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East Island Turtle Report 2010
US Fish and Wildlife Service/National Marine Fisheries Service

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I. General Monitoring

The 2010 turtle season consisted of an unusually short 3.3 week period of monitoring. This was due to limited flexibility of scheduling for personnel on research vessel transport to the study site. There were 231 nesting green sea turtles (*Chelonia mydas*) identified on East Island during the monitoring period. Turtle Camp began on May 21, 2010 and continued until June 13, 2010. Monitoring consisted of 23 full nights and 1 partial night of data collection. May 21, 22, and 23 were training nights.

At 1900 every night there was a preliminary walk to map the placement of monk seals, count basking turtles, retrieve temperature data loggers, and collect copper wire and washed-up fishing gear that posed an entanglement threat to life on the island. Each night ideally consisted of six walks around the island at the following times: 2100, 2300, 0100, 0300, 0500, and 0700h (sunset to sunrise). Due to the duration between walks, it is possible that some turtles that were up crawling or digging false pits were not seen. However, it is unlikely that those turtles that actually nested were not recorded as being up at some time during the 24 days of data collection.

There were 213 possible nests recorded on East Island during the season. Eggs were witnessed for 46 of these nests. Turtles were observed covering eggs (pattycaking) for 46 nests, and backfilling over 121 nests.

There were some possible nests identified as pattycaking and backfilling that did not fit the normal nesting schedule. Turtles may come up 10-14 days after a nesting attempt and nest again. In some cases, turtles were recorded coming up a few days after making a nesting attempt. This is likely due to misidentification of activity, but may also have been due to misreading the mototool number. Turtles were identified digging less than five days after backfilling nine times, on 5/25/10 for mototool number 64, on 5/27/10 for mototool number 62, on 6/3/10 for mototool number 147, on 6/4/10 for mototool number 142, on 6/6/10 for turtle with mototool number 13, and on 6/6/10 for mototool number 173, on 6/6/10 and 6/11/10 for mototool number 42, on 6/9/10 for mototool number 93.

No turtle hatchlings were seen on East Island during the monitoring period.

II. GPS

A GPS unit Garmin Etrex Vista HCx was used for recording the latitude and longitude of nests: a point was recorded each time a turtle was witnessed laying eggs or pattycaking but not when the activity was identified as backfilling, since the potential for overestimating the number of nests is greater in that instance. Ninety-two nests were recorded during the 2010 season and 92 corresponding GPS waypoints were taken.

At the beginning and end of the season, a second GPS unit (Garmin GPSmap 76Cx) was used to take waypoints for the perimeter of the island. While walking along the high water line, one point was recorded approximately every 3-5m. Also, GPS location for characteristic features of the island (Fig. 1), such as large debris and vegetation was taken resulting in the recording of 190 points. The maps showing the results will be used as a comparison to determine whether the shape of the island is changing through time, and what the extent of this change is, by consistently repeating the procedure in future seasons.

III. Data Notes

Internal magnetically coded PIT tags were used for the 13th season at French Frigate Shoals. No external tags were applied. PIT tags were applied in both the left and right hind flippers. Since it was an unusually short season, tags were verified as soon as the turtle was observed on a subsequent evening using a portable PIT tag scanner and the entire PIT tag number was recorded in the field book. To aid in discouraging further discrepancies (misread mototool numbers or misread PIT tags) and detecting double PIT tagged turtles, the last four digits of PIT tag numbers were recorded each evening the turtle was encountered in the field books and on the turtles' respective data sheets.

Mototool numbers 1 through 231 were used during the 2010 season.

There were one turtle (10) that was not checked for PIT tags in either hind flipper. This animal was seen only once while crawling to the water.

There was one turtle that received only a left hind flipper tag (182). While six turtles 35, 62, 128, 166, 184, and 210 received only a left hind flipper tag due to significant injury to the right.

There was one turtle that received only a right hind flipper tag (196). There were two turtles that received only a right hind flipper tag because of an injury to their left hind flipper: turtles 74 and 173.

All data will be computerized by the Pacific Islands Fisheries Science Center, and copies made available to the U.S. Fish and Wildlife Service.

IV. Tumors

There were 19 turtles identified with tumors this year, or 8.48% of the nesting population: mototool numbers 1, 33, 38, 43, 52, 58, 74, 75, 79, 95, 134, 136, 153, 157, 160, 188, 189, 199, and 204. Most were lightly afflicted or had the appearance of undergoing regression. Eleven of the 231 turtles were not checked for tumors.

V. Data Loggers

Four archival sand data loggers were initially buried on East Island to measure sub-surface temperatures during the nesting and hatching season. The sand data loggers were buried approximately 50 cm deep during the sunset walks on 5/21/10, 5/22/10, and 5/25/10. Six units were placed directly into turtle nests during the 2010 season. One sand data logger (1262190) was retrieved and placed within a nest for mototool number 211 (satellite tagged turtle L2), leaving a total number of 3 archival sand data loggers buried. The deployment locations of these dataloggers can be found on the 2010 East Island log. The dataloggers were left in the ground at the termination of turtle camp to be retrieved at a later date after incubation and hatchling emergence.

In 2010, 13 nest dataloggers were successfully retrieved from previous (2008-2009) nesting seasons, following normal protocol.

VI. Miscellaneous Notes

A total of four turtles, or 1.73% of the witnessed 2010 nesting population, were missing portions of their front flippers: Turtles 60, 136, 147, and 204 (missing less than 50% of RFF): turtle 204 (missing 50% or more of the RFF); turtles 35 and 66 (injured or wounded RFF). There was one case noted of strangulation by entanglement of the LFF of turtle 61, however, the obstruction was not observed or cut away as it was most likely deeply imbedded within the flipper.

A total of eleven turtles or 4.76% of the observed 2010 population were missing portions of their hind flippers: turtle 195 (missing less than 50% of LHF), turtles 70, 74, 100, and 109 (missing 50% or more of LHF), turtles 66 and 155 (missing less than 50% of RHF), turtles 128, 166, and 210 (missing 50% or more of RHF), and turtles 62, 193, and 200 (injured or wounded RHF).

There were two fresh nests observed being dug up by turtle 37 on 5/23/10 and turtle 205 on 6/8/10 during the 2010 season.

A total of eleven turtles had minor injuries or wounds to their carapace: turtles 47, 66, 86, 93, 114, 139, 171, 211, 213, 221, and 225.

Turtle 143 had a fresh impact injury of unknown origin to the carapace. The wound appeared to be severe with pieces of scutes moving up and down with the expansion of the lungs when the turtle took a breath.

Turtle 184 appeared to have a healed shark bite wound. The turtle was missing 100% of the RHF and 40% of the 4th right lateral scute and a small portion of the 3rd right lateral scute.

Turtle 34 was observed with a prolapsed cloaca.

Fig. 1 East Island, map of distinctive features taken with GPS unit and plotted using "*Google Earth Pro*"®.

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