

HAWKSBILL SEA TURTLE POPULATION MONITORING



CAHUITA NATIONAL PARK
COSTA RICA, 2007

PROJECT INFORMATION FOR APPLICANTS

WELCOME!

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THE HAWKSBILL SEA TURTLE

Sea Turtles are long-lived reptiles with complex life cycles and slow growth rates. They may reach sexual maturity between 15 to 50 years old, depending on the species. They suffer high mortality rates in early stages of their life cycle, and are highly migratory.

The Hawksbill Sea Turtle (*Eretmochelys imbricata*) is the most tropical of all Sea Turtles, and may be found in Central Atlantic and Indo-Pacific regions. Although they are known to migrate between foraging and nesting areas, research suggests that part of the population is resident to a determined area, and may be non-migratory.

Juveniles as small as 20-25cm may be found in coastal waters, usually feeding on **coral reefs**, although sub-adults and adults may also be found on the reefs, where sponges (main food source of Hawksbills) are found in abundance.



Green sea turtles (*Chelonia mydas*) may also be found foraging in the park's waters, the study in **2005** revealed that mainly sub-adults (both females and males) are common here, and may use this park as a development and foraging site.

The third turtle species encountered in the oceanic part of the park are the loggerhead sea turtles (*Caretta caretta*)...

Hawksbill female turtles nest on the beaches of the Caribbean coast of Costa Rica between May and November, while the Greens arrive later in June, with courtship occurring some weeks before. **So far loggerheads didn't nest in this region.** Females are usually faithful to their home beach, where they may return year after year to nest. They may nest up to 5 times in the same season, usually in intervals of 14 days. The average clutch size is 155 eggs, and the incubation period varies from 45 to 75 days.

Present Conservation Status

For several centuries local sea turtle populations have been exploited by humans for consumptive uses of different purposes, which have resulted in considerable declines of nesting colonies and populations.

Some of the main threats include habitat loss (nesting beaches and/or degradation of coral reefs), hunting for oil, meat, eggs and shell. The decline of the hawksbills along the Caribbean coast of Costa Rica is of **-3.9%/year**.

The Hawksbill Sea Turtle is categorized as *critically endangered with extinction* on the UICN Red List of Threatened Species, and is included in CITES Appendix I, meaning that there was a loss of 90% of the population in the past 10 years, or one generation time.

PROJECT DESCRIPTION

Introduction

This project will be developed in Cahuita National Park, where the most important Hawksbill Sea Turtle nesting area in Costa Rica is found. The park includes an important coral reef and sea grass lagoon used as foraging ground for these animals. Information on the basic biological and ecological aspects of these endangered creatures is needed in order to eradicate many threats to this species at a local and international level, especially when it comes to stop or minimize trade of sea turtle products.

The activities of the project will provide much needed information to develop better conservation practices and some corrective actions, with an emphasis on the Hawksbill sea Turtle, in order to improve the conservation status of this species in the Southern Caribbean coast of Costa Rica. On the other hand, the project will give the opportunity to understand the status of the local Hawksbill population.

The population dynamics of the Hawksbill Sea Turtle are poorly understood, and while some information on females has been gathered from nesting beaches, little is known about population structure, genetic origin and in-water habitat use. Sea Turtles spend only 1% of their life on the nesting beaches, and in these circumstances, only adult females may be studied. Little, if none information is available about juvenile population, and sex ratios of adult populations. There is a need of assessing habitats used by Sea Turtles in different life stages, and types of threats they are exposed to in coastal and pelagic waters. The Caribbean coast of Costa Rica is home to one of the most important nesting beaches of the region, specifically at Cahuita National Park, and the coral reefs found here provide shelter for poorly studied resident populations.

With numbers of turtles decreasing in the Wider Caribbean region, as product of illegal slaughter by local fisherman, poaching of eggs on nesting beaches, and habitat loss, **population recovery has become a top conservation priority** for this already critically endangered species.

General Objective

Improve the knowledge about the biology and ecology of the Sea Turtle populations in the South Caribbean coast of Costa Rica, and provide stakeholders with pertinent information and guidelines for better conservation actions.

HOW?

Conduct an assessment of the sea turtle population trends based on:

- Sampling of Sea Turtles in foraging grounds to study their ecology
- Monitoring of the nesting activity of adult females

PROJECT ACTIVITIES

a) In-Water Population Study

Foraging sea turtles are mainly found in shallow (<50m), hard-bottom coastal habitats, mostly on coral reef areas and sea grass beds. By sampling the Cahuita National Park reef in this study, it is possible to gain information on the demographic structure of the population, such as abundance of immature, adult male and non-breeding females, and their behavior.

Some of the parameters studied will include:

- Identification of resident individuals on the coral reef at Cahuita National Park (CNP).
- Demographic structure of the resident population of CNP.
- Definition of aggregation areas of individuals of different ages classes in the coral reef.
- Characterize the habitat use and behavior in the coral reef.



Surveys will be conducted up to three times a week (weather permitting) and will consist of:

- (1) Turtle counts and/or captures by snorkeling, and/or SCUBA diving
- (2) Boat based turtle count
- (3) Capture/Recapture of turtles using nets

If a turtle is captured, volunteers will assist the project leader and research assistant to: identify the gender of adult turtles, obtain information on the biometry of the turtle, external tagging of the turtle, extraction of blood sample for determination of gender of juvenile turtles, and tissue sampling for DNA study.

The observation of the turtle's behavior is of main importance for this project, so that volunteers will assist the project staff describing the behavior of encountered turtles as well as identifying the different habitats used by the turtles.



Habitat studies will be done using quadrates, and may be carried out from the surface or by SCUBA diving.

b) Monitoring of Nesting Activity

The monitoring of the nesting activity of female Hawksbill and Green sea turtles is carried out each season from May to October, following the CITES protocols produced during the

process of the Hawksbill Dialogue, and the technical recommendations in relevant documents.



Nesting monitoring consists on nightly patrols of 4-5h duration, arranged in different shifts between 8pm and 4am. Average total walking distance is 12Km.

When nesting **females** are encountered, the eggs are collected to be relocated to the hatchery or on the beach. Females are tagged with external flipper tags, for follow up of renesting and remigration patterns. Biometric data is obtained, and general behavior is noted.

A **hatchery** is located in front of the project station, and ideally will be monitored 24h a day (6 hours shifts), although monitoring may be restricted to night hours between 6pm and 6am, depending of number of volunteers. Volunteers will be requested to check up nests regularly, remove predators and read nest incubation temperatures.

When **hatchlings** are born, they must be counted, measured, weighted and checked for deformities, diseases and general condition before their release on the beach by the volunteers.

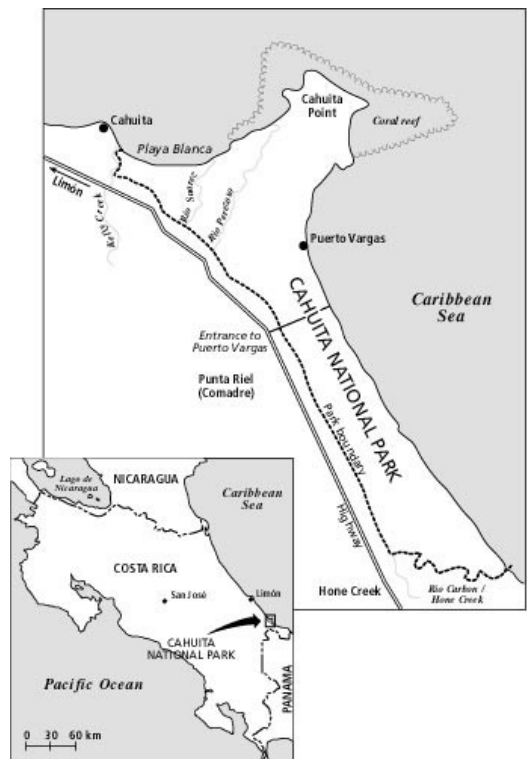


LOCATION

Cahuita National Park

Cahuita National Park is located on Costa Rica's southern Caribbean coast in the province of Talamanca, arguably the most culturally diverse province in the country. The province is home to a large population of Afro-Caribbean, the Bribri and Cabecar Indigenous peoples, mestizos and foreigners.

In 1970's, the coral reef that lines Cahuita Point was declared a national monument. The state wanted to protect the flora and fauna of the area, the coral reefs and various marine ecosystems.



"The coral reef surrounding Cahuita Point is the most important in the country because of its size and numerous species of coral; and because it is surrounded by high quality beaches, and contains objects of great historical interest for the country" (Executive Decree 1236-A).



Coral Reef

The reef contains 35 species of corals, 140 species of mollusks, 44 types of crustaceans, 128 varieties of algae and 123 types of fish. The terrestrial portion of the monument covers 1,067.9 hectares, while the marine portion covers 22,400 hectares, including the 600 hectares of reef.

Park Characteristics

- **Tropical Humid Forest** (Holdridge 1959).
- **Average annual temperature:** 26°C (varying between 25°C and 27°C).
- **Relative Humidity:** 86% to 88%.
- **Weather:** Two climatic cycles per year, dry seasons between January and March, August and December with intense rain in May, July and December



VOLUNTEER PROGRAM

Nesting Monitoring: 1st of May - 31st of October

In-Water Study: 1st March-31st of April
15th September - 15th October

In-water project dates are flexible since activities are dependent on weather and sea conditions. You must contact the Research Coordinator previous to your arrival to confirm activities are taking place.

DUTIES

Participants will be actively involved in the following activities:

- Assessment of abundance trends and behavior of in-water sea turtle populations (snorkeling and/or diving)

Participants may also be actively involved in the following activities, depending on in-water activities and workload:

- Monitoring of sea turtle nesting activity (night patrols and morning surveys)
- Operation and monitoring of sea turtle hatchery

QUALIFICATIONS/REQUIREMENTS

Full training will be provided upon arrival to project site. This **does not** include diving certification.

Desirable skills:

- Degree in Biology, Conservation or related subject
- Diving certificate (PADI Open Water or equivalent)
- First Aid course
- Fluency in English and/or Spanish
- Previous experience in sea turtle conservation work or other conservation project desirable
- Previous experience in monitoring in-water sea turtle populations
- Be physically fit, and have no major health restraints
- Ability to withstand hot humid climate (*see above*)
- Ability to walk long distances (up to 12Km per night) on soft sand at night
- Long-term commitment (minimum **1 month**)

WHAT TO BRING

- Travel or Health Insurance (**Obligatory**)

- Diving Certificate (**Obligatory**)
- Snorkeling equipment (mask, snorkel and fins) (**Obligatory**)
- Rain gear (light water proof jacket)
- Light clothes which will dry quickly
- Light dark clothes, preferably long sleeve t-shirts and long trousers
- Comfortable shoes for walking long distances (old tennis shoes and/or strapped sandals for e.g.)
- Good flashlight, if possible with both white and red led lamps, and spare batteries
- Mosquito net
- Mosquito repellent and anti-histaminic for bug bites
- Alarm clock
- Bed linen, towels, toiletries
- Sun block
- Water bottle

HOUSING

All participants will stay in a dorm room available at the administrative facilities of the Cahuita National Park. Three meals will be provided every day (breakfast, lunch and dinner) and are included in the participation fees.

COSTS/BENEFITS

Participants will have a unique opportunity to gain valuable fieldwork experience in conservation of endangered species, and will be staying in a privileged area of Costa Rica of rich biodiversity.

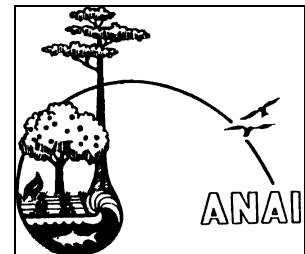
Unfortunately the low budget of this project does not allow paid positions. Fees **include** room, board and inscription (includes volunteer manual, training and participation fee). Fees **do not** include: personal insurance, transportation to and from the project site, and personal expenses.

The minimum participation time is 2 weeks, with a daily fee of \$15, plus the inscription fee of \$50.

For more information, please contact the Volunteer Program Coordinator at the below address:

Volunteer Coordinator
Sea Turtle Conservation Project
Asociación ANAI
Apdo. 170-2070
Sabanilla de Montes de Oca
COSTA RICA

Tel.: (506) 224-3570 / 224-6090
Fax: (506) 253-7524
E-mail: volunteers@racsa.co.cr



PROJECT STAFF

Didiher Chacón-Chaverri - Project Director



Didiher is Costa Rican, and started working with Sea Turtles in 1986, as a Marine Biology student, tagging Olive Ridley Sea Turtles (*Lepidochelys olivacea*) at Playa Nancite, in Costa Rica. In 1990 he established the Sea Turtle Conservation Program of the South Caribbean of Costa Rica, developing a research program at Gandoca Beach, focusing mainly on Leatherback Sea Turtles (*Dermochelys coriacea*). The Program was expanded to Cahuita National Park and Black Beach in 2000, where both Leatherbacks and Hawksbills are monitored. This Program receives support from entities such as People's Trust for Endangered Species, National Aquarium in Baltimore, IFAW, WWF, Whitley Fund for Nature, Tropica Verde, Frankfurt Zoological Society, WIDECAST, National Marine and Fisheries Service.

In 2000 Didiher was selected as Costa Rica Government's expert and advising entity for Hawksbill sea turtles. Currently he is the Coordinator of WIDECAST activities in Central America, Member of the Sea Turtle Specialist Group of IUCN, Member of the Leatherback and Hawksbill Task Forces, and the Designated Scientific Authority of the Interamerican Convention for the Protection and Conservation of Sea Turtles.



Joana Hancock - Research Coordinator

Joana is Portuguese, and graduated from Essex University (UK) with a BSc in Marine and Freshwater Biology in 2001. Her first hands-on experience with sea turtle was gained in Greece, working as a volunteer with Archelon, with Loggerhead Sea Turtles (*Caretta caretta*). She started working in Costa Rica the next year, as a volunteer for the Playa Negra sea turtle project, with Leatherbacks (*Dermochelys coriacea*). After that Joana kept studying this species, working at Playa Negra (2003) and Gandoca beach (2004), as research coordinator. In 2005, developed the in-Water pilot project. She is currently the Research Coordinator of The Cahuita/Playa Negra Sea turtle program.

SOME SUGGESTED LINKS

Project Webpage: www.talamancaturtles.org

Hawksbill Sea Turtles

http://www.cites.org/common/prog/hbt/consolidated_paper.pdf

<http://www.anaicr.org/paginas/seaturtle/index.html>

<http://cites.org/esp/prog/hbt/dialogue2/agenda.shtml>

Cahuita National Park

http://www.anaicr.org/paginas/seaturtle/sendero_submarino/portada.htm

http://web.idrc.ca/ev.php?url_id=27976&url_do=do_topic&url_section=201

<http://centralamerica.com/cr/parks/mocahuita.htm>