

ABSTRACT

Ecology and Use of Nearshore Foraging Sea Turtle Populations Around Tobago,
with an Emphasis on Hawksbills

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This thesis presents: an in-water assessment of the sea turtle foraging aggregation at dive sites around Tobago; the use of mitochondrial DNA (mtDNA) to investigate linkages among immature hawksbills in the Tobago foraging aggregation, adult females nesting on Tobago's shores, and regional hawksbill populations/aggregations; an assessment of the local sea turtle fishery; and an estimate of the economic value of sea turtles in Tobago using stated preference valuation techniques. Juvenile hawksbills were widely distributed around Tobago, with greater abundance at sites dominated by sponge. The truncated size distribution on the leeward coast suggests that harvesting pressure is greater on this coast. The Tobago rookery is genetically distinct from all others characterized to date. The foraging aggregation is estimated to mostly originate from Cuba, Barbados (Leeward Coast) and Puerto Rico, while a large proportion of both the Cayman Islands and Puerto Rico foraging aggregations are derived from the Tobago rookery. The impact of harvest in Tobago is likely to be distributed across the region. Turtle fishers were widely distributed around the island, used a variety of gear, and their reported effort varied considerably. Approximately 10% of fishers targeted sea turtles in 2007, with a mean annual harvest of 33 turtles per

fisher and total harvest of approximately 1,254 turtles for Tobago. Knowledge of the regulations governing turtle fishing was low among fishers, and enforcement inadequate. The results of both a choice experiment among recreational SCUBA divers and contingent valuation survey of international tourists highlight the significant passive use and non-consumptive use value of sea turtles, and therefore the importance of supporting the conservation of sea turtles in Tobago. This study has gathered valuable information on the local sea turtle populations of Tobago, critical to direct future research and inform management and conservation efforts.

Keywords: sea turtles; *Eretmochelys imbricata*; foraging habitat; mitochondrial DNA (mtDNA); mixed stock analysis; sea turtle fishery; environmental valuation; contingent valuation; choice experiment.