

SATELLITE TRACKING FOR NESTING HAWKSBILL, *ERETMOCHELYS IMBRICATA* IN THE GULF OF THAILAND

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ABSTRACT

Two female hawksbill turtles, *Eretmochelys imbricata* were tracked with satellite transmitters to study their movement during the inter-nesting period, one turtle was from Ko Ira Island and another one from Ko Charn Island, in the inner Gulf of Thailand. The location, sea surface temperature and surface time were provided via ARGOS satellite system. From February to April 2002, both female turtles still nested 3-4 times in 51-61 days of transmitter deployment. The data obtained during the inter-nesting period indicates that both turtles always moved restrictedly within 25 km around their nesting beach. Unfortunately, the transmission error occurred soon after the turtle finished nesting. However the signal was recovered again around 15 days during July and August 2002 for Ko Charn Island's turtle. It indicated that the turtle still stayed in residence of her nesting beach. This means that nesting hawksbill turtles may not immediately migrate to foraging ground, but prefer to feed around the nesting beach or they remain resident permanently at nesting area as feeding ground.

Keywords: Satellite tracking, Hawksbill turtle, *Eretmochelys imbricata*, Gulf of Thailand.

INTRODUCTION

Sea turtles are considered as highly migratory species that distribute and share the waters among region. Post-nesting migrations of sea turtle were investigated using satellite telemetry technique in many areas, the results shows that sea turtles make very long distance migration between nesting and feeding ground (Balazs, 1994; Lushi et al. 1996 and Cheng, 2000). The result of having such long migrations leads neighboring countries in the region to establish cooperation for efficient conservation of sea turtle (Liew et al., 1995). Migration path of green turtles in Thailand was studied under the SEASTAR Project (South East Asia Sea Turtle Associative Research Project) in the year 2000 (Charuchinda et al., 2000). However, very few evidences on behavior of hawksbill turtle *Eretmochelys imbricata* migration were

studied (Miller et al., 1998). The purpose of this study was to monitor and chart out the movement pattern of nesting female hawksbill turtle for integration on conservation aspect of sea turtle.

MATERIALS AND METHODS

In the inner Gulf of Thailand only two species of sea turtles, green turtle and hawksbill turtle, are commonly found nesting on some islands with ratio of green turtle number more than 5 times to those of hawksbill turtle (Monanunsap and Chauchinda, 1995). Two female hawksbill turtles nested on beaches of Ko Ira Island (12.68N, 100.82E) and Ko Charn Island (12.52N, 100.97E) in the inner Gulf

Table 1. Summary data of nesting hawksbills attached with satellite transmitters.

Release date	Location of release	PTT ID No. CCW x CCL (cm)	Body size	Weight (kg)	Days of tracking
21 Feb. 2002	Ko Ira Is.	24433	67.5 x 77.0	45	61
27 Feb. 2002	Ko Charn Is.	09729	72.5 x 82.0	53	51 (+15 later)

of Thailand were tracked on the migration route using satellite transmitters (PTTs) from February to August 2002. The transmitters model Kiwi-sat101 were used to apply on each turtle carapace fitting with the putty glue and polyester resin. The procedure for PTT attachment and data received via Argos-linked system was the same as described by many previous studies (Balazs et al., 1994; Liew et al., 1995 and Sakamoto et al., 1997). The tagging data and duration of signal received for both nesting females are listed in Table 1.

RESULTS

The movement tracks between inter-nesting period of two hawksbills named Ko Ira and Ko Charn are shown in Fig.1. Ko Ira was attached with PTT ID number 24433 on 20 February 2002 and release on 21 February. She came back to the same beach for nesting 4 times more on 25 February, 10 March, 25 March and 18 April 2002. It means her inter-nesting period was 61 days and she just stayed only around her nesting beach within 25 km. Another turtle named Ko Charn was applied PTT ID number 09729 while nesting on 26 February 2002. She was released on 27 February. She stayed around Ko Charn Island and then moved to nest at Ko Ira Island (distance 20 km to Ko Charn Island) on 14 March. And she came back to Ko Charn Island again for the third nesting on 15 April. It

is certain that inter-nesting period of this turtle was at least 51 days. Unfortunately the signal of Ko Charn turtle was lost for 3 months and recovered again in July-August 2002 (only 15 days). The last signal showed that she still stayed around Ko Charn Island after 5.5 months of releasing. She was still around the original beach after finished her nesting.

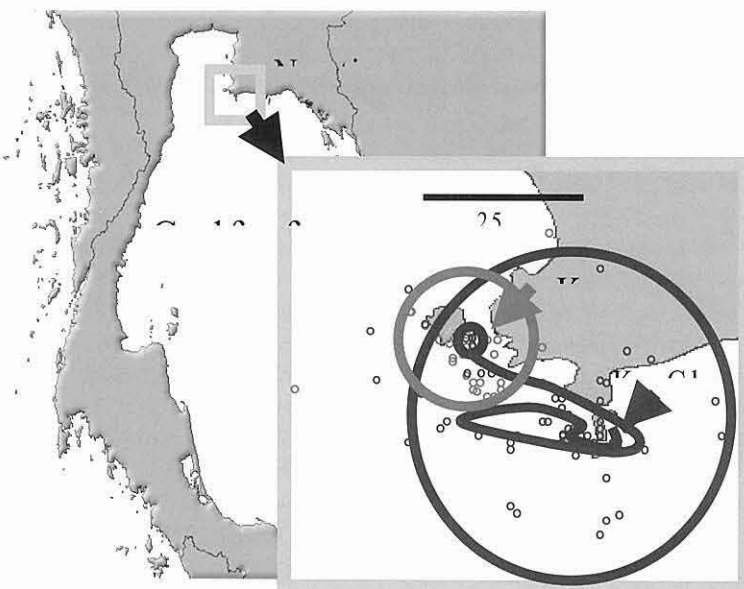


Fig.1 Inter-nesting movement of female hawksbills named Ko Ira and Ko Charn in the inner Gulf of Thailand during February to April 2002

CONCLUSION

Using satellite transmitters for two nesting hawksbill turtles in this study could be monitored only in the inter-nesting period. The turtles laid their eggs for 3-4 times during 51-61 days. The movement of female hawksbill turtles showed very restrictedly area during the inter-nesting period just around the nesting beach within the radius of 25 km. It is still no reason that the signal transmissions were very short for tracking the inter-nesting period comparing to the previous studies on green females that having very long distance for the post-

nesting migration (Charuchinda et al. (2000). In practical, antenna of transmitter is probably at the risk to be broken or lost while nesting under the shrub on the beach of Ko Ira and Ko Charn. Miller et al. (1998) provided many evidences that breeding hawksbill turtles are long range migration as same as the other marine turtle species. But in this study it seemed that hawksbills preferred to stay around nesting ground after finished nesting. In this case they might temporary residence at reefs associated with their nesting beach for feeding before migration. More trial in turtle tracking is needed to confirm the migration pattern of post-nesting hawksbill turtle.

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