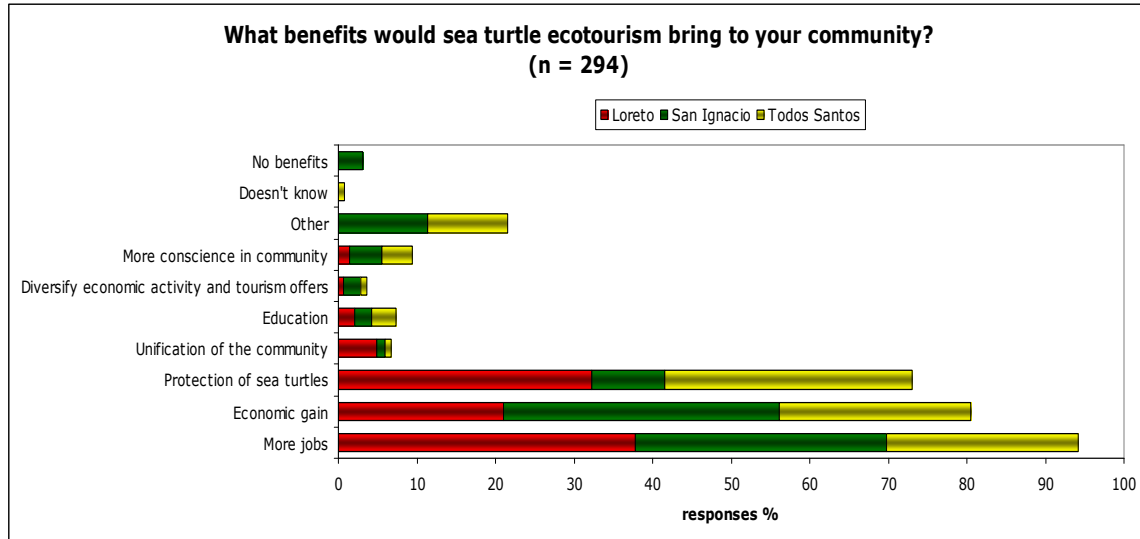
When asked what the most important aspect of ecotourism was for the respondent, the majority of responses indicated saving endangered animals (Loreto = 46.9%, San Ignacio = 37.9%, Todos Santos = 57.3%) (Figure 9). Interestingly, the second most frequently cited response in Loreto was educating tourists (13.3%), while in San Ignacio and Todos Santos educating the local community was cited (13.8% and 11.8% respectively).

Figure 9: Saving endangered animals was the most commonly cited important aspect of ecotourism.



More jobs, economic gain, and protection of sea turtles were the most frequently reported benefits of survey respondents (Figure 10). The three most frequently cited benefits varied significantly between communities (X^2 test, $P < .01$). More jobs was the greatest perceived benefit in Loreto (37.8%). Economic gain was cited as the greatest benefit in San Ignacio (35.1%), and protection of sea turtles was sighted as the greatest benefit in Todos Santos (31.5%). San Ignacio placed lower importance on protection of sea turtles with respect to the other communities (9.3% versus 32.2% and 31.5%).

Figure 10: Protection of sea turtles, economic gain, and more jobs were the most commonly cited benefits of sea turtle ecotourism, but varied significantly between communities.



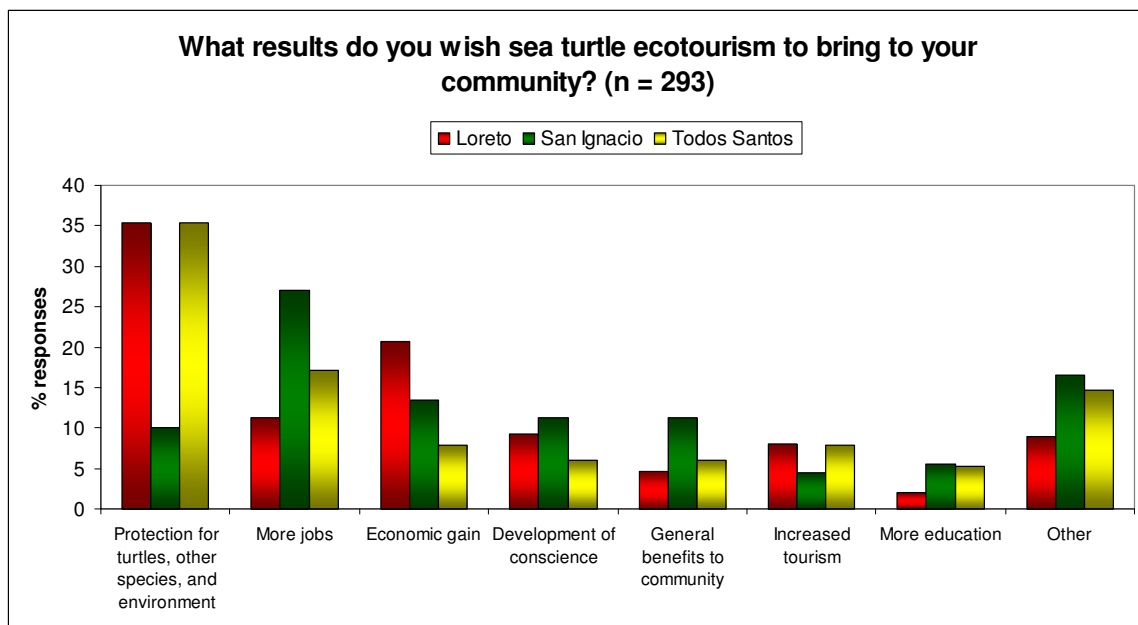
Few negative impacts resulting from sea turtle ecotourism were perceived which is common in primary literature concerning community perception of ecotourism (Campbell 1999; Table 5). The most frequently reported negative impacts were increases in number of people (9.5%), pollution (6.6%), and loss of local culture (4.9%) (Table 5). Responses varied significantly among communities (X^2 test, $P < .01$). Specifically, Loreto perceived more negative impacts associated with ecotourism (35% of respondents) with respect to San Ignacio (21.9%) and Todos Santos (21.4%).

Table 5: Contingency table of perceived negative impacts of sea turtle ecotourism. Responses varied significantly among communities.

Response	Loreto (%)	San Ignacio (%)	Todos Santos (%)	Total (%)
Increase in number of people	16.3	4.1	4.9	9.5
Pollution	10.1	2.7	4.9	6.6
Loss of local culture	9.3	2.7	0	4.9
Other	14.1	12.4	11.7	12.2
No negative impacts	50.4	78.1	78.6	66.8

The most frequently reported desired results of sea turtle ecotourism were protection of sea turtles and the environment, more jobs, and economic gain (Figure 11). While protection for sea turtles was most frequently reported in Loreto (35.3%) and Todos Santos (35.3%), respondents from San Ignacio most frequently desired more jobs (27%) and placed less importance on the protection of sea turtles (10.1%). This relationship among communities was significantly different (X^2 test, $P < .01$).

Figure 11: Protection of turtles, more jobs and economic gain were the most frequently reported desired results of respondents. Desired results of sea turtle ecotourism differed significantly among communities.

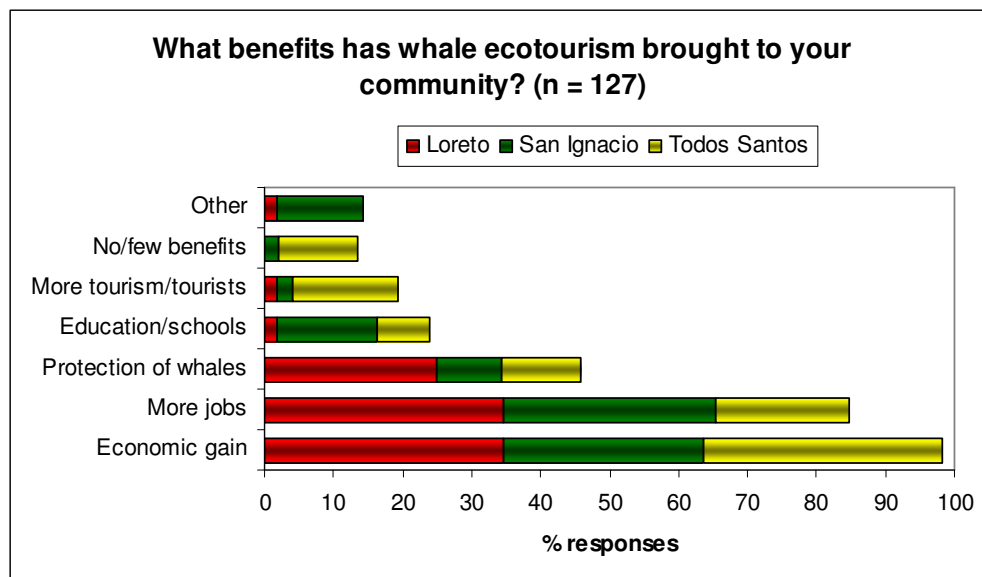


Survey respondents were also asked to express their thoughts on whale ecotourism successes and failures in their communities in order to advise on sea turtle ecotourism implementation. When asked how successful whale ecotourism is in their respective communities on a scale from least successful to very successful, the mode and median responses indicated a strong central tendency towards most successful.

Employment in the ecotourism industry had no significant relationship to the perceived success of whale ecotourism (X^2 test, $P = .22$).

More jobs, economic gain, and protection of whales were the three most frequently reported benefits having resulted from whale ecotourism (Figure 12). While there was a general consensus among communities that economic gain and more jobs were the two greatest benefits, Loreto reported protection of whales as the third greatest benefit (25%), San Ignacio reported benefits from education and schools (14.4%), and Todos Santos reported benefits from an increase in tourism (15.4%). In both San Ignacio and Loreto, 35% of respondents indicated that there were negative impacts resulting from whale ecotourism. Only 10% of respondents in Todos Santos indicated negative impacts from whale ecotourism. The most frequently cited negative impacts in Loreto and Todos Santos were an increase in number of people and pollution, while respondents in San Ignacio cited conflict within the community.

Figure 12: Protection of whales, more jobs and economic gain were reported as the greatest benefits of whale ecotourism.



Community Involvement

Overall, awareness of sea turtle ecotourism was low in communities that had already implemented some form of sea turtle ecotours. In Loreto, 24.4% of respondents reported awareness, while in San Ignacio 17.8% reported familiarity. Most of the respondents reported interest in becoming involved whether directly as a guide or indirectly as a steward of the natural environment. In Loreto, 65% of the respondents reported interest while 90% and 92% of respondents reported desire to participate in San Ignacio and Todos Santos respectively (Figure 13). Of the respondents who were interested in participating, the majority reported interest in participating as marine or terrestrial naturalist guides (Figure 14). Interest existed, but was minimal, in other forms of participation such as promotion, transportation, education, and protecting the environment (Figure 14).

Figure 13: Interest in participating in sea turtle ecotourism in the future.

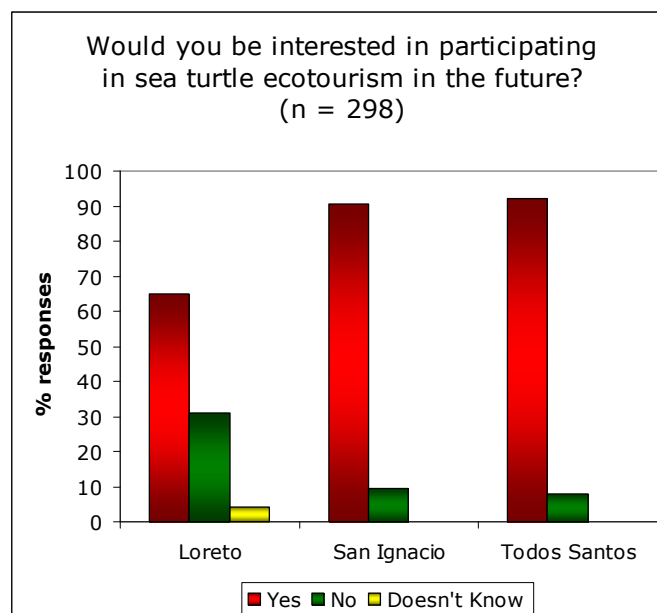
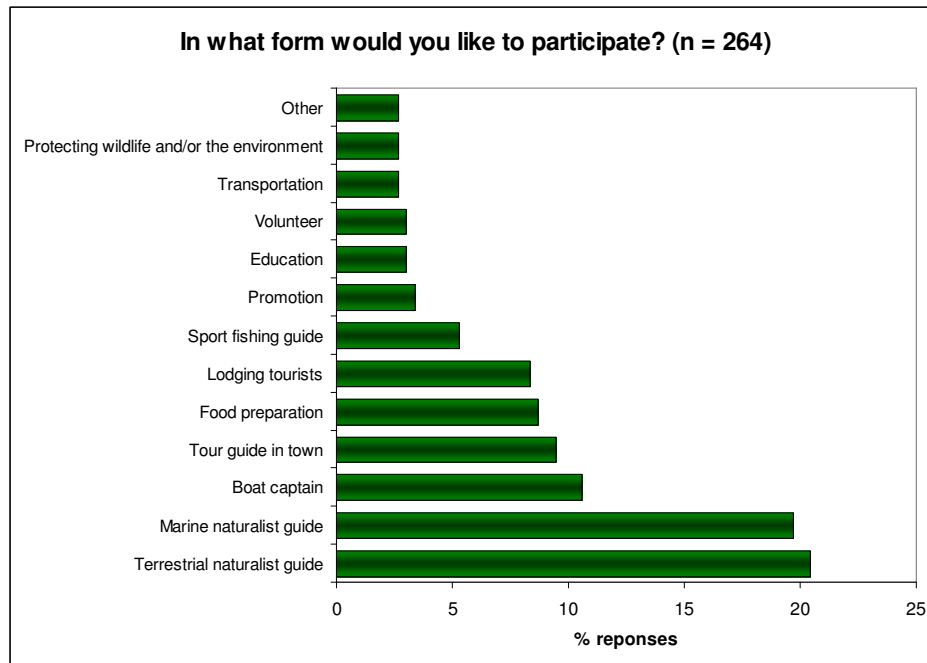


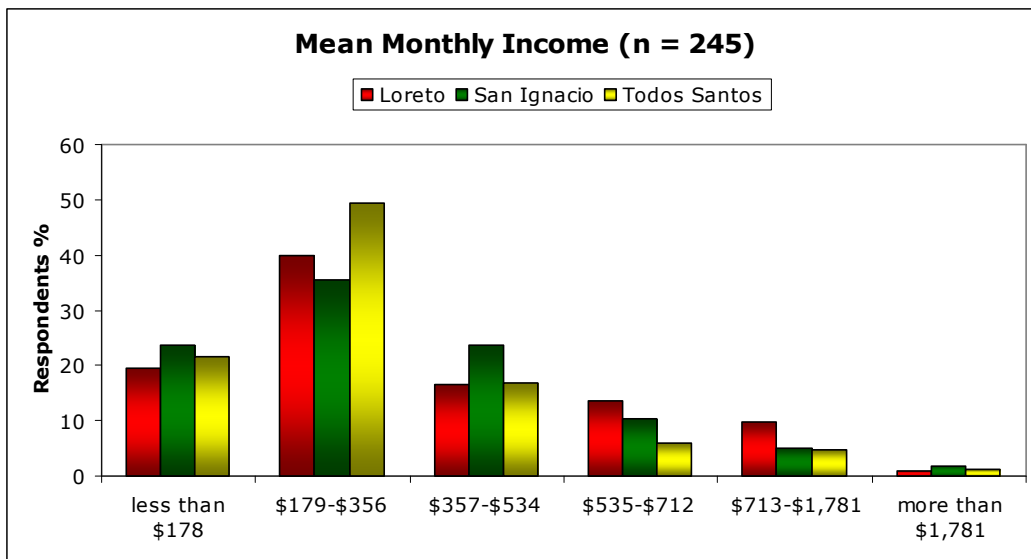
Figure 14: Forms of desired participation ranged from direct involvement such as terrestrial and marine naturalist guides to indirect involvement such as stewards of wildlife and the environment.



Incentives for participation can be derived from a variety of social and economic factors. Mean monthly income among all three communities was reported between \$179-\$356 (Figure 15). In order for sea turtle ecotourism to provide economic incentive for locals, especially in an effort to reduce fishing and poaching pressure, tourism wages should be comparable or greater than the mean reported here. However, mean monthly income of respondents was not a significant predictor of willingness to participate in this study (X^2 test, $P = .925$). Similarly, respondents who cited economic benefits of sea turtle ecotourism were not significantly more willing to participate with respect to respondents who cited other benefits. (X^2 test, $P = .39$). Respondents who cited conservation benefits of ecotourism were significantly more likely to participate (X^2 test, $P = .01$), indicating that factors other than economic may play a role in incentivizing ecotourism. Interview

data with a fisher, who fishes illegally without permits, indicate that current ecotourism earnings are not more than illegal fishing earnings. Yet, his incentive to pursue tourism was that it provided him with security and well-being that he could not obtain from illegal fishing practices.

Figure 15: Mean monthly income among all three communities is between \$179-\$356 USD.



Potential Bias

Prior to my survey I was warned about survey fatigue as the area has been host to many sea turtle conservation studies. To address this issue I asked all respondents the number of times they have been previously surveyed and in what themes. One third of respondents reported participation in previous surveys and less than half of these respondents were surveyed in the themes of sea turtles, fishing, tourism, ecology or conservation (Figures 16 and 17). Furthermore, of all 300 surveys administered, only one

respondent decided to discontinue the survey entirely, indicating a high response rate. Thus, within the context of my study, survey fatigue does not seem to pose a problem.

Figure 16: Thirty-three percent of the respondents indicated having been surveyed previously.

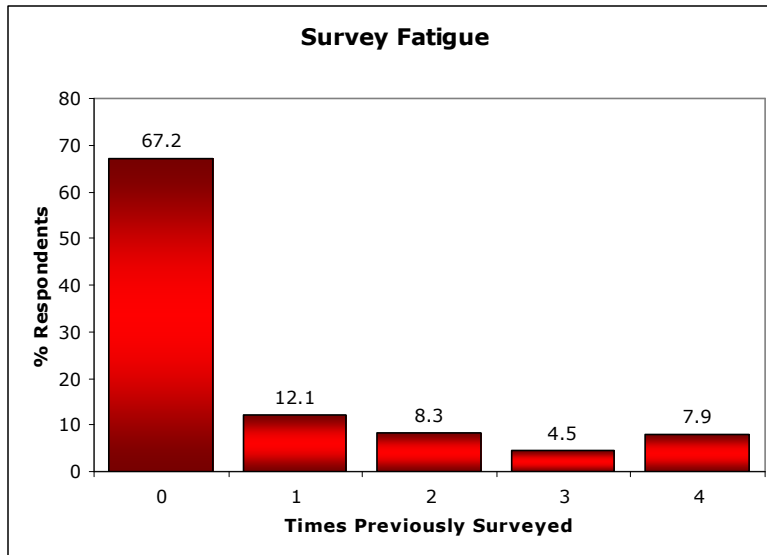
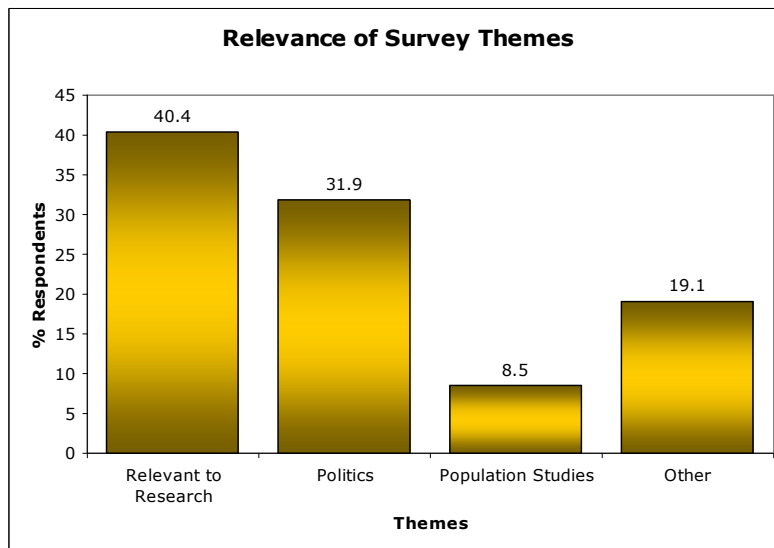


Figure 17: Of the thirty-three percent of respondents that had previously been surveyed, forty percent reported participating in themes relevant to this study, including, tourism, sea turtles, fishing, ecology or conservation.



To address potential bias resulting from my ethnicity, nationality, gender, and positionality (as a graduate student concerned in marine conservation), survey responses were coded by who administered the survey (myself or my volunteer Jesus Roberto). Mean monthly income was examined as a potentially sensitive question in the context of who administered the survey. The tendency to answer conservation favorable answers such as interest to participate in ecotourism, sea turtle conservation as the most important component of ecotourism, and sea turtle conservation as a desired result of ecotourism were all evaluated in this similar context. Interest in participating and sea turtle conservation as a desired result did not vary significantly between survey administrators (X^2 test, $P = 0.32$ and 0.056 , respectively). However, both mean monthly income and sea turtle conservation as the most important component of ecotourism varied significantly between survey administrators (X^2 test, $P = 0.009$ and 0.0001 , respectively). My respondents were more likely to report higher monthly income with respect to Jesus Roberto's, and were more likely to indicate sea turtle conservation as the most important component of sea turtle ecotourism. Although this does not demonstrate a cause and effect relationship for the reason that it is impossible to rule out other variables, these results demonstrate the potential for bias in my results.

IV. Discussion of Findings

Analysis of Community Perceptions

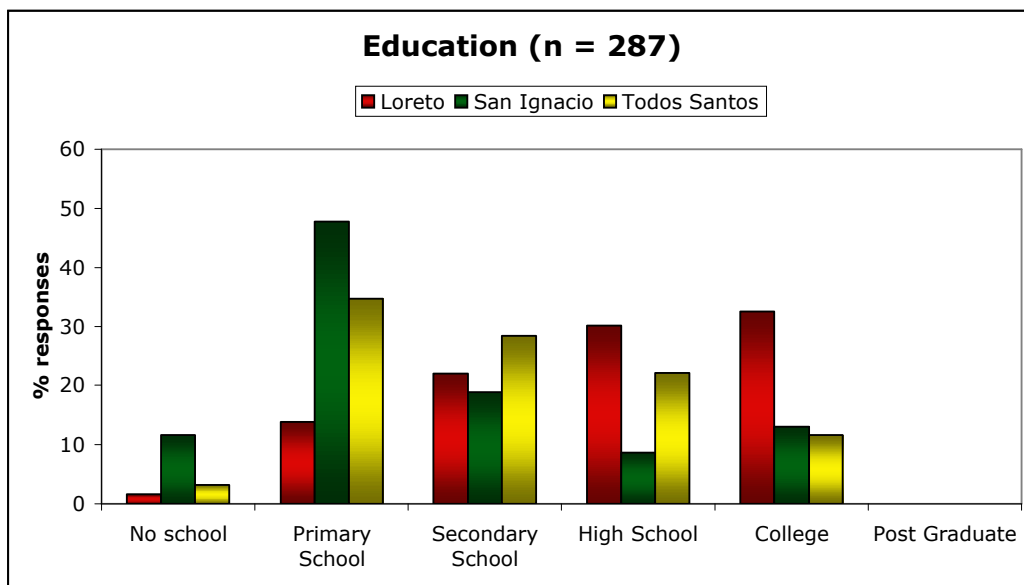
Most respondents either identified ecotourism as a form of tourism, protection of wildlife, environmental education and appreciation, or any mix of these characteristics. Although this demonstrates a general understanding of ecotourism's objectives, it

overlooks community involvement and socioeconomic benefits. These findings have been cited in previous sea turtle ecotourism literature. Community surveys conducted in Ostional, Costa Rica found that there was a limited awareness of employment and investment opportunities associated with sea turtle ecotourism (Campbell 1999). In order to remedy the lack of awareness of these other factors, Campbell (1999) suggests the need for formalized planning and intervention of outsiders, namely government agencies. However, similar to the case in Costa Rica, national planners are not likely to invest time, effort or money into ecotourism especially in rural communities. Thus, in communities such as Todos Santos and San Ignacio where government agencies are not present for a substantial part of the year, this scenario remains unlikely. However, there is a potential in communities similar to Loreto, to leverage government support for tourism to ensure formalized planning takes place. In communities with limited government presence, NGOs may be able to take on “outside intervention” through education and support in formal planning.

A majority of the respondents in all three communities cited sea turtle conservation as the most important aspect of ecotourism. When considering my analysis of potential bias, the portrayed propensity for sea turtle conservation may be an artifact of my imposed positionality on survey respondents. In other words, respondents may have been more likely to answer in a conservation minded manner than what was actually true for their respective values. However, this response may have also been due to a misunderstanding of the question, “What is the most important part of ecotourism *for you?*” Responses could have likely addressed what respondents perceived important idealistically and not for themselves as an individual. Interestingly, Loreto placed a heavy

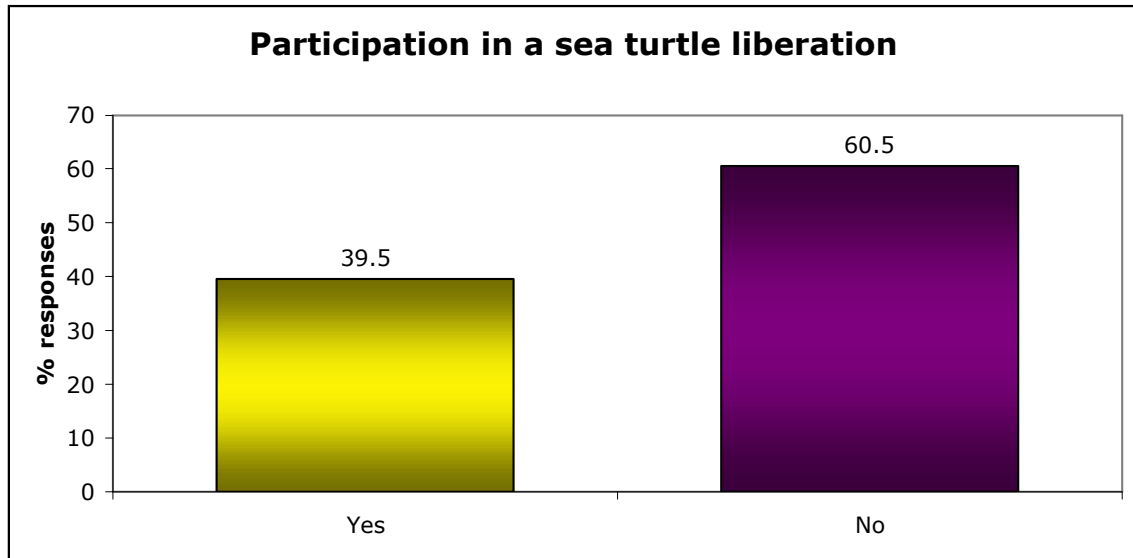
importance on education of tourists, while San Ignacio and Todos Santos placed a heavy importance on education of the local community. Increased conservation conscience and education of the local community seemed to be common themes throughout my survey and interview data in Todos Santos and San Ignacio. This may be attributed to the fact that Todos Santos and San Ignacio have had less access to education than Loreto (Figure 18). In fact, median education levels of respondents were as follows: Loreto = high school, Todos Santos = secondary school, and San Ignacio = primary school. This may also be due to the fact that San Ignacio (N ~ 4,600) and Todos Santos (N = 4,078) are smaller communities with respect to Loreto (N = 11,839) and community dynamics may play a more important role.

Figure 18: Highest education levels of respondents in the three towns surveyed. Secondary school in Mexico is equivalent to that of Junior High or Middle School in the United States.



Community perceptions of ecotourism were highly optimistic as benefits outweighed negative impacts in survey responses. These findings also hold true in Campbell's (1999) ecotourism study in Ostional, as respondents most frequently cited monetary gain as a benefit to ecotourism (Campbell 1999). Community responses varied significantly among communities in my study and respondents from Loreto and San Ignacio placed the heaviest importance on economic gain and more jobs, while Todos Santos placed the heaviest importance on protection of sea turtles. Similar community trends were reflected in responses of desired results of sea turtle ecotourism. These results may be attributed to the fact that residents of Todos Santos are already involved in sea turtle conservation through participation in liberations of hatchlings on the beach (40% of respondents) (Figure 19). Loreto and San Ignacio differ as they have limited or no nesting on their beaches and turtles primarily occupy offshore waters for foraging purposes. Sea turtles accessible by community members due to nesting on proximal beaches, are probably more likely to have an impact on conservation ethic, with respect to those offshore. Furthermore, NGOs' phenomenal efforts to involve community members through participation in liberations and education in local schools in Todos Santos may have helped to build a strong conservation conscience throughout the community. San Ignacio placed the least importance on sea turtle conservation as a benefit to ecotourism with respect to the other two communities. Understandably, an ephemeral tourism economy, such as that in San Ignacio, would cause a community to place stronger emphasis on economic gain with respect to turtle conservation.

Figure 19: Participation in sea turtle liberations in Todos Santos was reported by 40% of respondents.



Interestingly, 65% of San Ignacio respondents reported no negative impacts of whale ecotourism, and 97% of respondents indicated that whale ecotourism was most successful on a five point Likert scale. Of the negative impacts reported, community conflict was most commonly cited (11.6%). This opinion did not seem to vary among different demographic groups. Employment in the fishing or tourism sector did not significantly affect a respondent's likeliness to cite community conflict (X^2 test, $P = 0.96$ and $.80$ respectively). Previous ecotourism literature on Laguna San Ignacio (Young 1999a, 1999b) has described conflict within the community as a serious downfall of whale ecotourism. According to my findings, community conflict might not be as severe an impact as once thought. However, community involvement as skiff drivers has increased substantially from 1994 (1 driver) to present day (25 skiff drivers). Also, the significant benefits of whale ecotourism in Laguna San Ignacio, such as the addition of a middle school and constant reinvestment of ecotourism funds in the community, seem to outweigh the negative impacts of conflicts between resource users.

A similar situation was reflected in responses from Todos Santos and Loreto surveys, as responses indicated whale ecotourism as most successful on a five point Likert scale. These findings did not show a significant relationship with employment in the tourism industry (X^2 test, $P = 0.22$), demonstrating there was no differentiation in opinion between those who received direct benefits from whale ecotourism and those who did not. In fact, only 10% of respondents in Todos Santos cited negative impacts from whale ecotourism. However, this may be attributed to the fact that whale ecotourism in Todos Santos remains relatively underdeveloped as only one business offers whale watching tours, and furthermore, the absence of a jetty makes boat launching with tourists difficult to accomplish.

Perceptions of ecotourism seem to differ significantly across communities, but as communities are often not “homogenous entities” perceptions likely vary within communities as well. Although Chi-Squared tests administered revealed no significant difference between demographics in my survey results, interview data allude to a differentiation of ideas among sectors. For example, many respondents cited NGOs as positive institutions influencing conservation in the communities, but one fisher of Laguna San Ignacio revealed his feelings of disenfranchisement from the NGO community. Therefore, it is unfair to assume a single perception across all community members. Likewise, while some key-informants perceived the idea of greater community involvement as a good thing, one employee in the ecotourism sector expressed a concern that increased community involvement would also increase resource degradation and conflict. In conclusion, interview data may be a better indicator of variance within communities, as surveys can often fail to capture differentiation of opinions.

Analysis of Community Involvement

Although current involvement in sea turtle ecotourism among communities was low, there was a high desire to participate. Interest in participation could likely be caused by perceived monetary gain (Campbell 1999), but other driving factors must not be overlooked. Interestingly, mean monthly income of respondents did not predict willingness to participate (X^2 test, $P = .925$). Similarly, respondents who cited economic benefits of sea turtle ecotourism were not significantly more willing to participate with respect to respondents who cited other benefits. (X^2 test, $P = .39$). Nonetheless, economic incentives were pervasive throughout survey and interview results specifically in the town of San Ignacio. In San Ignacio economic drivers are likely to play the largest role in the facilitation of community participation because of extreme seasonality of tourism (only three months) and declining income in fisheries. However, among all communities, respondents who cited conservation benefits of sea turtle ecotourism were significantly more willing to participate with respect to respondents who cited other benefits, suggesting the importance of other drivers in community participation. Likewise, interview results suggested that employment in ecotourism can offer a sense of well-being and security that other jobs may not provide.

Lai and Nepal (2005) suggest that although perceived benefits may play an important role in local participation, actual environmental, social and political conditions may be stronger drivers of community participation. For example, although desire to participate is high among communities, participation could be hindered by the difficulty of locals to obtain tourism permits from authorities. Specifically, in Loreto, participation

could be affected by competition from mass tourism enterprises driven by recent development. In San Ignacio, participation could be influenced by a lack of local capacity, while in Todos Santos no feasible way for tourists to enter the water could stifle the potential for local fisher participation as skiff drivers or guides. Thus actual realities and conditions need to be addressed in addition to community perceptions.

Desired forms of participation varied from direct involvement as a guide to indirect involvement as a steward of the natural environment. However, direct involvement as ecotourism guides were most commonly cited among communities. If this situation were to become a reality, a potential would exist for resource conflicts between participants such as jobs, skiffs, and permits. In order to avoid this problem while encouraging participation of all community members, a holistic ecotourism industry should be developed to maximize community earnings across all sectors and encourage an even distribution of benefits. This situation is particularly crucial for Laguna San Ignacio, whose current ecotourism infrastructure is confined within isolated camps. There is no centralized location for tourists to convene, and subsequently no opportunity to spend money in restaurants, shops, art stores, etc. Therefore, the lagoon would benefit from a diversification of local participation potential in ecotourism.

Cross-validation of Findings

As parallels are apparent between the findings of this study and studies in primary literature (eg. Campbell 1999), cross-validation can also be achieved through relevant grey literature. A similar study was implemented in the summer of 2006 in the town of Puerto Adolfo Lopez Mateos by Stephen Delgado of University of Arizona and Grupo

Tortuguero. Part of my survey was modeled from Delgado's survey in an attempt to standardize methods and findings. Puerto Adolfo Lopez Mateos, a small fishing-based community, is located on the Pacific coast of Baja California Sur, with a population of 2,171 (INEGI 2005), and similar in characteristic to Laguna San Ignacio. Whale watching has remained an important source of income for Puerto Adolfo Lopez Mateos since the onset of whale ecotourism. Grupo Tortuguero maintains a large presence in Puerto Adolfo Lopez Mateos, as such, sea turtle conservation ethic runs strong. In fact, ever since 2003, Lopez Mateos has been the proud host of Las Caguamas Festival, a celebration honoring the migration of loggerhead sea turtles from Japan to Baja's Pacific waters.

Similar to the findings of this study, a majority of local respondents (99%) perceived benefits resulting from sea turtle ecotourism. Only 8% of respondents indicated that sea turtle ecotourism would be detrimental to the community. A majority of respondents (77%) reported interest in participating in sea turtle ecotourism, similar to my results in Loreto, San Ignacio and Todos Santos. Therefore, Delgado concluded that there was a strong potential for the development of sea turtle ecotourism in Puerto Adolfo Lopez Mateos, as the majority of respondents viewed ecotourism as beneficial rather than detrimental. Local infrastructure in Lopez Mateos was cited as minimal, however, respondents were willing to renovate certain elements to accommodate tourist needs and expectations. There was also a willingness to build capacity similar to communities in my study. The survey also concluded that economic gains from tourism need to match or surpass gains from fishing. Finally, Delgado suggested that increased marketing and government coordination were necessities in order to maximize benefits. These findings

help to corroborate data from my study, in addition to elucidating several important recommendations.

Synthesis of Ecotourism Potential in the Region

In synthesizing the findings from this study, it is clear that benefits from ecotourism may vary across communities, and furthermore, may be entirely suitable in one community while completely unsuitable in the next (Brandon and Margoulis 1996). This can be attributed to the fact that each community has drastically different infrastructure and resource bases and differing opinions and perceptions. Based on my findings I argue that sea turtle ecotourism has a large potential to provide benefits for the communities I studied in Baja California Sur if implemented in the correct manner, while effectively maximizing community involvement. However, each community I studied would benefit from ecotourism in different ways and therefore implementation must be carried out with particular attention to specific community characteristics.

In Loreto, sea turtle ecotourism would most likely bring the most benefits in terms of sea turtle conservation, as poaching is still a wide-spread problem throughout the community (Comer and Nichols 2007; Mancini and Koch 2009). It is unlikely that sea turtle ecotourism would bring a substantial increase in jobs or economic gain to the community, as ecotourism is already well diversified and mass tourism and foreign development play a much larger role in the economy. There exists the potential for mainly in-water viewing as nesting is still rare (around 10-15 nests per year). In-water viewing can be carried out by the use of Grupo Tortuguero monitoring nets, which would limit the number of potential participants, or by dive, snorkeling, or kayak tours in areas

of high turtle use. Comer and Nichols (2007) propose the idea of establishing sea turtle refuges within the Marine Park and increasing enforcement and Park administration capacity by deputizing citizens. This in turn would help to support sea turtle ecotourism.

Arguably, San Ignacio (particularly Laguna San Ignacio) would benefit the most from low-impact ecotourism with regards to more job opportunities year round and subsequent economic gain. Sea turtle ecotourism would help to attract tourists during the whale off-season, specifically during the summer months when sea turtles arrive to the lagoon. As ecotourism is characterized as the most lucrative sector at the Lagoon, this can help bolster the economy immensely. Currently, Laguna San Ignacio only offers tours with Grupo Tortuguero monitoring nets and is confined within one ecotourism camp, allowing for minimal benefits distributed across the community. This can be remedied by developing other forms of participation in addition to low-impact ecotourism infrastructure and by diversifying ecotour options, such as diving or kayaking sea turtle tours. Due to the Lagoon's sensitive resource base and limited tourism infrastructure great precaution should be taken when further developing ecotourism options.

Todos Santos has the unique opportunity to develop nesting beach ecotourism, which has the potential to generate benefits across the community. Nesting beach tours are less exclusive in that you do not need a boat to offer services. This could benefit Todos Santos by the possible establishment of new (and perhaps local) ecotourism businesses, as there are currently only several. NGO support would be a necessary player in this case, to help in the development of an entirely new sector. Fishing cooperative members also expressed interest in developing the potential for in-water viewing, as turtles are frequently encountered offshore during breeding and nesting months during

the summer. However, benefits from sea turtle ecotourism would be maximized by considering the following improvements: easier access to beaches via signage, decreased litter on principle nesting beaches by the placement of trash receptacles, English classes and tour guide training, improvements in the town's sewage system, enforced regulations prohibiting vehicular traffic, and a manner in which to safely transport tourists offshore from the launch beach. All of these are important issues to address before the implementation of ecotourism in Todos Santos.

V. Conclusions and Recommendations

I would like to summarize with the following conclusions and recommendations in order to elucidate pervasive themes and key findings, and make relevant suggestions in an effort to maximize community benefits:

1. Community perceptions are highly optimistic regarding the potential benefits of ecotourism and rarely assume negative impacts. Perceived benefits are important for community support but potential impacts must be communicated to participants to avoid downfalls. This can be addressed by increased education in schools and workshops.
2. Local perceptions are likely to vary across and within communities, making survey and interview data difficult to generalize, necessitating in-depth community analyses on a case-by-case basis.
3. Infrastructure and resources are also likely to vary across communities, creating some circumstances where ecotourism is a viable conservation tool, and other circumstances where it is not. Varying infrastructure and resources must be

addressed by adequate assessments prior to implementation and differential implementation of ecotourism accordingly.

4. Presently, there is low community awareness and participation, but this is most likely due to the infancy of sea turtle ecotourism. Increased awareness can be achieved through campaigns facilitated by Grupo Tortuguero and Pro Peninsula.
5. There is a high desire to participate among all communities. Participation by all community members should be encouraged but in a manner to avoid resource conflicts. This can be achieved by developing forms of participation, other than guides, to maximize benefits across the entire community.
6. Economic, conservation and social factors may incentivize participation. While the project should pay regard to the income baseline, they should also explore the importance of other factors, such as conservation and social factors.
7. Capacity building can be achieved by administering more workshops to support guide training, sea turtle conservation training, small scale business training, environmental education and English language education.
8. Environmental degradation, economic leakage or resource conflicts could still potentially occur. Projects such as this should be continually monitored to detect downfalls and measure successes.
9. Government corruption, in addition to lack of government enforcement resources, is a pervasive theme among all communities studied and in relevant primary literature. Government support and intervention may become integral for providing permits to local entrepreneurs and by enforcement of wildlife viewing

- regulations should it become necessary. Therefore, all efforts should be made to improve enforcement resources, such as deputizing citizens.
10. With strong influence and involvement in the area, local grassroots NGOs can provide support to accomplish tasks such as workshops, education, campaigns and monitoring. NGOs may also provide an important role in leveraging support from government agencies, or by filling their roles as “outside intervention” agencies.
 11. Bias is difficult to avoid when conducting social science studies and must be factored into the studies’ analyses to increase transparency and validity in findings.

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VII. Literature Cited

Allison, E.H. and Ellis, F. (2001) The livelihoods approach and management of small-scale fisheries. *Marine Policy*. Vol. 25, No. 5: 377-388.

- Anonymous. (1996) Titulo vigesimo quinto. Delitos contra el ambiente y la gestion ambiental. Mexico City.
- Aridjis, H. (1990) Mexico proclaims total ban on harvest of turtles and eggs. *Marine Turtle Newslett.* Vol. 50: 1-3.
- Arnstein, S. (1969) A ladder of community participation. *American Institute of Planners Journal* Vol. 35, Issue 4: 216-224.
- Atkinson, P. and Hammersley, M. (1994) *Ethnography and Participant Observation.* In (eds) N. Denzin and Y. Lincoln. *Handbook of Qualitative Research.* Thousand Oaks: Sage, pp. 248-261.
- Bowen, B.W., Abreu-Grobois, F.A., Balazs, G.H., Kamezaki, N., Limpus, C.J., Ferl, R.J. (1995) Trans-Pacific migrations of the loggerhead turtle (*Caretta caretta*) demonstrated with mitochondrial DNA markers. *Proc. Natl. Acad. Sci. USA* 92, 3731-3734.
- Caldwell, D.K. (1963) The sea turtle fishery of Baja California, Mexico. *California Fish and Game.* Vol. 49:140-151.
- Brandon, K. and Margoulis R. (1996) The bottom line: getting biodiversity conservation back into ecotourism. In (eds) J.A. Miller and E. Malek-Zadeh. *The ecotourism equation: measuring the impacts.* Yale Bulletin Series, No. 99, Yale University, New Haven, Connecticut, USA.
- Campbell, L.M. (1999) Ecotourism in Rural Developing Communities. *Annals of Tourism Research,* Vol. 26, No. 3: 534-553.
- Campbell, L.M. (2000) Human need in rural developing areas: perceptions of wildlife conservation experts. *Canadian Geographer.* Vol. 44, Issue 2: 167-181.
- Campbell, L.M. (2002) Conservation narratives in Costa Rica: Conflict and Co-existence. *Development and Change.* Vol. 33: 29-56.
- Campbell, L.M., and Vainio-Mattila, A. (2003) Participatory Development and Community-Based Conservation: Opportunities Missed for Lessons Learned? *Human Ecology,* Vol. 31, No. 3.
- Campbell, L.M. and Smith, K. (2006) What makes them pay? Values of Volunteer Tourists working for Sea Turtle Conservation. *Environmental Management.* Vol. 38, No. 1: 84-98.
- Comer Santos, K.E. and W.J. Nichols. (2007) Loreto Bay: A refuge for the world's sea turtles. In (eds.) P. Ganster, O. Arizpe, A. Ivanova. *Loreto: The future of the first capital*

of the Californias. San Diego State University Press and Institute for Regional Studies of the Californias.

Comision Nacional de Areas Naturales Protegidas. (CONANP) (2008)
http://www.conanp.gob.mx/nuestro_titular.html

Ellenberg, U., Mattern, T., Seddon, P.J., Jorquera, G.L. (2006) Physiological and reproductive consequences of human disturbance in Humboldt penguins: The need for species-specific visitor management. *Biological Conservation*. Vol. 133, Issue 1: 95-106.

Ernst, C.H. and Barbour, R.W. (1989) *Turtles of the World*. Washington D.C. Smithsonian Institute Press.

Felger, R.S. and Moser M.B. (1987) Sea turtles in Seri Indian culture. *Environment Southwest*, Autumn, Vol. 519: 18-21.

Fritts, T.H., Stinson, M., Marquez, R. (1982) Status of sea turtle nesting in southern Baja California, Mexico. *Bull. Scout. Calif. Acad. Sci.* Vol. 81:51-60.

Garcia-Martinez, S. and Nichols, W.J. (2000) *Sea Turtles of Bahia Magdalena, Baja California Sur, Mexico: Demand and supply of an endangered species*. International Institute of Fisheries, Economics and Trade, Corvallis, OR.

Gardner, S.C. and Nichols, W.J. (2001) Assessment of sea turtle mortality rates in the Bahia Magdalena region, BCS, Mexico. *Chelonian Conserv. Biol.* Vol. 4: 197-199.

Godfrey, M.H. and Drif, O. (2001) Guest Editorial: Developing Sea Turtle Ecotourism in French Guiana: Perils and Practicalities.

Gold, R. (1958) Roles in sociological field observations. *Social Forces*. Vol. 36: 217-223.

Hammersley, M. and Atkinson, P. (1983) *Ethnography: Principles in practice*. London: Tavistock.

Hernandez, E., G. Ruiz, C. Elizalde, L. Guerrero. Programa de Investigacion y Conservacion de Tortugas Marinas en la Costa de Oaxaca, Mexico, especial atencion a la tortuga golfina; Reporte Tecnico Temporada, 78, pp.26.

INEGI (2005) Instituto Nacional de Estadistica y Geografia. <http://www.inegi.org.mx>

Iverson, J.B., Converse, S.J., Smith, G.R., Valiulis, J.M. (2006) Long-term trends in the demography of the Allen Cays rock iguana (*Cyclura cyclura inornata*): Human disturbance and density-dependent effects. *Biological Conservation*. Vol. 132: 300-310.

Jaffe, E. (2006). Good Gone Wild. *Science News Online*. Vol. 170, No. 14: 218.

- Junker, B. (1960) Field Work. Chicago: University of Chicago Press.
- Kiss, A. (2004) Is community-based ecotourism a good use of biodiversity conservation funds? *Trends in Ecology and Evolution*. Vol. 19. No. 5: 232-237.
- Kitchen, R. and Tate, N.J. (eds) (2000) *Conducting Research into Human Geography*. New York: Prentice Hall. Pp. 20-22.
- Koch, V., Nichols, W.J., Peckham, H., and de la Toba, V. (2006) Estimates of sea turtle mortality from poaching and bycatch in Bahia Magdalena, Baja California Sur, Mexico. *Biological Conservation*, Vol. 28, Issue 3: 327-334.
- Lai, P. and Nepal S.K. (2005) Local perspectives of ecotourism development in Tawushan Nature Reserve, Taiwan. *Tourism Management*. Vol. 27, Issue 6: 1117-1129.
- Little, P. (1994). The link between local participation and improved conservation: A review of issues and experiences. In, Western, D., and Wright, M.A. *Natural Connections: Perspectives in Community-Based Conservation*, Island Press, Washington, DC, pp. 347-372.
- Lopez Castro, M.C., Carmona, R., Nichols, W.J. (2004) Nesting characteristics of the olive ridley turtle (*Lepidochelys olivacea*) in Cabo Pulmo, southern Baja California. *Mar. Biol.* Vol. 145:811-820.
- Lusseau, D., Slooten, L., Currey, R.J.C. (2006) Unsustainable dolphin-watching tourism in Fiordland, New Zealand. *Tourism in Marine Environments*. Vol. 3. Issue 2: 173-178.
- Mancini, A. and Koch, V. (2009) Sea turtle consumption and black market trade in Baja California Sur, Mexico. *Endangered Species Research*. Vol. 7: 1-10.
- Mann, J., Connor, R.C., Barre, L.M., Heithaus, M.R. (2000) Female reproductive success in bottlenose dolphins (*Tursiops* sp.): life history, habitat, provisioning, and group-size effects. *Behavioral Ecology*. Vol. 11, No. 2: 210-219.
- Marquez, R. (1977) Estado Actual de las Pesquerias de Tortugas Marinas en Mexico. *Memorias 5 Congreso Nacional de Oceanografía*, Guaymas, Sonora, Mexico 1974, pp. 369-391.
- Marquez, R. (1996a) *Las Tortugas Marinas y Nuestro Tiempo*. Coleccion de Ciencia 144, Fondo de Cultura Economica, Mexico, D.F., 197 p.
- Marquez, R. (1996b) Olive ridley turtles shows signs of recovery at La Escobilla, Oaxaca. *Marine Turtle Newsletter*, 73, 5-7.
- Marquez, R., J. Vasconcelos, L. Lopez, E. Bolanos. (1992) Diagnostico de al situacion de las acciones de conservacion, proteccion y repoblacion de las tortugas marinas: I

Reunion Regional de Trabajo sobre La Problemática Camaron-Tortuga Marina.
Secretaría de Pesca. Instituto Nacional de la Pesca.

Mortimer, J.A & Donnelly, M. 2008. *Eretmochelys imbricata*. In: IUCN 2008. 2008 IUCN Red List of Threatened Species. <www.iucnredlist.org>.

Nichols, W.J. (2003) Biology and conservation of sea turtles in Baja California, Mexico. PhD Dissertation, University of Arizona, Tucson, 474p.

Nichols, W.J. The conservation mosaic: networks, knowledge and communication for loggerhead turtle conservation at Baja California foraging grounds. (2006) In: (ed. Kinan, I.) Proceedings of the Second Western Pacific Sea Turtle Cooperative Research and Management Workshop. Volume II: North Pacific Loggerhead Sea Turtles. March 2-3, 2005, Honolulu, HI. Western Pacific Regional Fishery Management Council: Honolulu, HI, USA.

Nichols, W.J. (2007) Loggerhead Sea Turtle 5-Year Review: Summary and Evaluation. National Marine Fisheries Services and US Fish and Wildlife Service. August 2007.

Nichols, W.J., A. Resendiz, J.A. Seminoff, and B. Resendiz. (2000) TransPacific Migration of a Loggerhead Turtle Monitored by Satellite Telemetry. Bulletin of Marine Science, Vol. 67, No. 3: 937-947.

Peckham, S.H. and Nichols W.J. (2002) Why did the turtles cross the ocean? Pelagic red crabs and loggerhead turtles along the Baja California coast. In: Seminoff JA (ed) Proceedings of the 22nd Annual Symposium on Sea Turtle Biology and Conservation. U.S. Department of Commerce NOAA Tech Memo NMFS-SEFSC-503, Miami, pp 47-48.

Peckham, S.H., Maldonado Diaz, D., Walli, A., Ruiz, G., Crowder, L.B., Nichols, W.J. (2007) Small-scale fisheries bycatch jeopardizes endangered Pacific loggerhead turtles. PLoS ONE. Vol. 2, No. 10: e1041.

Porter, S.R., Whitcomb, M.E., Weitzer, W.H. (2004) Multiple surveys of students and survey fatigue. New Directions for Institutional Research. Vol. 121: 63-73.

Rea, L.M. and Parker, R.A. (2005) Designing and Conducting Survey Research: A comprehensive guide. John Wiley and Sons, Inc. San Francisco, CA.

Resendiz, A., Resendiz, B., Nichols, W.J., Seminoff, J.A., Kamezaki, N. (1998) First confirmed east-west transpacific movement of loggerhead sea turtle, *Caretta caretta*, released in Baja California, Mexico. Pacif. Sci. Vol. 52: 151-153.

Sarti Martinez, A.L. 2000. *Dermochelys coriacea*. In: IUCN 2008. 2008 IUCN Red List of Threatened Species. <www.iucnredlist.org>.

Scheyvens, R. (1999) Ecotourism and the empowerment of local communities. *Tourism Management*. Vol. 20, Issue 2: 245-249.

Seminoff, J.A. (1994) Conservation of the marine turtles of Mexico: A survey of nesting beach conservation projects. M.S. Thesis. University of Arizona, Tucson, 185 pp.

Seminoff, J.A. Nichols, W.J., Resendiz, A. (2000a) Natural History Notes: *Chelonia mydas agassizii* (East Pacific Green Turtle), Diet. *Herpetological Rev.* Vol. 31: 103.

Seminoff, J.A., Resendiz, A., Nichols, W.J. (2002b) Diet of the East Pacific green turtle (*Chelonia mydas*, in the central Gulf of California, Mexico. *J. Herpetology* Vol. 36:447-453.

Seminoff, J., Jones, T.T., Resendiz, A., Nichols, W.J., and Chaloupka, M.Y. (2003b) Monitoring green turtles (*Chelonia mydas*) at a coastal foraging area in Baja California, Mexico: multiple indices describe population status. *J. Mar. Biol. Assoc.* Vol. 83: 1355-1362.

Seminoff, J.A., Nichols, W.J., Resendiz, A., Brooks, L. (2003c) Occurrence of hawksbill turtles, *Eretmochelys imbricate*, near Baja California. *Pac. Sci.* Vol. 57: 9-16.

Seminoff, J.A., and Nichols, W.J. (2007) Sea turtles and the Alto Golfo: a struggle for survival. In: Felger, R.S., and B. Broyles (eds.). *Dry Borders*. University of Utah Press, Salt Lake City.

Seminoff, J.A., A. Resendiz, B. Resendiz, W.J. Nichols, and T.T. Jones. 2008. Tortugas Marinas. En: G.D. Danemann y E. Ezcurra (eds.), *Bahia de los Angeles: recursos naturales y comunidad*. Linea Base 2007. Instituto Nacional de Ecología, Mexico.p. 457-494.

Simmons, D.G. (1994) Community participation in tourism planning. *Tourism Management* Vol. 15: 98-108.

Spotila, J.R., Reina, R.R., Steyermark, A.C., Plotkin, P.T., Paladino, F.V. (2000) Pacific leatherback turtles face extinction. *Nature* Vol. 405: 529-530.

Tershy, B.R., Bourillon, L., Metzler, L., Barnes J. (1999) A survey of ecotourism on islands in northwestern Mexico. *Environmental Conservation*. Vol. 26. Issue 3: 212-217.

TIES (The International Ecotourism Society) (1990)
http://www.ecotourism.org/site/c.orLQKXPCLmF/b.4835303/k.C64B/What_is_Ecotourism.htm. Accessed February 2009.

Trinidad H. and Wilson J. (2000) The Bio-economics of sea turtle conservation and use in Mexico: History of Exploitation and Conservation Policies for the Olive Ridley

(*Lepidochelys olivacea*). In Proceedings of the International Institute of Fisheries Economics and Trade Conference. Corvallis, OR.

Young, E.H. (1999a) Balancing Conservation with Development in Small-scale Fisheries: Is Ecotourism an Empty Promise? *Human Ecology*, Vol. 27, No. 4.

Young, E.H. (1999b) Local people and conservation in Mexico's El Vizcaino Biosphere Reserve. *The Geographical Review*. Vol. 89, Issue 3: 364-390.

VIII. Appendix

Duke University Institutional Review Board Clearance

**Duke University
Institutional Review Board for the Protection of Human
Subjects**

FWA No. 00000265

Notice of Approval of Exemption Request

Investigator(s): Elena Finkbeiner
Advisor: Larry Crowder
Title: Establishing a Conservation Tourism Baseline in Baja California Sur, Mexico
Exemption Number: 2313
Approval Date: Monday, May 12, 2008
Sponsor: Department/School
Sponsor Number (if applicable):

Please note: Approval is contingent upon maintaining certification to conduct research with human subjects.

This research is exempt from further review by the IRB unless a proposed change in the research makes it no longer eligible for an exemption. For example:

-- The researchers find that there is an unanticipated risk to the subjects. (There can be no risk to subjects in exempt research.)

-- The researcher wishes to add a protected subject population such as students in the Psychology Department Subject Pool or students of the researcher.

-- The researcher wishes to change the methodology so that it no longer fits an eligible category of research activity.

If the research is no longer eligible for exemption, please contact the Human Subjects Specialist at 684-3030.

Duke University adopted a set of ethical principles to cover all research with human subjects, even exempt research, regardless of the source of funding. The principles, respect for persons, beneficence, and justice, described in the Belmont Report, can be found at <http://ohrp.osophs.dhhs.gov/humansubjects/guidance/belmont.htm> >

Data Retention

In accordance with Duke's Data Retention Policy, signed consent forms and other research records must be maintained for five years after the completion of the research.
< <http://www.ors.duke.edu/policies/datarete.htm>>

Focus Group Script and Notes

Background Information

El ecoturismo puede tener muchos beneficios para la comunidad, pero al mismo tiempo puede tener impactos negativos si no está puesto en práctica en una forma correcta. Por ejemplo, si no hay infraestructura suficiente, si las ganancias no quedan en la comunidad, si los propietarios no son locales, si no tiene reglas para el avistamiento cuidadosamente de tortugas marinas, el ecoturismo va a terminar con problemas. La participación de la comunidad local, tal vez, es la cosa más importante para el ecoturismo.

Ya existe ecoturismo en Baja y la mayoría de los negocios enfoca en el avistamiento de ballenas. Hay un nuevo proyecto desarrollando en BCS para el avistamiento de las tortugas marinas. Aunque mucha gente ha parado comer tortugas marinas, todavía las tortugas están atrapadas en las redes de pesca comercial. BCS tiene 5 de las 7 especies de las tortugas en el mundo y todos están en peligro de extinción.

Grupo Tortuguero, un programa que nació aquí en Loreto para la conservación de las tortugas marinas, acaba de empezar este proyecto nuevo. Este proyecto desea promover el ecoturismo de tortugas marinas para proveer a los pescadores y poachers de otra forma ganar dinero y también desea promover la conservación de tortugas marinas por la comunidad entera y a los turistas extranjeros. Grupo Tortuguero tiene parejas con negocios de ecoturismo aquí en BCS y también con un ONG en Los Estados Unidos (Ocean Conservancy). Ocean Conservancy ayuda con el desarrollo del proyecto y con la compañía de mercadeo (marketing).

Mi investigación tiene el propósito de establecer un baseline de ecoturismo en BCS, entonces estoy sacando información de la percepción y participación en la comunidad, la infraestructura, y otras cosas. Voy a usar esta información para mi maestría en biología marina. Preguntas?

Focus Group Script

Gracias por participar en esta discusión. Mi nombre es Elena y voy a dirigir la discusión. Soy una estudiante de maestría de la universidad de Duke en Los Estados Unidos. Estoy desarrollando una investigación en Baja California Sur a través de encuestas. Quiero saber más de la percepción y participación de las comunidades en un nuevo proyecto regional de ecoturismo para el avistamiento de tortugas marinas. Hoy estamos haciendo un focus group para aprender más de las percepciones de este sujeto y para probar esta encuesta.

Primero vamos a leer esta forma de consentimiento y por favor, si quieres seguir, firma la forma. Tiene pregunta alguien de la forma?

Esta discusión estará apuntada. Esto va a ayudarme hablar y escuchar al mismo tiempo. No usare tus nombres en mi estudio, y nadie afuera de este grupo escuchara esta discusión. Ivonne estará apuntar notas para ayudarme.

Solamente hay respuestas correctas en este focus group y no estoy buscando alguna respuesta. Todas las personas van a tener opiniones diferentes, entonces por favor no ten miedo de expresarlas. Trata de participar igualmente. Tengo interés en cada cosa que tienes que decir.

Estaremos aquí por una hora y media. Te sienta libre a comer cuando quieres. Entonces, relaja y vamos a empezar! Podemos empezar con introducciones. Por favor dinos tu nombre y porque tienes interés en este estudio.

Focus Group Notes

The focus group was held on 14 May 2008 at a restaurant called Tio Lupe. I recruited key informants (students from the ecotourism program at the local university) to participate in the focus group. I made an announcement during class, and 15 students volunteered to attend. The focus group time was set for 5 pm at the restaraunt and the last person arrived at 6 pm. Only 5 showed up and most were over a half an hour late. This is referred to as “la hora mexicana.”

I first introduced my study and gave a brief introduction about voluntary participation in the focus group (see script). Next, consent forms were read and signed and we began to review the survey tool (see consent forms). I received a lot of positive feedback. The first question was reformed entirely, and most feedback after this was determining the best manner to read each question (ie) should the answer choices be read outloud or just the initial question. The group confirmed that the answers should be left open-ended and the choices should be used only for coding purposes. Also, answer options should be read if the respondent was lost or confused about how to answer the question. The group determined that the only other appropriate time to read the answer options aloud was for questions 6 and 8. The reasoning behind this is that we want people to know that there are other forms of participation in sea turtle ecotourism besides running boat tours. The other question of concern was about average monthly income. People had different opinions on what the highest bracket should be. This was to be tested in the pre-test stage.

At the conclusión of the focus group, all the participants expressed interest in helping conduct the survey. Two had conducted surveys previously for a political census and the others had a good grasp on survey protocols. I jumped on the opportunity to begin their training and handed out instruction forms (see instruction forms). We went over all the instructions and discussed how we would go about obtaining a representative sample of the community. A random sample (going to every nth house) would be impossible in this case as the community is patchy and spreadout, and some neighborhoods are unsafe. So each interviewer was assigned a general geographic section of the town. One interviewer’s father was a fisherman. Since I was particularly interested in fishers’

responses to this survey I told him to focus on interviewing fishers. We then made plans to meet the next day for further training and pre-testing at the University.

Instructions Handout for Survey Administrator Volunteers

Instrucciones:

- No usas las encuestas para:
 - los hoteles
 - los negocios de ecoturismo
 - personas a Parque Nacional
 - personas a PROFEPA
 - personas que tiene menos de 18 años

- Usa las encuestas para:
 - Trabajadores a negocios varios
 - personas a las restaurantes
 - pescadores
 - personas hogando la casa
 - estudiantes (que tiene mas de 18 años)
 - propietarios de los negocios varios

- cada vez necesitas leer la introducion
- no escribes el nombre ni direccion de la persona en la encuesta
- puedes responder a preguntas que una persona tendria
- no puedes expresarte tu opinion del sujeto a la otra persona
- mantiene una cara y voz nuetral pues no introducir parcialidad
- no puedes repetir ni mostrar la informacion que obtendras de la encuesta
- trata obtener una representacion igualmente a la comunidad
- no necesitas hacer la encuesta donde te sientes incomodo(a) o en peligro
- si tienes preguntas o dudas por favor llamame a algun tiempo:
Elena 613 1 13 28 11

Gracias!!!!

Loreto and San Ignacio Survey

INTRODUCCION

Hola, buenos días / tardes. ¿Cómo está Usted? Mi nombre es _____ y soy un estudiante de _____. Estoy involucrado en una investigación en Baja California Sur a través de encuestas. Queremos saber mas de la percepción y participación de las comunidades en un nuevo proyecto regional de ecoturismo para el avistamiento de tortugas marinas. Si fuera posible me gustaría tomar 15 minutos de su tiempo para hacerle algunas preguntas. Una estudiante de maestría de la universidad de Duke usará sus repuestas para sus investigaciones en ecoturismo para en el futuro aconsejar a los proyectos de ecoturismo en Baja California Sur. No vamos a pedir su nombre ni escribiremos su dirección con sus respuestas.

Su participación es completamente voluntaria. Usted puede responder solamente a las preguntas que desea y abandonar la entrevista en cualquier momento. No hay respuestas correctas o incorrectas, así que por favor siempre exprese su opinión. Usted desearía participar? *Si la respuesta es "NO"*, gracias por su tiempo y tenga un buen día. *Si la respuesta es "SI"*, gracias por participar! Vamos a empezar . .

PERCEPCION Y PARTICIPACION DE LA COMUNIDAD (ECOTURISMO DE TORTUGAS MARINAS)

- 1) Que entiendes por "ecoturismo"?

- 2) Cual parte del ecoturismo es la más importante para Usted? (una respuesta)

___ salvar a los animales en peligro de extinción

___ educar a los turistas sobre la cultura local

___ educar a los turistas sobre la vida silvestre local

___ beneficios económicos a la comunidad

___ más oportunidades de trabajo para la comunidad

___ mantener un bajo impacto del turismo en su comunidad

___ otro _____

___ no sé

Definir el término ecoturismo al entrevistado(a): El término ecoturismo tiene muchos significados. En este estudio ecoturismo es definido como "viajes realizados de forma responsable a áreas naturales que conservan el medio ambiente y mejoran el bienestar de las personas locales" (La Sociedad Internacional de Ecoturismo, 1990). Con esta definición que hemos expuesto aquí y con su propia interpretación de ecoturismo en mente, por favor haga lo mejor posible por responder las preguntas restantes.

- 3) Conoce Usted el ecoturismo para el avistamiento de tortugas marinas en su comunidad?

___ si

___ no (pase a la pregunta 7)

- 4) Como se ha enterado?

- un anuncio público
 por las noticias del periódico, de la radio, o la televisión
 una persona que está participando se lo comentó
 usted fue invitado a participar
 otra forma _____
 no sé
- 5) Ha participado Usted en el ecoturismo de tortugas marinas?
 sí
 no (pase a la pregunta 7)
- 6) De que forma lo ha hecho Usted? (lee las respuestas)
 como capitán de embarcación
 como guía naturalista en el mar (haciendo avistamiento de tortuga, recorridos en los manglares, campamento en las dunas)
 como guía naturalista en tierra (haciendo recorridos en el desierto)
 como guía en recorridos dentro del pueblo
 como guía de pesca deportiva
 en la preparación de alimentos
 alojando a turistas en su casa
 otro _____
- 7) Le interesaría participar en actividades de ecoturismo para avistamiento de tortugas marinas en el futuro?
 sí
 no (pase a la pregunta 9)
 no sé
- 8) De que forma le gustaría participar? (lee las respuestas)
 como capitán de embarcación
 como guía naturalista en el mar (haciendo avistamiento de tortuga, recorridos en los manglares, campamento en las dunas)
 como guía naturalista en tierra (haciendo recorridos en el desierto)
 como guía en recorridos dentro del pueblo
 como guía de pesca deportiva
 en la preparación de alimentos
 alojando a las turistas en su casa
 otro _____
- 9) Que tipo(s) de beneficios traería el ecoturismo de tortugas marinas a la comunidad?
 más trabajos
 ganancia económica
 la protección de tortugas marinas
 la unificación de la comunidad
 otro _____
 ningún beneficio
- 10) Que tipo(s) de impactos negativos traería el ecoturismo de tortugas marinas a la comunidad?
 aumento del número de personas
 contaminación

- pérdida de la cultura local
 - menos trabajos
 - pérdida económica
 - drogas / problemas de seguridad
 - conflicto entre la comunidad
 - otro _____
 - ningún impacto negativo
- 11) Que mejoras en la comunidad podrían apoyar el ecoturismo de tortugas marinas?
- servicios de basura y reciclaje
 - lugares para alojamiento de los turistas
 - pavimentar carreteras
 - mejorar los puertos
 - crear mas lugares para comer (restaurantes, cafeterías, etc.)
 - controlar la contaminación
 - mejoras en servicios de electricidad o agua
 - otro _____
- 12) Que resultados usted desearía que el ecoturismo de tortugas marinas trajera?
- _____
- _____

PARA COMUNIDADES CON ECOTURISMO DE BALLENAS

- 13) Conoce Usted el ecoturismo para el avistamiento de ballenas en su comunidad?
- si
 - no (pase a la pregunta 20)
- 14) En su opinión, cuan exitoso es el ecoturismo de ballenas en su comunidad? (1= menos exitoso, 5= más exitoso)?
- 1
 - 2
 - 3
 - 4
 - 5
 - don't know
- 15) Que tipo(s) de beneficios ha traído el ecoturismo de ballenas a su comunidad?
- más trabajos
 - ganancia económica
 - la protección de las ballenas
 - la unificación de la comunidad
 - otro _____
 - ningun beneficio
- 16) Que tipo(s) de impactos negativos ha traído el ecoturismo de ballenas a su comunidad?
- aumento del número de personas
 - contaminación
 - pérdida de la cultura local

- menos trabajos
- pérdida económica
- drogas/problemas de seguridad
- conflicto entre la comunidad
- otro _____
- ningun impacto negativo

17) Como se podría mejorar el ecoturismo de ballenas en su comunidad?

18) Piensa Usted que las lecciones aprendidas con el ecoturismo de ballena servirían para aconsejar al desarrollo del ecoturismo de tortuga marina?

- si
- no
- no sé

19) Que tipo de ecoturismo traería los mayores beneficios para su comunidad?

- ballena
- tortuga marina
- otro _____
- no se
- ningún tipo de ecoturismo traería beneficios a la comunidad

DEMOGRAFICOS

20) Sexo?

- masculino (hombre)
- femenino (mujer)

21) Edad? _____

22) Estado civil?

- soltero
- casado
- viudo
- otro (divorciado)

23) Cuantos hijos tiene Usted? _____

24) Grado máximo de escolaridad?

25) Cual es su trabajo actual?

26) Cual es su ingreso mensual promedio?

- menos de 2,500 pesos
- de 2,501 a 5,000 pesos
- de 5,001 a 7,500 pesos
- de 7,501 a 10,000 pesos
- de 10,001 a 25,000 pesos
- mas de 25,001 pesos

FATIGA DE ENTREVISTA

27) Usted ha sido entrevistado antes?

___ si

___ no (gracias a usted por su tiempo, este es el fin de la entrevista)

28) Cuántas veces Usted ha sido entrevistado?

___ 1

___ 2

___ 3

___ 4 o más

29) En qué temas Usted ha sido entrevistado?

Todos Santos Survey

INTRODUCCION

Hola, buenos días / tardes. ¿Cómo está Usted? Mi nombre es _____ y soy un estudiante de _____. Estoy involucrado en una investigación en Baja California Sur a través de encuestas. Queremos saber mas de la percepción y participación de las comunidades en un nuevo proyecto regional de ecoturismo para el avistamiento de tortugas marinas. Si fuera posible me gustaría tomar 15 minutos de su tiempo para hacerle algunas preguntas. Una estudiante de maestría de la universidad de Duke usará sus repuestas para sus investigaciones en ecoturismo para en el futuro aconsejar a los proyectos de ecoturismo en Baja California Sur.

No vamos a pedir su nombre ni escribiremos su dirección con sus respuestas. Su participación es completamente voluntaria. Usted puede responder solamente a las preguntas que desea y abandonar la entrevista en cualquier momento. No hay respuestas correctas o incorrectas, así que por favor siempre exprese su opinión. Usted desearía participar? *Si la respuesta es "NO"*, gracias por su tiempo y tenga un buen día. *Si la respuesta es "SI"*, gracias por participar! Vamos a empezar . .

PERCEPCION Y PARTICIPACION DE LA COMUNIDAD (ECOTURISMO DE TORTUGAS MARINAS)

1. Que entiendes por "ecoturismo"?

2. Cual parte del ecoturismo es la más importante para Usted? (una respuesta)
 salvar a los animales en peligro de extinción
 educar a los turistas sobre la cultura local
 educar a los turistas sobre la vida silvestre local
 beneficios económicos a la comunidad
 más oportunidades de trabajo para la comunidad
 mantener un bajo impacto del turismo en su comunidad
 otro _____
 no sé

Definir el término ecoturismo al entrevistado(a): El término ecoturismo tiene muchos significados. En este estudio ecoturismo es definido como "viajes realizados de forma responsable a áreas naturales que conservan el medio ambiente y mejoran el bienestar de las personas locales" (La Sociedad Internacional de Ecoturismo, 1990). Con esta definición que hemos expuesto aquí y con su propia interpretación de ecoturismo en mente, por favor haga lo mejor posible por responder las preguntas restantes.

3. Conoce Usted la liberación de tortugas marinas aquí en Todos Santos?
 si
 no (pase a la pregunta 7)
4. Como se ha enterado?
 un anuncio público

- por las noticias del periódico, de la radio, o la televisión
 una persona que está participando se lo comentó
 usted fue invitado a participar
 otra forma _____
 no sé
5. Ha participado en una liberación de tortugas marinas?
 sí
 no
6. Si hay un proyecto nuevo en el futuro de ecoturismo para el avistamiento de tortugas marinas le interesaría participar?
 sí
 no (pase a la pregunta 8)
 no sé
7. De que forma le gustaría participar? (lee las respuestas)
 * como capitán de embarcación
 * como guía naturalista en el mar (haciendo avistamiento de tortuga cuando están alimentándose)
 como guía naturalista en las playas de anidación (haciendo avistamiento de tortugas cuando están depositando sus huevos o cuando hay liberación de bebés)
 como guía en recorridos dentro del pueblo
 como guía de pesca deportiva
 en la preparación de alimentos
 alojando a los turistas en su casa
 otro _____
8. ¿Qué tipo(s) de beneficios traería el ecoturismo de tortugas marinas a la comunidad?
 más trabajos
 ganancia económica
 la protección de tortugas marinas
 la unificación de la comunidad
 educación
 otro _____
 ningún beneficio
9. ¿Qué tipo(s) de impactos negativos traería el ecoturismo de tortugas marinas a la comunidad?
 aumento del número de personas
 contaminación
 pérdida de la cultura local
 menos trabajos
 pérdida económica
 drogas / problemas de seguridad
 conflicto entre la comunidad
 otro _____
 ningún impacto negativo

10. Que mejoras en la comunidad podrían apoyar el ecoturismo de tortugas marinas?
- servicios de basura y reciclaje
 - lugares para alojamiento de los turistas
 - pavimentar carreteras
 - mejorar los puertos
 - crear mas lugares para comer (restaurantes, cafeterías, etc.)
 - controlar la contaminación
 - mejoras en servicios de electricidad o agua
 - otro _____
11. Que resultados usted desearía que el ecoturismo de tortugas marinas trajera?
-
-

PARA COMUNIDADES CON ECOTURISMO DE BALLENAS

12. Conoce Usted el ecoturismo para el avistamiento de ballenas en su comunidad?
- si
 - no (pase a la pregunta 19)
13. En su opinión, cuan exitoso es el ecoturismo de ballenas en su comunidad? (1= menos exitoso, 5= más exitoso)?
- 1
 - 2
 - 3
 - 4
 - 5
 - don't know
14. Que tipo(s) de beneficios ha traído el ecoturismo de ballenas a su comunidad?
- más trabajos
 - ganancia económica
 - la protección de las ballenas
 - la unificación de la comunidad
 - educación
 - otro _____
 - ningun beneficio
15. Que tipo(s) de impactos negativos ha traído el ecoturismo de ballenas a su comunidad?
- aumento del número de personas
 - contaminación
 - pérdida de la cultura local
 - menos trabajos
 - pérdida económica
 - drogas/problemas de seguridad
 - conflicto entre la comunidad
 - otro _____
 - ningun impacto negativo

16. Como se podría mejorar el ecoturismo de ballenas en su comunidad?

17. Piensa Usted que las lecciones aprendidas con el ecoturismo de ballena servirían para aconsejar al desarrollo del ecoturismo de tortuga marina?

- si
 no
 no sé

18. Que tipo de ecoturismo traería los mayores beneficios para su comunidad?

- ballena
 tortuga marina
 otro _____
 no se
 ningún tipo de ecoturismo traería beneficios a la comunidad

DEMOGRAFICOS

19. Sexo?

- masculino (hombre)
 femenino (mujer)

20. Edad? _____

21. Estado civil?

- soltero
 casado
 viudo
 otro (divorciado)

22. Cuantos hijos tiene Usted? _____

23. Grado máximo de escolaridad?

24. Cual es su trabajo actual?

25. Cual es su ingreso mensual promedio?

- menos de 2,500 pesos
 de 2,501 a 5,000 pesos
 de 5,001 a 7,500 pesos
 de 7,501 a 10,000 pesos
 de 10,001 a 25,000 pesos
 mas de 25,001 pesos

FATIGA DE ENTREVISTA

26. Usted ha sido entrevistado antes?

- si
 no (gracias a usted por su tiempo, este es el fin de la entrevista)

27. Cuántas veces Usted ha sido entrevistado?

- 1
 2
 3

____ 4 o más
28. En qué temas Usted ha sido entrevistado?

Key Informant Interview Questions

preguntas para negocios de turismo

Cuantos negocios de ecoturismo hay?

Cuantos negocios de ecoturismo con propietarios locales hay?

Tiene propietario local este negocio?

Son locales la mayoría de su empleados?

Que actividades ecoturista ofrece?

Que tipo de material educacional presenta a los turistas?

Cuantos turistas recibe cada año?

Cual es la temporada turística mas alta para usted?

Reinvierten en la comunidad las ganancias de su negocio?

Ha vendido tours para el avistamiento de tortugas marinas?

Si no lo ha hecho, le gustaria hacerlo en el futuro?

Tiene los recursos para ofertar viajes para ver a las tortugas marinas?

Si no, cuales recursos necesitaria?

Si vende viajes para ver a las tortugas marinas, cuantos turistas recibio para esta actividad?

Tiene que viajar a otro pueblo para vender los viajes de avistamiento de las tortugas marinas?

Como se puede ver las tortugas en sus viajes?

Cuantas tortugas se puede ver en cada viaje?

Tiene reglas cuidadosamente para el avistamiento de las tortugas marinas?

Que tipo de bote usa?

Esta involucrado con un ONG (Organizaciones No Gubernamentales)?

preguntas para los hoteles

Cuántas personas puede alojar?

Cuál es la temporada turística más alta para usted?

Tiene propietario local este hotel?

Cual es el precio promedio del cuarto?

preguntas para los pangueros

Cuántas pangas hacen los viajes para el avistamiento de tortugas marinas o otra vida silvestre?

Cuántas pangas con propietarios locales hay?

Tienes un bote?

Cuántas personas puede meter a su bote?

Para que propósitos usa su panga?

Que meses hace los viajes para el avistamiento de vida silvestre?

Puede ganar más dinero haciendo los viajes de avistamientos que pescar?

Tiene reglas para el avistamiento cuidadosamente de tortugas marinas o otra vida silvestre?

Los tours son buscados por las Agencias turísticas o los turistas van directamente a hacer el viaje?

Cuántas tortugas marinas se puede ver cada viaje?

Que tipo de material educacional presenta a las turistas?

preguntas para los ONG/PROFEPA/biologos

Cuántos ONGs de conservación marina hay en esta comunidad?

Cuántas personas participan en trabajo con los ONGs en esta comunidad?

Que tipos de actividades de conservacion de tortugas marinas hacen los ONGs?

Que papel tiene en la conservacion de tortugas marinas?

Tiene la autoridad de castigar si se realizan actividades ilegales con tortugas marinas?

Que porcentaje de la comunidad todavia esta involucrado en la compra ilegal de tortugas marinas?

Que otras amenazas para las tortugas marinas existen? Son graves las otras amenazas de las tortugas marinas?

Esta involucrado en el ecoturismo de tortugas marinas?

Piensa que el ecoturismo beneficiara eficazmente la conservacion de tortugas marinas?

Coding Schema

Question 1 (Que entiendes por ecoturismo?):

- 0 = doesn't know
- 1 = some form of tourism
- 2 = protection or conservation of wildlife or the environment
- 3 = environmental appreciation or education; pertaining to nature or ecology or the environment
- 4 = low impact or responsible
- 5 = socioeconomic benefits or mention of jobs
- 6 = community involvement
- 7 = cultural appreciation or education; pertaining to local culture
- 8 = recreational/adventure
- 9 = sustainable use or development
- 10 = pertaining to sea turtles
- 11 = pertaining to whales

Notes: extra code for beaches?

Question 2 (Cual parte de ecoturismo es la mas importante para usted?):

- 1 = saving endangered animals
- 2 = educating tourists about the local culture
- 3 = educate tourists about the local wildlife
- 4 = economic benefits to the community
- 5 = more job opportunities
- 6 = maintaining low impact tourism
- 7 = educating the local community
- 8 = involving the local community
- 9 = taking care of the environment
- 10 = all
- 11 = doesn't know

Notes: education was not on the original list, but even so was brought up a lot

Question 3 (Conoce usted el ecoturismo para el avistamiento de tortugas marinas en su comunidad? / Conoce usted la liberacion de tortugas marinas aqui en Todos Santos?):

- 1 = yes
- 2 = no

Question 4 (Como se ha enterado?):

- 1 = a public announcement
- 2 = through the news in newspaper, radio or television
- 3 = through a person who is already participating

- 4 = was invited to participate
- 5 = schools/teachers
- 6 = talk/lecture
- 7 = posters in the streets
- 8 = have seen it happening
- 9 = doesn't know

Question 5 (Ha participado usted en el ecoturismo de tortugas marinas? / Ha participado usted en una liberacion de tortugas marinas?):

- 1 = yes
- 2 = no

Question 6 (De que forma lo ha hecho usted?):

- 1 = as a boat captain
- 2 = as a naturalist guide on the water
- 3 = as a naturalist guide on land
- 4 = as a tour guide in town
- 5 = as a sport fishing guide
- 6 = in food preparation
- 7 = lodging tourists
- 8 = transportation
- 9 = enforcement
- 10 = holding conferences/meetings
- 11 = monitoring/studies
- 12 = lent a boat

Notes: Question 6 skipped in Todos Santos

Question 7 (Le interesaria participar en actividades de ecoturismo para avistamiento de tortugas marinas en el futuro? / Si hay un proyecto nuevo en el futuro de ecoturismo para el avistamiento de tortugas marinas le interesaria participar?):

- 1 = yes
- 2 = no
- 3 = doesn't know

Question 8 (De que forma le gustaria participar?):

- 1 = as a boat captain
- 2 = as a naturalist guide on the water
- 3 = as a naturalist guide on land (including nesting beaches)
- 4 = as a tour guide in town
- 5 = as a sport fishing guide
- 6 = in food preparation
- 7 = lodging tourists
- 8 = transportation
- 9 = monitoring/studies
- 10 = promotion
- 11 = education

- 12 = coordination/administration
- 13 = health services
- 14 = as a volunteer
- 15 = protecting wildlife and/or the environment
- 16 = doesn't know

Question 9 (Que tipo(s) de beneficios traeria el ecoturismo de tortugas marinas a la comunidad?):

- 1 = more jobs
- 2 = economic gain
- 3 = protection of sea turtles
- 4 = unification of the community
- 5 = education
- 6 = diversify economic activity and tourism offers
- 7 = more conscience in community
- 8 = support for NGOs
- 9 = more tourism/tourists
- 10 = town infrastructural improvements
- 11 = less fishing pressure
- 12 = community involvement/empowerment
- 13 = prestige
- 14 = less destruction of environment
- 15 = doesn't know
- 16 = no benefits

Question 10 (Que tipo(s) de impactos negativos traeria el ecoturismo de tortugas marinas a la comunidad?):

- 1 = increase in number of people
- 2 = pollution
- 3 = loss of local culture
- 4 = fewer jobs
- 5 = economic loss
- 6 = drugs and problems with security
- 7 = conflict within the community
- 8 = bothering/impacting sea turtles
- 9 = impacting environment/resources
- 10 = increased poaching
- 11 = disorganization of ecotourism companies
- 12 = can't eat them anymore
- 13 = closing public beaches
- 14 = development
- 15 = doesn't know
- 16 = no negative impacts

Question 11 (Que mejoras en la comunidad podrian apoyar el ecoturismo de tortugas marinas?):

- 1 = garbage and recycling services
- 2 = places to lodge tourists
- 3 = pave highways/roads
- 4 = improve ports/docks

- 5 = more places to eat
- 6 = control the pollution
- 7 = improvements in water and electricity services
- 8 = transportation
- 9 = training/education
- 10 = increase conscience
- 11 = better recognition
- 12 = more economic support
- 13 = more government support
- 14 = take care of turtles/beaches/environment
- 15 = sewage system improvements
- 16 = general improvements
- 17 = doesn't know/doesn't understand question
- 18 = no improvements needed
- 19 = health care services

Question 12 (Que resultados usted desearia que el ecoturismo de tortugas marinas trajera?):

- 1 = protection for sea turtles/other species/environment
- 2 = cleaner community/control of garbage and pollution
- 3 = diversification of tourism
- 4 = development of conscience
- 5 = increase tourism
- 6 = general benefits to community
- 7 = decrease fishing pressure
- 8 = economic gain
- 9 = more jobs
- 10 = more education
- 11 = community participation/empowerment
- 12 = improvements in police
- 13 = more research
- 14 = more management
- 15 = more light/electricity services
- 16 = more publicity/prestige of community
- 17 = marina/port/jetty
- 18 = none
- 19 = doesn't know

Question 13 (Conoce usted el ecoturismo para el avistamiento de ballenas en su comunidad?):

- 1 = yes
- 2 = no

Question 14 (En su opinion, cuan exitoso es el ecoturismo de ballenas en su comunidad?):

- 1 = least successful
- 2
- 3 = moderately successful
- 4
- 5 = most successful
- 6 = doesn't know

Question 15 (Que tipo(s) de beneficios ha traído el ecoturismo de ballenas a su comunidad?):

- 1 = more jobs
- 2 = economic gain
- 3 = protection of whales
- 4 = unification of the community
- 5 = education/schools
- 6 = conscience
- 7 = more tourism/tourists
- 8 = town infrastructural improvements
- 9 = support for NGOs
- 10 = involvement/empowerment of community
- 11 = overall improvement in quality of life
- 12 = prestige
- 13 = less destruction of environment
- 14 = no/few benefits
- 15 = doesn't know

Question 16 (Que tipo(s) de impactos negativos ha traído el ecoturismo de ballenas a su comunidad?):

- 1 = increase in number of people
- 2 = pollution
- 3 = loss of local culture
- 4 = fewer jobs
- 5 = economic loss
- 6 = drugs/problems with security
- 7 = conflict within the community (esp. fishers)
- 8 = impact on wildlife/environment
- 9 = limited/none wildlife viewing rules/regulations
- 10 = habituation of wildlife to humans
- 11 = too many boats/permits/people wanting to become involved
- 12 = failure to involve larger community
- 13 = no negative impact

Question 17 (Como se podría mejorar el ecoturismo de ballenas en su comunidad?):

- 1 = diversify/increase tourism
- 2 = diffusion of benefits
- 3 = conscience/awareness
- 4 = education
- 5 = marketing/promotion
- 6 = training/english classes
- 7 = rules/best practices in place
- 8 = control pollution
- 9 = enforcement
- 10 = research
- 11 = environmental/wildlife protection
- 12 = community participation
- 13 = better services

- 14 = organization
- 15 = control development
- 16 = minimize impacts
- 17 = cultural respect
- 18 = jetty/marina
- 19 = nothing needed
- 20 = doesn't know

Question 18 (Piensa usted que las lecciones aprendidas con el ecoturismo de ballena servirian para aconsejar al desarrollo del ecoturismo de tortuga marina?):

- 1 = yes
- 2 = no
- 3 = doesn't know

Question 19 (Que tipo de ecoturismo traeria los mayores beneficios a la comunidad?):

- 1 = whale
- 2 = sea turtle
- 3 = birdwatching
- 4 = doesn't know
- 5 = not one type will bring benefits
- 6 = sport fishing
- 7 = diving/snorkeling
- 8 = surfing/windsurfing
- 9 = island tours
- 10 = sustainable tourism
- 11 = all types

Question 20 (Sexo?):

- 1 = male
- 2 = female

Question 21 (Edad?):

- 1 = 18-29
- 2 = 30-39
- 3 = 40-49
- 4 = 50-59
- 5 = 60-69
- 6 = 70 +

Question 22 (Estado civil?):

- 1 = single
- 2 = married
- 3 = widowed
- 4 = divorced
- 5 = free union

Question 23 (Cuantos hijos tiene Usted?):

No coding necessary!

Question 24 (Grado maximo de escolaridad?):

- 1 = no school
- 2 = primary school
- 3 = secondary school
- 4 = high school
- 5 = college
- 6 = post graduate

Question 25 (Cual es su trabajo actual?):

- 1 = fisher/diver
- 2 = home maker
- 3 = tourism (includes, guides, captains, dive masters, etc)
- 4 = government
- 5 = biologist/conservationist
- 6 = commerce
- 7 = construction/masonry
- 8 = mechanic/maintenance
- 9 = agriculture/ranching
- 10 = teacher/academic
- 11 = student
- 12 = business owner
- 13 = electrician/plumber
- 14 = transportation
- 15 = restaurant/hotel services
- 16 = engineer
- 17 = security
- 18 = medical services
- 19 = public service
- 20 = business (administration/accounting/consulting)
- 21 = boat captain
- 22 = clergy
- 23 = artist/photographer
- 24 = communication/marketing
- 25 = retired/pension
- 26 = not currently employed
- 27 = poaches turtles

Question 26 (Cual es su ingreso mensual promedio?):

- 1 = less than 2,500 pesos
- 2 = 2,501 – 5,000 pesos
- 3 = 5,001 – 7,500 pesos
- 4 = 7,501 – 10,000 pesos
- 5 = 10,001 – 25,000 pesos
- 6 = more than 25,000 pesos

Question 27 (Usted ha sido entrevistado antes?):

1 = yes

2 = no

Question 28 (Cuantas veces Usted ha sido entrevistado antes?):

1 = 1 time

2 = 2 times

3 = 3 times

4 = 4 or more times

Question 29 (En que temas Usted ha sido entrevistado antes?):

1 = tourism

2 = biology/ecology/conservation

3 = sea turtles

4 = history

5 = politics (IFE)

6 = work

7 = sports/food/fashion

8 = economy

9 = fishing

10 = education

11 = marketing

12 = religion

13 = demography (INEGI)

14 = grafiti/drugs/alcohol

15 = doesn't remember

new code:

1 = tourism, biology, ecology, conservation, sea turtles, fishing

2 = politics

3 = demography

4 = other

Question 30 (Laguna o Pueblo?):

* Applicable only to San Ignacio

1 = Laguna

2 = Pueblo

Loreto Infrastructure and Capacity

	Loreto	Source
Population	11,839	INEGI 2005
# of fishers	136	Mancini and Koch 2009
# of boats	34-68 (based on assumption of 2-4 fishers/boat)	Mancini and Koch 2009 / Interview data
Mean monthly income of fishers	low sample size	Survey data
# of ecotourism businesses	3	Interview data / Baja tourist guide
% locally owned ecotourism businesses	67%	Interview data
Locals employed as guides and captains	Yes	Interview data
Ecotourism services offered	Island tours, diving, snorkeling, whale watching, sport fishing, cave painting tours, church tours	Interview data
Busiest tourist season	June - August for fishing and snorkeling; January - March for diving and whale watching	Interview data
% (respondents) involved in sea turtle ecotourism	7%	Survey data
NGOs in community	5 (Grupo Tortuguero, Niparaja, Eco-Alianza, GEA, Asosacion de Guias (A.C.))	Interview data
Role of NGOs in sea turtle ecotourism	education and outreach, nesting beach protection, in-water monitoring (Grupo Tortuguero)	Interview data
Agencies responsible for protection and enforcement	CONANP (protection); PROFEPA (enforcement)	Interview data
Agency office locations with respect to town	In town	Interview data / Baja tourist guide
# of hotels/camps	25	Interview data
% hotels/camps locally owned	43%	Interview data

San Ignacio Infrastructure and Capacity

	San Ignacio	Source
Population	~ 4,600	INEGI 2005
# of fishers	176	Mancini and Koch 2009
# of boats	44-88 (based on assumption of 2-4 fishers/boat); 27 participate in whale ecotourism currently	Mancini and Koch 2009 / Interview data
Mean monthly income of fishers	\$179-356 USD	Survey data
# of ecotourism businesses	8	Interview data / Baja tourist guide
% locally owned ecotourism businesses	50%	Interview data
Locals employed as guides and captains	Yes	Interview data
Ecotourism services offered	whale watching, sea turtle monitoring, bird watching, cave painting tours, kayaking, bicycling	Interview data
Busiest tourist season	January - April (whale ecotourism)	Interview data
% (respondents) involved in sea turtle ecotourism	8%	Survey data
NGOs in community	5 (Grupo Tortuguero, ProNatura, Wild Coast, NRDC, Pro Peninsula) *most operate outside San Ignacio	Interview data
Role of NGOs in sea turtle ecotourism	in-water monitoring	Interview data
Agencies responsible for protection and enforcement	National Institute of Ecology (research and management responsibilities of reserve); PROFEPA	Interview data
Agency office locations with respect to town	~ 200 km	Interview data / Baja tourist guide
# of hotels/camps	13	Interview data
% hotels/camps locally owned	50%	Interview data

Todos Santos Infrastructure and Capacity

	Todos Santos	Source
Population	4,078	INEGI 2005
# of fishers	100	Mancini and Koch 2009
# of boats	25-50	Mancini and Koch 2009 / Interview data
Mean monthly income of fishers	\$179-356 USD (based on assumption of 2-4 fishers/boat)	Survey data
# of ecotourism businesses	2	Interview data / Baja tourist guide
% locally owned ecotourism businesses	50%	Interview data
Locals employed as guides and captains	Yes	Interview data
Ecotourism services offered	kayaking, snorkeling, surfing, fishing, waterfall hikes, whale watching, horse back riding, bird watching, cave painting tours	Interview data
Busiest tourist season	November - March	Interview data
% (respondents) involved in sea turtle ecotourism	0%	Survey data
NGOs in community	4 (Artosan, ASUPMATOMA, Grupo Tortuguero, Todos Tortugueros)	Interview data
Role of NGOs in sea turtle ecotourism	nesting beach monitoring, education and outreach, recycling programs, "liberaciones"	Interview data
Agencies responsible for protection and enforcement	PROFEPA	Interview data
Agency office locations with respect to town	~ 80 km	Interview data / Baja tourist guide
# of hotels/camps	15	Interview data
% hotels/camps locally owned	not enough information, but very low %	Interview data