Asociación LAST (Latin American Sea Turtles)
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Pacuare Beach Project

From the 25th of February to the 30th of July 2021, 293 nesting activities were recorded for nesting females of leatherback sea turtle (*Dermochelys coriacea*) and 148 were protected by relocated on safe places of moving to an incubation hatchery at North Pacuare Beach, Costa Rica. During this period, also 76 nests were poached (34%).

The estimated number of hatchlings released for all the clutches exhumed was 9.704 from Leatherback.

The COVID-19 pandemic strongly affected the recruitment of research assistants and volunteers. Therefore, the monitoring had to be modified including reduction of time period of protection. It is possible that if this had not happened, the results achieved would have been much better. The project must continue to be carried out, because through it we are generating valuable scientific information that allows us to develop management and conservation strategies that contribute to the recovery of sea turtle populations in the Caribbean Sea, as well as an economic alternative of life for the local members of the project.

Introduction

Traditionally, in the Caribbean Coast there has been an illegal commercialization of sea turtle meat and eggs (Chacón *et al*. 2007). For several decades, human beings have used products and by-products derived from these reptiles, mainly for food and for making handicrafts (Chacón, 2002). A practice that persists to this day on most nesting beaches. All this, added to the state of conservation of each of the populations of sea turtles, has caused all species of sea turtles to continue to be cataloged within the International

Union for Conservation of Nature (IUCN) and the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

In the Caribbean coast of Costa Rica, there are records and studies about sea turtle conservation dating back to the 50s, when Dr. Archie Carr began studies of green turtles in Tortuguero, to study and protect this important population (López *et al*. 2017). Since then, over time numerous conservation projects have emerged along the coast. The list of sites of importance for nesting sea turtles in the Caribbean of Costa Rica include, Barra de Colorado, Tortuguero, Parismina, Pacuare, Matina, 12 millas, Negra, Cahuita, Gandoca and Uvita (Chacón *et al*. 2007).

In Pacuare, one of these projects is the Research and Conservation Sea Turtles Project in the Northern Beach of Pacuare, which was launched since 2012 by the Latin American Sea Turtle Association (LAST), Tortuga Feliz Foundation (FTF) and the Asociación para el Ambiente del Nuevo Pacuare. This project involves part of the community in conservation works, either as research assistants or watching and management of the hatchery. This community is a vulnerable area of the country, given the few job opportunities and the insecurity it experiences because of drug use and trafficking. Likewise, on the beach front, during the sea turtle nesting season, people are invading that are dedicated to poaching eggs and hunting sea turtles, so the pressure on these reptiles increases considerably (Fonseca & Chacón, 2014).

Given this scenario, the conservation activities of this project are extremely important to try to protect and recover the four species that nest in this site, which in order of abundance would be the following: leatherback sea turtle (*Dermochelys coriacea*), green sea turtle (*Chelonia mydas*), hawksbill sea turtle (*Eretmochelys imbricata*), and loggerhead sea turtle (*Caretta caretta*) (Fonseca *et al*. 2012; Marion and Chacón 2013; Carrasco *et al*. 2019).

Pacuare Project has as goal: to improve the conservation status of nesting sea turtle populations in the Northern Beach of Pacuare, by involving communities and government agencies. This is supported by the consolidation of institutional agreements that lead to the standardization of conservation activities, which allows increasing the reproductive success of sea turtle clutches and the protection of females during nesting process. This BBT report includes results of sea turtle conservation activities carried out in the Northern Beach of Pacuare between February and July 2021, unfortunately the second year of Pandemic causes deep effect over volunteer recruitment specially the international volunteers reducing our capability to protect all nesting females and to raise resources to cover basic costs.

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Location of Pacuare Beach

Methods

Each turtle observed on the beach was identified according to the presence of metallic markings on its posterior fins or internal markings on its right shoulder called PIT. In the cases where the turtles did not present these marks, they were placed. After the marking of the females, the curved carapace length (CCL) and the curved width of the carapace (ACC) were measured by using a flexible metric tape. Each stage of this process was performed with the use of latex gloves by the people who handled the animal.

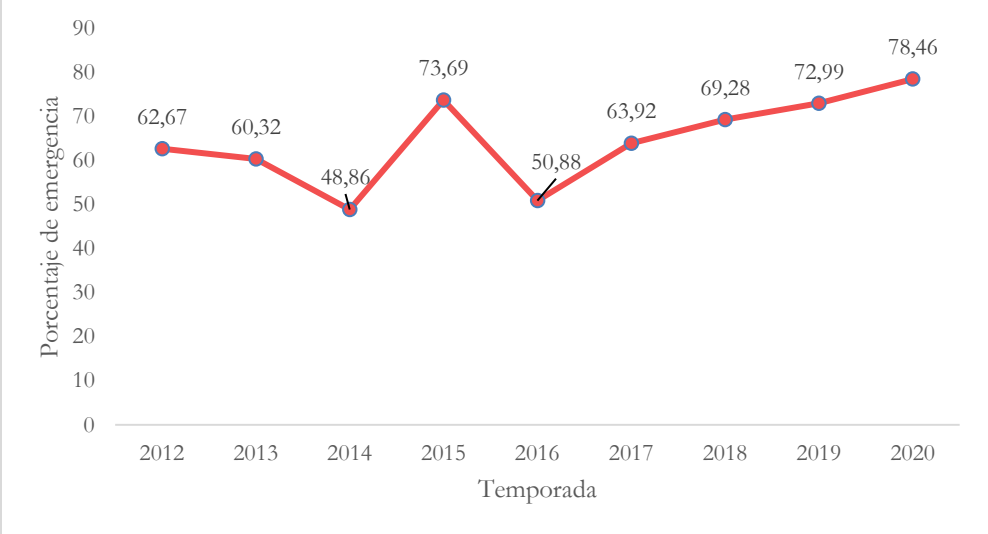
The field staff who handled the eggs always used latex gloves to avoid a zoonosis and contamination of the eggs. When the turtle began spawning the eggs, a high-density plastic bag was placed inside the nest to collect the turtle eggs directly. Later, when the turtle began to cover the nest, the bag was quickly removed and placed in a container with wet sand in the bottom to maintain a constant temperature. Then, the eggs were relocated in the incubation hatchery, located in front of Puerto Vargas Park Ranger Headquarter. After the 60 days of incubation, the exhumation of the nests was carried out and the percentage hatch rate was determined.

The release of the neonates occurred after 5:00 pm each day, or in hours where there is no strong sunlight. This decision was made to reduce the dehydration of the neonates. The releases were made 2km north of the hatchery, in order to avoid the interaction of the neonates with park visitors. The release sites were rotated, in order to prevent marine predators from learning a pattern of neonate activity, according to the site and time of the releases.

Neonates were never released directly onto the water. A distance of at least 10m was observed between the high tide line and the release zone. Previously, the release area was cleaned of organic and inorganic waste, and with the help of a palm leaf, the sand was flattened to eliminate holes in the sand or traces of people, where the turtles can fall, and require a greater investment of energy to reach the sea.

Results

A total of 293 leatherback nesting events have been documented (March to July), of which 224 were identified as successful and 69 were false crawls. For the total events 76 were poached (34%), while 43 nests were rescued and relocated to safe areas of the beach and another 105 have been relocated to the hatchery. With a success rate of 78,46% we release a total of 9704 leatherback baby turtles.



Trend of success rate at Pacuare Beach

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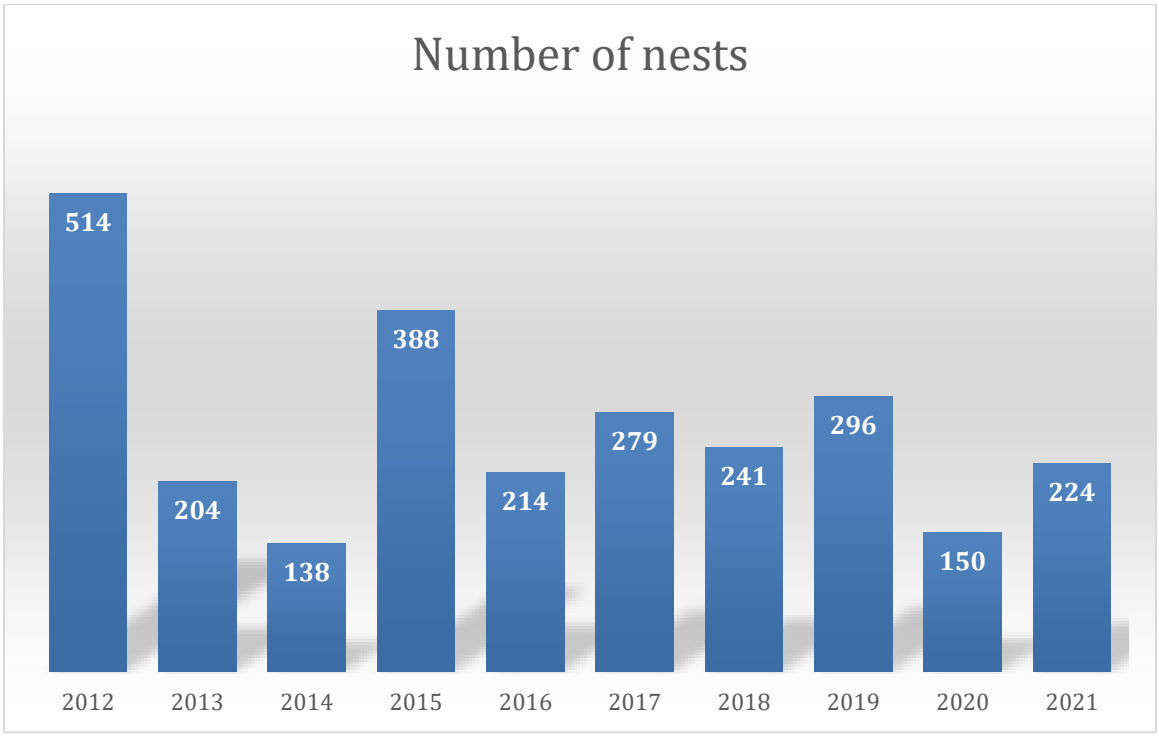

Trend of number of nests in Pacuare Beach

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Volunteer doing wooden markers at Pacuare Beach

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Project Hatchery

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Banner in front of our hatchery at Pacuare Beach