

A COMPARISON OF MARINE TURTLE CONSERVATION ON THE CARIBBEAN  
AND PACIFIC COASTS, COSTA RICA

By

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## **ABSTRACT**

The aim of this research was to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica at three sites: the Caribbean Conservation Corporation site at Tortuguero and the Canadian Organization for Tropical Education and Rainforest Conservation site at Cano Palmo, and the Ostional Wildlife Refuge. These sites were selected to represent diverse approaches in the conservation movement within Costa Rica, including American, Canadian and Costa Rican.

During the early 1900s many marine turtle populations around the world were near extinction due to hunting. Recently factors including nesting beach destruction due to anthropogenic use, incidental capture in fisheries, fishing practices degrading turtle feeding grounds, as well as pollution, have all been linked to declines in marine turtle populations. Marine turtles play a large role in the social structures of the communities surrounding these three sites, therefore, it is important to consider conservation strategies, ecotourism and local communities while comparing these three sites.

Data from expert and stakeholder interviews conducted during November 2006 - January 2007 are used to compare conservation strategies employed at the three turtle nesting sites. The most effective methods are employed at Ostional Wildlife Refuge due to the fact that this site is able to combine local community needs with ecotourism. The local community at this site is in control of conservation and ecotourism at this site is beginning to directly benefit the local population. This research enhances current understanding about marine turtle conservation methods. It describes the Costa Rican situation but has wider applicability.

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## **CHAPTER ONE**

### **INTRODUCTION**

Costa Rica is located in Central America between Nicaragua to the north and Panama to the south. Costa Rica has been the focus of much attention over the years for their conservation strategies and their ability to preserve natural habitats. Conservation strategies need to be connected to other issues such as community development and ecotourism in order to gain full understanding. Conservation in Costa Rica focuses on a number of different species and geographic regions. Marine turtle conservation is a popular, yet controversial topic not only within Costa Rica but internationally as well. Marine turtle conservation must be examined within a local, national and international context in terms of not only conservation strategies but also politics, history and government policy. This paper will examine marine turtle conservation in Costa Rica to identify differences and similarities in the practices among sites located on the Caribbean coast (2 sites) and the Pacific coast (1 site). Ultimately this paper will evaluate which site has the best conservation in terms of the local community and ecotourism.

This examination will include a thorough review of the existing literature, analysis of written surveys completed by project leaders at the three turtle conservation sites, analysis of oral interviews with stakeholders including community members, volunteers and employees of turtle conservation projects and onsite observations. Costa Rican marine turtle conservation literature is multifaceted and interdisciplinary; it not only deals with conservation strategies but also demonstrates the linkage between conservation and ecotourism, conservation narratives and community development.



Currently six of the seven species of marine turtle are endangered with three being classified as critically endangered on the International Union for Conservation of Nature and Natural Resources Redlist (IUCN, 2007). Marine turtles are one of the oldest living species on the planet with many conservationists feeling that the demise of turtle populations is indicative of larger global ecologic problems. Opponents to turtle conservation argue that vast sums of time and money have been and continue to be invested in the protection of a species that is very slow to respond.

Chapter Two will provide background information about Costa Rica followed by a review of the three sites to be compared, these are: the Caribbean Conservation Corporation (CCC) in Tortuguero; the Canadian Organization for Tropical Education and Rainforest Conservation (COTERC) just outside Tortuguero on the Caribbean coast; and the Ostional Wildlife Refuge (OWR) in Ostional on the Pacific coast (Figure 1). Following a discussion of the study area the final section in Chapter Two will contain a review of literature on conservation in Costa Rica, conservation narratives, ecotourism and conservation practices. In Chapter Three a discussion of the research methodology will occur. Chapter Four will present the results and the analysis of the results. Chapter Five contains the discussion which will include a discussion of key themes in Costa Rican marine turtle conservation. Chapter Six contains the conclusions from this study and provides some ideas for future research.

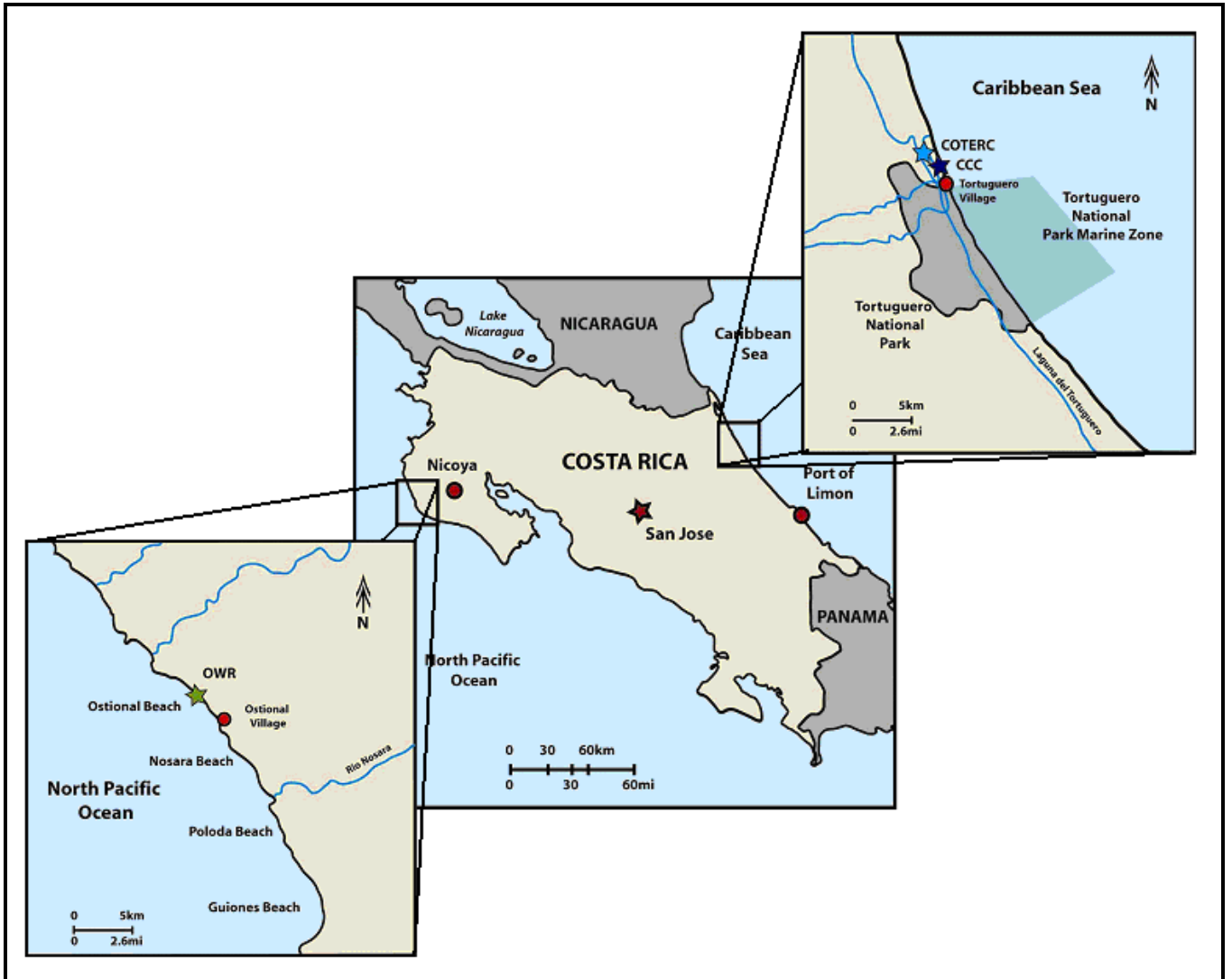


Figure 1: Map of Costa Rica, showing the CCC and COTERC on the Caribbean coast and OWR on the Pacific coast.

## **CHAPTER TWO**

### **BACKGROUND**

#### **2.1. Site Background**

This section will include an introduction to Costa Rican government policy, economy and demographics. This section will also introduce and describe site specific characteristics of the three sites studied in this project: the CCC and COTERC on the Caribbean coast and OWR on the Pacific coast.

##### **2.1.1. Costa Rica**

###### **2.1.1.1. Government Policy**

Costa Rica's current political era commenced in 1948 following a short lived civil war. Unlike its neighbors, Nicaragua to the north and Panama to the south, Costa Rica has been a country of relative peace. Costa Rica currently has one of the highest living standards in all of Latin America (see section 2.1.1.3). The Costa Rican government, like the USA is sectioned into three separate branches (executive, legislative and judicial). The Government of Costa Rica is a presidential representative democratic republic with the President being both the head of government and the head of state, two vice presidents and a multitude of ministers who manage the countries many departments such as the Environment and Energy (MINAE) (External Relations, 2007). MINAE is responsible for environmental law, including the creation and enforcement of these laws as well as regulations for forestry, hunting and environmental impacts. MINAE has a department responsible to oversee National Parks and Protected Areas in the country called the National System of Conservation Areas (SINAC). It includes the park service, the forestry service and the wildlife service which were combined in 1994. SINAC is further decentralized into ten conservation areas. The two that are important in this paper are the

Tempisque Conservation Area (ACT) which encompasses Ostional on the Pacific Coast and Tortuguero Conservation Area (ACTO) which includes Tortuguero National Park on the Caribbean coast (National System of Conservation Areas, 2007; The Nature Conservancy, 2007).

### 2.1.1.2. Economy

The Costa Rican economy is similar to that of many Central American countries in that it has a large external deficit (Table 2) although the economy is unique due to the fact that it has achieved a high standard of living (U.S. Department of State, 2006). 2004 saw the Costa Rican economy grow by approximately 4% with exports (coffee, bananas, sugar, textiles, pineapples, medical equipment, electronic components) reaching 8.6 billion USD and imports (consumer goods, capital equipment, raw materials, petroleum) reaching 9.1 billion USD. Table 2 shows unemployment, inflation, official development assistance, external debt, exports and imports in the country for the year 2006 (CIA World Factbook, 2006).

**Table 1: Economic breakdown of Costa Rica adapted from the CIA World Factbook 2006.**

<b>Unemployment (%)</b>	6.6
<b>Inflation (%)</b>	12.3
<b>Official Development Assistance (USD) (millions)</b>	64
<b>External Debt (USD) (billions)</b>	5.7
<b>Exports (USD) (billions)</b>	8.6
<b>Imports (USD) (billions)</b>	9.1

According to the International Monetary Fund (IMF) over the last two decades inflation in Costa Rica has ranged between 10-30%. The IMF states that this scale or range of inflation can lead to slow economic growth. Inflation is commonly felt by the countries poor instead of its wealthy due to the lack of diverse assets this demographic possesses (International Monetary Fund, 2004).

### 2.1.1.3. Demographics

Table 3 shows Costa Rican age demographics, indicating that the majority of the population is between the ages of 15 and 65 with 28% percent being below 15 and only 5.7% being above 65.

**Table 2: Age demographics of Costa Rica, adapted from the CIA World Factbook, 2006.**

Age (years)	Percent of Total Population
0-14	28
15-65	66
65+	5.70

When examining demographics in Costa Rica compared to other Central American countries it is evident that Costa Rica, with the highest literacy, the highest life expectancy, the lowest population growth rate, and the lowest death rate has one of the best standards of living in the region (Table 4).

**Table 3: Comparison of demographics between Costa Rica, Nicaragua and Panama, adapted from the CIA World Factbook, 2006.**

	COSTA RICA	NICARAGUA	PANAMA
<b>Population Growth Rate (%)</b>	1.45	1.89	1.64
<b>Birthrate (/1000)</b>	18.32	24.51	23.2
<b>Death Rate (/1000)</b>	4.36	4.45	5.42
<b>Life Expectancy (years)</b>			
<b>Total Population:</b>	77.1	70.6	73.9
<b>Male:</b>	74.4	68.5	71.2
<b>Female:</b>	79.7	72.8	76.7
<b>Literacy (&gt;15years can read and write) (%)</b>			
<b>Total Population:</b>	96	67.5	90.8
<b>Male:</b>	95.9	67.2	91.4
<b>Female:</b>	96.1	67.8	90.2

### 2.1.2. Caribbean Conservation Corporation

Tortuguero is home to one of the most important *Chelonia mydas* (green turtle) nesting beaches in the world. This beach is also visited by *Caretta caretta* (loggerhead turtle),

*Dermochelys coriacea* (leatherback turtle) and *Eretmochelys imbricate* (hawksbill turtle). In 1958 the CCC was founded in Tortuguero in order to study and protect the beach and green turtles and is now the oldest marine turtle research program in the world (Tortuguero National Park, 2006). The CCC is an American organization with its headquarters in Gainesville, Florida and a national office in Costa Rica (Campbell and Smith, 2006). This organization was founded by Archie Carr with the intent of studying and protecting the beach and the green turtles nesting at Tortuguero. Archie Carr was also instrumental in the formation of Tortuguero National Park during the 1970's playing a key role in petitioning the government to classify this area under National Park status (Interview TORT2). Since this time the CCC has been dedicated to marine turtle conservation through the protection of natural habitats, research, advocacy, training and natural education (Tortuguero National Park, 2006). Although primarily focusing on green turtles the mandate of this group has recently expanded to include protection and study of *D. coriacea*.

### **2.1.3. Canadian Organization for Tropical Education and Rainforest Conservation**

COTERC is a registered Canadian charity founded in 1991 and based at Cano Palma Biological Station located just outside of the town of Tortuguero. COTERC operates in both Canada and Costa Rica, with a board of directors, biologists, accountants and other professionals working out of Canada and two full-time employees operating the Biological Research Station. COTERC provides education on conservation, research and the natural resource use in the tropics. This station is located adjacent to a major *D. coriacea* and *C. mydas* nesting beach, and just recently participated in a study on marine turtle conservation with York University. COTERC provides a location for tropical researchers to perform their work (COTERC, 2006). To date published literature on COTERC is nearly non-existent because it is a relatively new

project, with substantially less funding than the CCC and with a broader conservation mandate (thus, a lot of different projects) than the other two marine turtle nesting locations. This research project will begin to fill the knowledge gap regarding conservation strategies and successes at this site.

#### **2.1.4. Ostional Wildlife Refuge**

OWR was declared a protected area in 1982 and aims to protect marine turtle species such as *Lepidochelys olivacea* (olive ridley turtles) which frequent the beach in large numbers once a month to nest (Costa Rica National Parks: Ostional Wildlife Refuge, 2006). It is located on the Nicoya Peninsula, 60km southwest of Santa Cruz. This site offers protection 200m inland along a 14km stretch of coast. Most of the olive ridley nesting occurs 1km south of the northern boundary, on an 800m stretch of beach. This area is the site of arribada (Spanish for arrival), an event in which olive ridleys congregate en mass to nest. OWR is the second largest of only nine arribada beaches in the world; therefore, it poses large significance in terms of species conservation (Campbell, 2006). This site, like the CCC, utilizes volunteers to promote strategies of conservation but also includes the use of egg harvesting and local stewardship (Campbell, 1998).

The OWR egg harvest is a much debated conservation method. This method involves allowing locals to collect eggs from the beach for the first 36 hours of the wet season arribadas and unlimited collection during the dry season. On one hand this practice is viewed as increasing hatchling success. This idea is supported by the view that arribadas overlap, therefore, there is a natural egg loss associated with each subsequent arribada. This leads to decreased hatchling success rates because a percentage of the eggs are destroyed by subsequent nesting and remain decomposing on the beach; thus, negatively impacting hatchling success. The egg harvest has

beneficial economic and social implications that decrease the need for locals to illegally poach mature turtles from the beach (Campbell, 1998). The other perspective views the egg harvest as detrimental to hatchling success. This perspective is normally held by researchers who do not consider all factors of marine turtle conservation but instead simply account for the number of eggs that could hatch under ideal conditions (Bjorndal, et al., 1993).

## **2.2. Literature Background**

This section will examine conservation in Costa Rica looking specifically at the history of the national parks system in Costa Rica, discussing conservation narratives, eco and volunteer tourism, use of volunteers and locals as stewards as well as a general examination of methods used to quantify and qualify marine turtle conservation success rates.

### **2.2.1. Conservation in Costa Rica**

Conservation in Costa Rica is a very broad topic that encompasses almost every aspect of Costa Rican government, economy and history. This section will briefly outline the history of the national parks movement in Costa Rica and the differences between classifications of conservation areas within the country. Government aspects of conservation and policy were outlined in section 2.1.1.1. and conservations link to tourism will be discussed in section 2.2.3.

The national parks movement in Costa Rica began in the 1970s and was the creation of Mario Boza who was the first director of parks (1970 to 1975) and still acts as an advisor to the organization (Boza, 1993). National parks were created as a solution to the increasing environmental degradation from increased agriculture, forestry and cattle farming. The national parks movement in Costa Rica has seen many successes over the years soliciting funding from many international organizations, including the World Wildlife Fund (WWF) and the Sierra



Club. In the 1980s this movement underwent an important change when it began to consider a socioeconomic context as well as the environmental context (Evans, 2000).

Costa Rica’s conservation areas are divided into seven different classifications (Table 5). National Parks altogether account for the most overall areas of conservation making up 12.23% of the National Territory with 25 parks in total. National Parks, such as Tortuguero National Park which contains both the CCC and COTERC differ from Wildlife Refuges, such as the Ostional Wildlife Refuge. Wildlife Refuges make up only 3.53% of the National Territory although there are a total of 58 within Costa Rica (Table 5).

**Table 4: Conservation Areas within Costa Rica, adapted from Costa Rica National Parks, 2007.**

<b>Number</b>	<b>Classification</b>	<b>Area (ha)</b>	<b>% National Territory (Total: 5 099 873 ha)</b>
25	National Parks	623 771	12.23%
8	Biological Reserves	21 674	0.42%
32	Protected Zones	155 817	3.06%
11	Forest Reserves	227 834	4.47%
58	Wildlife Refuges	180 035	3.53%
15	Wetlands/Mangroves	77 869	1.53%
12	Other Categories	17 306	0.34%
<b>161</b>	<b>TOTALS</b>	<b>1 304 306</b>	<b>25.58%</b>

Table 5 compares National Parks and Wildlife Refuges in Costa Rica illustrating that National Parks allow for research and visitors but prohibit any sort of hunting or hospitality. Wildlife Refuges allow for scientific and recreational uses, stipulating that these practices do not endanger the protected species of the area, as well as the artificial increase or decrease of protected populations if necessary. Wildlife Refuges do not prohibit hunting or hotels but they do prohibit the introduction of exotic species as well as any activities that may harm protected species (Frankie, 2004). Through examination of this chart it is evident that National Parks are

more clearly defined in terms of activities that are prohibited and permitted, whereas, Wildlife Refuges tend to be less defined and more open to interpretation.

**Table 5: Permitted and Prohibited within National Parks and Wildlife Refuges (Frankie, 2004).**

Permitted			Prohibited	
National Park	Wildlife Refuge	Activity	National Park	Wildlife Refuge
X		Scientific Studies		
X		Environmental Research		
X		Visitors		
X		Recreational / Educational Facilities		
	X	Scientific Uses		
	X	Recreational Uses		
	X	Artificial Increase/ Decrease of Protected Populations		
	X	Hunting	X	
	X	Hotels	X	
		Introduction of Exotic Species	X	X

### **2.2.2. Conservation Narratives**

Conservation narratives are classified in an attempt to simplify and organize a vast and multifaceted topic. There are two main narratives present in Costa Rican conservation: the traditional narrative and the counter narrative. The traditional narrative is described as an exclusive narrative which maintains a ‘parks and protected areas’ approach (Boza, 1993). This narrative describes a need for conservation as a direct result of ecosystem degradation due to anthropogenic forces such as development demands. This narrative is known to be restrictive and prohibitive in nature laying the majority of blame on local peoples who are labeled ‘poachers’ if they do not consent to their removal from the conservation equation (Bjornal, 1999). This narrative guided the establishment of the national parks system in Costa Rica

The second narrative, the counter narrative, is separated into two different streams, consumptive and non-consumptive use. This narrative incorporates sustainable use and

emphasizes community control (Campbell, 2002b). Sustainable use adheres to the idea that value is derived through utilization and resources such as biodiversity and wildlife must be valued in order to be conserved. Community based conservation states that the involvement of locals in conservation strategies is crucial to success, citing that economics alone may not be enough to ensure conservation initiatives are met (Campbell, 2002a). Ecotourism plays a big role in the existence of the counter narrative in that it is considered the fundamental solution of this narrative. This narrative explains the importance of local participation in and support of conservation activities.

Literature to this point has adhered to these narratives whether intentionally or not. The understanding of conservation narratives is important when examining marine turtle conservation because it allows for a more classified and organized approach. Studies using these narratives have been conducted on both OWR (Campbell, 2002b) and the CCC (Campbell and Smith, 2006; Campbell, 2002a). OWR has been the focus of much attention due to its use of the consumptive stream of the counter narrative, through the arribada egg harvest program. This practice has divided many researchers with some viewing the program as beneficial due to not only its socio-economic benefits but also its potential to increase hatchling success by reducing the number of decomposing eggs present on the beach (Campbell, 1998). Others use the CCC and their successes coupled with their limitations on egg harvest as evidence against the egg harvest (Bjorndal, 1999). This research project will explore these two approaches along with the approach that is used at COTERC.

### **2.2.3. Ecotourism**

The above narratives have also been incorporated into many studies on ecotourism and volunteer tourism. Ecotourism and volunteer tourism are both important to marine turtle

conservation in that they are used heavily as strategies for conservation. In recent years ecotourism has become the fastest growing tourism segment with volunteer tourism on the rise both globally and in Costa Rica (Campbell, 1999; Campbell and Smith, 2006). Over the past 30 years coastal countries have exhibited a major shift from traditional coastal activities such as fishing to, in the case of Costa Rica, one reliant on coastal tourism. Since this shift now involves people visiting coastal areas, natural resource management is becoming increasingly important to the sustainability of economies in individual coastal countries. Using this view beach maintenance and coastal conservation strategies are an investment in the tourism industry, which positively impacts the economy (Klein, et al., 2004).

Ecotourism can be used as a conservation strategy in that it promotes employment and income to local communities as well as providing much needed foreign monies to governments while still preserving natural resources. Ecotourism, if executed properly, can empower local communities, giving them pride and control of natural resources and community development, as well as educating travelers regarding the significance of conservation and ecosystems (Campbell, 2002a; Klein, et al., 2004).

In 1995 studies showed that only 4% of all households in Ostional identified tourism as a source of income (Campbell, 1999). Most households had an optimistic view of the economic possibility of tourism for their community but there was only partial awareness of the employment, and investment opportunities associated with tourism (Campbell, 1999). Boza (1993) points out that it is the tourism industries responsibility to support parks and encourage wise use and conservation of natural resources. According to Boza (1993), many organizations use their funds to maintain an international bureaucracy rather than supporting direct conservation in the field, which is necessary if the tourism industry is going to employ true

ecotourism techniques. This paper will examine the relationship between the use of funds to internal sources such as community development and to external sources such as foreign investors.

#### **2.2.4. Conservation Practices**

Costa Rican conservation uses volunteer extensively. All three sites in this study employing some sort of volunteer program. These programs differ among each site with the CCC being the most active and advanced volunteer program of the three (Bjorndal, 1999). A study done by Campbell and Smith (2006) identified the personal values of volunteer tourists working for sea turtle conservation. Although individual volunteer values do not directly relate to this study the information and methods used in this study are very useful. Campbell and Smith (2006) interviewed 31 volunteers working for the CCC. The results of this study have human-environment implications as well as volunteer program management implications. This paper found that volunteers rarely saw the connection between sea turtle conservation and larger environmental issues. Instead, the majority of volunteers laid blame on local consumption (Campbell and Smith, 2006). Volunteers are also highly susceptible to messages provided by staff; therefore, volunteer education programs can have a major impact on conservation if done properly (Campbell and Smith, 2006).

Another conservation strategy is using local people as stewards. Narratives aside, local people depend on natural resources in order to survive, whether through consumptive or non-consumptive means, for social or economic purposes (Klein, et al., 2004). OWR is a good example of this practice, where monitoring of the beach and the egg harvest program are run by locals in the area, providing job security and much needed funds for the town (Campbell, 1998). The CCC also has a fully functional stewardship program with eight employees in 1990 and 150

by 1999. This program involves the training and education of locals who benefit through and the development of livelihood which will provide them with not only knowledge but also financial stability (Campbell and Smith, 2006). Many researchers have attributed increasing turtle population trends to stewardship programs (Bjorndal, 1999). At this point existing literature has focused on both OWR and CCC with no publications, to date, pertaining to COTERC.

## **CHAPTER THREE**

### **METHODOLOGY**

Research for this paper was undertaken between August 2006 and April 2007 with field research taking place between January 8<sup>th</sup> 2007 and January 21<sup>st</sup> 2007. Findings in this paper are based on a literature review, written surveys and oral interviews. This section will outline the methods used for this project and reasons why these methods were chosen. This section will first examine methods used to quantify and qualify conservation success rates, criteria for site selection followed by a discussion of data collection and data analysis methodology.

#### **3.1. Methods used to Quantify and Qualify Marine Turtle Conservation Success**

##### **Rates**

The strengths and weaknesses of conservation can not truly be assessed without quantitative and qualitative description of success rates. Literature on this aspect of conservation is difficult to assess due to the variations in the species nesting patterns and the need for many years of data to monitor temporal changes in hatchling success (Bjorndal, 1999). Current turtle populations are also hard to interpret due to a lack of historic nesting data to use as a baseline (Jackson, et al., 2006). Literature on the topic of conservation success rates is classed into two main categories, that which deals with the quantitative data (Bjorndal, et al., 1993; Bjorndal et al., 1999) and that which deals with the qualitative data (Boza, 1993; Campbell, 1998; Campbell, 2002). Quantitative methods in turtle conservation, as mentioned above, pose numerous problems due to the dynamics of the species. Methods such as beach surveying, in order to record nesting sites, clutch frequency surveys, recording of the duration of nesting and inter-nesting

episodes are all methods used to quantify turtle nesting habits and population successes (Bjorndal et al., 1999). Quantitative data will not be used as a source for this research project but interviews will be conducted with individuals that are knowledgeable about this type of data and this knowledge will be collected during the interview process in an attempt to partially quantify program success. Campbell (2002) identifies qualitative methods used in case studies to include: interviews, descriptive site visits, and analysis of published research and existing documentation. This is the classic model for social science research performed on conservation related topics and is the same approach that will be used in this research project.

### **3.2. Criteria for Site Selection**

Turtles were chosen as the focus of this study for a number of reasons. These animals are considered a flagship species, meaning that they are a species that attracts concern from the public, therefore, drawing attention and subsequently funding to the conservation movement (Campbell and Smith, 2006). There is abundant information and relevant literature on marine turtle biology, habits and affiliated social paradigms. Costa Rica was chosen because of its highly developed national parks system, including specific areas designed for the protection of marine turtles. Costa Rica is also a nesting ground for four different species of marine turtle and home to globally eminent turtle viewing locations, including OWR and Tortuguero National Park which contains CCC and COTERC (Campbell, 2002).

The three sites examined within Costa Rica were selected because the organizations at each site offer different approaches to conservation and each has close proximity to and close connection with, local communities which possess diverse social



structures. These three sites were chosen because of both their similarities and their differences. The CCC is an American based organization, established in 1959, early in the development of the Costa Rican National Parks Movement. OWR is a Costa Rican Refuge created in 1984 that employs consumptive conservation strategies and is run by the Ministry of the Environment and Energy (MINAE). COTERC is a Canadian organization created in 1991 that focuses on the conservation of tropical resources and has just recently initiated a marine turtle conservation strategy. As mentioned these sites are significant turtle nesting grounds locally, nationally and internationally. As well they are all located within one country, therefore, operating under similar federal laws and governing bodies. The geographic location of the sites is also important. The CCC and COTERC are on the Caribbean coastline, whereas, OWR is on the Pacific coastline. The use of these three sites will permit comparisons between coastlines (i.e. Caribbean and Pacific) and between sites on one coast (i.e. Caribbean).

### **3.3. Data Collection**

Data collection for the project involved a number of different methods. As specified above, this paper is based on a detailed literature review, surveys and interviews.

The literature review was completed in October 2006 and is based on existing relevant literature pertaining to background information on the three sites, the importance of marine turtle conservation, conservation narratives, ecotourism, use of volunteers and locals as stewards and an examination of methods used to quantify and qualify marine turtle conservation success rates.

In total three surveys were created using information gained from the literature review. These surveys were reviewed and approved by the McMaster University Research Ethics Board (MREB) (for ethics forms, consent forms and surveys see APPENDIX ONE). These surveys first asked for background information, including some basic demographics of the organization. The surveys proceeded to ask a series of questions about the conservation methods employed by the site and finally about any conservation successes at the site.

The first survey was sent via email on November 16, 2006 to project leaders at each of the three sites. If an organization did not provide a response to the survey subsequent emails and phone calls were made to the project leader at the site requesting survey participation. Survey questions were designed to gain preliminary background information about each site and current characteristics of each site in order to form concise questions for a subsequent in-person interview. After survey completion the project leaders were contacted by phone and/or email to arrange a time and date for an in-person interview.

The initial paper surveys were used to inform a set of oral interview questions for the project leaders, local community members and local volunteers (for ethics forms, consent forms and interview questions see APPENDIX TWO). These in-person interviews occurred between January 8<sup>th</sup> and 21<sup>st</sup>, 2007. In total seven (7) formal taped interviews took place, four (4) in Tortuguero and three (3) in Ostional. The four in Tortuguero were with Station Manager at COTERC, a local tour guide, a community member whose family was involved with the CCC tour guide program and a York University student who had performed research for a feasibility study with Global Vision

International (GVI) and COTERC. At Ostional a U.S. Peace Corp. volunteer working on community development, a representative for the Leatherback Project as well as a volunteer staying at the station was interviewed. These interviews were semi-structured, allowing for the interviews to be modified based on information gained at the time. The interviews ranged in length from 15 to 100 minutes.

In addition to the formal taped interviews informal oral conversations also occurred at each of the sites. These included conversations with locals in both Tortuguero and Ostional and volunteers at the MINAE research station in Ostional.

During the site visits in January 2007 personal observations were also recorded.

### **3.4. Data Analysis**

The data analysis portion of this project began in September 2006 with the review of relevant existing literature in order to gather information pertaining to marine turtle conservation. This literature was reviewed and relevant aspects were brought together in the site background section of this paper (i.e. Chapter Two). The completed written surveys were summarized and examined for common themes and differences. The analysis of the written surveys informed the creation of the oral interview questions. Once completed the digital recording of the interviews was downloaded, transcribed and reviewed in a similar manner to the surveys. Themes were then compiled with supporting evidence from interviewee quotes and ideas. Themes observed and obtained from interviews were then compared to each other and to the existing literature in order to create a comprehensive analysis of all the collected data.

## CHAPTER FOUR

### RESULTS AND ANALYSIS

This chapter will examine data gathered through on-site observations, written surveys and in-person oral interviews at each of the three sites. This data will be organized into three themes: conservation practices, ecotourism and local community. The results in some instances support and in some instances contradict the existing literature. Table 7 identifies the study participants, the site affiliation and the context for which they were being interviewed.

**Table 7: Summary of on-site interviews from January 2007 field season in Costa Rica.**

<b>Location</b>	<b>Affiliation</b>	<b>Code</b>
Tortuguero	COTERC Manager	COTERC1
Tortuguero	Community member, Tortuguero	TORT1
Tortuguero	Masters student Canadian university	COTERC2
Tortuguero	Local community member who was a non-permit holding turtle guide	TORT2
Ostional	US Peace Corp volunteer	OWR1
Ostional	Employee of Leatherback Project	OWR2
Ostional	Volunteer staying at MINAE	VOWR1

#### **4.1. Caribbean Conservation Corporation (CCC)**

The CCC was first contacted via the Field Research Coordinator in October 2006 and asked to complete a survey. After a follow up email to the organization the respondent suggested contacting the Scientific Director. This person was contacted via email and sent another copy of the survey. This person never responded to the request for information. In addition the In Country Director was also contacted to no avail. In total the CCC was contacted seven times by email and five times via phone calls to their toll free number in Gainesville, Florida. At no time did anyone at the CCC suggest that they would not participate in the research project but to date no one from the CCC has

completed a survey or taken part in any oral interviews for the purpose of this research. At the time of the site visit in January 2007 there were no CCC employees present at their research station in Tortuguero, therefore, no direct information could be collected pertaining to the CCC. For this reason any information in this section and paper has been derived from the CCC website, existing literature on the CCC and from secondary sources including local community members and personnel who work, in conjunction with, but not directly for the CCC.

#### **4.1.2. Conservation Practices**

The CCC is responsible for instigating a major change in turtle conservation management and practice in Costa Rica. The CCC's sea turtle research program is the oldest in the world (Caribbean Conservation Corporation, 2006). Presently the CCC has upward of 10 ongoing projects including: Chiriquí Beach Project, Panama Project, The Bermuda Turtle Project, NESTS Certification Program, Florida Sea Turtle Grants Program and the Atlantic Leatherback Strategy Retreat. Currently, the CCC's conservation practices focus around the use of volunteers and guides as well as conservation education and raising awareness. This section will examine the CCC conservation practices, breaking these practices into 3 sections 1) use of volunteers 2) guides and guide training and 3) education and awareness. Following this these practices will be assessed and a conservation narrative will be identified. The evolution of these practices over time as knowledge on turtle conservation advances will be discussed.

The CCC has a comprehensive website ([www.cccturtle.org](http://www.cccturtle.org)) with multiple pages and links providing the opportunity for people from all over the world to learn and

become involved in CCC projects. According to the CCC's website this organization offers a volunteer program on Torturuego beach in which volunteers get the opportunity to assist "CCC's sea turtle biologists tag and measure turtles, count eggs, mark nests, record data, conduct morning nest surveys, track surveys and nest inventories" (Caribbean Conservation Corporation, 2006). This program is a paid program where as the volunteers pay a set fee to participate. Through an examination of available research it is evident that donations and money raised from people paying to volunteer are the primary sources of income used by the CCC for sea turtle conservation (Caribbean Conservation Corporation, 2006). Ecotourism is also closely linked to volunteering and will be discussed later in this section.

Guide training is also part of the CCCs agenda. COTERC2 was awaiting his guiding permit and provided primary information about guiding and earning a guiding certification. Access to the beach at Tortuguero has been limited in the past twelve months to only permit tourists access by walking on a cleared path just inland of the vegetation line. No tourists are permitted directly on the beach. Until late 2006 tourists were permitted direct access to the beach and were not required to be accompanied by a guide. During a current tour these tourists are led on the path by a guide while a second guide walks the beach looking for a turtle. Once a nesting turtle is located the guides contact one another and signal for the tourists to come onto the beach, look at the turtle and then head back to the designated path. This system was set up in order to minimize the amount of human traffic on the beach in an attempt to decrease the amount of stress on the nesting turtles. In order to become a guide one must be trained through training offered by the CCC and must obtain a guiding permit through MINAE. To date MINAE

has issued two rounds of permits: one to existing trained guides or local community members and the second to anyone willing to complete the training and pay a 10 000 colones (US\$ 20) fee.

The third conservation practice the CCC is involved in is increasing conservation education and awareness. On their website the CCC lists numerous programs and opportunities for education. These include the Sea Turtle Migration Tracking Education Program, which allows viewers to follow the path of turtles that are being tracked by satellite, the Adopt a Turtle Program, which for a fee allows the adoptee the chance to receive CCC information and updates on his/her turtle (e.g. when they nest) (Caribbean Conservation Corporation, 2006).

Overall, the CCC has many different approaches to turtle conservation although these approaches have remained relatively stable since the creation of this organization. Although it is evident that this organization is contributing to overall awareness of the their lack of innovative approaches is sometimes questioned.. COTERC2 stated, “CCC has been very old school, they have been doing research but have done very little with the community itself”.

#### **4.1.3. Ecotourism**

Ecotourism is quite a catch phrase these days with many companies and organizations offering eco-friendly trips and environmentally friendly packages. Volunteer tourism falls under the umbrella of ecotourism. In the case of the CCC ecotourism, as defined earlier, is what is being promised to volunteers working with the CCC. These volunteers participate in a project in which they pay a set fee depending on the amount of time they are interested in staying (Table 8). According to the CCC “The

**Table 8: CCC Volunteer Program Participation Fees 2007 (Caribbean Conservation Corporation, 2006).**

<b>2007 Leatherback Season</b>	<b>Price (USD)/ person</b>
One Week	\$1,399
Two Weeks	\$1,899
Three Weeks	\$2,399
<b>2007 Green Turtle Season</b>	
One Week	\$1,599
Two Weeks	\$2,149
Three Weeks	\$2,699

Conservation Corporation, 2006).

costs of running a field station and enabling scientists to conduct research are substantial. Some costs are covered by grants, and funds secured by the CCC, and some by the fees paid by research participants” (Caribbean

Ecotourism in the case of the CCC also occurs through tourists visiting the H. Phipps Biological Field Station in Tortuguero which contains an education area and a gift shop.

#### **4.1.4. Local Community**

Currently there are approximately 300 people living in the town of Tortuguero (Interview, TORT2). The town of Tortuguero itself is located on the Caribbean coast approximately 5km to the south of the Rio Tortuguero mouth (Figure 1). The people of Tortuguero have always relied on the turtles that frequent their community. In the past the turtles provided the local people with food and were an export commodity. Today the area is a National Park and all forms of turtle or egg harvest are illegal although it is well known in the local community that the turtle and egg harvest still occurs. Tortuguero is frequented by a very large number of poachers mainly from outside communities including Limon, the nearest major port (COTERC2).

The CCC and its neighboring community Tortuguero have, in the past, had their differences in terms of what they feel is best for both the turtles and the local people. These tensions arose early on when Carr and the CCC began petitioning for the area to



gain National Park status. As previously examined, National Park status prohibits any form of hunting or activities that will affect the natural environment in a negative manner. This meant that many of the local citizens were removed from their land during the 1970's and promised payment from the Costa Rican government. According to many locals only a few families were actually reimbursed. This act was a key factor in the tensions that arose between the CCC and the local community (Interview TORT2, Interview COTERC2, Campbell 2002). Currently tensions appear to have improved, with the CCC being identified as crucial to increased tourism and the success of turtle conservation in Tortuguero (Interview TORT2).

#### **4.2. Canadian Organization for Tropical Education and Rainforest Conservation**

COTERC was contacted at the same time as the CCC and was the only organization to promptly return a completed survey as well as offer alternative methods of communication including phone numbers for further information. Although close to the town of Tortuguero, the closest town to the Cano Palma Biological station run by COTERC is San Francisco, Costa Rica.

##### **4.2.1. Conservation Practices**

COTERC is the youngest of the three sites being examined in this paper. Unlike the CCC, COTERC has only been involved in sea turtle conservation for the past four years and has only had a functional turtle program for the past two years (Interview COTERC1). In terms of turtle conservation practices COTERC's protocol was established by the CCC. COTERC's turtle program commenced four years ago when it was observed that the North Beach, just outside the protected National Park, had an increased number of turtles nesting (COTERC, 2006). At this time COTERC decided to

begin surveying the turtles coming onto the beach to determine whether the numbers warranted further investigation. According to the current station manager most of these nests were being poached. COTERC decided it would be a good idea to approach the CCC about developing a tagging program. The CCC assisted COTERC establish a tagging and monitoring protocol using CCC methodology (Interview COTERC1)

Like the CCC, COTERC uses volunteers. These volunteers are recruited through Global Vision International (GVI), a non-denominational organization that provides “opportunities to volunteers to fill a critical void in the fields of environmental research, conservation, education and community development” (GVI, 2007). Similar to the CCC, COTERC obtain volunteers through GVI, who pay a set fee for a 10 week stay at Cano Palma Station in which they perform duties such as beach monitoring, tagging, counting eggs and cleaning the beach of debris. The main differences are: longer volunteer period, more rustic accommodations and involvement in conservation projects with species other than turtles at COTERC. .

#### **4.2.2. Ecotourism**

Ecotourism at COTERC is very similar to that of the CCC. Volunteers pay a set price to stay at the station which covers the costs of accommodation, food and training. The primary difference is the marketing of the opportunity is primarily through GVI a British organization. This organization takes a portion of the fees collected, whereas, at the CCC the entire fee is paid directly to the organization. As well, COTERC is located in slightly more remote location and is only accessible by boat; whereas, CCC is accessible by boat or plane. The inaccessibility results in fewer visitors accessing the site by simply ‘dropping by’, which occurs moderately often at CCC. The town of

Tortuguero, although a small relatively isolated community, has a local economy based largely around tourism. San Francisco, the closest town to COTERC, has an economy that experiences little to no input of tourist dollars.

#### **4.2.3. Local Community**

Although located quite close to the town of Tortuguero, COTERC's Cano Palma Biological Station is located close to the town of San Francisco. San Francisco began as an illegal town of squatters in the 1980's and since this time has grown to a town of over 300 people. The town was not recognized as a legal town until quite recently when an infrastructure, including a school, was built. At present there has not been an official census completed, although one is underway being conducted by COTERC2. Using the information COTERC2 has collected this far it is evident that the town has no tourism base and very little income. Most people in the town are employed work at hotels in Tortuguero, therefore, receiving their income indirectly from the tourism industry.

#### **4.3. Ostional Wildlife Refuge**

OWR was emailed the original survey but did not return a copy. A contact at the MINAE research station was emailed but no reply was received. Previous work by McMaster researchers in the Ostional region has highlighted the difficulty in accessing reliable internet facilities and this may be the reason for a lack of response. Although there was a lack of response to the surveys, people at Ostional were very co-operative in terms of on-site observations and oral interviews.

There are two different organizations dealing with turtle conservation in the area, Asociación Desarrollo Integral de Ostional (ADIO) and MINAE. The functions of the park service, the forestry service and the wildlife service were combined in 1994 to fall

under the National System of Conservation Areas (SINAC) which is accountable to MINAE. In this system OWR is under the management of the Tempisque Conservation Area (ACT). A wildlife ranger employed in Ostional represents ACT (Parks: Ostional Wildlife Refuge, 2006). OWR, although in some ways similar to the other two organizations (CCC and COTERC), is very different in terms of conservation practices, ecotourism and local community.

#### **4.3.1. Conservation Practices**

In comparing the three sites it is the conservation practices employed at OWR that are most distinct. The CCC and COTERC adhere to the non-consumptive streams of the counter narrative; whereas, OWR uses the consumptive stream of the counter narrative. As previously mentioned OWR was the first area to establish an egg program. Although the egg project is OWR's most popular conservation practice there are also many other factors at play at this site. Those factors include the presences of ADIO, MINAE and the use of volunteers.

ADIO is the local development association in Ostional. ADIO originally started as an association dealing with the turtle egg project, known as a specific association, and then became an integral association, meaning that their role changed from just working with the turtle project to acting as a local government in the area as well. ADIO is made up of 10 local (people who have resided in Ostional for 2 or more years) elected officials. These may or may not be local Costa Ricans as this region is experiencing a large influx of foreigners who are moving to the location for its warm weather and beautiful scenery. ADIO's role is to monitor the beach and training turtle guides in the area, thus, they run the turtle egg project (Interview OWR1).

MINAE also plays a large role in the community of Ostional. MINAE is in charge of the only research station in the area which houses researchers from all over the world as well as volunteers, recruited through various international volunteer agencies, coming to work during the arribadas (Interview OWR2).

In terms of conservation practices both the egg harvest and the research station attract researchers which provide education and knowledge. MINAE houses volunteers who walk the beach tagging and measuring turtles as well as clearing the beach of debris to enhance the number of suitable nesting sites ADIO provides a presence on the beach, runs the turtle egg project, trains turtle guides and has a large role in the local community.

#### **4.3.2. Ecotourism**

There are many different types of tourism occurring at this site. It seems that every level of government associated with the environment has a hand in the conservation practices at OWR. MINAE itself funds the local research station which, through international (predominately British) volunteer agencies, recruit volunteers to the station. These volunteers, in a similar fashion to the CCC, sleep, eat and socialize at the station set up by MINAE. The cost of these trips varies depending on the agency being used with informal conversations at the site informing the researcher of one student paying upward of 5 000 Euro (6 685 USD) for a 90 day stay (onsite observation).

ADIO, OWR's local development agency also plays a big part in tourism in the area. ADIO manages a guide station directly adjacent to one of the main beach entrances. This station provides turtle guides who bring tourists onto the beach, in a controlled manner, during arribadas. For these services the station asks for a small donation.

Recently an organization called the Leatherback Project has begun working with Leatherback turtles on Ostional Beach. Over the past few years increasing numbers of leatherbacks have been nesting on the beach. This led to the Leatherback Project which currently works with the community to manage both a volunteer program and a hatchery. Volunteers coming to OWR through the Leatherback Project do so through International Student Volunteers (ISV) a UK based volunteer agency. Unlike the MINAE research station this organization places volunteers in the local community, staying with local host families and contributing both to a more integrated experience for the volunteer as well as income for the host family (Interview OWR2)

#### **4.3.3. Local Community**

The local community in Ostional plays a large part in the conservation efforts. ADIO is a perfect example of an agency that is set up by locals, made up of locals and maintained by locals. This agency began as a specific association dealing only with the turtle egg project. It then became an integral association working with the turtle egg project as well as acting as the local government. This new role allows ADIO to make development decisions in terms of projects for the town such as roads and schools. ADIO is also responsible for the aforementioned guide station. Like any agency this one has seen its share of tensions (specifically with MINAE), but overall has seen a number of successes. These successes include protecting OWR from national park status (Interview OWR1). This is an important step because it means that locals are still permitted to live within what would have been a National Park, as well as permitting certain forms of hunting and farming practices.

## CHAPTER FIVE

### DISCUSSION

This section will examine the importance of marine turtle conservation by reviewing the past and present threats. This section will then examine conservation practices, ecotourism and local communities comparing and contrasting strengths and weaknesses at each site as well as identifying key themes.

#### 5.1. Conservation

Conservation practices at each location are based on the same basic concepts although there are key differences. These differences are found in how practices are implemented and who benefits from the practices. Table 9 summarizes of the conservation practices implemented at each of the three sites.

**Table 9: Summary of Conservation Practices at each location.**

	<b>CCC</b>	<b>COTERC</b>	<b>OWR</b>
<b>Volunteers</b>	Yes	Yes	Yes
<b>Volunteers Pay To Participate</b>	Yes	Yes	Yes
<b>Who Collects Funds?</b>	CCC directly	GVI	variety of international volunteer organizations
<b>Tours</b>	Yes	No	Yes
<b>Outreach/Education</b>	Yes-through website	Yes-weekly in local schools	Yes-program is fully community run
<b>Other</b>	Many online donation opportunities	Ethnobotany studies, bird programs and environmental education in local community	Turtle Egg Program

In terms of conservation the CCC has the longest history of turtle monitoring and is able to provide strong evidence for improvements in increased hatching success (Caribbean Conservation Corporation, 2006). This emphasis on continuous turtle

monitoring has decreased their ability to implement innovative conservation strategies. OWR has been much more innovative and has worked in collaboration with the community to implement effective conservation management strategies. This community has in the past had problems with MINAE but has managed to successfully implement conservation strategies that benefit the local community, tourists and turtles. The local community managed to prevent national park status, therefore, ensuring that the egg program could continue unabated by MINAE. This shows that the community is able and willing to make decisions for the sustainability of the community as well as conservation. COTERC is also working on community sustainability but is still in its infancy and therefore has yet to see definitive results. Although parented by the CCC, COTERC's turtle program has the advantage of being able to gain knowledge from many other successful turtle conservation sites in Costa Rica. This site recognizes the importance of community involvement and education, which was stressed numerous by interviews from COTERC (Interview COTERC1, COTERC2).

Examining current conservation strategies is only effective if ideas are used for future planning and future success. In terms of potential future threats each site must evaluate current factors that could hinder them in the future. The CCC is not a Costa Rican organization but instead is fully reliant on their US affiliation. Throughout the time that this research has been taking place there have been numerous changes in leadership which has led to communication inefficiency and potential miscommunication between CCC employees. This organization is very large making it almost impossible for one person to understand everything that is going on, let alone implement current innovative strategies. In the past there have been tensions with the local community due to the fact



that the CCC was instrumental in turning Tortuguero into a national park, therefore, banning hunting and farming in the area. This tension could escalate with the new guiding permit strategies implemented in part by the CCC.

COTERC at the moment is lacking a station manager although the organization has been searching for several months. This location is also less accessible to tourists, thus, tourist dollars do not play a large role in their income. Because of this COTERC will have to continue to implement innovative fundraising strategies since they can not solely rely on the local tourism base.

The area surrounding OWR has seen a recent influx of recent foreign investment; which has resulted in large growth at neighboring beaches (Playa Guiones and Playa Pelada). OWR will have to be careful that this growth does not infiltrate into their area. Although wildlife refuge status has its advantages, in terms of continued egg harvesting, it could prove to be a hindrance in terms of increased construction when the foreign investment moves toward OWR.

## **5.2. Future Directions**

This study sets the stage for further research into the political, social and economic aspects of marine turtle conservation both in Costa Rica and throughout the world. The future of this practice is in itself a very complicated topic which can only be understood through further investigation and research into the many facets of this issue. Marine turtles are intriguing to humans for many reasons including the fact that they offer us a sense of mystical and long lived history. We as a species do not fully understand them, therefore, they intrigue us in many different ways.

## **CHAPTER SIX**

### **CONCLUSION**

This paper used an extensive literature review, surveys, interviews and onsite observations to compare and contrast marine turtle conservation at three sites within Costa Rica. These sites were the Caribbean Conservation Corporation and Canadian Organization for Tropical Education and Rainforest Conservation on the Caribbean coast as well as Ostional Wildlife Refuge on the Pacific Coast. This paper reviewed these sites in order to determine which site best encompassed conservation practices, ecotourism and community development. Ecotourism has recently become a popular phrase and has come to encompass not only environmental affects of tourism but also social, economic and political factors although these are the same factors that make perfect conservation virtually impossible in any realistic setting.

The CCC is the oldest turtle conservation organization in the world and has, over the years, contributed vastly to education and conservation of marine turtles. COTERC's marine turtle program is still quite young but has benefit of hindsight to pave the way in their future conservation strategies and community involvement. The conservation methods at OWR best encompass both ecotourism and the local community. OWR has managed to incorporate both ecotourism and local community into their conservation methods. OWR still needs to progress to make more effective use of volunteers through a more solid home stay program as well as refining their protocols and political difficulties but overall are well on their way to becoming a very strong and fundamental leader in marine turtle conservation both on a local, national and global scale.

## CHAPTER SEVEN

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## **APPENDIX ONE**

**McMaster University Research Ethics Board (MREB)  
INDIVIDUAL UNDERGRADUATE AND MBA STUDENT APPLICATION TO INVOLVE  
HUMAN PARTICIPANTS IN RESEARCH**

This FORM is LOCKED. It is better to fill in the entire FORM with the FORM LOCKED. If you remove the LOCK, you risk losing your data, unless you save your data often. With the FORM LOCKED, you can fill in TEXT and the CHECKBOXES. With the FORM UNLOCKED, you can not CHECK the CHECKBOXES. To remove or activate the LOCK, on the WORD MENU go to VIEW, TOOLBARS, FORMS. Click on the ICON of the LOCK

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Michael Wilson, SREC and MREB secretariat, GH-305/H [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca) ex. 23142 Please answer every question. If a question does not apply to your protocol, write "Not Applicable".

DATE:  
October 2006

PROTOCOL#:

UNDERGRADUATE INVESTIGATOR(S)*	ADDRESS	PHONE NO	E-MAIL
Katherine Card	19 Dalewood Cres Hamilton ON	905 529 4989	cardkf@mcmaster.ca

FACULTY INVESTIGATOR(S)	COURSE	PHONE # /EXT	E-MAIL
Susan Vajoczki	GEO 4R06		vajoczki@mcmaster.ca

**TITLE OF RESEARCH PROJECT:**

A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica

Expected starting date: September 2006	Expected completion date: April 30, 2007
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(Please refer to the Student Research Ethics Committees (<http://www.mcmaster.ca/ors/ethics/>) prior to completion of this form.)

Is this an amendment to a previously approved protocol?  Yes  No

Approval number:                      Previous Title:

Has this research project been approved by the McMaster University Research Ethics Board, or another Ethics Committee where the research will occur?  Yes  No

If yes, there is no need to provide further details about the protocol, but please provide the following details:

**TITLE OF RESEARCH PROJECT APPROVED ELSEWHERE:**

Principal Investigator:

Name of Ethics Board:

Address:

Phone:

E-mail:

Contact Person:  
(If not the McMaster Research Ethics Board)

## **1. SUMMARY OF PROPOSED RESEARCH:**

- a) Briefly state the purpose of the research.
- b) Describe in detail what will happen from the participant's perspective in lay terms. Append a copy of questionnaire(s) or test instrument(s).

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica.

This research will involve distribution of a written survey instrument to project leaders at each of three conservation areas within Costa Rica (attached). The surveys will be distributed via email and collected via email. The written surveys will be followed by an on-site interview (interview questions to be formulated after initial survey analysed and will be submitted under a separate ethics form.

This work will fulfill obligations of Katherine Card's undergraduate thesis for GEO 4R06.

Do any of the procedures involve contact with the body (e.g. touching, attachment to instruments, collection of specimens)?

Yes  No

Does the study involve the administration of any substance?

Yes  No

## **2. PARTICIPANTS INVOLVED IN THE RESEARCH:**

- a) Describe the salient characteristics of participants - age range, sex, institutional affiliation or where located.
- b) Describe how participants are to be recruited and number needed. Attach recruitment notice or letter, if applicable.
- c) Describe the relationship between the investigator(s) and the participant(s) (e.g. student peers, my club group, my relatives, no relationship).
- d) Will participants be compensated for their participation? If so, how?

a) age- 25-60yrs, male and female, working for Caribbean Conservation Corporation (CCC) in Tortuguero, Costa Rica, Canadian Organization for Tropical Education and Research Corporation (COTERC) in Tortuguero, Costa Rica and Ostional Wildlife Refuge in Ostional, Costa Rica.



- b) Participants have already met with Susan Vajoczki, thesis supervisor, with respect to a coastal geomorphology research project in the region. The participants will be contacted and will be emailed prior to receiving surveys.
- c) Participants are the head representative of their organization at the three different conservation areas. They are professional contacts of undergraduate thesis supervisor, Susan Vajoczki.
- d) Participants will receive no compensation, but will be given a copy of the final research/report.

### 3. ESTIMATE OF THE RISKS OF THE PROPOSED RESEARCH:

- |   |                                 |   |
|---|---------------------------------|---|
| a) Is there any physical risk?  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| b) Is there any psychological risk? (Might a participant feel demeaned, embarrassed, worried or upset? Could participants be fatigued or stressed?) | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| c) Is there any social risk? (Possible loss of status, privacy and/or reputation?)  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| d) Do you see any chance that participants might be harmed in any way?  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| e) Is any deception involved?   | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| f) Are the risks different to those encountered by the participants in everyday life?   | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |

If the answer is **YES** to any of the questions under section 3, please explain why alternative approaches involving less risk cannot be used. Procedures for reversing reversible harm should be stated.

4. **ESTIMATE OF THE BENEFITS OF THE PROPOSED RESEARCH:**

What are the likely benefits to the student researcher, the participants, the scientific community, and/or society that would justify asking participants to participate? Types of answers that might be appropriate:

Student researcher: increase understanding of research methods and cognition;

Participants: no direct benefit, although I will be available to answer questions about memory;

Scientific community: the study may provide insights into how memory changes with age; none, because I will be replicating a well-known phenomenon;

Society: better understanding of memory may lead to effective memory training programmes; none, because I will be replicating a well-known phenomenon.

Student researcher: increase understanding of research methods and cognition. As well the written surveys will gather relevant information for the creation of interview questions and gain a more holistic understanding of the topic being examined

Participants: no immediate benefit, but each will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods

Scientific community: will enhance current thought on marine turtle conservation methods as well as leading to the better understanding of the strengths and weaknesses between these different methods

**5. PLAN FOR OBTAINING INFORMED CONSENT:**

- a) Attach a description of the verbal explanation to be given to participants before they are asked to consent to participation. Attach any consent form (see instructions). If there will not be a consent form, explain why not.

Consent form attached will be sent with surveys.

- b) Are participants minors or for other reasons not competent to consent? If so describe the alternate source of consent. Yes  No

- c) Do participants have the right to withdraw at any time during the research project? If no, explain below. Yes  No   
How and when are participants to be informed of this right?

Participants will be informed of this right at the onset of the survey. The right to withdraw will be addressed in the initial email and in on the survey itself.

- d) What procedures will be followed for participants who wish to withdraw at any point during the study? e.g. the procedure will be stopped immediately; participants will be thanked and debriefed; any questions or concerns will be addressed; participants will/will not receive the same compensation as if they had completed the procedure; data collected up to that point will/will not be destroyed.

If participants choose to withdraw they will not be required to complete the survey. They will be thanked and questions or concerns will be addressed. Any data will be dealt with according to the participants wishes. If participants allow it data collected up until that point will be used in the research, if participants wish for data to be destroyed researcher will do so.

6. **STEPS TO BE TAKEN TO ENSURE CONFIDENTIALITY OF DATA:**

a) Will the data be treated as confidential?

Yes

No

If yes, explain the steps that will be taken to ensure confidentiality of the data (e.g. participants' names will not be recorded; participants will be referred to by initials or other code). If no, explain why and how participants' agreement will be obtained.

Participants will be informed in order to ensure that they are comfortable with the publication of their names etc. They will be informed on the surveys as well as verbally during the interviews that are to take place at a later date.

b) If the data are not anonymous, where will the data be stored, and who will supervise access to the data?

The data will be stored in a locked faculty member's office - in a filing cabinet following the completion of the analysis. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

7. **PARTICIPANT DEBRIEFING:**

a) Will participants be debriefed fully at the end of the research project? If yes, explain how this will be done. If no, explain why not.

Yes

No

b) If the participants are interested in the results of the study, will these be available? If yes, explain how.

Yes

No

The participants (3) will each receive a copy of the completed undergraduate thesis, as their debriefing,

thus, having access to all results of the study.

**In addition to the completion of this application, what steps will be taken to make the Undergraduate Investigator more sensitive to ethical issues relevant to the proposed research?**

The Undergraduate Investigator will be required to complete the Research Ethics Tutorial located on the Office of Research Studies web page, designed to teach students etc about human ethics at McMaster University. Upon completion concepts will be discussed with thesis supervisor prior to research being conducted.

**In submitting this form, I certify that the information provided accurately describes how the research will be conducted.**

**POSTING OF APPROVED PROTOCOLS ON THE RESEARCH ETHICS WEBSITE**

[http://iserv.mcmaster.ca/ethics/mreb/public/srec\\_approved.cfm](http://iserv.mcmaster.ca/ethics/mreb/public/srec_approved.cfm)

- a) Effective January 1, 2006, it is the policy of MREB to post a list of approved protocols on the Research Ethics website. Posted information usually includes: title, names of principal investigators, principal investigator department, type of project (i.e. PhD; Faculty; Masters etc)
- b) You may request that the title be deleted from the posted information.
- c) Do you request that the title be eliminated from the posted information?  Yes  No
- d) The ethics board will honour your request if you answer **Yes** to the above question 25 c) but we ask you to provide a reason for making this request for the information of the Board. You may also use this box for any other special requests.

**SIGNATURES:**

\_\_\_\_\_  
**Faculty Supervisor**

\_\_\_\_\_  
**Student Investigator**

October 31, 2006

### **Letter of Consent**

#### **A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica**

**Faculty Investigator:** Susan Vajoczki  
School of Geography & Earth Sciences  
McMaster University  
Hamilton, Ontario, Canada  
**905-525-9140 ext. 23520**  
**vajoczki@mcmaster.ca**

**Student Investigator:** Katherine Card  
School of Geography & Earth Sciences  
McMaster University  
Hamilton, Ontario, Canada  
**905-525-9140 ext. 23336**  
**cardkf@mcmaster.ca**

#### **Purpose of the Study**

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica

#### **Procedures involved in the Research**

You will be asked to complete a written survey that has been emailed to you. Upon completion of the survey you will be asked to email your answers. You will be asked questions about the conservation organization for which you work. You will also be asked some demographic information about your education background.

#### **Will anything bad happen during the study?**

There are no harms or discomforts associated with this study. It is not necessary to answer questions that make you uncomfortable or that you do not want to answer.

#### **Potential Benefits**

You will have no immediate benefit, but will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods.

This research will benefit the scientific community by enhancing current thought on marine turtle conservation methods as well as lending to the better understanding of the strengths and weaknesses between these different methods.

**Confidentiality:**

Your name will not be published but the information about your position will make you identifiable in the final report.

After analysis is completed the data obtained will be stored in a locked faculty member's. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

**Participation:**

Your participation in this study is voluntary. If you decide to participate, you can decide to stop at any time, even after signing the consent form or part-way through the study. If you decide to stop participating, there will be no consequences to you. If you do not want to answer some of the questions you do not have to, but you may still participate in the study. If you chose to withdraw from the study, at any time, the data will be dealt with according to your wishes. If you wish for the data to be used it will, if you wish for the data to be destroyed the researcher will do so.

**Information About the Study Results:**

Once completed you will receive a copy of the Undergraduate thesis as your debriefing, thus, you will have access to all results of the study.

**Information about Participating as a Study Subject:**

If you have questions or require more information about the study itself, please contact Katherine Card or Susan Vajoczki, contact information above.

This study has been reviewed and approved by the McMaster Research Ethics Board. If you have concerns or questions about your rights as a participant or about the way the study is conducted, you may contact:

McMaster Research Ethics Board Secretariat  
Telephone: (905) 525-9140 ext. 23142  
c/o Office of Research Services  
E-mail: [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca)

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**CONSENT**

I have read the information presented in the information letter about a study being conducted by Katherine Card and Susan Vajoczki of McMaster University. I have had the opportunity to ask questions about my involvement in this study, and to receive any additional details I wanted to know about the study. I understand that I may withdraw from the study at any time, if I choose to do so, and I agree to participate in this study. I have been given a copy of this form.

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Name of Participant



McMaster University  
School of Geography and  
Earth Sciences

A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica

**Part A: Background Information**

1. Please check off your current level of education:

- Secondary School
- University
  - B.A.             B.Sc
  - M.A.             M.Sc
  - PhD
  - Program: \_\_\_\_\_
- College
- Other \_\_\_\_\_

2. What is your current job title? \_\_\_\_\_

3. Describe what you do in a typical day?

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4. How long have you been with the organization? \_\_\_\_\_  
Please circle one:      Full time                      Part time

5. How long have you been with the organization at this site? \_\_\_\_\_  
Please circle one:      Full time                      Part time

6. What are the goals of your organization (i.e. mission statement)?

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7. How is your organization funded?

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8. Describe the relationship your organization has with this Costa Rican government in terms of funding, parks requirements, administration etc.

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9. Mark the species that nest at this site, beside each choice please indicate when nesting occurs.

- |   |  |
|---|--|
| <input type="checkbox"/> Loggerhead _____   | <input type="checkbox"/> Green _____         |
| <input type="checkbox"/> Hawksbill _____    | <input type="checkbox"/> Kemp's Ridley _____ |
| <input type="checkbox"/> Olive Ridley _____ | <input type="checkbox"/> Flatback _____      |
| <input type="checkbox"/> Leatherback _____  |  |

10. How have nesting numbers changed since your organization began work at this site?

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## PART B: Methods

1. Does tourism play a part in turtle conservation at your site? YES   NO
2. Briefly describe your organization's approach to conservation and the methods that you use to achieve success.

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3. Please complete the chart below to indicate how many people are working at this site at any given time?

	Number of	Duration of Employment	Locals (Ticos and non-Ticos), or Tourists	Number of Hours/day	Typical Responsibilities
<b>Volunteers</b>					
<b>Employees (Paid, part time)</b>					
<b>Employees (Paid, full-time)</b>					
<b>Stewards</b>					

## PART C: Progress

1. Under the following sub headings list three of what you think are your organizations strengths and weaknesses as well as what you feel is most unique about your organization.

Strengths	Weaknesses	Unique

2. Do volunteers play a role in your conservation efforts?      YES                  NO  
If yes, describe the impact of volunteers on your organization, including their impact on your organizations ability to meets its stated mission.

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3. Do locals play a role in your conservation efforts?                    YES                    NO  
If yes, describe the impact of locals on your organization, including their impact on your organizations ability to meets its stated mission.

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4. Please add any additional comments

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## **APPENDIX TWO**

**McMaster University Research Ethics Board (MREB)  
INDIVIDUAL UNDERGRADUATE AND MBA STUDENT APPLICATION TO INVOLVE  
HUMAN PARTICIPANTS IN RESEARCH**

This FORM is LOCKED. It is better to fill in the entire FORM with the FORM LOCKED. If you remove the LOCK, you risk losing your data, unless you save your data often. With the FORM LOCKED, you can fill in TEXT and the CHECKBOXES. With the FORM UNLOCKED, you can not CHECK the CHECKBOXES. To remove or activate the LOCK, on the WORD MENU go to VIEW, TOOLBARS, FORMS. Click on the ICON of the LOCK

Please complete and submit 2 paper copies or send e-mail plus attachments and 1 signed copy to:  
Michael Wilson, SREC and MREB secretariat, GH-305/H [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca) ex. 23142 Please answer every question. If a question does not apply to your protocol, write "Not Applicable".

DATE:  
December 11, 2006

PROTOCOL#:

UNDERGRADUATE INVESTIGATOR(S)*	ADDRESS	PHONE NO	E-MAIL
Katherine Card	19 Dalewood Cres Hamilton ON	905 529 4989	cardkf@mcmaster.ca

FACULTY INVESTIGATOR(S)	COURSE	PHONE # /EXT	E-MAIL
Susan Vajoczki	GEO 4R06		vajoczki@mcmaster.ca

**TITLE OF RESEARCH PROJECT:**

A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica

Expected starting date: September 2006	Expected completion date: April 30, 2007
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(Please refer to the Student Research Ethics Committees (<http://www.mcmaster.ca/ors/ethics/>) prior to completion of this form.)

Is this an amendment to a previously approved protocol?  Yes  No

Approval number:                      Previous Title:

Has this research project been approved by the McMaster University Research Ethics Board, or another Ethics Committee where the research will occur?  Yes  No

If yes, there is no need to provide further details about the protocol, but please provide the following details:

**TITLE OF RESEARCH PROJECT APPROVED ELSEWHERE:**

Principal Investigator:

Name of Ethics Board:

Address:

Phone:

E-mail:

Contact Person:  
(If not the McMaster Research Ethics Board)

## **1. SUMMARY OF PROPOSED RESEARCH:**

- a) Briefly state the purpose of the research.
- b) Describe in detail what will happen from the participant's perspective in lay terms. Append a copy of questionnaire(s) or test instrument(s).

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica.

This research will involve oral interviews with local community members at each of three conservation areas within Costa Rica (attached). The interviews will be in person taking place on-site at each of the three locations in Costa Rica; the Caribbean Conservation Corporation (CCC) in Tortuguero, Costa Rica, Canadian Organization for Tropical Education and Research Corporation (COTERC) in Tortuguero, Costa Rica and Ostional Wildlife Refuge in Ostional, Costa Rica.

This work will fulfill obligations of Katherine Card's undergraduate thesis for GEO 4R06.

Do any of the procedures involve contact with the body (e.g. touching, attachment to instruments, collection of specimens)?

Yes  No

Does the study involve the administration of any substance?

Yes  No

## **2. PARTICIPANTS INVOLVED IN THE RESEARCH:**

- a) Describe the salient characteristics of participants - age range, sex, institutional affiliation or where located.
- b) Describe how participants are to be recruited and number needed. Attach recruitment notice or letter, if applicable.
- c) Describe the relationship between the investigator(s) and the participant(s) (e.g. student peers, my club group, my relatives, no relationship).
- d) Will participants be compensated for their participation? If so, how?

a) age- 18-70yrs, male and female, local community members living in the towns surrounding the CCC, COTERC and Ostional Wildlife Refuge

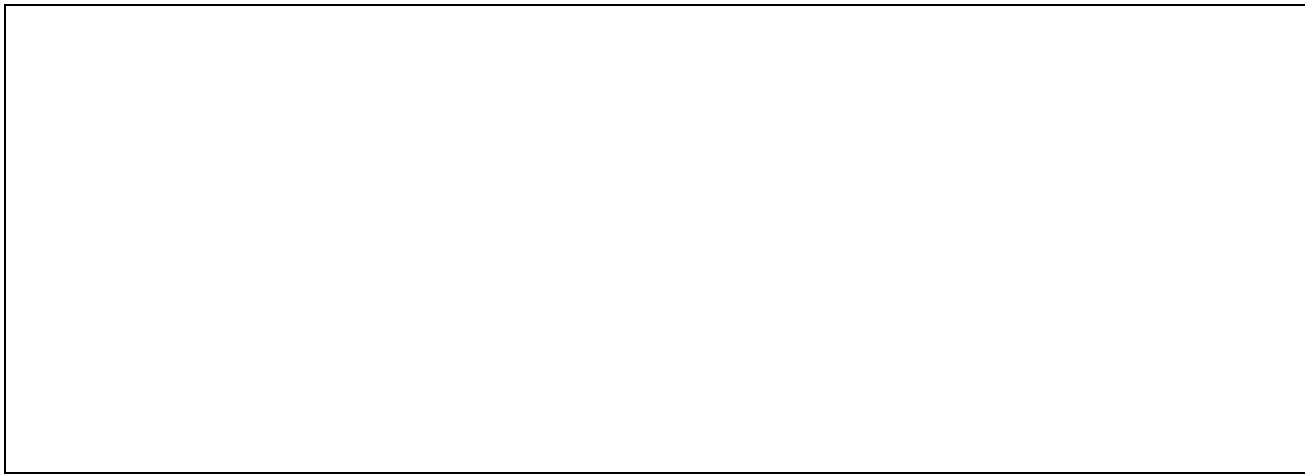
- b) Participants are community members living in the towns surrounding the three previously mentioned sites. Participants will be recruited and recommended by project leaders at each of the three sites.
- d) Participants will receive no compensation, but a copy of the final research/report will be sent to each research location.

### 3. ESTIMATE OF THE RISKS OF THE PROPOSED RESEARCH:

- |   |                                 |   |
|---|---------------------------------|---|
| a) Is there any physical risk?  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| b) Is there any psychological risk? (Might a participant feel demeaned, embarrassed, worried or upset? Could participants be fatigued or stressed?) | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| c) Is there any social risk? (Possible loss of status, privacy and/or reputation?)  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| d) Do you see any chance that participants might be harmed in any way?  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| e) Is any deception involved?   | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| f) Are the risks different to those encountered by the participants in everyday life?   | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |

If the answer is **YES** to any of the questions under section 3, please explain why alternative approaches involving less risk cannot be used. Procedures for reversing reversible harm should be stated.





**4. ESTIMATE OF THE BENEFITS OF THE PROPOSED RESEARCH:**

What are the likely benefits to the student researcher, the participants, the scientific community, and/or society that would justify asking participants to participate? Types of answers that might be appropriate:

Student researcher: increase understanding of research methods and cognition;

Participants: no direct benefit, although I will be available to answer questions about memory;

Scientific community: the study may provide insights into how memory changes with age; none, because I will be replicating a well-known phenomenon;

Society: better understanding of memory may lead to effective memory training programmes; none, because I will be replicating a well-known phenomenon.

Student researcher: increase understanding of research methods and cognition. Interviews will gather relevant information that will be used to gain a more holistic understanding of the topic being examined

Participants: no immediate benefit, but each research location will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods

Scientific community: will enhance current thought on marine turtle conservation methods as well as leading to the better understanding of the strengths and weaknesses between these different methods

**5. PLAN FOR OBTAINING INFORMED CONSENT:**

- a) Attach a description of the verbal explanation to be given to participants before they are asked to consent to participation. Attach any consent form (see instructions). If there will not be a consent form, explain why not.

Participants will be asked to sign a consent form prior to the interviews.

- b) Are participants minors or for other reasons not competent to consent? If so describe the alternate source of consent. Yes  No

- c) Do participants have the right to withdraw at any time during the research project? If no, explain below. Yes  No   
How and when are participants to be informed of this right?

Participants will be informed of this right at the onset of the interview. The right to withdraw was addressed in the survey and will be addressed again at the onset of the interview.

- d) What procedures will be followed for participants who wish to withdraw at any point during the study? e.g. the procedure will be stopped immediately; participants will be thanked and debriefed; any questions or concerns will be addressed; participants will/will not receive the same compensation as if they had completed the procedure; data collected up to that point will/will not be destroyed.

If participants choose to withdraw they will not be required to complete the interview. They will be thanked and questions or concerns will be addressed. Any data will be dealt with according to the participants wishes. If participants allow it data collected up until that point will be used in the research, if participants wish for data to be destroyed researcher will do so.

6. **STEPS TO BE TAKEN TO ENSURE CONFIDENTIALITY OF DATA:**

a) Will the data be treated as confidential?

Yes

No

If yes, explain the steps that will be taken to ensure confidentiality of the data (e.g. participants' names will not be recorded; participants will be referred to by initials or other code). If no, explain why and how participants' agreement will be obtained.

b) If the data are not anonymous, where will the data be stored, and who will supervise access to the data?

The data will be stored in a locked faculty member's office - in a filing cabinet following the completion of the analysis. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

7. **PARTICIPANT DEBRIEFING:**

a) Will participants be debriefed fully at the end of the research project? If yes, explain how this will be done. If no, explain why not.

Yes

No

b) If the participants are interested in the results of the study, will these be available? If yes, explain how.

Yes

No

Following the interview participant questions will be answered. Participants will be informed of their role in the study and informed that a copy of the final report will be available at each location.

**In addition to the completion of this application, what steps will be taken to make the Undergraduate Investigator more sensitive to ethical issues relevant to the proposed research?**

The Undergraduate Investigator will be required to complete the Reasearch EthicsTutorial located on the Office of Research Studies web page, designed to teach students etc about human ethics at McMaster University. Upon completion concepts will be discussed with thesis supervisor prior to research being conducted.

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**SIGNATURES:**

\_\_\_\_\_ **Faculty Supervisor**

\_\_\_\_\_ **Student Investigator**

**McMaster University Research Ethics Board (MREB)  
INDIVIDUAL UNDERGRADUATE AND MBA STUDENT APPLICATION TO INVOLVE  
HUMAN PARTICIPANTS IN RESEARCH**

This FORM is LOCKED. It is better to fill in the entire FORM with the FORM LOCKED. If you remove the LOCK, you risk losing your data, unless you save your data often. With the FORM LOCKED, you can fill in TEXT and the CHECKBOXES. With the FORM UNLOCKED, you can not CHECK the CHECKBOXES. To remove or activate the LOCK, on the WORD MENU go to VIEW, TOOLBARS, FORMS. Click on the ICON of the LOCK

Please complete and submit 2 paper copies or send e-mail plus attachments and 1 signed copy to:  
Michael Wilson, SREC and MREB secretariat, GH-305/H [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca) ex. 23142 Please answer every question. If a question does not apply to your protocol, write "Not Applicable".

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- a) Briefly state the purpose of the research.
- b) Describe in detail what will happen from the participant's perspective in lay terms. Append a copy of questionnaire(s) or test instrument(s).

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica.

This research will involve oral interviews with project leaders at each of three conservation areas within Costa Rica (attached). The interviews will be in person taking place on-site at each of the three locations in Costa Rica; the Caribbean Conservation Corporation (CCC) in Tortuguero, Costa Rica, Canadian Organization for Tropical Education and Research Corporation (COTERC) in Tortuguero, Costa Rica and Ostional Wildlife Refuge in Ostional, Costa Rica.

This work will fulfill obligations of Katherine Card's undergraduate thesis for GEO 4R06.

Do any of the procedures involve contact with the body (e.g. touching, attachment to instruments, collection of specimens)?

Yes  No

Does the study involve the administration of any substance?

Yes  No

## **2. PARTICIPANTS INVOLVED IN THE RESEARCH:**

- a) Describe the salient characteristics of participants - age range, sex, institutional affiliation or where located.
- b) Describe how participants are to be recruited and number needed. Attach recruitment notice or letter, if applicable.
- c) Describe the relationship between the investigator(s) and the participant(s) (e.g. student peers, my club group, my relatives, no relationship).
- d) Will participants be compensated for their participation? If so, how?

a) age- 25-60yrs, male and female, working for the CCC, COTERC and Ostional Wildlife Refuge

b) Participants have already completed the first phase of this research project involving surveys

sent via email in mid November, 2006, in which they were informed the interviews to take place in January, 2007.

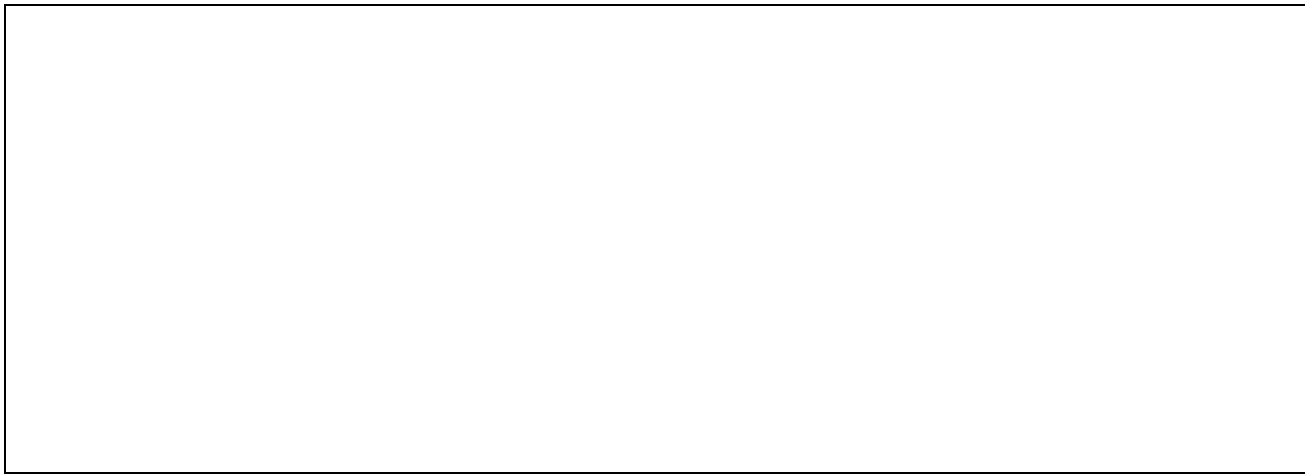
c) Participants are the head representative of their organization at the three different conservation areas. They are professional contacts of undergraduate thesis supervisor, Susan Vajoczki.

d) Participants will receive no compensation, but will be given a copy of the final research/report.

### 3. ESTIMATE OF THE RISKS OF THE PROPOSED RESEARCH:

- |   |                                 |   |
|---|---------------------------------|---|
| a) Is there any physical risk?  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| b) Is there any psychological risk? (Might a participant feel demeaned, embarrassed, worried or upset? Could participants be fatigued or stressed?) | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| c) Is there any social risk? (Possible loss of status, privacy and/or reputation?)  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| d) Do you see any chance that participants might be harmed in any way?  | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| e) Is any deception involved?   | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |
| f) Are the risks different to those encountered by the participants in everyday life?   | Yes<br><input type="checkbox"/> | No<br><input checked="" type="checkbox"/> |

If the answer is **YES** to any of the questions under section 3, please explain why alternative approaches involving less risk cannot be used. Procedures for reversing reversible harm should be stated.



**4. ESTIMATE OF THE BENEFITS OF THE PROPOSED RESEARCH:**

What are the likely benefits to the student researcher, the participants, the scientific community, and/or society that would justify asking participants to participate? Types of answers that might be appropriate:

Student researcher: increase understanding of research methods and cognition;

Participants: no direct benefit, although I will be available to answer questions about memory;

Scientific community: the study may provide insights into how memory changes with age; none, because I will be replicating a well-known phenomenon;

Society: better understanding of memory may lead to effective memory training programmes; none, because I will be replicating a well-known phenomenon.

Student researcher: increase understanding of research methods and cognition. Interviews will gather relevant information that will be used to gain a more holistic understanding of the topic being examined

Participants: no immediate benefit, but each will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods

Scientific community: will enhance current thought on marine turtle conservation methods as well as leading to the better understanding of the strengths and weaknesses between these different methods



**5. PLAN FOR OBTAINING INFORMED CONSENT:**

- a) Attach a description of the verbal explanation to be given to participants before they are asked to consent to participation. Attach any consent form (see instructions). If there will not be a consent form, explain why not.

Participants will be signing a consent form and surveys prior to the interviews. They will be contacted before the interviews, via email, in order to clarify dates and gain consent.

- b) Are participants minors or for other reasons not competent to consent? If  Yes  No  
so describe the alternate source of consent.

- c) Do participants have the right to withdraw at any time during the research project? If no, explain below.  Yes  No  
How and when are participants to be informed of this right?

Participants will be informed of this right at the onset of the interview. The right to withdraw was addressed in the survey and will be addressed again at the onset of the interview.

- d) What procedures will be followed for participants who wish to withdraw at any point during the study? e.g. the procedure will be stopped immediately; participants will be thanked and debriefed; any questions or concerns will be addressed; participants will/will not receive the same compensation as if they had completed the procedure; data collected up to that point will/will not be destroyed.

If participants choose to withdraw they will not be required to complete the interview. They will be thanked and questions or concerns will be addressed. Any data will be dealt with according to the participants wishes. If participants allow it data collected up until that point will be used in the research, if participants wish for data to be destroyed researcher will do so.

**6. STEPS TO BE TAKEN TO ENSURE CONFIDENTIALITY OF DATA:**

a) Will the data be treated as confidential?

Yes      No  
     

If yes, explain the steps that will be taken to ensure confidentiality of the data (e.g. participants' names will not be recorded; participants will be referred to by initials or other code). If no, explain why and how participants' agreement will be obtained.

Participants will be informed in order to ensure that they are comfortable with the publication of their names etc. They were informed on the surveys and will be informed verbally during the interviews.

b) If the data are not anonymous, where will the data be stored, and who will supervise access to the data?

The data will be stored in a locked faculty member's office - in a filing cabinet following the completion of the analysis. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

**7. PARTICIPANT DEBRIEFING:**

a) Will participants be debriefed fully at the end of the research project? If yes, explain how this will be done. If no, explain why not.

Yes      No  
     

b) If the participants are interested in the results of the study, will these be available? If yes, explain how.

Yes      No  
     

The participants (3) will each receive a copy of the completed undergraduate thesis, as their debriefing,

thus, having access to all results of the study.

**In addition to the completion of this application, what steps will be taken to make the Undergraduate Investigator more sensitive to ethical issues relevant to the proposed research?**

The Undergraduate Investigator will be required to complete the Research Ethics Tutorial located on the Office of Research Studies web page, designed to teach students etc about human ethics at McMaster University. Upon completion concepts will be discussed with thesis supervisor prior to research being conducted.

**In submitting this form, I certify that the information provided accurately describes how the research will be conducted.**

**POSTING OF APPROVED PROTOCOLS ON THE RESEARCH ETHICS WEBSITE**

[http://iserv.mcmaster.ca/ethics/mreb/public/srec\\_approved.cfm](http://iserv.mcmaster.ca/ethics/mreb/public/srec_approved.cfm)

- a) Effective January 1, 2006, it is the policy of MREB to post a list of approved protocols on the Research Ethics website. Posted information usually includes: title, names of principal investigators, principal investigator department, type of project (i.e. PhD; Faculty; Masters etc)
- b) You may request that the title be deleted from the posted information.
- c) Do you request that the title be eliminated from the posted information?  Yes  No
- d) The ethics board will honour your request if you answer **Yes** to the above question 25 c) but we ask you to provide a reason for making this request for the information of the Board. You may also use this box for any other special requests.

**SIGNATURES:**

\_\_\_\_\_  
**Faculty Supervisor**

\_\_\_\_\_  
**Student Investigator**

**McMaster University Research Ethics Board (MREB)  
INDIVIDUAL UNDERGRADUATE AND MBA STUDENT APPLICATION TO INVOLVE  
HUMAN PARTICIPANTS IN RESEARCH**

This FORM is LOCKED. It is better to fill in the entire FORM with the FORM LOCKED. If you remove the LOCK, you risk losing your data, unless you save your data often. With the FORM LOCKED, you can fill in TEXT and the CHECKBOXES. With the FORM UNLOCKED, you can not CHECK the CHECKBOXES. To remove or activate the LOCK, on the WORD MENU go to VIEW, TOOLBARS, FORMS. Click on the ICON of the LOCK

Please complete and submit 2 paper copies or send e-mail plus attachments and 1 signed copy to:  
Michael Wilson, SREC and MREB secretariat, GH-305/H [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca) ex. 23142 Please answer every question. If a question does not apply to your protocol, write "Not Applicable".

DATE:  
December 11, 2006

PROTOCOL#:

UNDERGRADUATE INVESTIGATOR(S)*	ADDRESS	PHONE NO	E-MAIL
Katherine Card	19 Dalewood Cres Hamilton ON	905 529 4989	cardkf@mcmaster.ca

FACULTY INVESTIGATOR(S)	COURSE	PHONE # /EXT	E-MAIL
Susan Vajoczki	GEO 4R06		vajoczki@mcmaster.ca

**TITLE OF RESEARCH PROJECT:**

A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica

Expected starting date: September 2006	Expected completion date: April 30, 2007
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(Please refer to the Student Research Ethics Committees (<http://www.mcmaster.ca/ors/ethics/>) prior to completion of this form.)

Is this an amendment to a previously approved protocol?  Yes  No

Approval number:                      Previous Title:

Has this research project been approved by the McMaster University Research Ethics Board, or another Ethics Committee where the research will occur?  Yes  No

If yes, there is no need to provide further details about the protocol, but please provide the following details:

**TITLE OF RESEARCH PROJECT APPROVED ELSEWHERE:**

Principal Investigator:

Name of Ethics Board:

Address:

Phone:

E-mail:

Contact Person:  
(If not the McMaster Research Ethics Board)

## **1. SUMMARY OF PROPOSED RESEARCH:**

- a) Briefly state the purpose of the research.
- b) Describe in detail what will happen from the participant's perspective in lay terms. Append a copy of questionnaire(s) or test instrument(s).

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica.

This research will involve oral interviews with staff and volunteers at each of three conservation areas within Costa Rica (attached). The interviews will be in person taking place on-site at each of the three locations in Costa Rica; the Caribbean Conservation Corporation (CCC) in Tortuguero, Costa Rica, Canadian Organization for Tropical Education and Research Corporation (COTERC) in Tortuguero, Costa Rica and Ostional Wildlife Refuge in Ostional, Costa Rica.

This work will fulfill obligations of Katherine Card's undergraduate thesis for GEO 4R06.

Do any of the procedures involve contact with the body (e.g. touching, attachment to instruments, collection of specimens)?

Yes  No

Does the study involve the administration of any substance?

Yes  No

## **2. PARTICIPANTS INVOLVED IN THE RESEARCH:**

- a) Describe the salient characteristics of participants - age range, sex, institutional affiliation or where located.
- b) Describe how participants are to be recruited and number needed. Attach recruitment notice or letter, if applicable.
- c) Describe the relationship between the investigator(s) and the participant(s) (e.g. student peers, my club group, my relatives, no relationship).
- d) Will participants be compensated for their participation? If so, how?

a) age- 18-70yrs, male and female, working and volunteering for the CCC, COTERC and Ostional Wildlife Refuge

- b) Participants are staff and volunteers at each of the three previously mentioned sites. Participants will be recruited and recommended by project leaders at each of the three sites.
- d) Participants will receive no compensation, but a copy of the final research/report will be sent to each location.

### 3. ESTIMATE OF THE RISKS OF THE PROPOSED RESEARCH:

- a) Is there any physical risk? Yes  No
- b) Is there any psychological risk? (Might a participant feel demeaned, embarrassed, worried or upset? Could participants be fatigued or stressed?) Yes  No
- c) Is there any social risk? (Possible loss of status, privacy and/or reputation?) Yes  No
- d) Do you see any chance that participants might be harmed in any way? Yes  No
- e) Is any deception involved? Yes  No
- f) Are the risks different to those encountered by the participants in everyday life? Yes  No

If the answer is **YES** to any of the questions under section 3, please explain why alternative approaches involving less risk cannot be used. Procedures for reversing reversible harm should be stated.

4. **ESTIMATE OF THE BENEFITS OF THE PROPOSED RESEARCH:**

What are the likely benefits to the student researcher, the participants, the scientific community, and/or society that would justify asking participants to participate? Types of answers that might be appropriate:

Student researcher: increase understanding of research methods and cognition;

Participants: no direct benefit, although I will be available to answer questions about memory;

Scientific community: the study may provide insights into how memory changes with age; none, because I will be replicating a well-known phenomenon;

Society: better understanding of memory may lead to effective memory training programmes; none, because I will be replicating a well-known phenomenon.

Student researcher: increase understanding of research methods and cognition. Interviews will gather relevant information that will be used to gain a more holistic understanding of the topic being examined

Participants: no immediate benefit, but each location will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods

Scientific community: will enhance current thought on marine turtle conservation methods as well as leading to the better understanding of the strengths and weaknesses between these different methods

**5. PLAN FOR OBTAINING INFORMED CONSENT:**

- a) Attach a description of the verbal explanation to be given to participants before they are asked to consent to participation. Attach any consent form (see instructions). If there will not be a consent form, explain why not.

Participants will be asked to sign a consent form prior to the interviews.

- b) Are participants minors or for other reasons not competent to consent? If so describe the alternate source of consent. Yes  No

- c) Do participants have the right to withdraw at any time during the research project? If no, explain below. Yes  No   
How and when are participants to be informed of this right?

Participants will be informed of this right at the onset of the interview. The right to withdraw was addressed in the survey and will be addressed again at the onset of the interview.

- d) What procedures will be followed for participants who wish to withdraw at any point during the study? e.g. the procedure will be stopped immediately; participants will be thanked and debriefed; any questions or concerns will be addressed; participants will/will not receive the same compensation as if they had completed the procedure; data collected up to that point will/will not be destroyed.

If participants choose to withdraw they will not be required to complete the interview. They will be thanked and questions or concerns will be addressed. Any data will be dealt with according to the participants wishes. If participants allow it data collected up until that point will be used in the research, if participants wish for data to be destroyed researcher will do so.



**6. STEPS TO BE TAKEN TO ENSURE CONFIDENTIALITY OF DATA:**

a) Will the data be treated as confidential?

Yes

No

If yes, explain the steps that will be taken to ensure confidentiality of the data (e.g. participants' names will not be recorded; participants will be referred to by initials or other code). If no, explain why and how participants' agreement will be obtained.

b) If the data are not anonymous, where will the data be stored, and who will supervise access to the data?

The data will be stored in a locked faculty member's office - in a filing cabinet following the completion of the analysis. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

**7. PARTICIPANT DEBRIEFING:**

a) Will participants be debriefed fully at the end of the research project? If yes, explain how this will be done. If no, explain why not.

Yes

No

b) If the participants are interested in the results of the study, will these be available? If yes, explain how.

Yes

No

Following the interview participant questions will be answered. Participants will be informed of their role in the study and informed that a copy of the final report will be available at each location.

**In addition to the completion of this application, what steps will be taken to make the Undergraduate Investigator more sensitive to ethical issues relevant to the proposed research?**

The Undergraduate Investigator will be required to complete the Research Ethics Tutorial located on the Office of Research Studies web page, designed to teach students etc about human ethics at McMaster University. Upon completion concepts will be discussed with thesis supervisor prior to research being conducted.

**In submitting this form, I certify that the information provided accurately describes how the research will be conducted.**

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[http://iserv.mcmaster.ca/ethics/mreb/public/srec\\_approved.cfm](http://iserv.mcmaster.ca/ethics/mreb/public/srec_approved.cfm)

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- d) The ethics board will honour your request if you answer **Yes** to the above question 25 c) but we ask you to provide a reason for making this request for the information of the Board. You may also use this box for any other special requests.

**SIGNATURES:**

\_\_\_\_\_ **Faculty Supervisor**

\_\_\_\_\_ **Student Investigator**

January, 2007

## Letter of Consent

### A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica

**Faculty Investigator:** Susan Vajoczki  
School of Geography & Earth Sciences  
McMaster University  
Hamilton, Ontario, Canada  
**905-525-9140 ext. 23520**  
**vajoczki@mcmaster.ca**

**Student Investigator:** Katherine Card  
School of Geography & Earth Sciences  
McMaster University  
Hamilton, Ontario, Canada  
**905-525-9140 ext. 23336**  
**cardkf@mcmaster.ca**

#### **Purpose of the Study**

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica

#### **Procedures involved in the Research**

You will be asked to complete an in person oral interview. You will be asked questions about the conservation organization located within your community.

#### **Will anything bad happen during the study?**

There are no harms or discomforts associated with this study. It is not necessary to answer questions that make you uncomfortable or that you do not want to answer.

#### **Potential Benefits**

You will have no immediate benefit, but the organization will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods.

This research will benefit the scientific community by enhancing current thought on marine turtle conservation methods as well as lending to the better understanding of the strengths and weaknesses between these different methods.

**Confidentiality:**

Your name will not be published in the final report.

After analysis is completed the data obtained will be stored in a locked faculty member's. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

**Participation:**

Your participation in this study is voluntary. If you decide to participate, you can decide to stop at any time, even after signing the consent form or part-way through the study. If you decide to stop participating, there will be no consequences to you. If you do not want to answer some of the questions you do not have to, but you may still participate in the study. If you chose to withdraw from the study, at any time, the data will be dealt with according to your wishes. If you wish for the data to be used it will, if you wish for the data to be destroyed the researcher will do so.

**Information About the Study Results:**

Once completed you will receive a copy of the Undergraduate thesis as your debriefing, thus, you will have access to all results of the study.

**Information about Participating as a Study Subject:**

If you have questions or require more information about the study itself, please contact Katherine Card or Susan Vajoczki, contact information above.

This study has been reviewed and approved by the McMaster Research Ethics Board. If you have concerns or questions about your rights as a participant or about the way the study is conducted, you may contact:

McMaster Research Ethics Board Secretariat  
Telephone: (905) 525-9140 ext. 23142  
c/o Office of Research Services  
E-mail: [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca)

---

**CONSENT**

I have read the information presented in the information letter about a study being conducted by Katherine Card and Susan Vajoczki of McMaster University. I have had the opportunity to ask questions about my involvement in this study, and to receive any additional details I wanted to know about the study. I understand that I may withdraw from the study at any time, if I choose to do so, and I agree to participate in this study. I have been given a copy of this form.

---

Name of Participant

January, 2007

## Letter of Consent

### A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica

**Faculty Investigator:** Susan Vajoczki  
School of Geography & Earth Sciences  
McMaster University  
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**905-525-9140 ext. 23520**  
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**Student Investigator:** Katherine Card  
School of Geography & Earth Sciences  
McMaster University  
Hamilton, Ontario, Canada  
**905-525-9140 ext. 23336**  
**cardkf@mcmaster.ca**

#### Purpose of the Study

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica

#### Procedures involved in the Research

You will be asked to complete an in person oral interview. You will be asked questions about the conservation organization for which you work and questions designed around the survey you completed in November 2006.

#### Will anything bad happen during the study?

There are no harms or discomforts associated with this study. It is not necessary to answer questions that make you uncomfortable or that you do not want to answer.

#### Potential Benefits

You will have no immediate benefit, but will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods.

This research will benefit the scientific community by enhancing current thought on marine turtle conservation methods as well as lending to the better understanding of the strengths and weaknesses between these different methods.

**Confidentiality:**

Your name will not be published but the information about your position will make you identifiable in the final report.

After analysis is completed the data obtained will be stored in a locked faculty member's. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

**Participation:**

Your participation in this study is voluntary. If you decide to participate, you can decide to stop at any time, even after signing the consent form or part-way through the study. If you decide to stop participating, there will be no consequences to you. If you do not want to answer some of the questions you do not have to, but you may still participate in the study. If you chose to withdraw from the study, at any time, the data will be dealt with according to your wishes. If you wish for the data to be used it will, if you wish for the data to be destroyed the researcher will do so.

**Information About the Study Results:**

Once completed you will receive a copy of the Undergraduate thesis as your debriefing, thus, you will have access to all results of the study.

**Information about Participating as a Study Subject:**

If you have questions or require more information about the study itself, please contact Katherine Card or Susan Vajoczki, contact information above.

This study has been reviewed and approved by the McMaster Research Ethics Board. If you have concerns or questions about your rights as a participant or about the way the study is conducted, you may contact:

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Telephone: (905) 525-9140 ext. 23142  
c/o Office of Research Services  
E-mail: [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca)

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**CONSENT**

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---

Name of Participant

January, 2007

## Letter of Consent

### A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica

**Faculty Investigator:** Susan Vajoczki  
School of Geography & Earth Sciences  
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**Student Investigator:** Katherine Card  
School of Geography & Earth Sciences  
McMaster University  
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#### Purpose of the Study

The aim of this research is to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica. Currently all species of marine turtle are endangered, and three are considered critically endangered. Conservation techniques such as those employed in Costa Rica aim to turn this trend around. This research will combine a thorough review of the existing literature as well as surveys to compare and contrast the differences and similarities between three sites along the Caribbean and Pacific coasts of Costa Rica

#### Procedures involved in the Research

You will be asked to complete an in person oral interview. You will be asked questions about the conservation organization for which you work.

#### Will anything bad happen during the study?

There are no harms or discomforts associated with this study. It is not necessary to answer questions that make you uncomfortable or that you do not want to answer.

#### Potential Benefits

You will have no immediate benefit, but will receive a copy of the completed thesis which can be used to better understand strengths and weaknesses of certain marine turtle conservation methods.

This research will benefit the scientific community by enhancing current thought on marine turtle conservation methods as well as lending to the better understanding of the strengths and weaknesses between these different methods.

**Confidentiality:**

Your name will not be published but the information about your position will make you identifiable in the final report.

After analysis is completed the data obtained will be stored in a locked faculty member's. During the period of analysis the surveys will be kept in a locked drawer within the undergraduate students' desk.

**Participation:**

Your participation in this study is voluntary. If you decide to participate, you can decide to stop at any time, even after signing the consent form or part-way through the study. If you decide to stop participating, there will be no consequences to you. If you do not want to answer some of the questions you do not have to, but you may still participate in the study. If you chose to withdraw from the study, at any time, the data will be dealt with according to your wishes. If you wish for the data to be used it will, if you wish for the data to be destroyed the researcher will do so.

**Information About the Study Results:**

Once completed you will receive a copy of the Undergraduate thesis as your debriefing, thus, you will have access to all results of the study.

**Information about Participating as a Study Subject:**

If you have questions or require more information about the study itself, please contact Katherine Card or Susan Vajoczki, contact information above.

This study has been reviewed and approved by the McMaster Research Ethics Board. If you have concerns or questions about your rights as a participant or about the way the study is conducted, you may contact:

McMaster Research Ethics Board Secretariat  
Telephone: (905) 525-9140 ext. 23142  
c/o Office of Research Services  
E-mail: [ethicsoffice@mcmaster.ca](mailto:ethicsoffice@mcmaster.ca)

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**CONSENT**

I have read the information presented in the information letter about a study being conducted by Katherine Card and Susan Vajoczki of McMaster University. I have had the opportunity to ask questions about my involvement in this study, and to receive any additional details I wanted to know about the study. I understand that I may withdraw from the study at any time, if I choose to do so, and I agree to participate in this study. I have been given a copy of this form.

---

Name of Participant



**A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica**

**Community Members**

- what role do marine turtles play in your household/community (are they important to you, why or why not)?
- in what way are you affected by the organization in your community?
- have you seen any changes in your community as a result of the organization (e.g. tourism, employment, lifestyle, etc.)?
- have you ever had a direct experience with the organization?
  - if so describe this experience, was it positive or negative?
- describe the role of this organization in your community, if there is one
- please comment on factors contributing to marine turtles in your area.
  - which factors would you consider the most important?
- can you discuss what the organization does in order to protect marine turtles in the area?
- in your opinion do you think the organization is doing a good job at protecting marine turtles?
- what are your general feelings toward the organization?

**A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica**

Three organizations are being surveyed. The first organization (COTERC) completed a detailed written survey and the questions in the interview for this organization are informed by the earlier responses. The other two organizations (CCC, Ostional) did not respond and therefore are being asked a different set of interview questions (some of these questions are taken directly from the written survey).

**COTERC**

-In general would you consider turtle conservation one of your main priorities?

- If so has this always been the case?
- If not why has it become or not become a main priority?

-In the completed written survey you commented on methods used to promote turtle conservation. The main direct method used was beach patrolling, can you comment on some of the indirect methods used such as community education.

-In the completed written survey you mentioned that the station used to have tourist but now that has decreased due to Global Vision International (GVI) using the station. Do you foresee any changes in the future in terms of increasing or decreasing tourism?

- Will these changes be natural, based on outside factors or prompted by the station based on a direct initiative?
- Why would these changes occur?

-Describe in detail your relationship with the CCC (past, present, future)

-In the completed written survey you suggested that volunteer tourism does not factor into the station but you do mention the use of volunteers?

- with limited funds how does your organization recruit volunteers?
- describe the typical day of a volunteer at the station

-In the survey you commented that locals do not play a part in your conservation efforts, can you comment on this statement and any ways in which your organization is affected by or affects the local communities (e.g. jobs in the local community, poaching etc)

-You have regular meetings with the local community, what topics are discussed meetings such as these?

- On average how many people attend these meetings and what is the general demographic of these people?

-Comment on your relationship with GVI and how this relationship has changed since the station opened.

- Describe strengths and weaknesses of this relationship in terms of marine turtle conservation.

-From the survey it is obvious that your org. focuses on relationships and networking with other organizations including but not limited to the CCC and GVI. Comment on strengths and weaknesses behind this practice.

-In the survey you stated that locals do not currently play a direct role in your conservation initiatives but that you are currently developing strategies for community conservation initiatives. Can you comment on this statement?

-what types of initiatives are you interested in developing?

-what is your reasoning behind developing community conservation initiatives?

-your org is involved in beach patrols and tagging turtles. Do you consider these successful methods of conservation?

-what other methods do you feel would benefit turtle conservation on the North beach?

**CCC, Ostional**

-Describe what you do in a typical day?

-How long have you been with the organization? Full time or part time?

-How long have you been with the organization at this site? Full time or part time?

-What are the goals of your organization?

-How is your organization funded?

	<b>Number of</b>	<b>Duration of Employment</b>	<b>Locals (Ticos and non-Ticos), or Tourists</b>	<b>Number of Hours/day</b>	<b>Typical Responsibilities</b>
<b>Volunteers</b>					
<b>Employees (Paid, part time)</b>					
<b>Employees (Paid, full-time)</b>					
<b>Stewards</b>					

-Describe the relationship your organization has with this Costa Rican government in terms of funding, parks requirements, administration etc.

-What species nest at this site and when does nesting occur?

-How have nesting numbers changed since your organization began work at this site?

-Does tourism play a part in turtle conservation at your site?

-Briefly describe your organization's approach to conservation and the methods that you use to achieve success.

-List some of your organizations strengths, weaknesses and aspects you feel are most unique about your organization.

-Do volunteers play a role in your conservation efforts? If yes, describe including their impact on your organizations ability to meet its stated mission.

-Do locals play a role in your conservation efforts? If yes, describe the impact of locals on your organization, including their impact on your organizations ability to meet its stated mission.

**A Comparison of Marine Turtle Conservation on the Caribbean and Pacific Coasts, Costa Rica**

**Staff/Volunteers**

**COTERC, CCC, Ostional**

- how did you find the position that you are in right now?
- describe a typical day for you, outlining your specific responsibilities and duties.
- of these responsibilities and duties which do you feel directly relate to marine turtle conservation and which indirectly relate? How?
- in the time you have been at this site what is your impression of the success of the marine turtle project?
- what are your general feelings toward the project?
- what are your motivations for working with turtle conservation?
- what are the most gratifying and least gratifying aspects of this experience?
- please comment on factors contributing to marine turtle decline.
  - which factors would you consider the most important?
  - are there site specific factors?
- can you identify direct and indirect conservation initiatives that your organization employs? (may need to provide an example to participant if they are unsure of the terminology direct & indirect)
  - of these initiatives (direct and indirect) which do you think is the most beneficial, in terms of turtle success, and which is the least beneficial?