

East Island Turtle Report 2012

**Irene Nurzia-Humburg, Joint Institute for Marine and Atmospheric Research
and National Marine Fisheries Service
Daniel Rapp, US Fish and Wildlife Service
Sarah Youngren, US Fish and Wildlife Service**

I. General Monitoring

The year 2012 marked the 40th consecutive field season of monitoring green turtle nesting at East Island, French Frigate Shoals. There were 402 nesting green turtles (*Chelonia mydas*) identified on East Island during the 28 nights of census and tagging, with an average of 47 turtles recorded above the berm each night. For training purposes, 8 turtles that were seen digging above the berm on Tern Island were also assigned an external marking (mototool) with consecutive numbers and the prefix "T". Complete tag information, and morphometric data were collected. We will not include the Tern Island nesters in our report as none of them were encountered on East Island this season.

Turtle camp on East Island began on June 29, 2012 and continued until July 26, 2012. Monitoring consisted of 27 full nights and one partial night of data collection. June 29 and 30, as well as July 1, 8, 9 and 10 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=MT) with numbers 1 through 402 engraved on the 4th right lateral scute. All MT numbers were followed by a dash (-) to differentiate them from previous years. MT 78A was used instead of MT 79 as a mistake in numbering was recognized and corrected immediately.

Hatchlings were first observed on 7/07/12 and seen on subsequent nights. An average of 91 basking turtles were counted during sunset walks, with a peak number of 177 on 6/30/12 and a low of 40 on 7/4/12.

There were 486 possible nests recorded on East Island during the 2012 monitoring season. Eggs were witnessed for 109 of these. Turtles were observed covering eggs (pattycaking) for 111 nests, and backfilling 266 nests.

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 pattycaking (covering eggs with her hind flippers only). During the 2012 season a total of 221 nests and probable nests were documented and 222 corresponding waypoints were recorded. In one instance two points were recorded for the same event due to human error, and in another, two points were recorded for the same turtle during the same night, as she was seen laying eggs twice (MT 330 on 7/10/12).

On July 2nd, a *Garmin GPSmap 76Cx* 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 to 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 passive integrated tags (PIT) were used for the 15th season at French Frigate Shoals. External metal tags were applied to the left hind flipper of 172 turtles. PIT tags were applied in both the left and right hind flippers whenever possible. Approximately two weeks after insertion the presence of newly inserted tags was verified as soon as the turtle was observed on a subsequent evening using a portable PIT tag scanner and the entire tag number was recorded.

Out of the 401 turtles that were checked for existing tags there were 260 (64.8%) that had been previously tagged and 126 (31.4%) turtles were tagged for the first time during the current season. The remaining 15 (3.7%) received at least one new PIT tag but were not checked for existing metal tags. Turtle MT 349 returned to the water before any tag could be read and was not sighted again.

Fourteen turtles received only a left hind flipper PIT tag: MT 22, 59, 104, 105, 165, 230, 298, 305, 307, 312, 328, 329, 330, 335, and 381; Five only received a left hind flipper PIT tag due to a significant injury to the right: MT 2, 237, 293, 348 and 381. There were 5 turtles that received only a right hind flipper PIT tag: MT 42, 70, 78A, 135 and 264. For all but MT 264, the reason was the presence of a significant injury to the left hind flipper.

IV. FP Tumors

There were 39 turtles identified with fibropapillomatosis (FP) this year (10.4% of the 375 that were checked for tumor presence): MT 2, 3, 13, 39, 42, 44, 56, 60, 92, 112, 115, 150, 162, 166, 177, 180, 217, 229, 239, 241, 244, 247, 252, 261, 267, 274, 285, 291, 294, 319, 339, 342, 344, 352, 360, 365, 369, 391 and 392. The turtles were lightly to moderately afflicted and tumors on nine of those (23%) had the appearance of undergoing regression. Twenty-seven turtles (6.7%) 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 7/10, 7/16 and 7/22 at the same historical location. Seven units were placed directly into nests during the 2012 season. The data loggers were left in the ground at the termination of turtle camp to be retrieved at a later date after incubation and hatchling emergence.

In 2012, 16 data loggers were successfully retrieved from the previous (2011) nesting season as well as one that was deployed in 2010 and one in 2000. All data will be downloaded and analyzed separately.

VI. Miscellaneous Notes

We were able to check 375 turtles for injuries. A total of 56 (15%) 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	15(4%)	4(1.1%)	0(0%)	1(0.3%)
RIGHT HIND	7(1.9%)	7(1.9%)	0(0%)	6(1.6%)
LEFT FRONT	1(0.3%)	2(0.5%)	0(0%)	5(1.3%)
RIGHT FRONT	2(0.5%)	5(1.3%)	0(0%)	1(0.3%)

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

Left Hind missing <50%: MT 5, 20, 65, 93, 140, 178, 194, 199, 218, 237, 283, 307, 317, 344 and 384.

Left Hind missing ≥50%: MT 42, 70, 78A and 135.

Left Hind injured: MT 62.

Right Hind missing <50%: MT 10, 20, 55, 120, 133, 218 and 399.

Right Hind missing ≥50%: MT 2, 27, 78A, 237, 293, 348 and 381.

Right Hind injured: MT 7, 49, 62, 96, 304 and 356.

Left Front missing <50%: MT 398.

Left Front missing ≥50%: MT 140 and 172.

Left Front injured: MT 34, 205, 282, 288 and 289.

Right Front missing <50%: MT 10 and 270.

Right Front missing ≥50%: MT 70, 172, 234, 339 and 360.

Right Front injured: MT 203.

A total of 20 turtles (5.3%) had minor injuries to their carapace: MT 34, 65, 66, 78A, 86, 130, 160, 178, 188, 213, 245, 297, 322, 333, 358, 366, 372, 373, 375, and 384.

A total of 5 turtles (1.3%) had severe injuries to their carapace: MT 149, 210, 283, 330 and 399.

Turtles MT 86, 288 and 402 had a minor injury to the tail.

Turtle MT 389 had an injury to the ventral side of the neck, causing a ~5cm long ~3cm wide flap of skin to become detached from the body.

Turtle MT 288 had a partially broken jaw bone protruding on the left side of its head.

Turtle MT 139 had an extra central scute, but no damage to its carapace.

Turtle MT 49 had a swollen and stiff right hind flipper.

Turtles MT 141, 191 and 335 displayed partially legible mototools applied during prior seasons.

Turtle MT 217 had fishing line wrapped multiple times around the right front flipper; Daniel Rapp was able to safely and completely remove it.

Turtles MT 263 and 305 had a 2-3 mm thick mat of algae on entire carapace.

Turtle MT 266 had a milky blue cataract on its left eye.

Turtle MT 42, missing the left hind flipper, was seen attempting to dig below the berm almost every night for 13 nights without successful nesting. On 7/20, Irene Nurzia-Humburg dug an egg chamber for her and the turtle laid eggs. To prevent flooding of the nest, the eggs were immediately relocated to a different site above the high tide line.

There were 27 fresh nests observed being uncovered by turtles during the 2012 season. (Table 3 shows the dates and corresponding turtles for each instance). Turtles MT 237, 293, 314 and 320 crushed their own eggs while covering them up.

Table 3.

DATE	MOTOTOOL	DATE	MOTOTOOL
6/30/2012	1, 68	7/12/12	33
7/2/2012	123, 133	7/15/12	374, 377
7/3/2012	115, 148	7/17/12	167, 195
7/4/2012	151, 160, 190	7/18/12	204
7/5/2012	201	7/19/2012	391
7/7/12	239	7/22/2011	238, 394
7/8/2012	246, 252, 258, 267	7/24/2012	315
7/10/12	142	7/25/2011	364

All data will be computerized by the Pacific Islands Fisheries Science Center.