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USE OF A GLASS BOTTOM BOAT FOR SEA TURTLE RESEARCH AROUND FERNANDO DE NORONHA ARCHIPELAGO, BRAZIL

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Fernando de Noronha archipelago is located 346 kilometers from the Brazilian continental coast, which is a green turtle rookery and developmental site for green and hawksbill turtles. Loggerhead and olive ridley turtles seldom appear in the archipelago. This is the first research that has used a glass bottom boat to gather data on the behavior, frequency, and species composition of sea turtle populations within the archipelago. This research aimed to test the effectiveness of this new method of observation, for scientific purposes. The research took place from December 16, 2011 to July 18, 2012; data was collected onboard a glass bottom boat called “NAVE” (Nave Visão Subaquatica, or Aquatic View), which was developed for oceanographic expeditions and adapted for tourism operations around the island. Sites were selected according to the seawater conditions on the day (e.g. visibility, current, and waves). Each site was defined considering its environmental

characteristics; water depth varied from five to twenty meters. The observer always stayed in the same position, looking at the water column through the glass lens and recording the initial and end time, species, estimated size (based on curved carapace length), estimated water depth, behavior (such as swimming, feeding, floating, resting, auxiliary resting, or at cleaning station), and environmental characteristics. After 75 operations (57 hours and 3 minutes of monitoring), 243 sea turtles were sighted at eight of eighteen sites, which were sampled at least once. Considering these eight sites, the frequency in Santo Antonio Harbor was the highest (9 turtles per hour), while the average was 4 turtles per hour per site. Only two species were detected: green (n=199) and hawksbill turtles (n=39), which correspond to 5.1 greens for each hawksbill. Five individuals could not be identified to a species. Most of the sighted turtles were classified as small juveniles (green=135; hawksbill=22), followed by juveniles (green=53; hawksbill=17), sub-adults (green=5), adults (green = 3) and undetermined size (green=3). Adults were male green turtles. Size was different between the two species. While most of the green turtles were recorded at sandy bottom (n=106; 53.27%), the hawksbill turtles were usually found in hard bottom areas (n=32; 82.05%). Both species were swimming most of the time (green=118; 59.3%; hawksbill=19; 48.72%), and feeding less frequently; floating, resting, auxiliary resting, and staying at the cleaning station followed this activity. Observations through the glass bottom boat seemed to be realistic, as data were collected only when the boat drifted above the turtles (except when turtles were floating around the boat), although turtles resting under rocks could not be detected. This method caused less impact on behavior than other in-water methods, such as snorkeling or scuba diving. Most of the turtles were observed from two to ten meters deep (n=188); hence, discretion was essential to ensure collection of reliable data. The wide water view through the glass bottom made this method an effective tool for sea turtle in-water research.

Session: In-Water Biology (Ecology, Telemetry, Foraging, Behavior)

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