

Pacific Islands Fisheries Science Center
Marine Turtle Research Program
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East Island Turtle Report 2011
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I. General Monitoring

The 2011 turtle season consisted of a 5 week period of monitoring. There were 808 nesting green sea turtles (*Chelonia mydas*) identified on East Island during the monitoring period, with an average of 96 turtles recorded above the berm each night. Turtle Camp began on June 22, 2011 and continued until July 26, 2011. Monitoring consisted of 34 full nights and 1 partial night of data collection. June 22, 23, and 24 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 the wildlife. Each night ideally consisted of six walks around the island at the following times: 2100, 2300, 0100, 0300, 0500, and 0700h (sunset to sunrise).

Turtles were individually identified (mototooled) with numbers 1 through 808 engraved on the 4th right lateral scute. All numbers were preceded by a – to differentiate them from previous years' mototool numbers. Numbers 620A and 683A were used instead of 621 and 684 respectfully as a mistake in numbering was recognized and corrected immediately.

Hatchlings were first observed on 7/11/11 and seen on subsequent nights.

There were 1142 possible nests recorded on East Island during the 2011 season. Eggs were witnessed for 244 of these. Turtles were observed covering eggs (pattycaking) for 213 nests, and backfilling 685 nests.

There were some possible nests that did not fit the typical inter-nesting interval. 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 human error in correctly identifying the turtle's activity or mototool number. Turtles were identified digging less than five days after a possible nesting event 49 times (Table 1). A total of 3 turtles (0.4%) displayed anomalous nesting behavior: 449 was seen covering eggs (pattycaking) and then nesting (eggs seen) at a different location later the same night (7/16/11); 485 was seen nesting (eggs seen) and then digging an egg chamber at a different location later the same night (7/12/11); 710 was seen nesting (eggs seen) on 7/7/11 and then observed crawling above the berm on 7/8/11.

Table 1. Possible mis-identified activity, corresponding turtle and date of event.

MOTOTOOL	DATE			MOTOTOOL	DATE	
19	7/20/2011			291	7/8/2011	
37	7/7/2011			306	6/26/2011	
54	6/23/2011			307	7/15/2011	
58	7/8/2011			314	6/28/2011	
60	7/7/2011			351	6/29/2011	
85	6/23/2011			362	7/21/2011	
125	6/23/2011			383	6/30/2011	
148	6/24/2011			396	7/14/2011	
150	6/24/2011			449	7/1/2011	
154	6/24/2011			453	6/29/2011	
170	7/8/2011			459	7/14/2011	
179	7/8/2011			466	7/18/2011	
191	6/24/2011			484	6/30/2011	
215	7/21/2011			489	6/30/2011	
234	6/25/2011			559	7/7/2011	
243	7/22/2011			566	7/1/2011	7/13/2011
245	7/13/2011			594	7/14/2011	
247	7/8/2011			620	7/4/2011	
249	7/23/2011			623	7/3/2011	
257	6/25/2011			648	7/5/2011	
263	7/7/2011			679	7/7/2011	
269	7/20/2011			680	7/7/2011	
275	6/26/2011	7/8/2011	7/19/2011	743	7/25/2011	
283	7/13/2011			762	7/15/2011	
285	7/8/2011					

II. GPS

A GPS unit Garmin Etrex Vista HCx was used for recording the latitude and longitude of nests and probable nests: a point was recorded each time a turtle was witnessed laying eggs or pattycaiking. During the 2011 season 457 nests and probable nests were recorded and 457 GPS waypoints were recorded. In one instance a point was not recorded for a nest due to human error, and in another, two points were recorded for the same turtle during the same night, as she was seen pattycaiking then nesting.

At the end of the season, the same GPS unit was used to record waypoints for the perimeter of the island. While walking along the high water line, one point was recorded approximately every 3-5m; additionally a track log was automatically taken. The maps showing the results will be used to monitor the island's shape and surface area through time.

III. Data Notes

Internal magnetically coded PIT tags were used for the 14th season at French Frigate Shoals. No external tags were applied. PIT tags were applied in both the left and right hind flippers. Approximately 2 weeks after insertion 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.

Out of the 808 turtles there were 531 (65.7%) turtles that had been previously tagged, 245 (30.3%) turtles that were newly PIT tagged and 28 (3.5%) turtles that received new PIT tags but were not checked for existing metal tags. There were four (0.5%) turtles (numbers: 52, 129, 135, and 155) that were not checked for tags.

There were 15 turtles that received only a left hind flipper PIT tag: 4, 26, 66, 90, 124, 222, 224, 244, 261, 316, 348, 406, 433, 592 and 759. There were 13 turtles that received only a left hind flipper PIT tag due to a significant injury to the right, turtles 63, 82, 302, 304, 386, 578, 651, 702, 726, 741, 763, 784 and 793

There were 2 turtles that received only a right hind flipper PIT tag: 325 and 672. There were 14 turtles that received only a right hind flipper PIT tag due to a significant injury to the left, turtles 19, 76, 153, 170, 236, 249, 351, 435, 499, 535, 599, 762, 787 and 801.

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 33 turtles identified with tumors this year, or 4.0% of the nesting population: turtles 7, 15, 22, 71, 84, 94, 123, 201, 204, 207, 209, 267, 302, 313, 320, 372, 377, 392, 469, 481, 587, 623, 677, 681, 713, 719, 726, 754, 756, 768, 770, 781 and 789. The 33 tumored turtles were lightly afflicted and tumors on 10 of those (30.3%) had the appearance of undergoing regression. Sixty-seven turtles (8.4%) were not checked for tumors.

V. Data Loggers

Five archival sand data loggers were 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 6/27/11 and 6/28/2011. Eighteen units were placed directly into turtle nests during the 2011 season. 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 2011, 9 data loggers were successfully retrieved from the previous (2010) nesting season.

VI. Miscellaneous Notes

A total of 95 turtles had injured or partially missing flippers. Injuries were recorded in approximate percentage of flipper missing, for the purpose of this report they have been grouped into four categories of severity: missing <50%, missing ≥50%, missing 100% and injured (Table 2).

Table 2. Summary of missing and injured flippers.

FLIPPER	MISSING <50%	MISSING ≥50 %	MISSING 100%	INJURED
LEFT HIND	20 (2.5%)	15 (1.9%)	4 (0.5%)	6 (0.7%)
RIGHT HIND	11 (1.4%)	9 (1.1%)	5 (0.6%)	14 (1.7%)
LEFT FRONT	3 (0.4%)	5 (0.6%)	0 (0%)	2 (0.2%)
RIGHT FRONT	4 (0.5%)	4 (0.5%)	2 (0.2%)	2 (0.2%)

Following is a list of the mototool numbers for turtles with injured flippers.

Left Hind missing <50%: 190, 203, 222, 243, 245 357, 417, 445, 463, 519, 559, 617, 633, 696, 733, 744, 750, 767, 800 and 805. Left Hind missing ≥50%: 19, 76, 153, 154, 170, 236, 249, 351, 435, 490, 499, 725, 747, 762 and 771. Left Hind missing 100%: 535, 599, 787 and 801. Left Hind injured: 189, 521, 627, 682, 721 and 748.

Right Hind missing <50%: 137, 378, 445, 490, 497, 527, 576, 617, 744, 750 and 771. Right Hind missing ≥50%: 82, 302, 386, 493, 578, 702, 741, 784 and 793. Right Hind missing 100%: 63, 304, 651, 726 and 763. Right Hind injured: 2, 29, 141, 142, 401, 492, 520, 559, 590, 595, 627, 682, 778 and 808.

Left Front missing <50%: 154, 634 and 642. Left Front missing ≥50%: 22, 70, 80, 531 and 541. Left Front missing 100%: None. Left Front injured: 545 and 671.

Right Front missing <50%: 321, 346, 392 and 613. Right Front missing ≥50%: 137, 570, 681 and 732. Right Front missing 100%: 266 and 276. Right Front injured: 310 and 414.

A total of 38 turtles (4.7%) had minor injuries to their carapace: turtles 23, 34, 99, 130, 150, 162, 307, 340, 401, 440, 459, 489, 491, 508, 523, 535, 549, 598, 599, 607, 623, 634, 667, 686, 696, 702, 715, 718, 732, 753, 755, 762, 767, 771, 787, 793, 805 and 806. A total of 2 turtles (0.2%) had severe injuries to their carapace: turtles 24 and 747.

Turtle 801 was found dead on 7/23/11 during the sunset walk. The turtle had no obvious sign of injury or trauma, she appeared to have been crawling out of a pit when she stopped and probably overheated during the course of the day, causing her death. Irene Nurzia- Humburg took an array of photos and used white spray paint to cover her

carapace in the hopes of slowing down the decay. On 7/27/11, the carcass had started to bloat and the decision was made to bury her in place. Tyler Bogardus and Irene Nurzia-Humburg took a tissue sample from the neck region, and then covered her with dirt.

Turtles 417 and 438 displayed partially legible mototools applied during prior seasons.

Turtle 796 had a 2mm thick mat of greenish/grayish algae on entire carapace.

Turtle 85 had a 3cm abscess on its right front flipper.

Turtle 650 had a milky blue cataract on its left eye.

Turtles 522 and 589 were partially buried by another turtle while nesting.

Turtles 71 and 648 had prolapsed cloacae. Turtle 756 had a partially torn and healing cloaca.

There were 46 fresh nests observed being uncovered by turtles during the 2011 season (Table 3).

Table 3. Dates and turtle numbers for uncovered nests.

DATE	MOTOTOOL	DATE	MOTOTOOL
6/22/2011	20	7/16/2011	307, 449, 641
6/26/2011	287	7/17/2011	596, 642
7/1/2011	544	7/18/2011	79, 203
7/2/2011	507, 565	7/19/2011	22, 259, 674
7/3/2011	623	7/20/2011	136, 225, 383, 607, 794, 797
7/4/2011	83, 662	7/21/2011	133, 301, 615, 619, 686
7/5/2011	627, 670	7/22/2011	220, 252
7/7/2011	12	7/23/2011	130, 191
7/9/2011	31	7/24/2011	76, 410
7/10/2011	84, 132, 731	7/25/2011	486
7/11/2011	405	7/26/2011	568
7/14/2011	458		