

## **ANALYSIS OF TAGGING AND RECOVERING OF MARINE TURTLES IN MALTA**

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### **INTRODUCTION**

Here we present data regarding the recapture of turtles tagged in Malta and elsewhere and we try put forward possible postulations regarding movements and migration routes and possible inferences on ecology and growth. Unlike what happens in the Adriatic (Lipej et al. 2000, Ziza et al. 2003) where the major threat is through trawling or entrapment in other nets, the major local threat for turtles is accidental capture in long line fisheries. Landed turtles are rehabilitated at the Malta Centre for Fisheries Sciences (MCFS) at Torri San Lucjan, M'Xlokk. Released specimens, after treatment and rehabilitation, are sometimes recaptured in Malta or in other countries in the Mediterranean. Such recapture data can give insight even about the behaviour and ecology of these reptiles. There are at least four encounters of such recaptured specimens, tagged in Malta or elsewhere, and recaptured in Malta.

Some of the turtles actually have multiple hooks (necropsy analysis and operations, Gruppetta pers. comm.) and some accidentally caught specimens are generally released by the same fishermen through the cutting of the long line. Correct handling of data of such accidental captures, can thus contribute to substantial information which can lead to the understanding migratory movements and other ecological aspects.

### **METHODOLOGY**

Prior episodes of selling of turtles (with annual captures of 2000-3000) at market places (Gramentz 1988) are non existent in Malta nowadays, as a result of legislation and related public awareness campaigns done by the Nature Protection Unit (NPU) and MCFS. The NPU together with the MCFS, started a tagging programme in 1991, however only one turtle was tagged then. At that time, due to the lack of a rehabilitation centre, most of the turtles which caught were released immediately. Bigger efforts and attention to tagging were given post 2001. Tagging was done through regional assistance by the Regional Activity Center for Specially Protected Areas (RAC/SPA – UNEP/MAP), which provided the blue plastic RAC/SPA tags.

All the live stranded or accidentally caught specimens are taken to the MCFS, where they are operated according to needs, then tagged and then given time to recover prior to release. Those turtles which were not to be released were not tagged. The creation of network of people working on turtles has further assisted us in tracing any recaptured tagged turtles and getting the relevant data much more quickly.

## **RESULTS**

Thirty two turtles were tagged from 1991 to 2005, 4 specimens were found again. Twenty-eight turtles were released between 2002 and 2004 in two mass releases, and 4 other individuals were released in single events prior to 2002.

A turtle tagged in July 1997 (tag T 3500) was released on the same day from Ghajn Zejtuna, Malta and was recaptured again in September 2000, as a sub-adult, by a fisherman while fishing in the east of Gozo (Baldacchino and Schembri 2002). During this three-year period, the CCL increased by 16 cm, from 44 cm to 60 cm. Unfortunately no other measurements were taken during the recapture and the fate of this turtle was not reported. Another injured turtle was found in July 2002, 200 miles south west of Malta, three swordfish hooks were then extracted and the turtle was then released in a mass release event on the 6th April 2004. It was then collected dead 3 miles off the Puebla de Farnala port in Spain on the 26th September, 2004 with peritonitis and intussusceptions, which were probably the cause of death (Toni Raga and Jesus Tomas pers. comm.). During this 5 month period the CCL increased by 4 cm and the CCW also increased by 4 cm. This turtle navigated a minimum distance of 1,340 Km (723.54 n miles) in 173 days (speed of 7.7 km/day), although it may also have died before and then drifted by currents to the site where it was found dead.

A tagged turtle was also found in the Maltese territorial waters in January 2002, displaying an Italian tag (Z 0491), which was then subsequently tagged also with a Maltese tag (T 3519). Details about such Italian tag are still being awaited. A turtle tagged in Zakynthos and Peloponnesus, between 1982-87 (Margaritoulis 1988) was found in Malta in March 1988.

## **DISCUSSION AND CONCLUSION**

The specimen tagged in Malta which was found in the western Mediterranean also confirmed migration routes from the central parts of the Mediterranean to the western regions, although turtles tagged in eastern parts migrating to central regions were also found (Margaritoulis 1988). Previous reports of movements between the central and western parts are reported by Tomas et al. (2001). Movements between the eastern and the central basins have been well documented through tagging and recapture studies by Argano et al. (1992), Laurent and Lescure (1994) and Margaritoulis (1988).

Gut analysis of the turtle found dead in Spain, showed an accumulation of debris at the end of the intestine producing blockage. This turtle was at the Centre for rehabilitation for nearly two years and may have got accustomed to getting fed, checking ability to survive in the wild prior to release, may help further in these studies. However according to Margaritoulis (1988), turtles may actually survive for a number of days without food and thus the actual cause of death subsequent to rehabilitation cannot be entirely postulated. This turtle made quite a remarkable journey, even more remarkable than a similar one quoted by Tomas et al. (2001), wherein one turtle made a journey of at least 695 nautical miles in 394 days.

One of the turtles tagged and released in Malta was recaptured again in the Maltese Islands after a number of years, confirming movements to previously visited places even though nesting no longer takes place in the Maltese Islands. A further case of a recaptured turtle tagged in Italy also postulates some movements towards the south central regions. (Although the movements of this turtle were not known, and hence pointing to the importance of introducing systems like telemetry in Malta, which might have helped in tracing and

confirming movements of such turtles). According to data from Zakynthos, turtles which nest there, then spread out in various directions, and sometimes are found also in Malta (Margaritoulis 1988).

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