

**Sea Turtle Genetic Sampling, Data Collection and Satellite Tagging Project in the
Marshall Islands
Western Pacific Turtle Projects
July-August 2007 Trip Report
DRAFT**

Karen P. Frutchey

International Turtle Conservation and Management Liaison
Joint Institute for Marine and Atmospheric Research
NOAA Fisheries Pacific Islands Region International Program
International Turtle Conservation and Management Projects

Executive Summary: During 8 July-1 August, 2007 a site visit was conducted for the project entitled *A Sea Turtle Genetic Sampling, Data Collection and Satellite Tagging Project in the Marshall Islands* (grant number NA06NMF4540225). During the visit, Ms. Karen Frutchey, Pacific Islands Regional Office (PIRO) international turtle conservation and management liaison, provided technical assistance to representatives from Women United Together in the Marshall Islands (WUTMI) and the Marshall Islands Marine Resources Authority (MIMRA) in completing an expedition to Erikub Atoll with the primary objective of affixing satellite transmitters to postnesting marine turtles. During the expedition, six turtles were encountered, all were flipper tagged, measured and sampled for genetics research. Of the six turtles, five received satellite transmitters. A subset of Erikub's nesting beaches were monitored, with some evidence of recent turtle nesting activity observed. After returning to Majuro, the liaison provided photos to those that authorized the tagging expedition as well worked with WUTMI representatives to discuss project progress and the compilation of datasheets, spreadsheets and organization and shipment of genetics samples collected throughout the project. During a visit to the Alele Museum, turtle specimens collected at Erikub were transmitted to the museum Director.

Activities:

This report outlines activities of the NOAA Fisheries Service Pacific Islands Regional Office international turtle conservation and management liaison (the liaison) during 8 July and 1 August 2007. Topics included technical assistance provided to grant recipients, Women United Together in the Marshall Islands (WUTMI), for the project: *A Sea Turtle Genetic Sampling, Data Collection and Satellite Tagging Project in the Marshall Islands* (NA06NMF4540225). These activities included providing technical support during an expedition to Erikub Atoll to attach satellite transmitters on post nesting green turtles and other related follow-up site visit activities. Previous reports by other field biologists (Eckert 1992, Puleloa 1993 and Thomas 1989) detail marine turtle activities and provide intricate detail of the geology, habitat and cultural resources of Erikub and that information is not repeated here. Rather, provided below is a chronological list of activities and account of the liaison during this site visit and expedition within the Republic of the Marshall Islands.

- 8-19 July 2007 – I arrived in Majuro several days prior to the expedition to make various logistical preparations and to allow for flexibility in departure schedule if necessary. Several meetings were held with Marshall Islands Marine Resources Authority (MIMRA) representatives, primarily Fisheries Officer, Ms. Emma Kabua. She arranged for an access agreement letter to be translated and distributed to the Marshallese stakeholders that would give permission for use of Erikub Atoll and to attach satellite transmitters on turtles nesting there. She provided me with signed copies of the letter in both Marshallese and English to carry with us on the field trip. Meetings at the WUTMI offices primarily dealt with the organization of supplies and making sure data collectors were properly equipped for the field. Closer to the expedition departure date, a final inspection of the M/V Charlie's Angel, took place and all expected safety equipment were found to be in place and the vessel appeared to be in good working order of the planned trip.
- 19-20 July 2007 - A pre-expedition meeting was held with crew members of the M/V Charlie's Angel, expedition participants and support staff of WUTMI and MIMRA to explain the expedition objectives and provide an opportunity for participants to field any outstanding questions regarding the trip. Transmitter attachment was described in some detail to provide an understanding of what the procedure was so there would be less confusion about what was to occur in the field. Turtle measurement and flipper tagging techniques were reviewed since, although WUTMI and MIMRA had some previous training, other expedition participants had not.
- 21 July 2007- Departed from Delap Dock, Majuro for Erikub Atoll at approximately 1:30 pm under partly cloudy skies with winds of 5-10 kts. Seas remained relatively calm during the entire transit to Erikub atoll and the weather remained fair with only occasional light rain.
- 22 July 2007- Arrived near to Erikub Atoll in the vicinity of Erikub Islet around 9 am. Upon arrival the locals were observed harvesting sea cucumbers nearshore. We decided to proceed on to Loj islet and arrived there at approximately 11:30 am. I, along with the MIMRA representative, the WUTMI data collectors and some of the other expedition crew immediately surveyed the beach to look for recent turtle activity.

Using the method of Eckert (1992), we counted (Figure 1) 10 green turtle (*Chelonia mydas*) nesting pits on Loj. We also discovered remains of four green turtles by a fire pit. WUTMI data collectors measured and collected the three carapaces for museum specimens (Figure 2). After Loj, we surveyed Enego islet where we recorded 6 green turtle nesting pits and one definitive non-nesting emergence.

Later in the evening we split up into two groups (one on Enego and the other on Loj) to look for nesting green turtles. We encountered two green turtles on Loj that evening and after the nesting process, they were carefully restrained by placing a large plywood box placed around them.

- 23 July 2007 – We spent the morning applying transmitters to the two boxed turtles (Figure 3). The expedition participants decided to name the transmitter turtles after the islet of Loj. Turtle Loj 1 had many small barnacles imbedded in its skin on the dorsal side of the tail. A possible fibropapillomatosis lesion was observed on the neck of Loj 2 (Figure 4). Loj 2 also had a large white spot on the second left costal scute that looked similar to a living tag (Figure 5) but this may not be likely since there were many amelanistic areas of the turtle's skin and carapace and thus the spot was just likely a variation in shell pattern. WUTMI data collectors tagged measured (Table 1) and obtained small skin samples from the turtles.

As we were preparing to depart the M/V Charlie's Angel (Figure 6), for evening field work, the wind and surf increased. The small boats that we were to take us back to shore had difficulty in these conditions and field work was called off for the night. However, those still on island encountered three turtles that night and they were held for satellite tag application the following morning.

- 24 July 2007 – Again, the morning was consumed with attaching transmitters to turtles. Loj 5 had a possible fibropapillomatosis lesion approximately 3x2 cm that appeared to be regressing (Figure 4). Three turtles were released with satellite tags (Figure 7).

In the evening we looked for turtles and encountered an emerging turtle. After depositing 90 eggs, she was flipper tagged (Figure 8) and measured. When the turtle completed covering, a wooden box was placed around her. Although the beaches of Loj were monitored for the rest of the evening, this would be the only turtle encountered that night.

- 25 July 2007 – There was concern about the possibility that the turtle may nest again this season (and spend the next 10-14 days scraping the transmitter antenna off if we deployed one on her). We had no way of knowing when the nesting season started or would end at Erikub Atoll and no of knowing by external examination of the turtles if they would nest again this season. Having decided to put the transmitter on turtles with small clutches, and having observed turtles with clutch sizes in the 70s and 80s still nesting, It was decided that we should wait for the next night and hope to encounter another turtle. So, the boxed turtle we had was freed without a transmitter shortly after sunrise.
- 26 July 2007 - We left Loj not long after sunrise and arrived at Erikub islet at approximately 11 am. We had permission from the Irojlaplap to use the two houses on the island so we set up camp at one of the houses (N09°01.592' E170°

02.155'). There was a fire pit and surrounding it were bones of turtles, birds and fish that had previously been consumed by others that had visited the island.

After setting up camp, we surveyed along the lagoon side of the island to the northwestern tip of the island (N09°01.592' E170° 02.419'), approximately .75km. Along the length of the island (3.5 km in length), the surf washes into the vegetation and no visible evidence of turtle activity was present. At the northwestern part of the island where the beach is wider, 4 nesting pits were observed. On this part of the island, there was a considerable amount of plastic (fishing floats primarily), glass bottles and coconut rubble on the beach (piles of it) and the turtles had plowed through or climbed over it to make their nests closer to the vegetation line. At the northwestern side of the island there was a broad region of pocked bedrock and then coral rubble we stopped the survey there as the tide was high and we had to cut through the interior of the island to return to camp.

In the evening, we split into two groups to cover the island. The night brought squalls and rain on the windward side of the islet and no turtles were observed.

- 27 July 2007 - On the night of the 27th we split up into three teams, 2 on Erikub islet and one on a small nearby islet. Although we searched the entire night until sunrise, no turtles were observed crawling on the beaches of either islet. As such the final transmitter was not to be deployed.
- 29 July-1 August 2007-Majuro- We returned to Majuro at approximately 10 am. After returning to Majuro, I printed photos to be given to those that gave permission for the expedition and those who participated in the trip. Photos were distributed with assistance of WUTMI and MIMRA to appropriate stakeholders including the Mayor and the Irojlaplap of Wotje.

At the WUTMI office I spent a considerable amount of time with a new employee, as she is tasked with compiling datasheets, spreadsheets and samples for the WUTMI turtle project. She had very limited computer skills and time did not allow me to go into the intricacies of MS Excel, so I asked her to learn how to send email and explained that I would work with her, message by message. Her job was not going to be an easy one as it seemed as if the work at the office had been neglected somewhat and allowed to pile up. The refrigerator was filled with genetic samples and it was clear that it would take a while to sort out. It was of concern to see things in such disarray since, on my last visit WUTMI was provided a detailed list of project activities that needed to be performed at the office level to ensure project success. The new employee seemed to be WUTMI's solution to an apparent backlog of work but she was still gaining a familiarity with the turtle project and what exactly her project obligations were.

The three carapaces and partial skull collected in Loj were cleaned as much as possible, glued and labeled. One carapace required more preparation work so this specimen was given to Ms. Kabua. The remaining specimens were turned over to Mr. Clary Makroro, Director of the Alele Museum in Majuro. He was surprised to see how large the specimens were and seemed pleased to receive them.

Specimens submitted to Alele Museum:

Chelonia mydas carapace, assigned field ID: WUTMIMIRAL1, collected 22 July 2007, from Loj Islet, Erikub Atoll. Curved carapace length (CCL) 97.8 cm and curved carapace width (CCW) 83.7 cm

Chelonia mydas carapace, assigned field ID: WUTMIMIRAL3, collected 22 July 2007, from Loj Islet, Erikub Atoll, CCL 93.3 cm and 82.6 cm CCW

Chelonia mydas partial skull, assigned field ID: WUTMIMIMRAE1, collected 26 July 2007, from Erikub Islet, Erikub Atoll.

Acknowledgements

This expedition was an activity under NOAA PIRO grant, number NA06NMF4540225, with Women United Together in the Marshall Islands. We appreciate the invitation by WUTMI and their Executive Director, Ms. Daisy Momotaro, for me to provide technical assistance during this activity. We thank as well those who gave permission for the use of their Atoll and turtles for this research: Mr. Rimios Hermios, Wotje Irojlaplap; Mr. Lañinwōj Lakjohn, Wotje Mayor; Mr. Litokwa Tomeing, Wotje Senator. Project activities were conducted under permit from Mr. Glen Joseph of MIMRA and we are thankful for all the efforts of MIMRA Fisheries Officer, Ms. Emma Kabua. She assisted with translations and other expedition preparations and was an essential part of the field crew. We appreciate the enthusiasm of the WUTMI data collectors, Ms. Matylene Langedrik and Ms. Ketty Boktok, who assisted with data collection activities, transmitter attachment and beach monitoring for turtles. The success of this expedition would not have been realized without the efforts and active participation of the following individuals: Wotje representatives Mr. Ajnej Helbie and Mr. Resty Johnny, and the Charlie's Angel Captain, Mr. Rafael Rudolph, and crew: Mr. Taubuki Tamare, Mr. Joe Branis, Mr. D. Beaut, Mr. C. Rurten, Mr. Akio Rudolph, Mr. Edison Naptali and Mr. Ledor Baso. We also thank Mr. Charlie Domnick and Mr. Carlos Domnick for all the special arrangements they made for this expedition and for repeatedly meeting with us in Majuro prior to the expedition for logistical meetings and vessel inspections. Many others in Majuro assisted with expedition preparations including many members of the WUTMI staff especially. We thank Mr. Mike McCoy's for his research that provided essential background information and was the foundation for this activity. Mr. George Balazs, Head of the Marine Turtle Research Program and Ms. Denise Parker, Marine Turtle Specialist both of the NOAA/NMFS Pacific Islands Fisheries Science Center, provided me with training in satellite transmitter attachment and telemetry and will be monitoring and mapping the Loj turtles' migrations.



Figure 1: Karen Frutchey counts areas of nesting activity at Erikub Atoll, July 2007



Figure 2: Women United Together in the Marshall Islands data collectors, Matylene Langedrik and Ketty Botok, measure a harvested green turtle carapace on Loj islet, Erikub Atoll, July 2007



Figure 3: Ketty Botok, Emma Kabua and Karen Frutchev assisting with attaching a satellite transmitter to post nesting green turtle, Loj 5 at Loj islet, Erikub Atoll

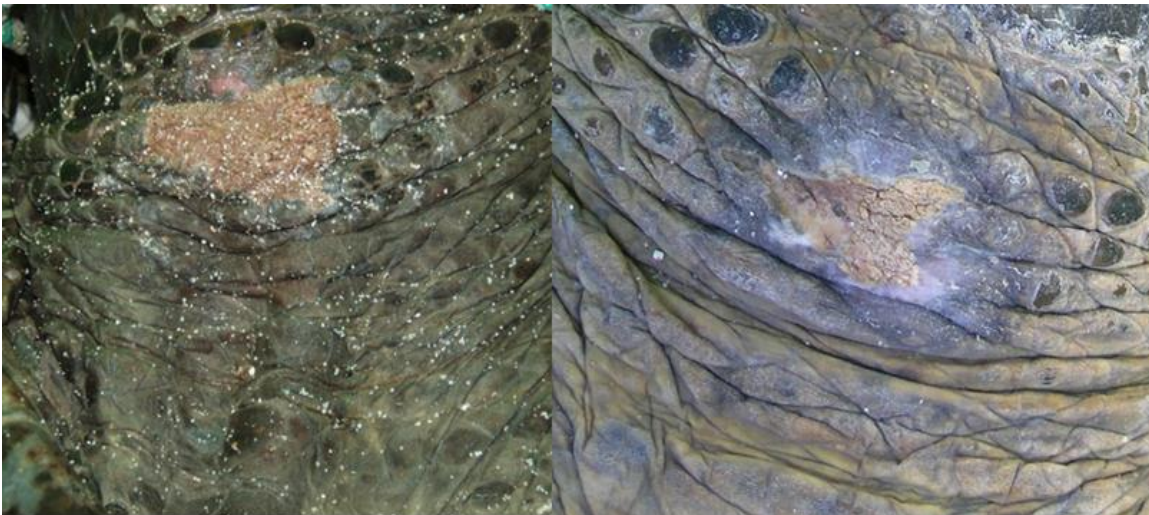


Figure 4: Possible fibropapillomatosis lesions observed on the necks of postnesting green turtles from Loj islet, Erikub Atoll during July 2007. Lesion on left is from turtle, Loj 2, and on the right is the possibly regressing lesion from turtle, Loj 5



Figure 5: Postnesting green turtle with satellite transmitter, Loj 2, with amelanistic spot on second left costal scute, Loj islet, Erikub Atoll, July 2007



Figure 6: Launch of a small boat from the M/V Charlie's Angel (inset) and view of the M/V Charlie's Angel from the small boat



Figure 7: Edison Naotali escorts postnesting green turtle with satellite transmitter, Loj 4, back to sea



Figure 8: Fisheries Officer, Emma Kabua, flipper tags post nesting green turtle, R31211 R31212, at Loj islet, Erikub Atoll, July 2007

Table 1: Tagging data for post nesting green turtles encountered at Loj islet, Erikub Atoll, Republic of the Marshall Islands during July 2007

Field ID and Name	Curved carapace length (cm)	Curved carapace width (cm)	Release location on Loj	Release date
R31201 R31202 Loj 1	100.0	89.1	N09°09.411' E169°56.899'	23 July 2007
R31203 R31204 Loj 2	105.4	93.6	N09°09.505' E169°56.809'	23 July 2007
R31205 R31206 Loj 3	96.2	89.8	N09°09.413' E169°56.901'	24 July 2007
R31207 R31208 Loj 4	99.9	80.5	N09°09.571' E169°56.677'	24 July 2007
R31209 R31210 Loj 5	100.5	90.4	N09°09.571' E169°56.677'	24 July 2007
R31211 R31212(no name)	97.5	90.6	Loj, No GPS	25 July 2007

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