

Reproduction and Feeding of Marine Turtles in the Fernando de Noronha Archipelago, Brazil

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The Fernando de Noronha Archipelago (3;50'S, 32;24'W), situated 215 miles off the northeastern coast of Brazil, is composed of one main island and 20 smaller islands, all of volcanic origin, with a total area of 26 km² (Almeida, 1958). It is bathed by the northern branch of the south equatorial stream, which provides clear and warm waters. The archipelago was discovered in 1503 by Americo Vesputio, and has since suffered intense anthropogenic pressure. According to the elders of the island people, marine turtles constituted a part of their regular food intake until the 1970's. The Brazilian Sea Turtle Conservation Program (TAMAR/ IBAMA) initiated its activities in the archipelago in 1984. At this time, the archipelago's population of green turtles, *Chelonia mydas*, was on the brink of extinction. Through environmental education campaigns, the harvest of turtles and eggs by humans has been eliminated. In 1988, the creation of the Fernando de Noronha Marine National Park provided legal protection to the main turtle nesting areas in the archipelago.

Every year during the nesting season (January to June), researchers patrol the beaches to tag egg-bearing females and document nesting activity. A total of 58 female green turtles have been tagged since 1984, with a record number (n=14) tagged in 1994. Mean curved carapace length (CCL) is 116.0 cm (range 104.0-124.0, n=26); curved carapace width (CCW) is 107.0 cm (range 97.0-116.0, n=26). Nearly all nests remain in situ. Incubation averages 53 days; hatch success averages 80.2%. Over the past 12 years, 33,936 hatchlings have been released to the sea. The main hatchling predators are a lizard (*Tupinambis tegiuxim*) introduced to the island for the purpose of rat control, and two species of crab (*Grapsus grapsus*, *Gecarcinus lagostoma*) (Bellini and Sales, 1992). In the water, the main predators are octopus and various fish, including sharks.

The archipelago is not only a nesting area for green turtles, but also a feeding ground for juvenile green and hawksbill (*Eretmochelys imbricata*) turtles. Since 1987, TAMAR/IBAMA has surveyed the main feeding areas. Researchers observe and capture turtles during dives in order to tag, measure and weigh them (after which the turtles are immediately released). The average weight and curved carapace dimensions of juvenile hawksbills are 15.55 kg (range 2.50 -40.00, n=38), 52.3 cm CCL (range 30.5-75.5 cm, n=38) and 44.1 cm CCW (range 26.5-65.5, n=38). For juvenile green turtles, these values are 14.37 kg (range 3.80-25.00, n=17), 49.4 cm CCL (range 32.5-60.0, n=17), and 43.3 cm CCW (range 26.5-56.0, n=17). Captured turtles are tagged on their front flippers. For experimental purposes, some individuals are also tagged on a rear flipper.

To date there have been 583 records, including 153 (52 greens, 101 hawksbills) captures. Of these, 43 (6 greens, 37 hawksbills) were captured in Sueste Bay (=1 km²) and 20 (3 greens, 17 hawksbills) in Santo Antonio Harbor (=0.8 km²). Capture depth ranged from 0.5-20.0 m.

Capturing usually occurred during the day. Since 1992, the capture-recapture study has been continued at a frequency of three dives per week. Recapture data are providing a basis from which to evaluate rates of growth in wild populations. In addition, continuing study will provide insight into the migratory routes of these juveniles. The same kind of study is being conducted in the Atol das Rocas Biological Reserve, another important feeding ground for both species (Bellini et al., 1996). Unfortunately, surveying within the Reserve is hindered at the present time by a low frequency of monitoring trips.

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