



AFRICAN SEA TURTLE NEWSLETTER



photo: © Jacques Fretey

This juvenile green turtle released by an Imraguen girl from M'Hejratt village in Mauritania symbolizes our hope for sea turtle conservation in Africa by the next generation.

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Post-nesting Migration of Loggerhead Turtles (*Caretta caretta*) from Southern Mozambique

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Background: As part of Component 5 of the South West Indian Ocean Fisheries Project (SWIOFP; <http://www.swiofp.net>), Mozambique was allocated three satellite tags (Telonics Argos Marine Transmitters TAM-2639). Loggerhead turtles (*Caretta caretta*) nesting at the Ponta do Ouro Partial Marine Reserve (POPMR), were chosen for the SWIOFP's satellite tagging program based on the following criteria: i) feeding grounds and migratory routes of loggerhead turtles that utilize nesting beaches in southern Mozambique were unknown; ii) loggerhead turtles in Mozambique were yet to be studied using satellite telemetry; iii) existence of robust, scientific data on the nesting population due to a well-established monitoring program; iv) the nesting season (October – March) is well known; v) POPMR is the most important nesting area for loggerheads in the country; and vi) due to its proximity to Maputo (~120 km), the POPMR is logistically easier to work than other areas.

Results from a flipper tagging program (using titanium flipper tags), running continuously since 1988, show that individual loggerhead females nest in northern South Africa and southern Mozambique within the same season (Lombard *et al.* 2011), thus constituting a single nesting population. While satellite tagging of loggerhead turtles has been extensively conducted in South Africa (e.g. Papi *et al.* 1997; Luschi *et al.* 2006), this was

the first time loggerheads were satellite tagged from their nesting grounds in Mozambique, which also served as an important capacity-building exercise for Mozambican scientists.

Here we present summary results of the satellite-tagging exercise that was conducted on three loggerhead females, found nesting during the peak season at the POPMR. The aim of the study was to ascertain post-nesting migratory routes of loggerhead turtles from southern Mozambique.

Methodology: Given the objective of the study, the deployment of satellite tags was planned for end of January 2012 (as the nesting period in this area runs from October to March with a peak from November to January). As mentioned above, the study area was the Ponta do Ouro Partial Marine Reserve (POPMR), located on the border with South Africa; with an ocean-facing coastline of about 95 km. Night patrols were conducted using the reserve's vehicle from Ponta do Ouro to Ponta Dobela, a stretch of approximately 40 km, which constitutes the hotspot for nesting loggerheads in the area.

The procedure for deployment of the satellite tags involved the capture and retention of the turtle using a wooden cage (Fig. 1). All three turtles were captured when returning to the sea after failed nesting attempts. The top of the turtles' carapace was cleaned of

encrusting organisms (such as barnacles and algae) using fine-grain sandpaper and acetone. A two-part epoxy (PURE-2K, Powers Fasteners) was applied to the carapace and the tag, which was followed by a curing period of 4 to 4.5 h after which the tag was activated and the turtle released. Only Lurdes was released at the point of capture. Due to the incoming tide at the time of capture, Mingas and Esperança were released at Ponta do Ouro, 40 km and 12 km, respectively, from their point of capture.



Figure 1. Wooden cage used to hold the turtles during the satellite tagging procedure. Photo: Marcos Pereira.

Results and Discussion: Table 1 presents a summary of the satellite tagging results. The three turtles (named “Lurdes”, “Esperança” and “Mingas”) had contrasting migratory routes, as shown in Figure 2. Lurdes immediately initiated a near-shore northbound migration, travelling approximately 634 km (monitored distance) during the 15-day monitoring period. The monitoring period was very short and it is believed that the turtle was poached, as the last signal from the tag was sent from 2 km

inland next to a hut, closed to Baía dos Cocos in Inhambane Province, Mozambique.

Mingas (Fig. 3) was monitored for 73 days and similarly travelled along the coast, all the way to Mozambique Island and across the Mozambique Channel to the NE coast of Madagascar, traversing 3,270 km (ca 2,025 km straight distance). Although this turtle travelled quite a long distance, it is possible that Mingas was also poached or accidentally killed, as the signal was lost after less than 3 months, which is nearly half

the capacity of the battery life of the tag. This assumption is supported by the fact that the people of Madagascar have a long tradition of consuming marine turtles, which is still very prevalent today.

Additionally, turtles are also still commonly killed as by-catch in different fishing techniques in North-west Madagascar (Racotonirina and Cook 1994; Bourjea *et al.* 2008; Humber *et al.* 2011). However, a loss of signal could also be caused by damage to the tag antennae and not necessarily poaching.

Finally, Esperança was tracked for 2,608 km during 187 days. This turtle travelled along the coast approximately 250 km north (straight distance) of the nesting beach and reached, what is believed to be her feeding grounds on the Mozambique coast between Macaneta and Xai-Xai.

The results show that loggerhead turtles nesting in southern Mozambique, conduct long and short-distance post nesting migrations to their feeding grounds. For the first time, some “close-by” (i.e. scale of hundreds of km) permanent feeding grounds were identified for loggerhead turtles nesting in southern Mozambique.

Table 1. Summary information on the three loggerhead turtles tagged in southern Mozambique.

Parameter	Lurdes	Esperança	Mingas
Satellite tag number	647933	647977	647976
ARGOS ID	112308	112310	112309
Date deployed	29 Jan 2012	31 Jan 2012	1 Feb 2012
Curved carapace length (mm)	860	844	858
Curved carapace width (mm)	790	802	799
Titanium tags	BB176* / MZ534	MZ152	MZ1066
Days transmitting	15**	187	73***
Straight distance travelled (km)	~390	~250	~2025
Distance monitored (km)	634	2608	3270

* South African tag.
 ** Presumably poached.
 *** Presumably poached/ incidentally killed.



Figure 2. Post-nesting migratory routes of three loggerhead turtles tagged at Ponta do Ouro Partial Marine Reserve, southern Mozambique (adapted from Google Earth).



Figure 3. “Mingas” crawling back to sea, carrying the satellite tag. Ponta do Ouro, southern Mozambique. Photo: Eduardo Videira.

Further migratory studies should be conducted to establish resident and migratory behaviour within the feeding areas, which should be complemented by genetic studies and isotope analysis, currently underway in collaboration with Ifremer and Kelonia/CEDTM from Reunion.

Lastly, and despite being protected nationally and internationally, poaching is still a serious threat to the conservation of marine turtles in Mozambique (and in the region), which warrants further efforts for their protection.

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