

First Account and Description of a Hawksbill (*Eretmochelys imbricata*) Nesting Beach in Caribbean Honduras

Lindsey Eggers Damazo^{1,2} and Stephen G. Dunbar^{1,2}

¹Protective Turtle Ecology Center for Training, Outreach, and Research, Inc. (ProTECTOR), Colton, CA 92324

²Marine Research Group, Department of Earth and Biological Sciences, Loma Linda University, Loma Linda, CA 92350



Background

Information on hawksbill turtle nesting in the country of Honduras is extremely limited. Recently, however, the organization ProTECTOR has established research and conservation efforts in the country. In partnership with the Bay Islands Conservation Association (BICA), a beach monitoring program was set up at Pumpkin Hill Beach (PHB) on the island of Utila off the north coast of Honduras. Data from the first three seasons, 2011-2013, are presented.



Fig 1. Map of Utila and Pumpkin Hill Beach. Inset: Utila in relation to the Caribbean.

Methods

- PHB was monitored nightly between 18:00 and 04:30 hours from May through November
- Nesting turtles had standard morphometric data collected, identifying photographs taken, and were tagged (Fig. 6)
- During or following oviposition, eggs were counted (Fig. 2)
- GPS coordinates were taken at each nest site
- In 2012, additional data were collected, including the mass and diameter of 10 eggs from each nest (Fig. 7), as well as hatching morphometric data following emergence (Fig. 8)



Fig 2. Hawksbill turtle laying eggs.

Results: Overall Nesting Demographics



GPS coordinates plotted for each nest site indicate a strong preference for the westernmost section of the beach (Fig. 10), seen across all three nesting seasons.

Fig 3. Nest sites plotted for each season. Red markers = 2011 nests, blue markers = 2012 nests, and purple markers = 2013 nests.

Results: 2012 Season

Mean egg mass (g)	Mean egg diameter (mm)	Mean hatchling mass (g)	Mean hatchling SCL (mm)	Mean hatchling SCW (mm)	Mean hatchling success (%)
27.4	36.37	15.8	41.34	28.97	73.0

Table 1. Mean values for eggs (n = 60) as well as mean hatchling morphometric data (n = 272) and hatching success (n = 4).



Fig 7. L. Damazo weighs an egg.



Fig 8. Hatchling being weighed.

A 2012 profile of PHB showed that the beach is 475 m long, but turtles nested in an 80 m section at the westernmost end. Elevation change along the beach was 4 m, with the highest elevation at the westernmost end (Fig. 3). Vegetation data (Fig. 9) indicate the nesting section had a 51.4% tree coverage, in contrast to 3.8% tree coverage on the rest of the beach.

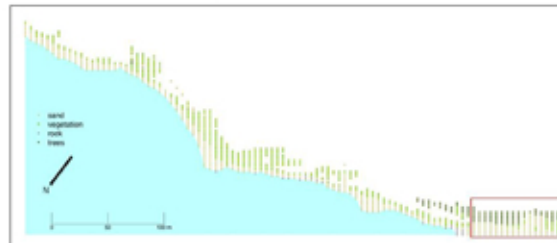


Fig 9. Map of Pumpkin Hill Beach depicting location of substrate types. Box indicates westernmost region of beach that hosted the most nesting turtles and had the greatest amount of tree coverage.

Discussion

Pumpkin Hill Beach supports a small but stable population of nesting hawksbill turtles that prefer to nest on the westernmost 80 m of beach. This is likely due to the extensive tree cover, as studies show hawksbills often prefer to nest in the forest (Loop et al. 1995; Kamel and Delcroix 2009). This section also has the highest elevation, which might also explain its selection by turtles, as hawksbills often nest at specific elevations (Horrocks and Scott 1991; Zare et al. 2012). Hawksbills nest every 2-3 years, so data on returning nesters is still sparse. However, one tagged turtle from the 2011 season was recorded nesting in 2013. Data from future nesting seasons will help fill gaps in our knowledge regarding the status of this critically endangered species in the country of Honduras.



Fig 10. The westernmost end of PHB.

Acknowledgements

We wish to thank BICA associates Chel Rivera, Gene Jackson, Pamela Ortega, Ana Quinonez, and Glenn Pedersen. Special thanks go to Robyn E. Reeve, Amy L. Tan, Terri Eggers, and Jason Damazo for invaluable assistance. Funding was provided by ProTECTOR, the Department of Earth and Biological Sciences at Loma Linda University, and the U.S. Fish and Wildlife Service. Permits were provided by the Secretaria de Agricultura y Ganaderia (SAG), Dirección General de Pesca y Agricultura (DIGEPESCA), and Loma Linda University IACUC.

References Cited

- Horrocks, J.A. and N.M. Scott. 1991. Nest Site Location and Nest Success in the Hawksbill Turtle *Eretmochelys imbricata* in Barbados, West-Indies. *Marine Ecology-Progress Series* 69: 1-8.
- Kamel, S.J. and E. Delcroix. 2009. Nesting Ecology of the Hawksbill Turtle, *Eretmochelys imbricata*, in Guadeloupe, French West Indies from 2000-07. *Journal of Herpetology* 43: 367-376.
- Loop, K.A., J.D. Miller, and C.J. Limpus. 1995. Nesting by the hawksbill turtle (*Eretmochelys imbricata*) on Milman Island, Great Barrier Reef, Australia. *Wildlife Research* 22: 241-251.
- Zare, R., M.E. Vaghefi, and S.J. Kamel. 2012. Nest Location and Clutch Success of the Hawksbill Sea Turtle (*Eretmochelys imbricata*) at Shidvar Island, Iran. *Chelonian Conservation and Biology* 11: 229-234.

Across all three seasons, nesting turtle morphometrics (Fig. 4) and incubation periods (Fig. 5) were similar to values reported worldwide for hawksbills.

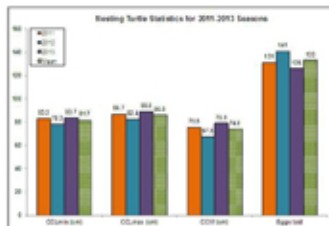


Fig 4. Nesting turtle morphometrics for each season, and the overall mean for all three seasons.



Fig 6. Nesting hawksbill on PHB.

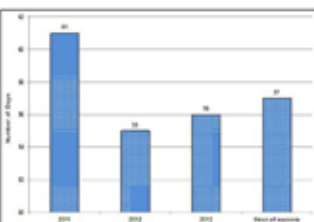


Fig 5. Average incubation period for each season, as well as the overall mean for all nesting turtles.