

A Stranded Loggerhead Turtle Tracked by Satellite in Mersin Bay, Eastern Mediterranean Sea, Turkey

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Three species of marine turtles, the loggerhead *Caretta caretta*, the green turtle *Chelonia mydas* and the leatherback *Dermochelys coriacea*, are observed regularly in the Mediterranean (Godley *et al.* 1998; Margaritoulis 2003; Rees *et al.* 2004; Ergene & Uçar, 2017). In the eastern Mediterranean, loggerhead and green turtles nest, while leatherbacks are considered migrants from the wider Atlantic (Casale *et al.* 2003; Godley *et al.* 1998; Margaritoulis 2003). In the Turkish Mediterranean, little is known about the oceanic and neritic habitats of marine turtles, with the habitats of juveniles during winter as well as their foraging grounds not being clearly defined (Türkozan *et al.* 2013).

Sometimes, sea turtles strand on the coasts of Turkey: a recent review of the occurrence of leatherback turtles was reported by Ergene & Uçar (2017) and comprehensive data on strandings of loggerhead and green turtles were represented from the Turkish Mediterranean coasts and Marmara Sea coasts (Başkale *et al.* In press Tonay & Oruç 2016; Türkozan *et al.* 2013; Türkozan & Durmuş 2000). Data on strandings provide important information about marine turtle occurrences and distribution and preliminary information for conservation planning and management, such as strategic locations of rehabilitation centers (Türkozan *et al.* 2013). Here, we report on a stranded loggerhead turtle found on the eastern coast of Turkey, which had previously been monitored through satellite telemetry after its release from the SW coast of Italy, Western Mediterranean.

On 14 May 2017, a sub-adult loggerhead turtle was found on the Davultepe 100. Yıl (Gümüşkum) nesting beach, in Mersin Bay, Turkey (36.719781° N, 34.495467° E), which is an important nesting site for green turtles and hosts also a small number of loggerhead turtle nests (Ergene *et al.* 2016).

	Release	Stranding
CCL	58.8	62.5
CCW	55.5	59
SCL	-	59
SCW	45.4	47

Table 1. Dimensions (cm) of the loggerhead turtle at the time of release in Italy (9 October 2014) and after 949 days at the time of stranding in Turkey (14 May 2017). CCL = curved carapace length; CCW = curved carapace width, SCL = straight carapace length; SCW = straight carapace width.

At first, the Sea Turtle Research and Rehabilitation Centre (DEKAMER) in Dalyan was informed about the stranded turtle by a few local people. Then DEKAMER notified the Mersin University Sea Turtle Application and Research Center (Me.U.DEKUYAM) and the Republic of Turkey Ministry of Forestry and Water Affairs. The personnel of the Republic of Turkey Ministry of Forestry and Water Affairs took this turtle to the ministerial sea turtle rehabilitation center in Davultepe 100. Yıl beach. The turtle had an inconel tag on the front right flipper with ID number FB 1305 and the contact address of the Stazione Zoologica Anton Dohrn (SZN), Napoli, Italy (Fig. 1a) and a satellite transmitter was still attached to its carapace (Fig. 1b). After the examination of the carcass, the researchers of Me.U.DEKUYAM informed the SZN team on this occurrence, and data on the turtle were exchanged between both centers.

From the measurements taken at release and at the time of stranding we deduced a growth increment of 3.7 cm in curved carapace length over the 949 days that had passed between those dates, thus a growth rate of 1.4 cm/yr (Table 1). This is within the growth rates reported for Mediterranean turtles of this size class, albeit at the lower range (Casale *et al.* 2009).

The satellite transmitter was sent to DEKAMER by the personnel of Republic of Turkey Ministry of Forestry and Water Affairs. The satellite transmitter had an antenna that was broken off at the base and the unit was removed from the turtle's carapace and photographed by a researcher of DEKAMER (Fig. 1b) and then donated by the SZN to be displayed at the museum of the Rescue Center. A hole was observed between the turtle's eyes on the head, but due to advanced decomposition, the reason for the presence of the hole on the head could not be identified (Fig. 1c). However, it was speculated that the death of the turtle might be attributable to an intentional hit on the head by a sharp pointed object. Due to the advanced state of decomposition and decay of the internal organs, the sex was not determined during autopsy (Fig. 1d).

After reporting this stranding to the SZN team, the story of the juvenile loggerhead named "Obelix" was reconstructed back to 16 September 2014 when it was found floating with apparent difficulties off the island of Ponza in SW Italy (40.895694° N, 12.958944° E). Obelix was taken to the rescue center of the SZN, but it was found to be healthy with no pathology or signs of diseases. It started feeding soon after recovery and was thus tagged and equipped with a satellite transmitter (TAM 4410, Telonics, USA) and then released on 9 October 2014 (at 10:30 AM) from the Island of Santo Stefano, Ventotene, SW Italy (40.791222 °N, 13.449278 °E) in



Figure 1. A. Loggerhead carcass on Davultepe 100.Yıl beach, in Mersin, Turkey, on 14 May, 2017; the red circle indicates the position of the flipper tag. B. The satellite transmitter without antenna. C. A hole was observed on the head. D. The decomposition state of the turtle during the necropsy (Photos A, C and D: Me.U.DEKUYAM and Photo B: DEKAMER).

the Tyrrhenian sea. The turtle had been tracked for over two years during which it visited many parts of the Mediterranean (Fig. 2). The turtle's journey finally ended in the province of Mersin, eastern Mediterranean, Turkey, or at least that is where the transmissions ceased on 31 December 2016 when it was just off the coast of the Tuzla National Park, Karataş, Adana province. This location was less than 50 km away from where it stranded 5 months later (Fig. 3). Tuzla Milli Park is located between Kazanlı beach in the west and Akyatan beach in the east. Davultepe 100. Yıl beach where the turtle stranded (Fig. 3) and Alata beach are located west of Kazanlı beach. These four beaches are important nesting areas, especially for *Chelonia mydas* in the eastern Mediterranean, Turkey. At that time transmissions had become rather infrequent and of low quality but also the last good location quality position (ARGOS location class 2) on 28 November 2016 was in the same area. Thus, the turtle's death may not be linked directly to the end of transmission, which could simply be due to low battery power after 815 days of tracking. It may also be possible that the antenna was broken around this time, causing the end of transmissions. Because the carcass still contained a lot of soft tissues even five months after the last transmission (Fig. 1d), it is likely that the time of death was sometime toward the end of April 2017.

Based on the numbers and spatial distribution of dead sea turtles washed ashore in Turkey, Kasperek & Baran (1989) reported that immature green turtles (*Chelonia mydas*) stay more or less around their birth place and later reproduction grounds, whereas loggerhead turtles (*Caretta caretta*) apparently migrate to a much greater extent. The presence of a turtle from the Tyrrhenian Sea on the Eastern Mediterranean coast of Turkey might validate this idea. The loggerhead Obelix might actually be a turtle foraging in the Tyrrhenian Sea and returning to the nesting area where it hatched in Turkey. Forthcoming DNA analysis may provide further insight into the history and origin of this turtle.

Acknowledgments. We thank the Mersin local people for alerting us to this occurrence and Republic of Turkey, Ministry of Forestry and Water Affairs; Mehmet UZUNER in Manisa and Ahmet ÇÖRTÜK in Mersin for their contributions. The authors are also grateful to Gianluca Treglia (SZN), the Coast Guards from Ventotene Island and Antonio Romano of the State Natural Reserve of Ventotene and Santo Stefano Islands for their assistance during the release of the turtle. The authors wish to acknowledge use of the STAT and Maptool programs (products of SEATURTLE.ORG www.seaturtle.org) for analysis and graphics in this paper.

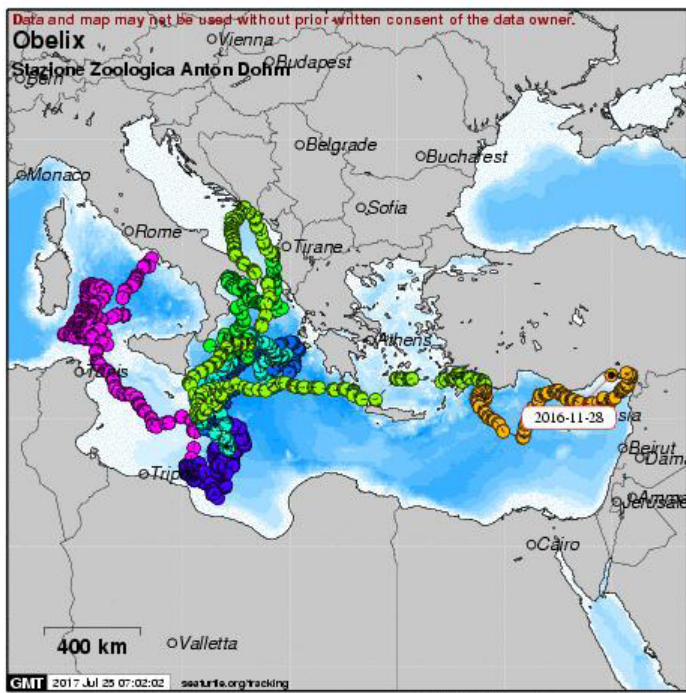


Figure 2. The turtle's journey between the Island of Ventotene (SW Italy) in the Tyrrhenian Sea and its last location in Turkey in the Eastern Mediterranean Sea, (<http://www.seaturtle.org/tracking/index.shtml?keyword=obelix>).

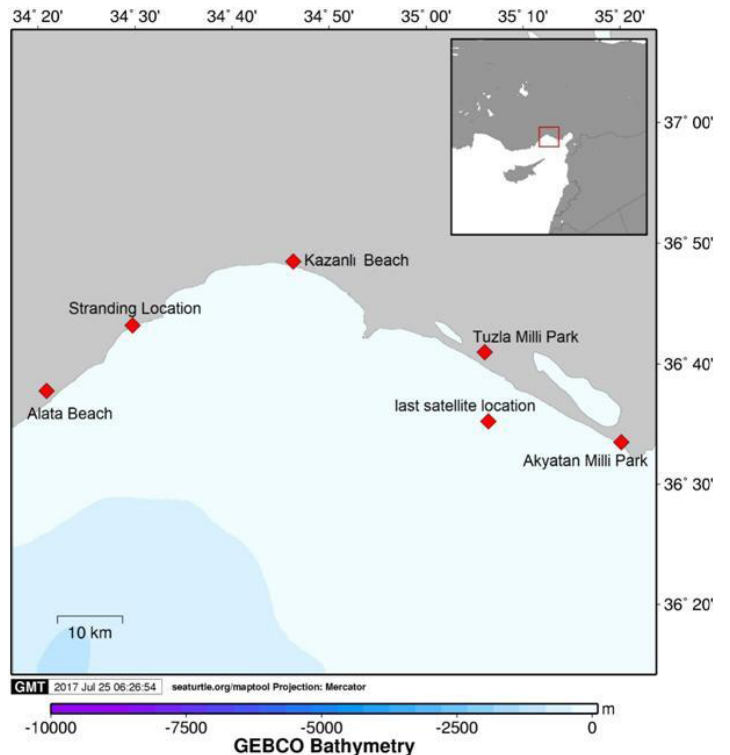


Figure 3. The location of Obelix on 28 November 2016 in the Eastern Mediterranean Sea, in Turkey. The turtle was just off the coast of the Tuzla Milli Park (Tuzla National Park), Karataş, Adana province, less than 50 km away from Davultepe 100. Yıl beach, Mersin province where it stranded on 14 May 2017.

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