

Manatee (*Trichechus manatus manatus*)
Watching at Swallow Caye, Belize

Esther Naomi Sánchez Chuc

Honduras
December, 2002

ZAMORANO
SOCIOECONOMIC DEVELOPMENT AND ENVIRONMENT CAREER

**Manatee (*Trichechus manatus manatus*)
Watching at Swallow Caye, Belize**

Graduation project presented as a partial requisite to achieve the title of
Engineer in Socioeconomic Development and
Environment Career at the Academic
Level of Licentiate

presented by

Esther Naomi Sánchez Chuc

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DEDICATION

To my country, Belize and her people.

To the Sanchez Family.

To all those persons who make that extra effort to protect what is ours and what God put on this earth.

ACKNOWLEDGEMENTS

The Lord for giving me the strength and faith to continue on this journey called life and for giving me my dear family I love so much.

My mother, Edna Marina, for supporting me and encouraging me and for showing me that everything is possible.

My four beautiful nieces: Lorissa, Naomi, Maya and Alvani for giving me happiness in my life. I am proud of you all.

My father Melchor, brothers Ceasar, Abo and Payo and sister Ina Iris, my sister in laws, Mily, Nessie and Miriam. Thank you for always being there.

My auntie Iss for making me a believer and for being by my side, ALWAYS!

Dr. George Pilz and Lic. Martha Calix for the help and understanding offered to me during the realization of this project.

All my friends at Zamorano and in Belize for their consideration and friendship during the bad and good times: Nidia, Linda, Magaly, Alicia, Roberto, Jorge, Guillermo, Luciano, Enrique, Gaby, Oscar, Gladys, Roxy, Miriam G., Daniel, Castillo Family and all my colleagues of the Socioeconomic Development and Environment Career- Class of 2002.

ACKNOWLEDGEMENTS OF SPONSORS

Many thanks to the Coastal Zone Management Authority and Institute and their wonderful staff for giving the opportunity to learn about all the marine treasures our country possesses and for all the help and support during my project.

Mrs. Janet Gibson for all her support and help with the preparation of this document.

Angeline Valentine, Manatee Researcher for all the information shared, her friendship and for giving me the opportunity to learn.

Mr. Melchor Sánchez and Ceasar Sánchez for the support given.

Ministry of Education, Government of Belize.

Socioeconomic Development and Environment Career.

Fisheries Department, Belize.

Caye Caulker Forest and Marine Reserve especially Francis Staine, George Majil and Mr. Mike Sabal.

Chocolate Heredia and Annie Seashore

Amanda French.

Conservation Division- Forestry Department.

Mr. Carlos Santos.

Tour guides of Caye Caulker Village, especially Harry.

Caryn Sullivan.

SUMMARY

Sánchez Chuc, Esther Naomi. 2002. Manatee (*Trichechus manatus manatus*) Watching at Swallow Caye, Belize. Special Project of the Engineer program in Socioeconomic Development and Environment, Zamorano. 43p.

Belize is the Caribbean country that harbors the highest population of the Antillean Manatee (*Trichechus manatus manatus*). This docile and harmless mammal is an endangered species and is listed in the Appendix 1 of CITES. In Belize, manatees are also protected by the Wildlife Protection Act of 1981. However, there is great concern since the population of this species is decreasing, and one of the main reasons is human activities. This includes the increased high-speed boat traffic that causes injuries or even death from collisions, the loss of suitable habitat, which is a result of the tourism development projects, pollution and harassments among others. The observation of manatees in their natural habitat in this country is a tour activity that is rapidly growing. Presently, tours are being offered in destinations such as Caye Caulker, San Pedro, and Gales Point among others. Among the many areas that are habituated by these creatures, Swallow Caye is the most important site used for tourism, and it is also a key nursing and feeding site, therefore containing a very healthy population. This mangrove island is visited by an estimated 20-75 tourists per day. This study defines a profile of the tourists and tour guides who depart from the island of Caye Caulker to realize manatee tours. Additionally it gives a brief description of the tour, the behavior and conduct of both tour guides and tourists and the main reasons why visitors of this island choose manatee watching in Belize.

Key Terms: tour guides, tours, tourists, tourism, observation

PRESS RELEASE

MANATEE WATCHING IN BELIZE: GOOD OR BAD?

For some years now, tour guides who operate in Caye Caulker have been offering manatee tours to visitors and local people in Belize. Manatee watching is the commercial observation of the manatees in their natural habitat. Manatees around the world are endangered, and Belize is no exception.

In Belize, one of the preferred sites by these guides is Swallow Caye, a mangrove island of about 900 acres and just a few miles east of the Belize City. Additionally, this is a very important nursing and breeding area for these docile creatures, reason for its healthy population. In light of this, it was important to gather information on this activity.

As part of the internship program with the Belize Coastal Zone Management Authority and Institute's (CZMA&I) Manatee Research Program, a fourth year Belizean student from Panamerican Agricultural School, Zamorano realized an investigation as an effort to discover information on manatee-watching tourism.

During the months of January through April questionnaires were carried out at Caye Caulker Village, and these were geared towards tourists and tour guides who were actively involved in this activity. The behavior of these individuals was also observed. The purpose of this was to find out the main reasons why they chose to carry out these tours, define the main reasons why tourists include manatee watching as an activity when they visit Belize, and to define the profile of tour guides and tourists.

Manatee observation in Belize is a growing activity and has a prosperous future, which reflects an economic benefit for the country of Belize. Tourists who realized this tour were satisfied and were willing to repeat this tour if the opportunity came about. Overall, tour guides who operate in Caye Caulker do follow the regulations that are proposed by CZMA&I, however, it was of concern that no educational material was handed out during the tour.

There is a need to get Swallow Caye declared a Manatee Wildlife Sanctuary since this will bring about a sustainable management of the area. If this is done, effective regulations and monitoring can be implemented. The use of the area by tour guides and boaters can also be regulated.

A management plan, which should be drafted, should definitely include a strong educational program. This, along with other activities, will result in a balanced tourism, conservation and education, which will benefit not only the manatees but also the people of Belize. Furthermore, it is essential to carry out this kind of study in

other turistic destinations that offer manatee tours and that use Swallow Caye as their observation site so as to have a holistic knowledge of this activity in Belize.

This study was possible thanks to the support of various institutions and persons such as: Coastal Zone Management Authority and Institute, Fisheries Department, Caye Caulker Forest and Marine Reserves, Conservation Division-Forestry Department, Panamerican Agriculture School and Mr. Carlos Santos.

Lic. Sobeyda Álvarez

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1. INTRODUCTION

Once upon a time, a young maiden was bathing by the banks of a river. Startled by the sight of the approaching men, she jumped in, covering her bottom with a fan. Shyness then doomed her to a life in the water: the maiden became a manatee, her fan metamorphosing into its distinctive spatulate tail. So runs the legend from Mali in West Africa, echoing curiously the origins of the manatees who left the land for a life in sea and river (O' Shea, 1994).

1.1 PROBLEM STATEMENT

Belize, previously known as British Honduras, lies on the east coast of Central America in the heart of the Caribbean Basin. It is bordered on the north by Mexico, on the west and south by Guatemala and the east by the Caribbean Sea. Among the major industries are: tourism, sugar, bananas, fish products, garment production, food processing, timber and construction. Tourism represented 1.3 Billion dollars of revenue for this country for the year 2000 (Belize Tourist Board, 2001).

In Belize, the tourism industry has grown tremendously over the past few years. According to the Belize Tourist Board (2001), visitors for the year 2000 were 195,596. This represents an increase of 8.2% over 1999. Tourists visiting for recreational purposes accounted for 186, 719 or 95.5% of the total tourists arrivals, this, primarily due to the diversity of attractions that this English- speaking country possess.

Among the many attractions, viewing manatees (*Trichechus manatus manatus*) in their unique and natural habitat is a favorite tour for many visitors and local residents of this country. Popular sites include Gales Point, Bird Caye, Mangrove Island, Drowned Caye, Swallow Caye, among others. However, there is great concern since the population of this species is decreasing as a result of human activities. This includes the increased high-speed boat traffic that causes injuries or even death from collisions, the loss of suitable habitat, which is a result of the tourism development projects, pollution and harassments among others.

On the other hand, if effectively done, tourism can actually become a key factor in the protection of the manatees from extinction since it provides economic support and it can also creates consciousness among the visitors as a result of the equilibrium between attraction, education, public awareness and conservation.

1.2 ANTECEDENTS

The Manatee Project of the Coastal Zone Management Authority and Institute (CZMA&I) began in August 1996. The project began with research of the West

Indian manatee in Belize and included interviews at coastal communities, boat and aerial surveys, and preliminary examination of manatees and recording of stranding. Public education was also a big part of the project. This was done in schools and in the communities where the interviews were carried out (CZMA&I, 2000b).

According to the Belize Coastal Zone Authority and Institute, Belize harbors the highest density of Antillean manatees in the Caribbean, with an approximate population of less than 900 manatees throughout the country. The West Indian Manatee (*Trichechus manatus manatus*) is a large gray, or gray-brown marine mammal (CZMA&I, 2000a). It has two flippers on both sides of its body and a round paddle-like tail. These docile and friendly animals average nine feet in length and can weigh up to 1400 kgs. They consume seaweed and other submerged vegetation and are normally found in shallow areas of fresh or salt waters. They are completely harmless, one of the reasons for which manatee watching is so popular.

Manatees are found in many areas in Belize, but Swallow Caye, a mangrove island which is part of a group of mangrove cayes in the area called Drowned Cayes near Belize City has a good number of animals. Estimates show that between 15 to 20 manatees are in the area at any one time - possibly even more if you include the other areas around Swallow Caye (Seashore, 2001). That number changes because of movement of the manatees to and from other areas. They come and go from the rivers of Belize, which makes it difficult to keep an accurate count in the area around Swallow Caye. This island especially, has a good population of them because it is a critical feeding and breeding site (Hayden, 2000). This area is in the process of being established as a Wildlife (Manatee) Sanctuary.

In Belize, the manatees are protected under the Wildlife Protection Act, No.4 of 1981(CZMA&I, 2000a). However, presently there are no regulations that control the visitation of these sites by tourists. In June 2000, the Belize Tourist Board and the Coastal Zone Management Institute conducted a Specialized Manatee Tour Guide Training for tour guides in an effort to create awareness and to better prepare these individuals regarding the status, conditions necessary for the manatee population to survive and flourish, and to present the country in the most accurate and educated fashion.

1.3 JUSTIFICATION OF THE STUDY

According to the Belize Tourist Board, Belize's vision is to develop the tourism sector as a national priority, with a primary focus on responsible tourism, aimed at marine activities, natural history, and adventure markets. Development and promotion of the industry will be carried out to encourage a strong "eco-ethic" to ensure environmental and socio-cultural sustainability, to promote equitable distribution of economic benefits, and to develop a strong, positive image for Belize (Belize Tourist Board, 2002). To achieve this vision, studies must be carried out to evaluate the effects and impacts that are caused by tourism. Estimates show that somewhere between 20-75 people visit each day even though this changes at times (Seashore, 2001). More and more tour boats are going into the area and, possibly, will increase with tourists visiting from the cruise ships. This is another reason why it is crucial that this study be done so that monitoring and control can be implemented if necessary.

This study will render valuable information that can help with the formulation of effective laws and regulations of manatee watching which observers and tour guides will have to abide to. If this is effectively done, it can help maintain or even reduce the mortality rate of the manatees since it will be easier to control the key factors such as speed limits, number of boats in the area etc. that contribute to this.

The West Indian manatee is an endangered species and is listed in appendix 1 of the Convention on International Trade in Endangered Species (CITES) of which Belize is a part. The situation of the manatee in the world calls for more research so that we can better understand their behavior, characteristics, the influence that man can cause and general needs of the manatees. This study can contribute important information to the Belize Coastal Zone Management Authority and Institute, Friends of Swallow Caye, Belize Tourist Board and Forestry Department- Conservation Division that can be used for the management of this specie and of the proposed sanctuary.

1.4 OBJECTIVES

1.4.1 General objectives

Conduct a study of Manatee (*Trichechus manatus manatus*) watching at Swallow Caye, Belize.

1.4.2 Specific objectives

- Define the main reasons why tourists include manatee watching as an activity when they visit Belize.
- Define the profile of tour guides.
- Define the profile of tourist.
- Analyze the conduct and behavior of the tour guides and tourists during the activity.

2. LITERATURE REVIEW

In ancient mythology, "siren" was a term used for sea nymphs who lured sailors and their ships to treacherous rocks and shipwreck with their mesmerizing songs. Throughout history, sailors often thought they were seeing mermaids when they were probably seeing manatees or dugongs. With a little imagination, manatees can have an uncanny resemblance to human form that could only increase after long months at sea. In fact, manatees and dugongs may have helped to perpetuate the myth of mermaids (Save the Manatee Club, 2001).

Manatees in Belize are known by a number of local names such as sea cow, mermaid and the Belizean Whale (Auil, 1998). In the Garifuna language, manatee is manadi; in Spanish, manatí; and the popular Creole manantee or malantee.

The order Sirenia includes all manatees and dugongs as well as the Steller's Sea Cow, which is now extinct. The modern Sirenia family has been little studied because of their present rarity and the difficulty of observing fully aquatic animals even though so large (Bertram and Bertram, 1973). Members of the Sirenia family are the only large aquatic herbivores. Apart from the Sirenia, the Cetacea is the other order of aquatically adapted mammals. The family Trichechidae consists of the genus *Trichechus* that includes the West African, West Indian and Amazonian Manatees (see Table 1). Garcia Rodriguez et al. (1998; cited by Save the Manatee Club, 2001) states that recent genetic studies using mitochondrial DNA suggests that Florida manatees are descended from the Antillean manatees that crossed the Florida Straits from Cuba or the other Greater Antilles.

Table 1. Classification of the Sirenias of the World.

Kingdom: Animalia				
Phylum: Chordata				
Class: Mammalia				
Order: Sirenia				
Family: Trichechidae			Family: Dugongidae	
Genus: <i>Trichechus</i>			Genus: <i>Dugong</i>	Genus: <i>Hydroglamis</i>
Specie: <i>T. manatus</i>	Specie: <i>T. enagalensis</i>	Specie: <i>T. inungis</i>	Specie : <i>Dugong dugong</i>	Specie: <i>Hydroglamis gigas</i>
Sub-specie: <i>T.manatus latirostis</i>				
Sub-specie: <i>T.manatus manatus</i>				

According to SeaWorld/Busch Gardens Animal Information Database (2001a), studies carried out using biochemical analysis of proteins proved that the closest modern relatives of sirenians are elephants, aardvarks, and small mammals known as hyraxes.

2.1 DESCRIPTION OF MANATEE

Manatees are slow moving mammals that belong to the class Mammalia which means that they breathe air, look after their young, have a backbone and have body hair at some stage of their development. Manatees and dugongs are aquatic mammals. They have a body shape similar to that of the whales and seals, even though they are not closely related (Save the Manatee Club, 2001).

At birth, manatees are about one meter (approximately 3-4 ft) long and weigh between 27 to 31 kilograms (60-70lbs). The average adult manatee is about three meters (9.8 ft) long and weighs between 362 and 544 kilograms (800-1200 pounds). In the past, adult animals have been known to exceed four meters (13 feet) in length and weigh over 1587 kilograms (3,500 pounds); however, this is quite above average.

2.2 ANATOMY AND PHYSIOLOGY

Even though manatees tend to be very large in size, they have little body fat. Since they are herbivores their metabolic rates are lower than carnivores. For this reason, they cannot withstand low temperatures.

According to O'Shea (1994), manatees have evolved various features which are helpful for their aquatic lifestyles. These animals' lungs are modified in such a way that they play an important role in buoyancy control apart from its breathing function. Studies have shown that manatees can renew about 90% of the air in their lungs in a single breath as compared to humans who renew about 10% (Pabst, Rommel and McLellan in Reynolds and Rommel 1999; cited by Save the Manatee Club, 2001). Surprisingly, manatees have fairly good visual acuity and can distinguish between different-sized objects, colors and patterns (Save the Manatee Club, 2001).

The communication between manatees is very interesting. These sounds are characterized as chirps, whistles or squeaks. As with other animals, these communication sounds are not used for traveling purposes. They emit sounds underwater that are used in communicating with one another. Vocalizations may express "fear", "anger", or sexual arousal and is also an important part of the mother-calf bonding process (SeaWorld/Busch Gardens Animal Information Database, 2001b). Additionally, they are also used to maintain contact, especially when manatees are feeding or traveling in turbid waters.

2.3 BEHAVIOR

Manatees are grazers that spend most of their time feeding, surface or bottom resting, and traveling (Auil, 1998). They spend an average of six to eight hours a day feeding, resting and traveling the remaining time. When active, they surface for air more

frequently than when resting. Manatees are also playful creatures even though they are considered semi-social, whereby the basic social unit is a female and her calf. Manatees in groups congregate during their mating season or when they are seeking warmer water due to the changes in temperature.

2.4 BREEDING AND REPRODUCTION

As mentioned earlier, individuals of this species are largely solitary; mating herds form when a female is in estrus. These groups are made up of bulls pursuing the sexually receptive female (Edwards, 1999). These courting bulls establish a dominance hierarchy for mating rights while the female attempts to avoid these males during most of her estrus cycle. Breeding or birth can take place any time during the year. In spite of this fact, calving seems to occur during the warmer months.

Manatees are known for their slow reproductive rate, where both male and female reach reproductive age at three to four years, but may not breed successfully until five to eight years of age (Geraco and Lounsbury 1993; cited by Auil, 1998). On average, one calf is born every two to five years and twins are rare. Intervals between births range from two to five years. The gestation period is about a year. Mothers nurse their young for one to two years, so a calf remains dependent on its mother during that time. Calves nurse underwater from teats located behind mother's flippers and begin to eat plants a few weeks after birth (Save the Manatee Club, 2001).

2.5 FEEDING

According to Manatee Research Center Online (1993), the manatees feeds on a wide variety of submerged, emergent, floating, and shoreline vegetation. In saltwater manatees feed primarily on several species of sea grasses, including turtle grass (*Thalassai testudinum*), manatee grass (*Syrinodium filiforme*), shoal grass (*Halodule wrightii*), cord grass (*Spartina bakerii*), marsh grass (*Spartina alterniflora*) and black needlerush (*Juncus roemerianus*). They have also been documented eating algae, mangrove leaves, and red mangrove seedlings. In freshwater they feed on a large variety of plants, including exotic hydrilla (*Hydrilla verticillata*), water hyacinth (*Eichhornia crassipes*), and eel grass (*Vallisneria americana*).

2.6 SIRENIANS OF THE WORLD (Taken from Save the Manatee Club- An Educator's Guides, 2001)

2.6.1 West Indian Manatee

Trichechus manatus manatus

Trichechus manatus latirostris

Florida manatees are found in the southeastern United States, mostly Florida. Antillean manatees are found in the coastal and inland waterways of eastern Mexico, Central America, the Greater Antilles, and along the northern and eastern coasts of

South America. Both Florida and Antillean manatees can be found in salt, fresh or brackish waters and feed on marine, estuarine and freshwater vegetation.

2.6.2 Amazonian Manatee

Trichechus inunguis

Amazonian manatees are found in the waters of the Amazon River and its tributaries in South America. The smallest member of the Family Trichechidae, the Amazonian manatee has smooth skin and no nails on its flippers and feeds on freshwater vegetation.

2.6.3 West African Manatee

Trichechus senegalensis

The West African manatee is very similar in size and appearance to the West Indian Manatee and lives in a similar habitat. West African manatees are found in West African coastal areas, but little is known about this species because they have not been widely studied.

2.6.4 Dugong

Dugong dugon

Dugong are found in the Indo-Pacific region of the world. They have smooth skin and a notched tail fluke. They feed on seagrass and are hunted for food by humans. Dugongs have tusks, but characteristically erupt through the gums only in males and normally remain unerupted in female dugongs.

2.6.5 Steller's Sea Cow

Hydrodamalis gigas

At one time, the Steller's Sea Cow was found in the cold waters of the Bering Sea, but was hunted to extinction within 27 years of its discovery in 1741. The largest sirenian on record, the Steller's sea cow, grew up to nine meters (30 feet) in length and weighed around four metric tons (approximately 4.4 tons).

2.7 LEGISLATION

Today, manatees are protected in Belize; however, this was not so many years ago. According to Auil (1998), by the 1930s, the manatee number in Belize had declined so drastically that Manatee Protection Ordinance was issued to safeguard them. Further protection was not granted until 1981 with the Wildlife Protection Act. For the preservation of an endangered species it is not only essential the protection of the specie, but also the protection of the habitat it lives in. Considering that Swallow Caye is an ideal habitat for manatees and that it has a healthy population, efforts are being made to declare this area a Wildlife Sanctuary.

2.8 STATUS OF MANATEES IN BELIZE

As O'Shea (1994) states, manatees need protection, or else they would rapidly become a legend alone. Conformably the studies carried out by the manatee research project of CZMA&I, the abundance of the *Trichechus manatus manatus* indeed show that Belize continues to provide habitation to a vast majority of the Antillean manatee as compared with other countries within its range. As they are thought to travel between neighboring countries, our population may serve as a source population for neighboring countries. In turn, declines in other countries will surely affect the manatee population in Belize. In this light, protection efforts should be an integrated and should include all countries in which manatees are present. Special consideration, even so, should be done in Belize. After all, as O'Shea (1991) asserted, Belize is a last stronghold for manatees in the Caribbean.

2.9 TOURISM IN BELIZE AND MANATEE WATCHING

Tourism in Belize has a very good potential to stimulate economic growth in Belize. It is one of the fastest growing industries that provide jobs for the people of this country as well as revenues. The tourism industry has strong linkages with many other sectors, drawing on inputs from transportation, food production, utilities, energy, construction, real estate, retail sales and many others (Belize Tourist Board, 2002). With the logo 'Mother Nature's best kept secret', this small country is moving ahead.

Manatee watching, a form of tourism, is the commercial observation of this species in its natural habitat. Manatee observation in Belize is increasing and this can be proved with the high number of tour operators that offer this service in the island of Caye Caulker Town and San Pedro Town. Manatees have now become tourist attraction in their own right, as well as accidental victims of the fashion for water-based recreation (Shackly, 1992). In the future, the survival of this mammal will depend on the ability of us humans to correctly manage areas where these animals can exist.

3. METHODOLOGY

The methodology applied to recompile the information for this study included three components which were identified as:

3.1 RECOGNIZE THE PRIMARY ORGANIZATION INVOLVED IN MANATEE PROTECTION AND MANATEE TOURISM

During the initial period of the study, various entities that have actively participated in the conservation of the species studied were discerned from the different governmental and non governmental organizations (NGO's) that exist in Belize. Amongst them, were the Coastal Zone Management Authority and Institute (CZMA&I), Conservation Division- Forestry Department of the Ministry of Natural Resources and the Belize Tourist Board (BTB).

These organizations were visited and an interview applied where the necessary information was collected. In the case of CZMA&I, this was possible with the help of the staff, especially the manatee researcher, Angeline Valentine. Furthermore, the access to their library extended by this institution was of great help. In addition to these, Mr. Lionel 'Chocolate' Heredia was also visited and consulted.

This phase was crucial for orientation purposes especially since there was limited knowledge of the situation with manatees and manatee watching in Belize. Counting on the support of the above mentioned, it was possible to move to the next phase.

3.2 DEFINE THE SITE OF STUDY

Swallow Caye was determined as the manatee watching site for this investigation because it is the locality most visited in Belize. Caye Caulker was chosen as the departure site because of the quantity of tours embarking from this touristic town and the price of the same.

3.3 DATA COLLECTION

Before carrying out the questionnaires and observation, two trips were made to the site. The first was made with one of CZMA&I's boats with the objective to familiarize and observe the tour boats that were present. The second trip was made with one of the tours where basic observation was made on average number of tourists per trip, time of departure, sites visited, lectures

given by tour guides etc. This served as a landmark to make changes where necessary with the survey prepared.

3.3.1 Questionnaires directed to tour guides

A total of 19 tour guides were interrogated, all of who conduct manatee tours and whose trip depart from Caye Caulker. The guides were explained the purpose of the survey which was done in the earlier part of the investigation. This hastened the interaction and collaboration from the guides for future trips. With help of the questionnaire, profile, knowledge and experience were defined.

3.3.2 Questionnaires directed to tourists

Between the dates of March 19th and April 23rd 2002, a total of 86 tourists who assisted in the manatee tour during that period were questioned. The survey was carried out at the end of the day when the tour was over at the dock site. It was decided it was convenient at this point and location since the manatee watching was a part of an all day tour, this being done at the latter part of the day.

3.3.3 Tourist and tour guide observation on site

A couple of tours were done so as to observe the behavior of guides and tourist while observing manatees. On various trips, it was possible to examine a range of different tour guides since there was more than one tour occurring at the same time. This was crucial since it was the opportunity to observe the similarities and differences among each guide.

3.4 TABULATION AND ANALYSIS OF DATA

The data recollected was studied and tabulated using the spreadsheet Excel. Graphs by the form of pie charts were created to demonstrate the survey conducted. Results was analyzed and simplified.

3.5 FEEDBACK

The final document will be presented to organizations such as CZMA&I – Manatee Research Program, Belize Tourist Board, Friends of Swallow Caye, and Conservation Division – Forestry Department. This is the most important stage of the entire investigation since these organizations play an important role in the decision making for the protection of the endangered specie.

4. RESULTS AND DISCUSSION

Manatee tours are offered by various tour operators in the island of Caye Caulker. Among the wide variety of tour shops that offer this attraction are: Chocolate Tours, Star Travel and Tours, EZ Boys, Driftwood Tours, Anwar Tours, Big Fish Little Fish, Hummingbird Connection (SeaSide Cabañas), Senira Tours, Johnny's Tour, Carlos EcoTours, Costa Maya and Caye Caulker Travel and Tours. The majority of these tour shops have small signs on the outer part of their infrastructure, among these, offers of manatee trips. Persons interested in this tour can easily make reservations a day earlier or even a short while before the trip departs. In the case that there are not enough tourists for a trip, operators usually work together and join up to make one trip.

The majority, if not all shops manage the same price of BZ\$55.00 (= US\$27.50). The price includes the tour of an entire day and the complete snorkeling gear necessary. The trips depart Caye Caulker around 9:00 am heading towards Goff's Caye where tourists have the opportunity to snorkel around the coral patches in that vicinity. The next stop is the island of Goff's Caye for a lunch break. Later on, the trip moves on to Swallow Caye where manatees can be observed. After this, the tour moves on to St. George's Caye where tourists can relax for a short while and buy refreshments if they so desire. The above mentioned stop is optional and is done if the tourists request this stop. The site of visit for the day is the Shark and Ray Alley near Caye Caulker Town. Here, the tourists have the perfect occasion to snorkel with the friendly nurse sharks and rays. When this is over, around 5:30 pm, the trip heads back to the initial place of departure.

4.1 OBSERVATION

At the time of departure, the guide responsible for the tour gives a brief introduction of what will be done during the day. At this point, he mentions that manatees will be observed at Swallow Caye and that more information about this will be given at the site.

When at Swallow Caye, the guide gives a brief introduction about manatees in Belize which included the status, biology of the mammal and the importance of Swallow Caye as a breeding and nursing area. It must be noted that at no time was it mentioned that Swallow Caye was in the process of becoming a Wildlife Sanctuary and of the efforts of organizations that work toward the conservation and protection of this species. All guides observed during this study turned off their engines and used their poles to move around. Visual Aid was not used, nor was educational material handed out.

Generally, the rules and regulations were not clearly explained, however, the guides did keep an eye on the tourists. Overall, these tourists were always well behaved. After a while, nevertheless, tourists tended to become reluctant and impatient to see these creatures.

An average number of boats that were present at the same time was three, with about 11 tourists each; and the mean time of stay around this Caye was 1 hour 15 minutes (see Annex 1 for details).

4.2 TOURISTS

The results show that a major percentage of the tourists range between the ages of 20 and 39 years which represented 77% of the total population. A minute fraction of the group were youths less than 20 years and elderly persons of more than 50 years. In addition, the majority were females (61 %) with a university education (approximately 54 percent). The profession of these visitors was diverse, with students being the most popular (roughly 23 %). Other recurrent vocation comprised of administrators, those who work in the field of information technology, accountants, teachers and journalists (see Annex 2 for details).

The nationalities include Americans which topped the group with a little over 40 %. This was followed by British and Canadian with approximately 18 and 11% respectively. The remaining 30% was distributed between German, Australian, Irish, Belizean, South African, Norwegian, Italian, Spanish, Dutch, Guatemalan and Swedish.

From the group of travelers that participated in manatee tours, a grand majority do not travel alone. In this case, it was proven by the almost 80% of the group favored this response. Furthermore, results show that set of tourists is usually accompanied by one other person (57%) and this other person is usually a friend (46%). Generally speaking, the average amount of persons that travel in a group is 2.8 persons ranging from two to six persons per group. The relationship between these companions and the tourists include spouses and children separately. Very few families travel together on such tours.

Hotel was the type of accommodation that predominated above the other options presented. This was manifested by almost 70% that voted for this response. The remaining choices included apartments and guest houses.

It is of interest to mention that a little over 90% of these tourists are observing manatees in their natural habitat for the first time in their lives, whilst all of them are observing manatees for the first time in Belize, and hence, Swallow Caye. The ten percent who watched manatees before did so in Florida.

Of the tourists surveyed, more than half the group prefer group trips. Thirty- six percent fancied individual tours and the remaining 12% had no special preference, therefore inclining toward both. The group that chose group tours did so because of the social environment that this brought about since they have the opportunity to meet new people. Another response that was manifested was that group tours are fun.

Tourist who selected the option of individual tours did so mainly because they feel that this is more personalized due to the attention tendered, the tour can be flexible and informative since they can freely ask any question they so desire. The small percentage that favored both types of tours did not bring to light any particular reason for choosing this alternative.

It is interesting to note that 75% of the manatee watchers are willing to participate on such a tour in the future if the opportunity presents itself. This is a result of the satisfaction with the first tour. The remaining 24% percent are not disposed to repeat this trip. In addition, a whopping 87% showed enthusiasm to support the organizations whose mission is to conserve and protect manatees. It is of concern, however, that in all cases, no educational material such as brochures, pamphlets, posters, etc. was given out or was available for viewing purposes during the tour.

With reference to the tours, over 90% were not part of a tour package, which means that these travelers went out to look for these manatee trips because they chose so. The small group whose manatee tour was part of a package received other services such as hotel and air flight. These people decided to participate in this particular tour as a result of the recommendation made by the tour guide who was present at the moment; this was the response of 50% of the total. Furthermore, a grand portion of the remaining percentage decided to do this tour because of the information they found on internet. In this case, fourteen days and seven days were the period of stay in the country of Belize most common in the group, with a little over 20% and 25% both with a little over respectively. Other commutal responses included: three, four, ten and twenty-one days.

The following table depicts other touristic destinations that are visited by the tourists while in Belize:

Table 2. Destinations in Belize visited by tourists.

Destination	Percentage of Total (%)
Cayo District	33
San Pedro/Hol Chan Marine Reserve	27
Caye Caulker Only	27
Ruins Only	21
Other Cayes	9
Belize City	6
Orange Walk/Corozal District	6
Stann Creek/ Punta Gorda Dist.	3

As mentioned earlier, generally the tourists are very satisfied with the tour they were part of. For the most part, these individuals commented that the opportunity to experience and to be in contact with nature, this rare species and learning about manatees was what they loved most about the trip. Also, they were contented with the tour guide that accompanied them on the tour. A few visitors mentioned that the noisy people, the amount of boats and tourists present at the same time and the bumpy ride

was what they enjoyed least. When asked for recommendations to better the service, they all pointed out the tours are excellent just the way it are.

4.3 TOUR GUIDES

Tour Guides in Caye Caulker that carry out manatee tours are all males. A grand portion of them, roughly 60%, are between the ages of 31 and 40 years. The minimum range encountered is 20 to 25 years and the maximum was more than 50 years of age (see Annex 1 for details).

The majority of these guides work for a tour operator (74%), while the remaining percentage work independently. Furthermore, this same proportion, but not necessarily the same persons, works only as a tour guide, meaning that they depend totally on this job as a source of income. The additional 26% depend on other jobs apart from tours. These included jobs such as fishing, water taxi, conservation and carpentry.

When asked how many manatee tours were done per week, the responses were vast. However, the most common response was four times per week which was the reply of almost 39% of the group. Other shared answers comprised of 3 days and 5 days per week. Considering all the responses made by these guides, an average of 4 trips is done per week. The average total amount of tourists that participate in manatee tour any given day was 9 tourists per trip. Among the collective responses were 10 tourists per trip represented by 26% of the population, 8 and 10 persons represented by 26% each, and 7 and 11 represented by 16% each.

According to the responses received, manatee tours have been an activity done for many years now by these tour guides. This was manifested by the responses made. Guide with as little as one month experience with manatee touring was come across. On the other extreme, a guide with as many as 19 years of experience with this type of tour was encountered. Generally speaking, these guides have quite a number of years offering manatee watching to tourists since the average number of years was 9. Interestingly, even though these guides have been offering manatee tours, only 16% of the total have participated in the manatee tour guide training offered by Coastal Zone Management Authority and Institute.

When questioned about the months that tourism is at its peak in the town of Caye Caulker, they all agreed that this was between December and March. According to 63% of these guides, the lowest tourist visiting months are September, October and November. The remaining 37% were in favor of the months of May and June. With reference to the manatees in the area, approximately 70% agreed that these mammals had no particular months that they were more common. Thirty percent coincided with the summer months as the peak months since this was the mating season for these animals, therefore, they were more social. The majority (90%) approved that there were specific months that there were the least number of manatees in the manatee watching site. They also commented that this would normally depend on the weather and the sea conditions since choppy seas make it difficult for manatees to surface for air, and as a result, manatees tend to stay submerged longer.

Swallow Caye is the main manatee watching site used by guides to observe these creatures in the natural habitat. Over 85% of the guides depend solely on Swallow Caye. Apart from this Caye, a few other locations are used occasionally. These include: Gales Point, Gallow's Point, Long Caye, Hicks Caye, Hen and Chicken Caye and Montego Bay.

Among the attractions that these guides offer to tourist apart from manatee tours are: snorkeling at Local Reef and Hol Chan Marine Reserve tours, fishing, bird watching, sunset cruise and snorkeling with sharks and rays.

For tour guides who conduct manatee tours, this activity is very important to them because of the economic benefit it offers. They depend very much on this activity. Apart from these individuals, the community of Caye Caulker as a whole benefit from this tourism since this brings about the demand for the services of hotels and restaurants, gift shops, grocery stores and the employment of other residents in this town. On the other hand, tourism should not only consider the contributions to the economy and man, but also the survival of the manatees. After all, they play a crucial part in the existence of this specific tour. If the manatees were not present, this would signify that this tour would not be available and therefore the tour guides would not have that source of income. The manatee's life style does not seem to be compatible with the lifestyle of people and it is the manatees that will suffer due to the speedboats, pollution and loss of habitat. It is obvious that for manatee observation to become sustainable, us humans have to make the necessary adjustments and find that balance between conservation, education and economic benefits. A strategic plan whereby the protection of these creatures is a priority is crucial to gain the survival we all so desire of this docile creature.

5. CONCLUSIONS

Manatee tours in Belize have a promising future, but for this to become a reality, this activity must be carefully carried in such a way that the main objective be the protection this specie and at the same time receive economic benefits. The active involvement and participation of tour guides, organizations that investigate manatees and the Government of Belize is necessary to attain sustainability.

Tourists who participated in manatee watching tours are generally young females with a high level of education (university) and usually accompanied by another person.

Tourists chose manatee watching mainly because of the contact with nature and the rare opportunity to see such an interesting animal in their natural habitat.

Generally speaking, tourists know very little about manatees and the situation they are in presently. This is another reason why they chose this tours; so as to learn more. Tourists who depart from Caye Caulker are satisfied with the tours.

Tour guides who operate in Caye Caulker are all males and generally following the rules proposed. They seem flexible and willing to work towards the protection of the manatees.

There is an urgent need to declare Swallow Caye a Wildlife Sanctuary (Note: After this study was conducted, Swallow Caye was officially declared a Wildlife Sanctuary by the Ministry of Natural Resources in Belize).

6. RECOMMENDATIONS

Conduct a similar investigation at other turistic destinations that offer manatee tours such as San Pedro, Ambergris Caye.

Tour Operators should offer special rates to Belizeans to partake in manatee tours so as to promote and create conscience among the local people.

The installation (cabaña) at Goff's Caye should be used as a museum that offers information on the Coastal Zone Resource of Belize which include manatees, barrier reef, coral etc and the do's and don'ts of manatee watching. This can be done by means of posters, brochures, games etc.

Tourists should be given hand outs, explaining the main facts about manatees and also the rules for responsible manatee watching.

In light of the exceptionally elevated number of tourists that visit Swallow Caye and the trends that prove its growth, a management plan should be drafted. Goals of this plan should include investigations on the carrying capacity of Swallow Caye, the socioeconomic value and economic impact of manatee watching and a strong educational programme should be put into effect targeting tourists and the local people.

The manatee tour guide training workshop offered by Coastal Zone Management Authority in conjunction with the Belize Tourist Board should be conducted at Caye Caulker for tour guides and tour operators that offer manatee tours and a follow-up should be done by means of frequent monitoring of tour guides

Incentives should be created for tour guides who follow the rules and regulations of manatee watching such as public recognition by Coastal Zone, Friends of Swallow of Belize Tourist Board or by means of special license that recognized their input in the protection and conservation of manatees

7. REFERENCES

- AUIL, N.E. 1998. Belize Manatee Recovery Plan. UNDP/GEF Coastal Zone Management Project, BZE/92/G31, Belize/UNEP Caribbean Environment Programme, Kingston, Jamaica. 67pages.
- BELIZE TOURIST BOARD. 2001. Belize: Travel and Tourism Statistics 2000. BTB. Belize. 59 pages.
- BELIZE TOURIST BOARD. 2002. Strategic Vision For Belize Tourism In The New Millennium. Cited on March 21, 2002. Available at: <http://www.belize tourism.org/policy.html>
- BERTRAM, G.C L. and Bertram C.K.R. 1973. The Modern Sirenia: their distribution and status. *Biological Journal of the Linnean Society* 5:297-338.
- COASTAL ZONE MANAGEMENT AUTHORITY AND INSTITUTE. 2000a. Manatees in Belize: Guidelines for Protection. Belize.
- COASTAL ZONE MANAGEMENT AUTHORITY AND INSTITUTE. 2000b. Manatee Training for Tour Guides Manual. Belize.
- EDWARDS, H. 1999. *Trichechus manatus* – Reproduction. Cited on August 5, 2002. Available at: <http://animaldiversity.ummz.umich.edu>
- HAYDEN, A. 2000. Fighting to Protect the Manatees in Belize. *The San Pedro Sun*. Belize. Vol 10, No.16.
- MANATEE RESEARCH CENTER ONLINE (MaRCO). 1993. Common Types of Vegetation Upon Which Manatees Feed. Cited on August 5, 2002. Available at: <http://lake.ju.edu/research/marco/habitat/food/vegetation.htm>
- O'SHEA, T. 1994. Manatees. *Scientific American*. Vol. 271, No.1.
- O' SHEA, T.J. and J.S. Salisbury. 1991. Belize – a last stronghold for the manatees in the Caribbean. *ORYX*25 (3) 156-164.
- POWELL, J. 2000. Conserving Antillean Manatees in Southern Lagoons, Gales Point, Belize: A Long-term Program of Research, Professional Training and Public Education. Cited on February 15, 2002. Available at: <http://www.wildlifetrust.org/manpro.htm>

SAVE THE MANATEE CLUB. 2001. Manatees: An Educator's Guide. Maitland, Florida . 36 pages.

SEASHORE, A. 2001. Information on Swallow Caye. Friends of Swallow. (Correspondence by E-Mail, personal communication).

SEAWORLD/BUSCH GARDENS ANIMAL INFORMATION DATABASE.
2001a. Manatees- Classification. Cited on July 23, 2002. Available at:
<http://www.seaworld.org/infobooks/Manatee/sciclassman.html>

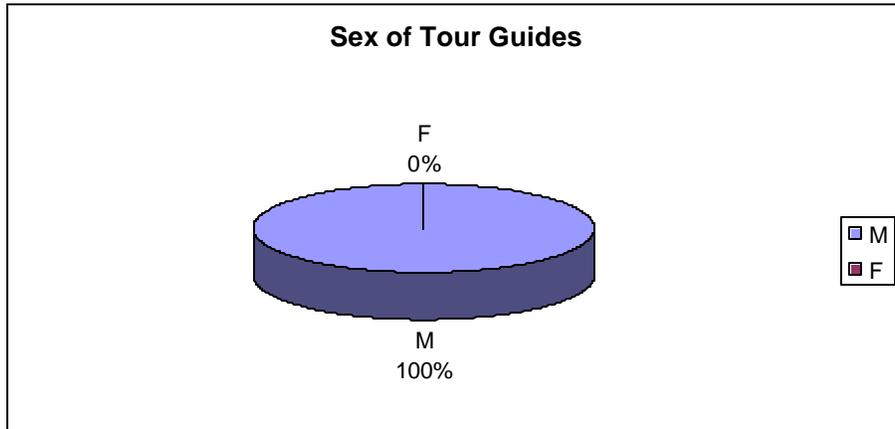
SEAWORLD/BUSCH GARDENS ANIMAL INFORMATION DATABASE.
2001b. Manatees- Communication. Cited on July 23, 2002. Available at:
<http://www.seaworld.org/infobooks/Manatee/commuman.html>

SHACKLY, M. 1992. Manatees and Tourism in Southern Florida: Opportunity or Threat. *Journal of Environmental Management*, 34, 257-265.

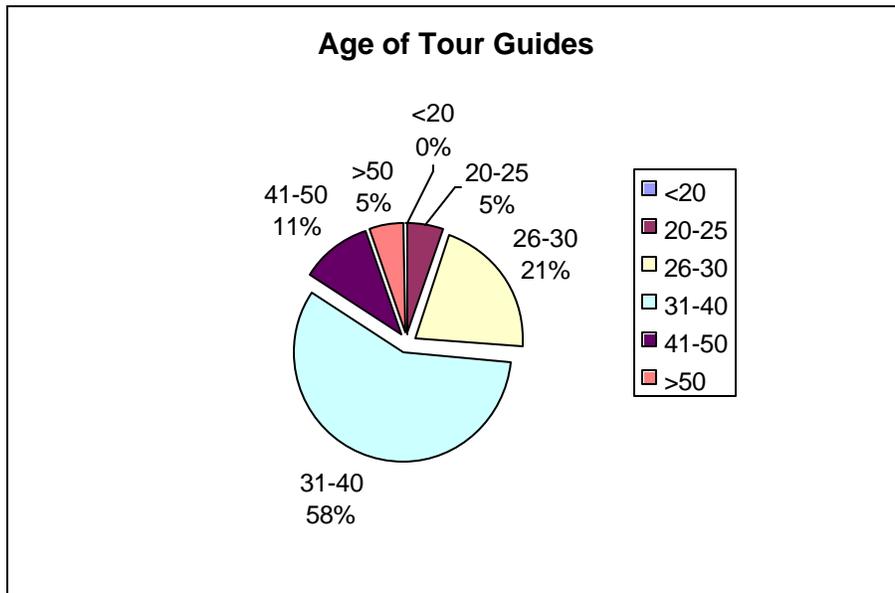
SULLIVAN, C. S. 1999. Ecology and Behavior of Antillean Manatees in the Drowned Cayes, Belize, C. A. Cited on August 1, 2002. Available at:
http://www.sirenian.org/research99_1.html

Annex 1. Tour Guide results

Sex of Tour Guides		
M	F	Total
19	0	19
(%) 100	0	100

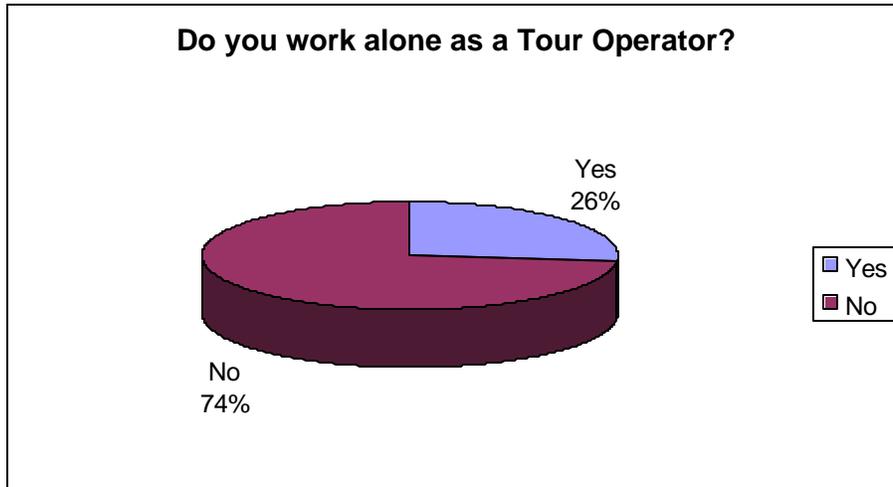


Age of Tour Guides						
<20 yrs.	20-25	26-30	31-40	41-50	>50	Total
0	1	4	11	2	1	19
(%) 0	5.3	21.1	57.9	10.5	5.3	100



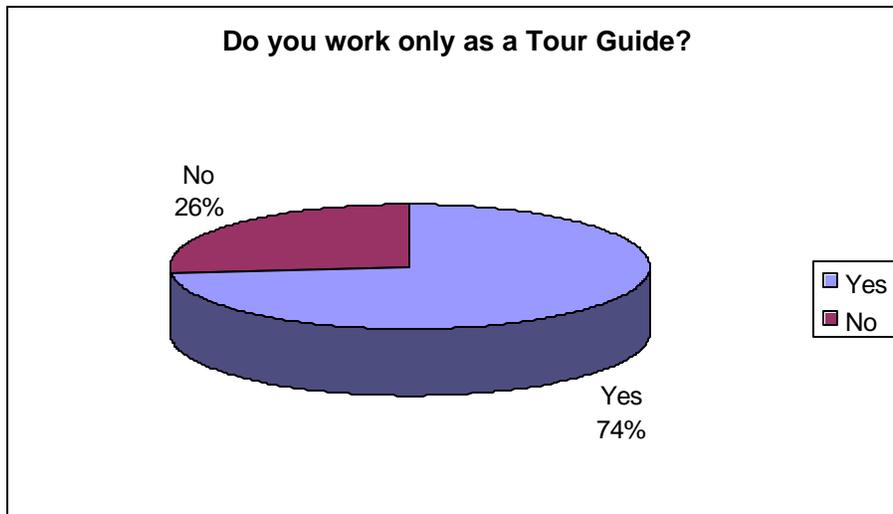
Annex 1. cont.

Do you work alone as a Tour Operator ?		
Yes	No	Total
5	14	19
(%) 26.3	73.7	100



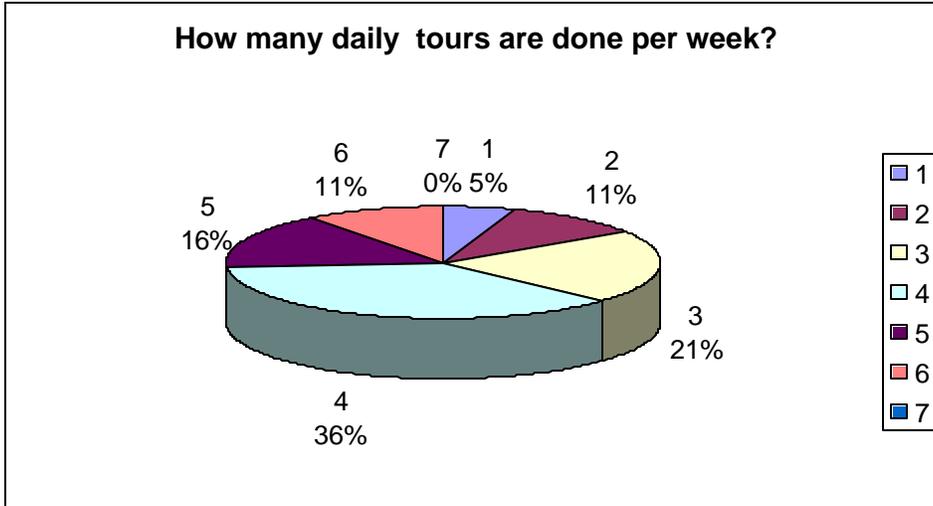
Do you work only as a Tour Guide?		
Yes	No	Total
14	5	19
(%) 73.7	26.3	100

Note: Other jobs included fishermen(2), water taxi(1), conservation(1) and carpentry(1).

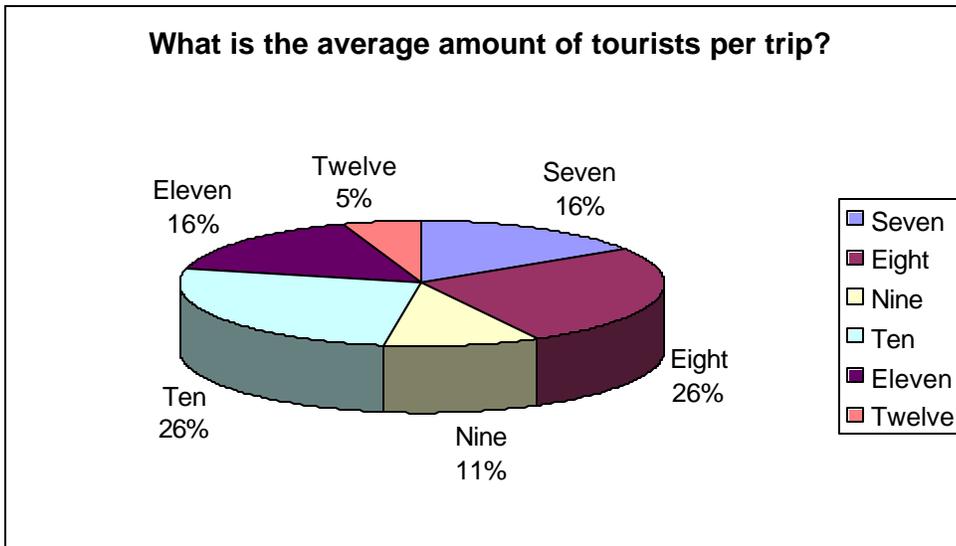


Annex 1. cont.

How many daily tours are done per week?							
1	2	3	4	5	6	7	Total
1	2	4	7	3	2	0	19
(%) 5.3	10.5	21.1	36.8	15.8	10.5	0	100



What is the average amount of tourists per trip?						
7	8	9	10	11	12	Total
3	5	2	5	3	1	19
15.8	26.3	10.5	26.3	15.8	5.3	100
Average=9.16						



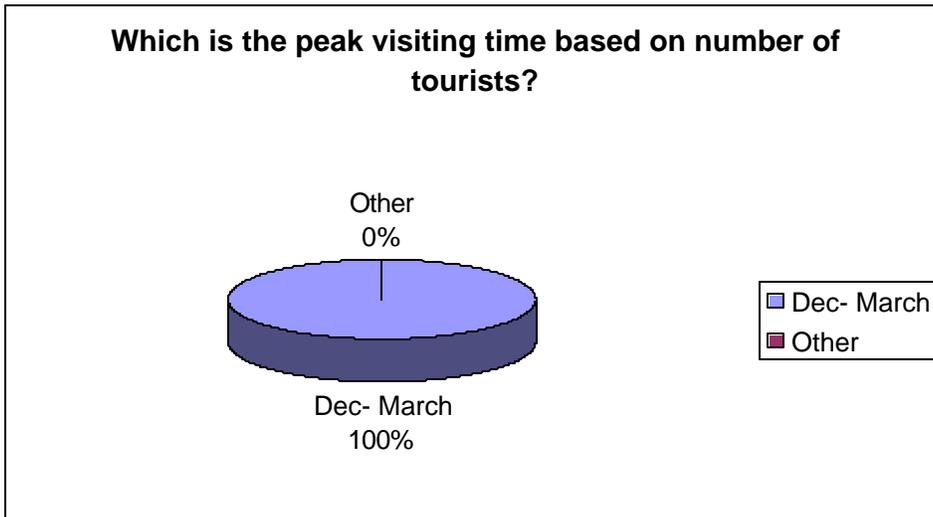
Annex 1. cont.

How long have you been offering manatee tours?								Total
<1yr	1-3 yrs	4-6 yrs	7-9 yrs	10-12 yrs	13-15 yrs	16-18 yrs	>19 yrs	
2	1	9	3	2	1	0	1	19

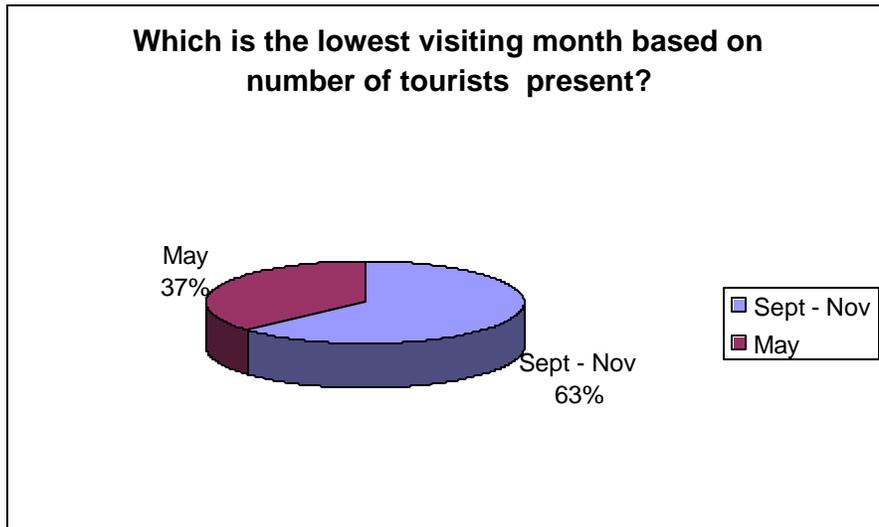
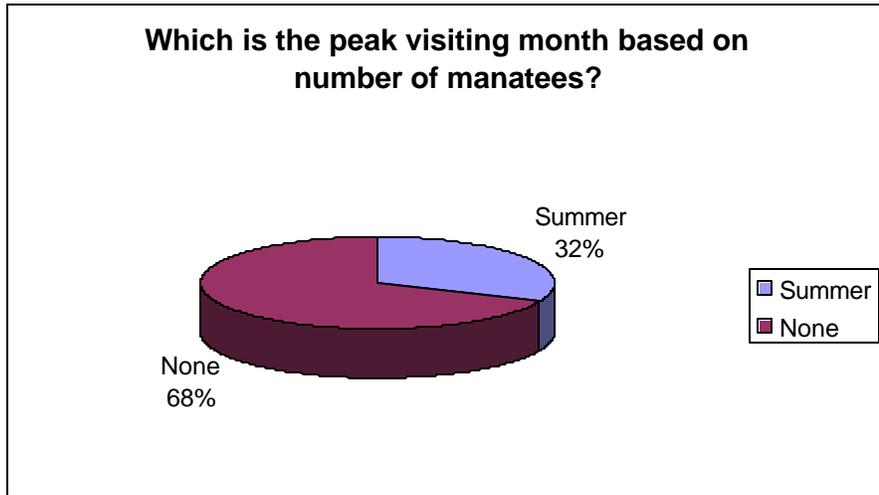
Average : 6.7 yrs.



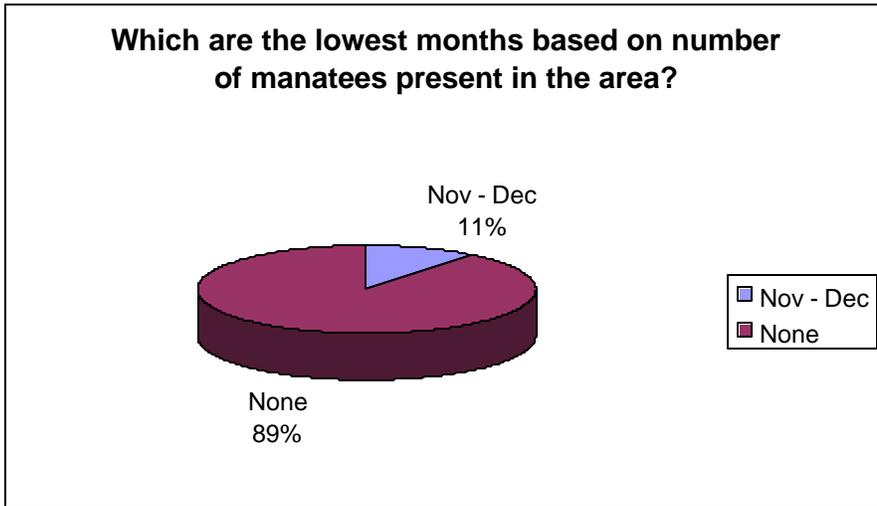
Which is the peak visiting time based on:					
# of Tourists			# of manatees		
Dec- March	Other	Total	Summer	None	Total
19	0	19	6	13	19
(%) 100	0	100	31.6	68.4	100



Annex 1. cont.



Annex 1. cont.

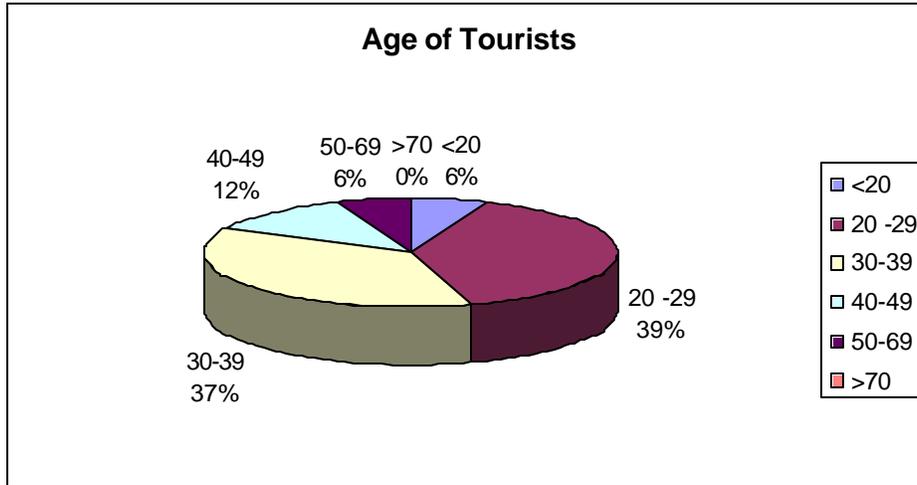


Did you participate in the manatee tour guide training offered by CZMA&I?		
Yes	No	Total
3	16	19
15.8	84.2	100



Annex 2 . Tourists Results.

Age of Tourists						
<20	20 -29	30-39	40-49	50-69	>70	Total
5	34	32	10	5	0	86
(%) 5.8	39.5	37.2	11.6	5.8	0	100

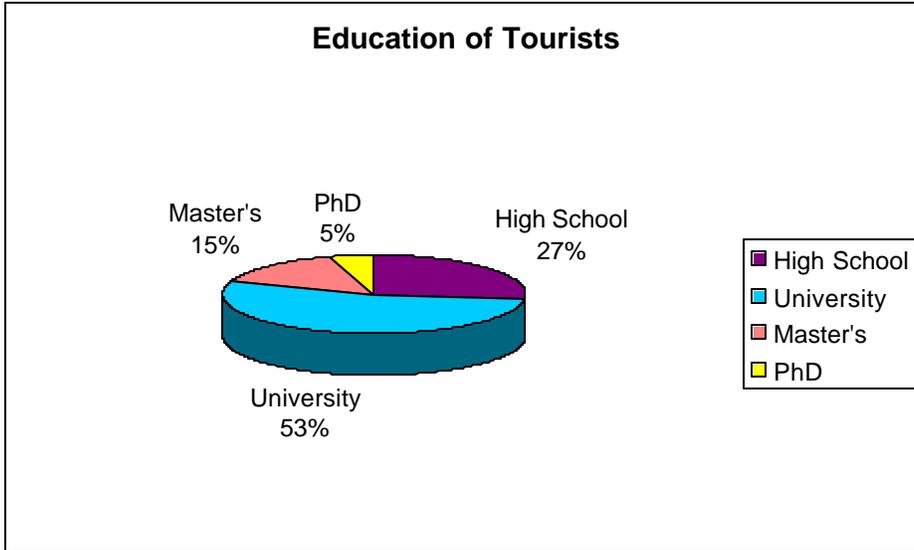


Sex of Tourists		
M	F	Total
34	52	86
(%) 39.5	60.5	100

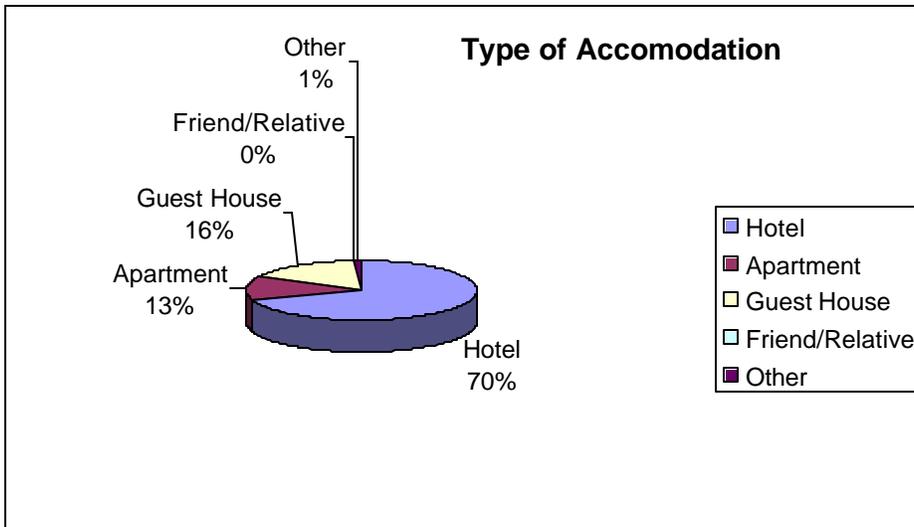


Annex 2. cont.

Education of Tourists				
High School	University	Master's	PhD	Total
23	46	13	4	86
(%) 26.7	53.5	15.1	4.7	100.0



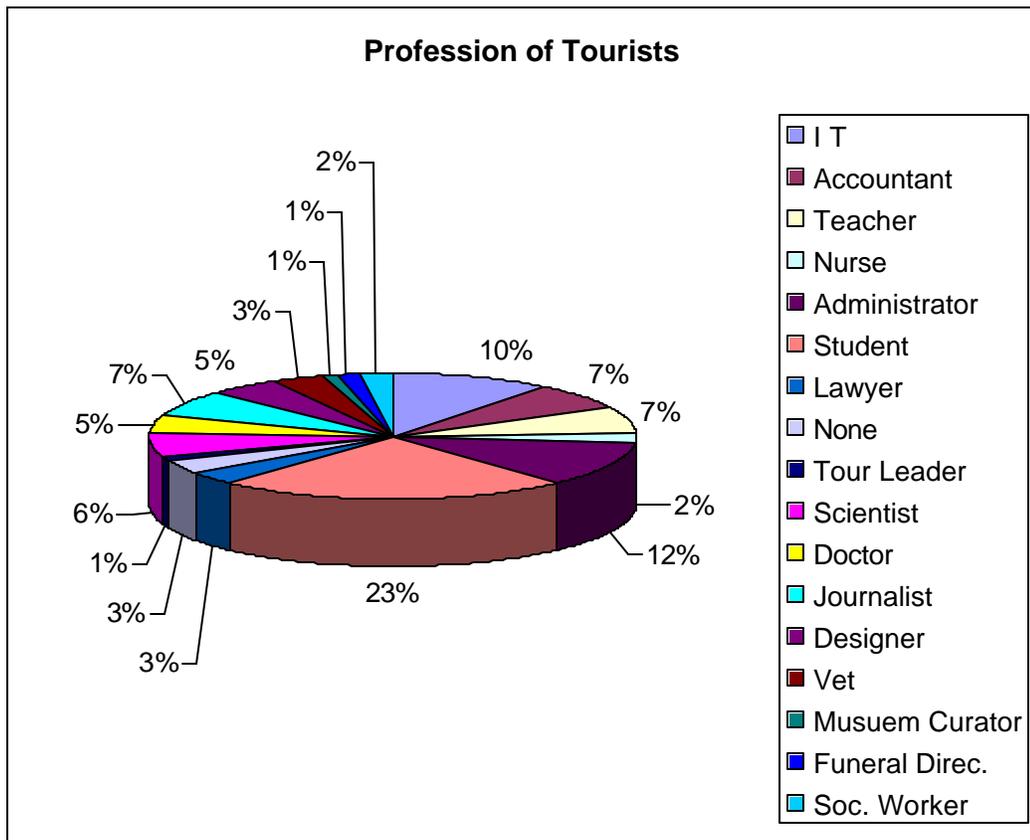
Type of Accommodation					
Hotel	Apartment	Guest House	Friend/Relative	Other	Total
60	11	14	0	1	86
(%) 69.8	12.8	16.3	0	1.2	100



Annex 2. cont.

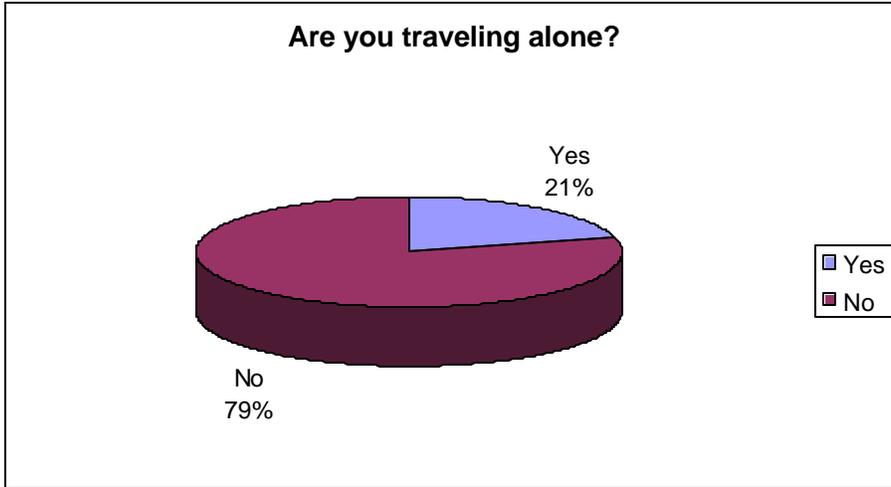
Profession of Tourists

I T	Accountant	Teacher	Nurse	Adminis.	Student	Lawyer	None	Tour Leader
9	6	6	2	10	20	3	3	1
(%) 10.5	7.0	7.0	2.3	11.6	23.3	3.5	3.5	1.2
Scientist	Doctor	Journalist	Designer	Vet	Museum Curator	Funeral Direc.	Soc. Worker	Total
5	4	6	4	3	1	1	2	86
(%) 5.8	4.7	7.0	4.7	3.5	1.2	1.2	2.3	100

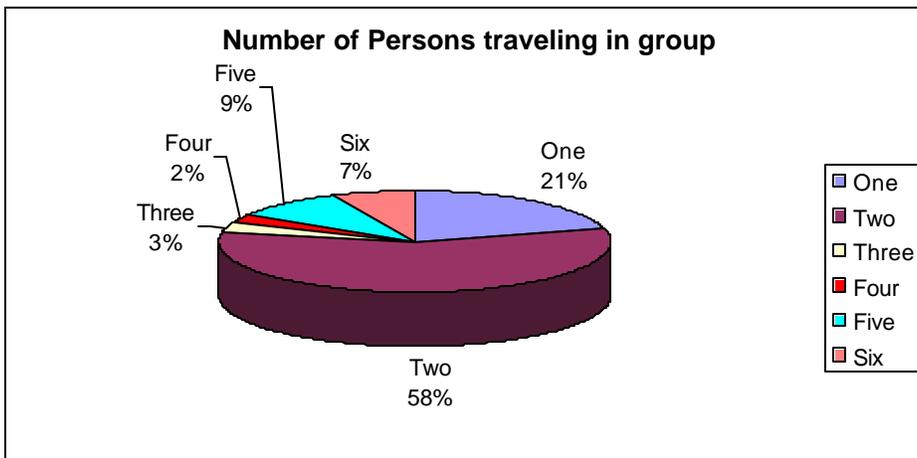


Annex 2. cont.

Are you traveling alone?		
Yes	No	Total
18	68	86
(%) 20.9	79.1	100

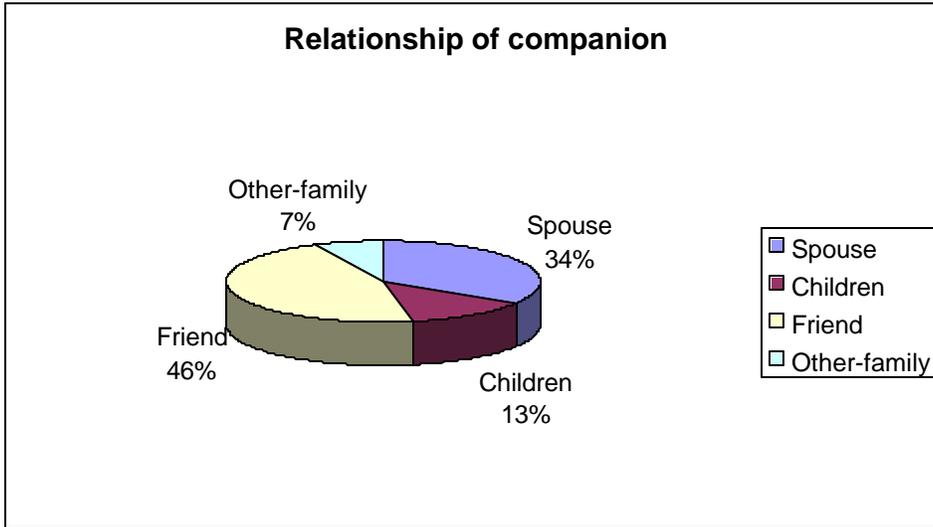


Number of Persons traveling in group						
1	2	3	4	5	6	Total
18	49	3	2	8	6	86
(%) 20.9	57.0	3.5	2.3	9.3	7.0	100

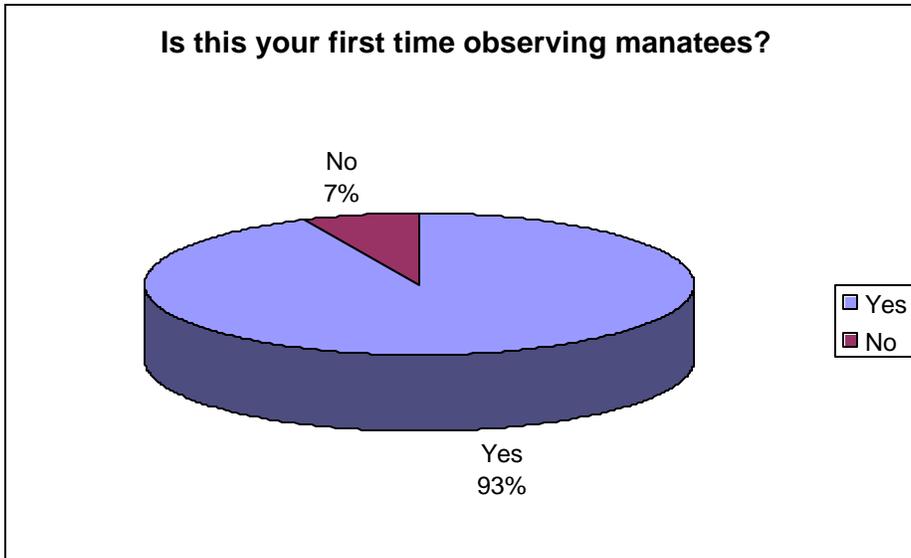


Annex 2. cont.

Relationship of companion				
Spouse	Children	Friend	Other-family	Total
23	9	31	5	68
(%) 33.8	13.2	45.6	7.4	100

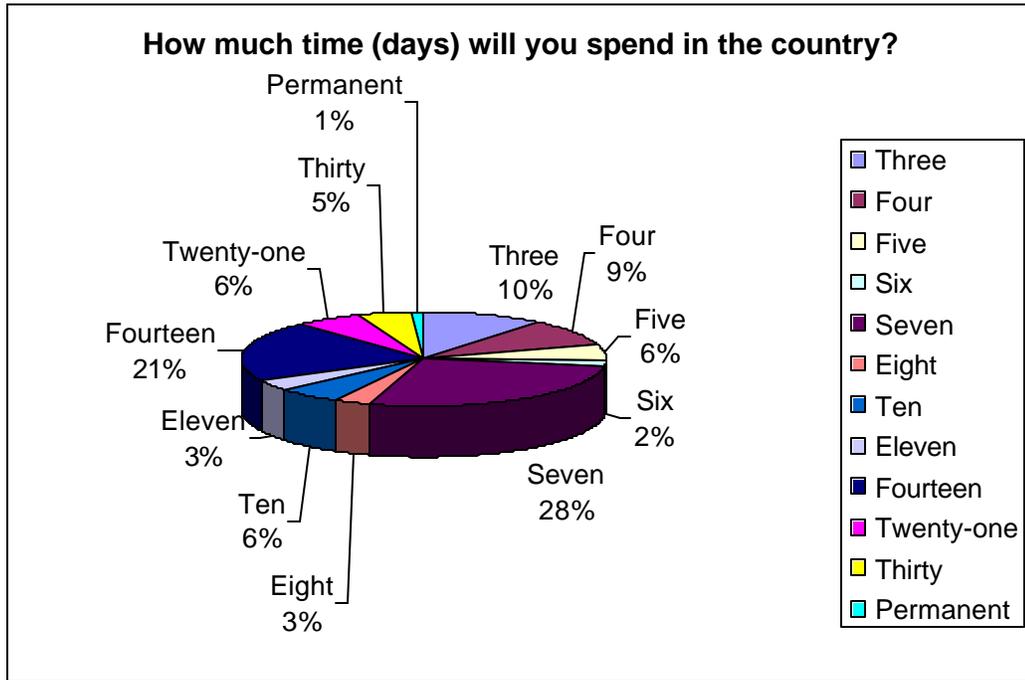


Is this your first time observing manatees?					
In Belize?			At Swallow Caye?		
Yes	No	Total	Yes	No	Total
80	6	86	86	0	86
(%) 93.0	7.0	100	100	0	100

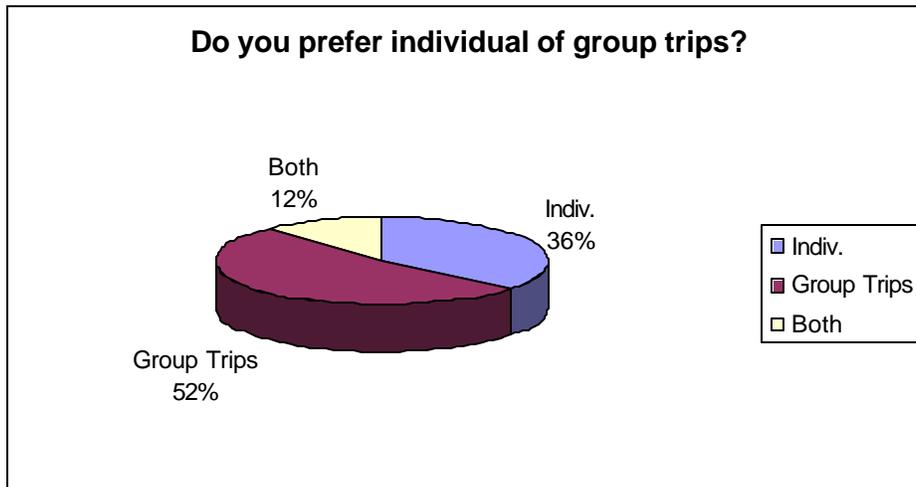


Annex 2. cont.

How much time (days) will you spend in the country?												
3	4	5	6	7	8	10	11	14	21	30	Perm.	Total
9	8	5	2	23	3	5	3	18	5	4	1	86
(%)10.5	9.3	5.8	2.3	26.7	3.5	5.8	3.5	20.9	5.8	4.7	1.2	100

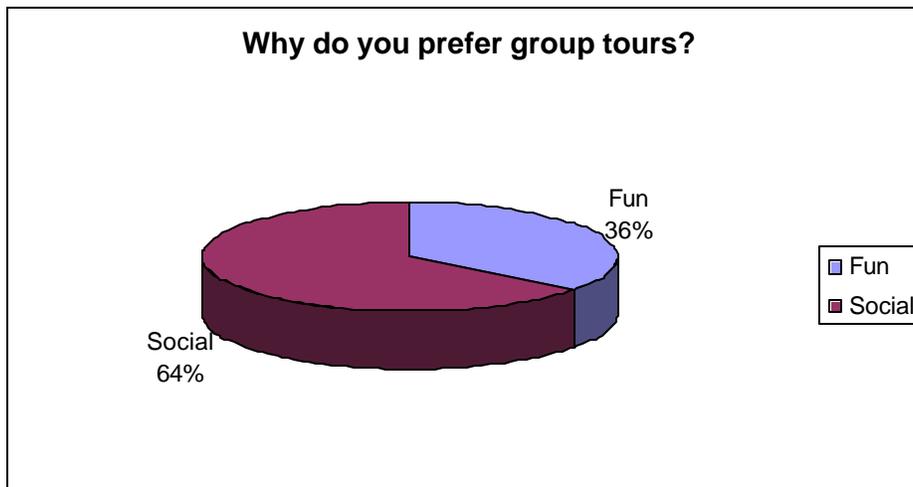
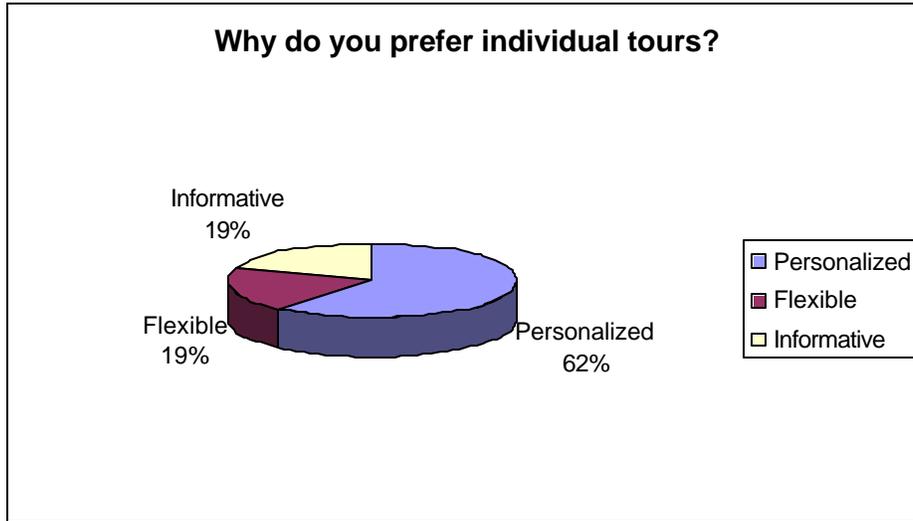


Do you prefer individual or group trips?			
Indiv.	Group Trips	Both	Total
31	45	10	86
(%) 36.0	52.3	11.6	100



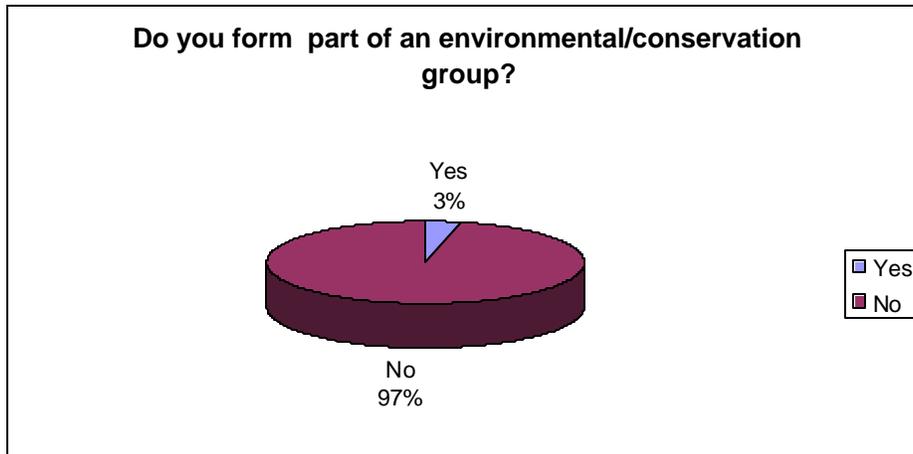
Annex 2. cont.

Why do you prefer group/ individual trips?				
Individual	Personalized	Flexible	Informative	Total
(%)	62	19	19	100
Group	Fun	Social		Total
(%)	36	64		100

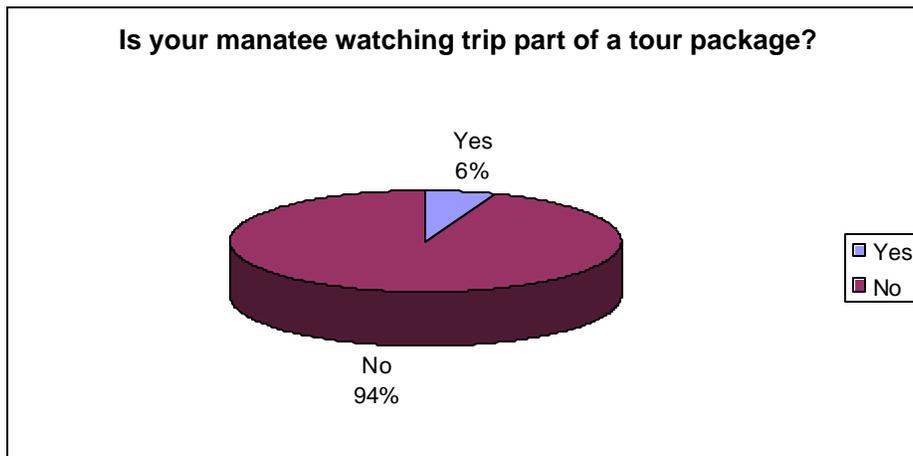


Annex 2. cont.

Do you form part of an environmental/conservation group?		
Yes	No	Total
3	83	86
(%) 3.5	96.5	100

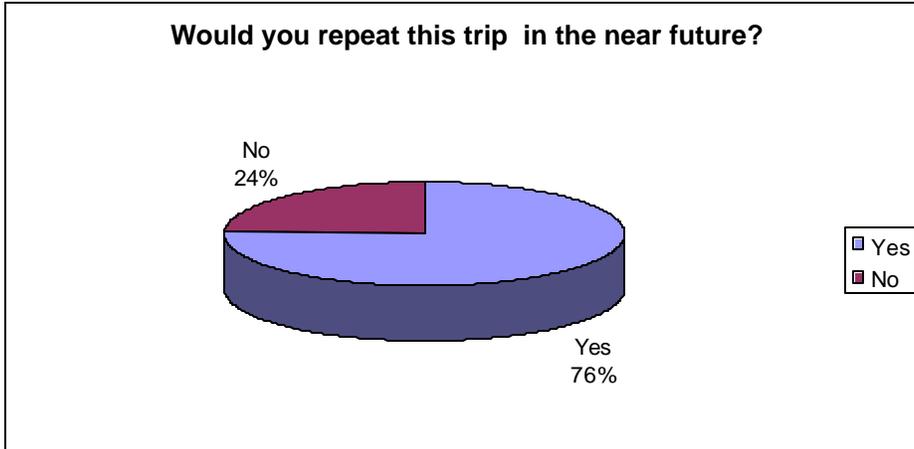


Is your manatee watching trip part of a tour package?		
Yes	No	Total
5	81	86
(%) 5.8	94.2	100

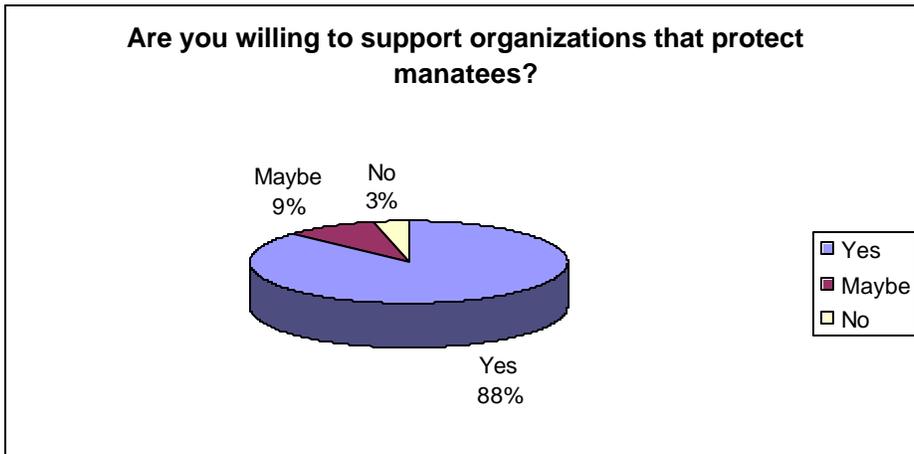


Annex 2. cont.

Would you repeat this trip in the near future?		
Yes	No	Total
65	21	86
(%) 75.6	24.4	100

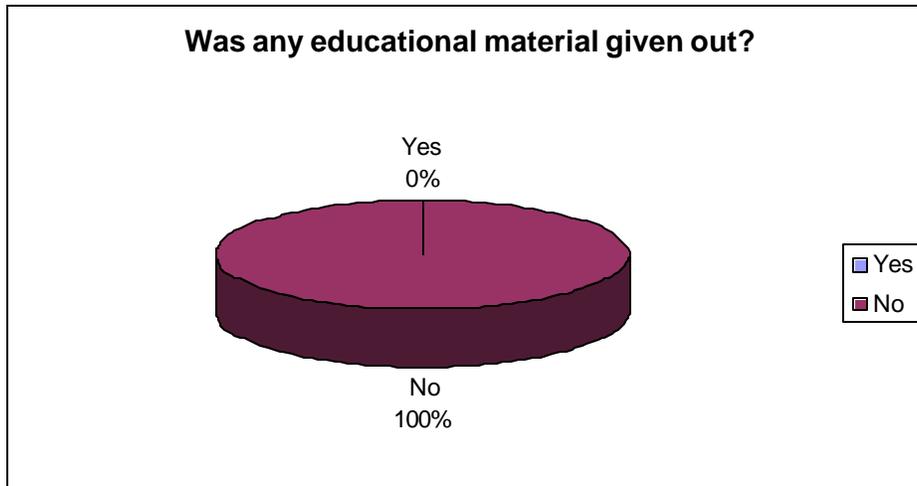


Are you willing to support org. that protect manatees?			
Yes	Maybe	No	Total
75	8	3	86
(%) 87.2	9.3	3.5	100



Annex 2. cont.

Was any educational material given out?		
Yes	No	Total
0	86	86
(%) 0	100	100

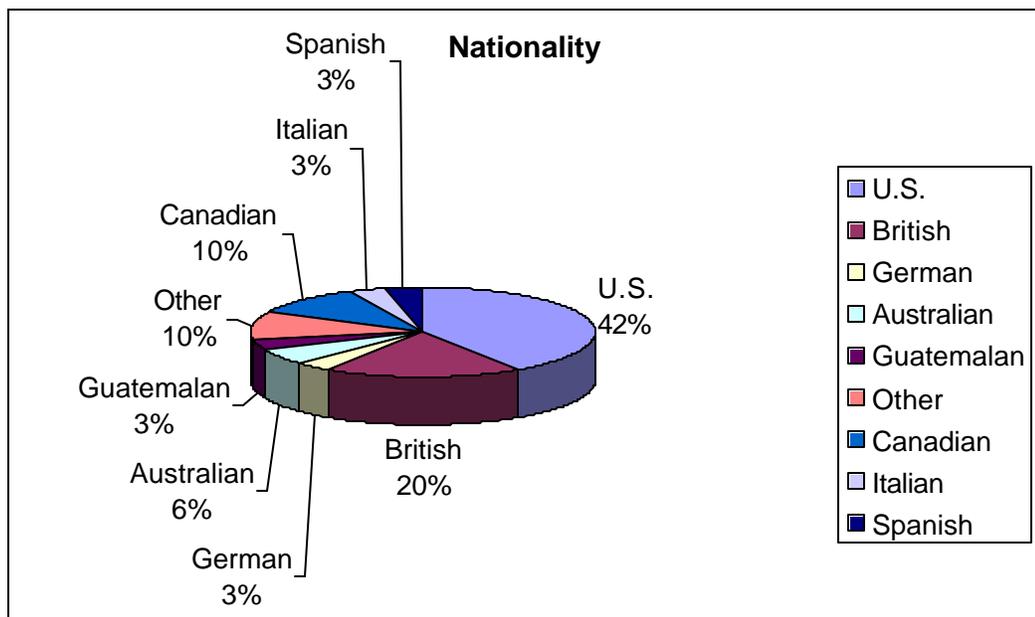
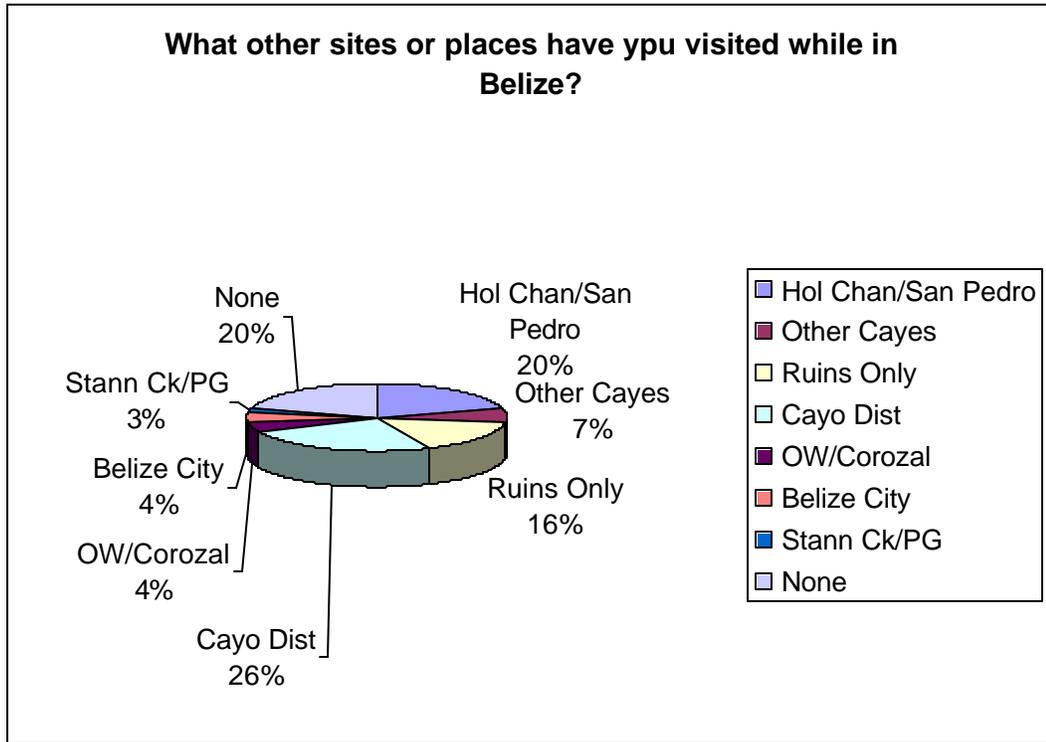


Who recommended this tour?			
Tour Guide	Tour Operator	Other	Total
43	6	37	86
(%) 50	7.0	43.0	100



Annex 2. cont.

What other sites or places have you visited while in Belize?								
Hol Chan/S. Pedro	Other Cayes	Ruins Only	Cayo District	O. Walk/Corozal	Belize City	Stann Ck/PG	None	Total Tourist
23	8	18	28	5	5	3	23	86
(%) 26.7	9.3	20.9	32.6	5.8	5.8	3.5	26.7	100



Annex 3. Questionnaire For Tour Guides.

General Information:

Name: _____ Location : _____

Sex: M F

Age: a) <20 b)20 –25 c)25-30 d)30-40 e)40-50 f) >50

Specific Information

1. Do you: a) work alone b) with a tour operator c) other
_____2. Do you work only as a tour guide: Y N If no, what other job?
_____3. How long have you been offering manatee watching to tourists?

4. How much tours are done per day? _____

5. What is the average amount of tourists per trip? _____

6. Which month is the peak visiting time based on
a. number of tourist _____ b. manatees in the area _____7. Which month is the lowest based on
a. number of tourist _____ b. manatee in the area _____8. Did you participate in the manatee tour guide training offered by Coastal Zone
Management Institute? Y N If yes, when? _____9. What other attractions do you offer to the tourists?
_____10. Do you visit other manatee sites? Y N If yes, where?

Annex 4. Questionnaire For Tourists.

(Before manatee watch)

Date: _____ **Interviewer:** _____ **Location:** _____

General Information (Circle the correct answer)

Age: a) <20 b) 20 –29 c) 30-39 d) 40-49 e) 50-69 f) >70

Sex: M F

Education: _____ **Nationality:** _____ **Profession:** _____

Place of Stay: a) Caye Caulker b) San Pedro c) Belize City d) Other _____

Type of Accommodation: a) Hotel b) Apartment/Villa c) Guest House d) Friend/Relative
e) other _____

Specific Information

1. Are you traveling alone? Y N

If no, how many are traveling in your group _____

Relationship: a) Spouse b) Children c) Friend d) other _____

2. Why did you choose to do manatee watching?

3. Is this your first time observing manatees:

a. In Belize? Y N. If no, where _____

b. At Swallow Caye? Y N If no, when _____

4. Who recommended this tour? _____

5. What do you know about Swallow Caye?

6. What do you know about manatees?

7. What are you expecting to see during the tour?

8. What other sites have you visited/ will visit while in Belize?

9. How much time (days) will you spend in the country? _____

Annex 4. cont.

10. Do you form part of an environmental/conservation group? Y N
If yes, which one? _____

11. Do you prefer: a) individual or b) group trips?
Why _____

12. Is this trip part of a tour package? Y N If yes, what did it include _____

(After the tour)

1. What did you like most about the tour?

2. What did you like least? _____

3. What do you recommend to better the service?

4. Would you do it again in the near future?

5. Was any educational material given out?

6. Are you willing to support organizations that protect manatees?

Annex 5. Observation Sheet.

Did the tour guide give an introductory lecture about the history, status etc of the manatees in Belize?

If so, was it given before departing or at the site?

Was any visual aid used?

Was educational material given out?

Were the rules and regulations clearly explained?

Did the tourist follow these rules?

Was the tour guide monitoring the tourist?

How long did the tour last?

How many tourists are traveling with the tour guide?

Annex 6. Swallow Caye declared Wildlife Sanctuary.
 (Taken from <http://www.coastalzonebelize.org/press/press.shtml>)

Jul. 11, 2002 - Safe Haven for Manatees: Swallow Caye named Wildlife Sanctuary

For Immediate Release

Contact: Information Specialist

-Belize City, Belize, Wednesday, July 10, 2002 - Yesterday, July 10, Minister of



Natural Resources, Honourable John Briceño, signed the Statutory Instrument declaring Swallow Caye a wildlife sanctuary. While the signing only took a few minutes to complete, the road to this destination has taken years of persistent and unwavering lobbying.



Spearheading this effort has been the community-based organization, Friends of Swallow Caye,

led by Mr. Lionel “Chocolate” Heredia of Caye Caulker and Hon. Patricia Arceo, Minister of State in the Ministry of Natural Resources, and Area Representative for Belize Rural South. Their collective efforts have translated into 8,970 acres being declared as the Swallow Caye Wildlife Sanctuary.

Swallow Caye, located a few miles east of Belize City in the Drowned Caye Range, is known for its healthy population of manatees. The area has become increasingly popular for tourists as an excellent site for manatee watching. However, this constant flow of boats, coupled with those already using the area as a transit from the northern cayes to Belize City, and vice versa, has created a precarious situation, with the heightened possibility of a manatee being hit by a boat.

Users of Swallow Caye realized that to protect the manatees in the area, as well as sustain their livelihoods, a management mechanism needed to be implemented.

The wildlife sanctuary status was pursued after consultations with Government and non-government agencies on the best mechanism to safeguard the area. A Wildlife Sanctuary is an area reserved as a nature conservation reserve for the protection of nationally significant species, wildlife habitats, and physical features.

Friends of Swallow Caye is made up of area stakeholders including tour guides and tour operators. Having completed this first hurdle, the organization is now working to co-manage the area with the Government of Belize. Management of the area may look at re-routing of traffic and regulating use of the wildlife sanctuary to minimize the impact on the manatees.

Wednesday's signing comes after several consultations in Belize City, Caye Caulker and San Pedro.

Annex 7. Research Permit.