



Sea Turtles in Akumal, Mexico: Finding a Balance Between Ecotourism and Harassment



SAN DIEGO STATE UNIVERSITY

Poster Presentation to



Goa, India 2010

Monica Rosquillas^{1,3}, Armando Lorences², Miguel Angel Maldonado Cuevas², Katherine Comer Santos^{1,3}

1 San Diego State University, 2 Centro Ecológico de Akumal, 3 The Science Exchange

The Science Exchange
Intercambios Científicos

Introduction and Purpose

Akumal Bay is about 100 km from Cancun, Quintana Roo, Mexico. "Akumal" means "place of the turtle" in the locally-preserved Mayan language. The town is a popular tourist destination for foreigners, nationals, and locals, bringing high densities of swimmers and snorkelers to the waters. A major draw is the resident group of juvenile green sea turtles (*Chelonia mydas*) that feed on the sea grasses in the clear shallow waters of the bay. This study indicates 67% of tourists hope to see turtles. Ecologically, these sea turtles are also important keystone species to the marine ecology (Plantaz 2008).

Mexico's laws prohibit take or harassing sea turtles (SEMARNAT 2002 ; 2003; 2009) and Mexico is a signatory of CITES (2009). The Centro Ecológico Akumal (CEA) runs a strong conservation educational program, but because of lack of enforcement, harassment is a concern. Too much harassment could stress turtles and possibly drive them out of the bay, changing the local ecology as well as hurting the economy.

The purpose of this study was to determine if CEA's educational outreach is working and to determine if there were differences in knowledge of Mexican laws depending on the nationality and gender of the tourist in order to improve the educational program.



Methods

Through The Science Exchange internship program and in cooperation with CEA, Monica Rosquillas collected interview data on tourists' knowledge of sea turtles' legal protection and also observational data on the behavior of tourists interacting with turtles in the water. Photo documentation of tourists snorkeling/swimming with turtles in the water was performed daily at around noon during June and July of 2009 while snorkeling set transects.

During that same period the author administered random bilingual intercept surveys of 114 tourists on the beach (see "Results" for questions asked).

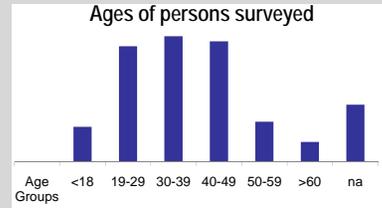
At night the author also helped monitor the beach for nesting females and led bilingual tours for tourists.



Monica Rosquillas and fellow "Tortugueros" enjoying a day at Yal Ku Lagoon

Interview Questions

114 people on the beach were asked eight questions aimed to determine how much tourists know about laws protecting turtles, among other goals such as the demographics of visitors.



Photographic Documentation



Tourists swimming too close or chasing turtles

Out of 80 photos taken, 45 were usable in the analysis of tourist behavior and gender. Gender is based on swimsuit style. Distance to the turtle from the tourist was estimated from the closest part of the tourist (hand, face, flipper, and arm) by measuring the relative size of the turtles in the photo, and assuming the juvenile turtles in the bay are about 1.64 feet long (Lorences pers. comm. 2009).*



Tourists swimming at the recommended 6 ft distance from the turtles

Results

Interviews

Tourists came hoping to see turtles	67%
Tourists saw a turtle	47%
Tourists admitted to touching turtles	4%
Tourists knew that sea turtles are protected in Akumal	79%
Tourists knew that turtles are a protected species in Mexico	56%
Males knew turtles are protected in Mexico	63%
Females knew turtles are protected in Mexico	51%

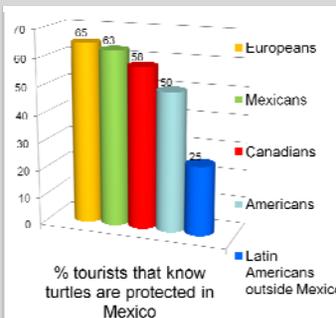


Photo Documentation

Photos show a person touching a turtle	3.8%
Average distance swimmer to turtle	3.1 ft
Average distance female tourists	3.7 ft
Average distance male tourists**	3.17 ft

**No statistical gender difference between the distance tourists kept from turtles (ANOVA test : P= .38; alpha= .05)

Conclusions and Recommendations

We conclude that CEA's educational program is reaching the majority of tourists because 79% knew turtles are protected in Akumal. However, photo documentation and interviews both indicate about 4% of tourists touch turtles, and many swimmers/snorkelers were behaving in harassing ways. The average distance was 3.1 feet between tourist and turtle—far closer than the recommended 6 feet. Many tourists were documented chasing, crowding, and touching them.

There were no major differences between the understanding of sea turtles protected status in Mexico based on nationality or gender. There were no statistically significant differences between males and females in terms of distances kept from turtles. Therefore, CEA's educational program should target general audiences.

Based on the findings we recommend creating a "safe distance" rule between swimmers and turtles. Mandatory orientations for snorkelers on guided tours should be created. With photodocumentation, a program fining violators of the "safe distance" rule could be created. These reforms could be incorporated into the Plan de Manejo de la Bahía de Akumal, and in cooperation with PROFEPA, fines could be issued.

Sea turtles are "ambassadors of the oceans", and conserving these animals means protecting the seas and coastal areas, which is a complex, interconnected world on which human societies depend. Maintaining an eco-tourism niche such as that found at the "place of the turtle" in Akumal means finding a balance between allowing humans to appreciate this precious resource and keeping harassment to a minimum.



Literature

- CITES. Web. 17 Dec. 2009. <http://www.cites.org/eng/disc/what.shtml>.
- Plantaz, Ellen R. (2008) "Sea Turtle Conservation Management at the Yucatan Peninsula". Masters thesis, University of Amsterdam. Pg. 39.
- SEMARNAT (2002) Protección ambiental-Especies nativas de México de flora y fauna silvestres. NOM-059-ECOL-2001. Diario Oficial de la Federación, México, 6 Marzo
- SEMARNAT (2003) Ley General de Equilibrio Ecológico y Protección al Ambiente. Diario Oficial de la Federación, México 28 Enero
- Secretaría del Medio Ambiente, Recursos Naturales y Pesca (2008) Ley General de Vida Silvestre. Diario Oficial de la Federación, México, 3 Julio

Contact information

Armando Lorences
Centro Ecológico Akumal – CEA
Apartado Postal 2
Akumal, Quintana Roo, 77730
Mexico
+52 (984) 875 9095
www.ceakumal.org

Katherine Comer Santos
The Science Exchange
San Diego, CA 92111 USA
(619) 519-9876 or 1-866-519-9876
info@thescienceexchange.org
<http://www.thescienceexchange.org>

*Improvements to the methodology include that the photographer should be at the same distance and at a 90 degree angle from the turtle and tourist in every shot, and take photos of every turtle encounter during the hour transect, including appropriate behavior. This would change the average distance of tourist to turtle.