

**FINAL REPORT  
SEA TURTLE PROGRAM 2018  
TORTUGUERO, COSTA RICA**

**FOR:**

**Tortuguero Conservation Area, Tortuguero National Park  
Ministry of the Environment and Energy of Costa Rica**

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## Executive Summary

- 1 The month with more rain was July (1,268.5mm) and as in previous years, September was the driest month (195.0mm).
- 2 Air temperature during 2018 ranged between 18.0 - 31.0 °C.
- 3 The temperature at the beach and inside some nests was recorded throughout the season to generate models of this variable during the incubation cycle.
- 4 Beach profile measurements determined that the total area available for nesting in the first 8 kilometers of the Tortuguero National Park (TNP) varied between 65,454 and 240,202 square meters.
- 5 A total of 52 track surveys was conducted between the mouth of the Tortuguero river and the Jalova lagoon in 2018.
- 6 The first leatherback nest was recorded on March 3. Green turtle nesting was observed regularly between July and October; although the first nest was registered on May 12.
- 7 The leatherback nesting season was very similar to the previous season, with 21 nests registered for this species this year as recorded during the weekly censuses.
- 8 The leatherback nesting population continues to exhibit very low levels.
- 9 The nesting peak of the Green turtle was recorded on August 31: 1,265 nests were counted in one night.
- 10 The population trend of Green turtles slowed down relative to the growth that it had until a few years ago, and reached a temporary stability. Currently, it appears to exhibit a decrease in the last couple of years.
- 11 Only 11 Hawksbill turtle nests were observed during the weekly censuses inside the TNP.
- 12 During the weekly censuses, we recorded a total of 13 Leatherback turtles and 48 Green turtle nests that were poached during the year in the TNP.
- 13 During the season we found evidence of at least 25 Green turtle females captured and dragged off the beach.
- 14 During this season, 152 turtles preyed by jaguars were recorded on the beaches of the TNP: 130 Green turtles, 11 Leatherbacks and 11 Hawksbill sea turtles.
- 15 The Field Research Coordinator (FRC) and the Research Assistants (RAs) conducted a total of 22 additional track surveys between the mouth of the Tortuguero river and the Jalova lagoon, between April 2 and June 14, 2018.
- 16 Between April 2 and June 14, a total of 156 Leatherback nests, 19 Green turtle nests and 23 Hawksbill nests were recorded between the mouth of the Tortuguero river and the Jalova lagoon.
- 17 During the censuses carried out every 3 days during the leatherback nesting season, at least 18 nests of this species were recorded that were poached on the beach.
- 18 A total of 471.45 hours of patrol was recorded between the months of April and June; 244.30 hours in Tortuguero and 247.15 hours of patrols carried out by GVI between kilometer 24 and 28.8 in Jalova.

19 A total of 24 encounters with Leatherbacks was recorded: 10 in Tortuguero and 14 in Jalova. All these encounters corresponded to 21 different individuals: 6 new females (25.0%) and 15 (62.5%) previously marked.

20 Of the Leatherback turtles worked at night, the average measurement (CCLmin) was  $150.9 \pm 8.9$  cm, varying between 133.5 - 166.3 cm.

21 Only 12 leatherback turtle nests were marked at both ends of the Tortuguero beach in 2018. Of these, 6 nests had to be relocated.

22 The average hatching success for nests marked *in situ* was 41.9%, while the emergence success was estimated as 38.5%.

23 The average hatching success for the relocated Leatherback nests was 38.8% and the emergence success was 35.4%.

24 During the daily track surveys conducted by the FRC and the RAs between June 9 and November 1, a total of 14,418 Green turtle nests and 13,027 Green turtle failed nest attempts were recorded between the mouth of the Tortuguero river and the marker of the kilometer 8. During the censuses between km 24 and the lagoon of Jalova there were registered 4,891 nests and 5,966 false departures.

25 The days with the highest number of nests were at the beginning of September the night of 3 for the Tortuguero sector with a total of 303 Green turtle nests and from August 24 for the Jalova area, with 172 nests. These were the only dates where more than 300 new nests were observed in the first 8 kilometers of the beach. In the same way, they were the few occasions where the number of nests south of the TNP exceeded 100 nests per night.

26 The beach section (200 m) that presented the largest nesting was just the first section of kilometer 6, with a record of 887 nests.

27 Hawksbill turtle activity during 2018 was the highest recorded so far, with 62 nests and 23 failed nest attempts trails in the 8 km north of the PNT.

28 During the daily censuses, poaching of recent nests of sea turtles was also recorded. During this year, 145 Green turtle nests were poached, in addition to 5 Hawksbill turtle nests.

29 In total 1,984.20 hours of night patrols were carried out from June 9 to October 31; 1,475.20 hours in Tortuguero and 509.0 hours in Jalova.

30 A total of 1,833 encounters with Green turtle nesting females was recorded in 2018; of these, 954 did not present old marks and 567 did not; the remaining 312 were turtles that were found more than once nesting.

31 Twenty six Green turtles were found marked from other projects in Costa Rica; 20 marked by researchers from Caño Palma, 1 marked in the Pacuare Natural Reserve. In addition, 3 turtles were found marked with plates from the National Fishing Institute of Mexico and 1 turtle marked by the WIDECAS organization, which were probably marked in the Pacuare Natural Reserve or in Gandoca-Manzanillo, places where this NGO usually operates.

32 The other previously tagged Green turtles had originally been found in Tortuguero. Of these, 190 individuals had been marked more than 10 years ago and 23 of these more than 20 years ago. In addition, 3 turtles were found that were tagged for the first time in the 80s. Of these, the oldest and most outstanding is a turtle that was tagged in Tortuguero in 1984 for the first time and was found nesting in Tortuguero a total of 28 times since then.

33 Most of the Green turtles nested in the edge zone (64.8%), 26.9% nested in the open area, 7.4% in the vegetation zone and 0.6% did not lay eggs.

34 The average minimum carapace length for the Green turtle first marked was 105.0 cm and had a range of 89.0cm - 122.4 cm (CCLmin). The females previously marked presented values of 106.4 cm with ranges of 87.7 cm - 123.2 cm.

35 The maximum average straight carapace length for turtles without previous markings was 98.9 cm and had a range of 83.0- 114.9 cm (SCLmax). On the other hand, turtles with previous markings had a length of 100.1 cm, with a range of 78.5 cm - 115.5 cm.

36 There were encounters with Hawksbill turtle on 19 occasions, 14 of which were marked for the first time.

37 The minimum carapace length of the Hawksbill averaged 87.4 cm, with a range of 83.2 - 91.3 cm (CCLmin). The average maximum length for this turtle was 84.2 cm, with a range of 79.4 - 88.3 cm (SCLmax).

38 A total of 183 Green turtle nests were tagged; 141 in Tortuguero and 42 in Jalova.

39 The average hatching success of Green turtle nests was estimated at 81.7% and that of emergence success at 71.7%.

40 The incubation period for Green turtle nests could not be determined with certainty due to the intervention of people illegally removing neonates from the nests before they emerged naturally.

41 Unhatched eggs containing albino or deformed embryos totaled only 0.05% of all deposited eggs in which presence of some type of embryo was detected.

42 In total, 43 Hawksbill turtle nests were monitored. Of these, 16 were relocated due to the high risk of being looted. The averages of success of hatching and emergence of nests in situ were 68.0% and 56.6%, respectively. While the relocated nests that did not suffer any disturbance presented respective values of 67.0% and 37.2%.

43 Visitation to the Visitor Center was slightly higher than that presented in 2016 and far exceeded the numbers of last season. A total of 18,186 visitors were registered during 2018, with an average of 50 visitors per day.

44 Light pollution remained very similar to that present in previous years. However, there was a decrease in the number of light bulbs visible from the beach. In addition, we applaud the initiative of the Costa Rican Energy Institute (ICE) for testing new luminaires with less impact on biodiversity. Although we clarify and want to set a precedent, that the lights installed as a pilot test do not meet the technical requirements necessary to be considered sea turtle friendly.

45 Despite the efforts made by ICE to install luminaries that had a lower impact on wildlife and in particular for sea turtles, in 2018 there were at least 3 events of disorientation of newborns, in each of which were identified a minimum of 50 turtles lost around public lights, two of which were on trial, which with their brightness attracted neonates, making them more vulnerable to predation by dogs, raccoons and birds.

46 At kilometer 4.6, just in front of exit 30 near one of the hotels in the village, a stray female Green turtle was rescued, who seemed disoriented by the brightness of the lights of the sector. This turtle was guided back to the beach.

47 Three Green turtles were tracked by satellite telemetry. All traveled with different destinations. One traveled more than 1,000 kilometers to reach the foraging areas in the Miskitos archipelago in Nicaragua. The second tagged turtle was found nesting in Tortuguero a second time before embarking on a trip east to Haiti and the Dominican Republic, where after 2,740 km traveled it seems to have stopped momentarily in its migration. Finally, the last released tortoise, after staying in the area for several weeks, began its journey north until it reached the Yucatan peninsula in Mexico, where after swimming 2,000 kilometers it seems to have reached the feeding meadows for this species.

