

HATCHLING SEX RATIOS OF HAWAIIAN GREEN SEA TURTLES

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Green sea turtles in Hawaii represent an isolated population inhabiting the Hawaiian Archipelago. Green turtles possess temperature-dependent sex determination (TSD) which can result in a variety of hatchling sex ratios. Thus, hatchling sex ratios are of conservational and ecological interest. French Frigate Shoals (FFS), part of the Hawaiian Islands National Wildlife Refuge, is an atoll where approximately 90% of Hawaiian green nesting occurs. The study sites, East and Tern Islands, are two sandy islets that help comprise FFS. The purpose of this study was to predict hatchling sex ratios produced on East and Tern Islands based on both nest and beach temperature data from 1998-2004. Dataloggers were placed into nests and in beach locations at mid-nest depth (approximately 45 cm) to monitor temperatures. Sex ratio predictions were based on the average temperature during the middle third of incubation. Based on the nest temperature data, the results suggest an overall male-biased sex ratio. The sand dataloggers also recorded relatively cool temperatures and followed similar patterns. Additionally, a second technique was employed to verify the sex of hatchlings from the 2004 nesting season. Gonadal histology was used to identify the sex of hatchlings that were found dead in nests after all of the live hatchlings emerged. The kidneys and gonadal tissues were preserved and processed using standard paraffin histological procedures. Each gonad was then examined microscopically to determine if it was an ovary or a testis. Both male and female hatchlings were identified from FFS during 2004.

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