

# Marine Turtle Newsletter

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An adult loggerhead turtle captured while foraging was tracked during an exceptionally long migration route prior to nesting in Greece. See pages 10-11. Photo by ARCHELON.

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## Reports

### Recent Publications

# The Longest Migratory Distance Recorded for a Loggerhead Nesting in Greece

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Mediterranean loggerhead turtles nest mainly in eastern Mediterranean and particularly in Greece, Turkey, Cyprus and Libya with Greece hosting the largest number of nests (Casale *et al.* 2018). As juveniles, Mediterranean loggerheads may migrate into the western Mediterranean as evidenced by genetic markers (Clusa *et al.* 2014). However, the majority of adult females, as revealed by flipper tag returns and satellite tracking, remain within the eastern Mediterranean (Margaritoulis 1988, Margaritoulis *et al.* 2003, Margaritoulis & Rees 2011, Zbinden *et al.* 2011, Schofield *et al.* 2013, Patel *et al.* 2015, Snape *et al.* 2016).

In 2013 ARCHELON carried out a satellite tracking project on seven loggerhead turtles in the vicinity of Mesolonghi Lagoon, Greece (38.323 °N, 21.357 °E), a foraging area for loggerhead turtles, but with the occasional presence of green turtles reported. This paper presents the results of one satellite tagged loggerhead turtle that was re-observed on a nesting beach two months after the transmitter had ceased operation.

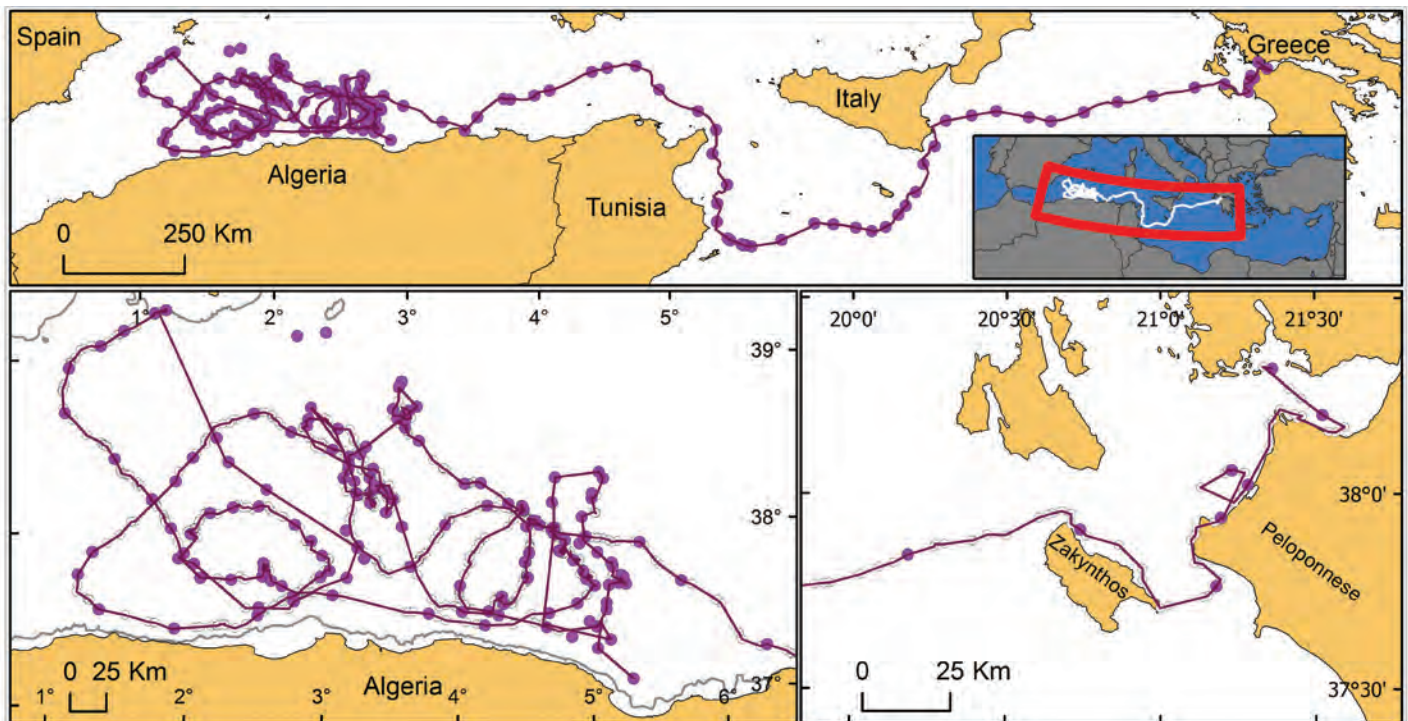
Turtles in July 2013 were captured by turtle rodeo technique from the shallow waters in and adjacent to the Mesolonghi Lagoon. Curved carapace length, notch to tip (CCL), and straight carapace length, notch to tip (SCL), were measured for each turtle, any existing injuries were recorded, and turtles were flipper tagged with

a single Monel metal tag on the trailing edge of each front flipper. Turtles were equipped with Kiwisat 202 Platform Transmitter Terminals (satellite tags) attached to the carapace with 2-part epoxy (see cover photo). Tracking route data were filtered to retain the best location per day with Argos LC quality ordered from best to worst; 3, 2, 1, 0, A, B. If there were two locations of equal best quality in one day, then the one closest to 12:00 UTC was retained.

Complementing this work, ARCHELON annually monitors several loggerhead nesting beaches in Greece during nesting season, including night time patrols that include flipper tagging post-nesting individual turtles (Margaritoulis 1988).

One female loggerhead turtle named Reggina was captured, close to Mesolonghi Lagoon, on 15 July 2013. She exhibited a healed injury to the anterior left margin of her carapace but this did not affect the collection of accurate length measurements (Table 1). She bore no evidence of having been flipper tagged previously.

Upon release on the same date of its capture, Reggina departed the Mesolonghi area immediately, heading south then west, passing along the east and north side of Zakynthos Island, *en route* to Italy. From Italy she continued through Maltese waters before reaching Tunisia and proceeded further into the western Mediterranean, reaching the deep seas off Algeria and at one point the turtle



**Figure 1.** Reggina's migration from Mesolonghi Lagoon to the western Mediterranean. Upper panel: Regina's complete migration from east to west with inset for regional context. Lower left panel: long-term oceanic looping undertaken by Reggina until the transmitter ceased functioning. 500 m isobath shown as grey line. Lower right panel: Origin of the migration from Mesolonghi Lagoon (upper right) including Reggina's passing of Zakynthos Island where she would return to nest three years later.

Date	CCL	SCL
15/07/2013	77.0	72.1
21/07/2016	78.0	74.0

**Table 1.** Carapace lengths (cm) for Reggina from first and last observation.

approached the Spanish island of Ibiza, around 1800 km from where she was tagged (Fig. 1).

She undertook extensive oceanic circling between 5 September 2013 and 24 February 2014 (172 days) when transmissions stopped. Average sea depth experienced by the turtle during this time was 2,614 m (SD=467, range=333-2,876 m, n=150 days). Her last location was received on 24 February 2014, only 15 km from coast of Algeria but still in water 1,440 m deep.

Reggina was next observed while nesting on Sekania Beach, Zakynthos Island, Greece, on 21 July 2016, by researchers working on ARCHELON's long-term nesting beach tagging project. While nesting, her carapace was again measured (Table 1) and indicated she had grown at least 1 cm in the intervening three years. The turtle was identified by her two flipper tags and characteristic left-side injury. There was no observable evidence of the satellite tag attachment on the carapace, with the transmitter and epoxy having been shed at some point after transmissions ceased.

We do not know whether the turtle was an adult when it was first encountered in Mesolonghi Lagoon in 2013 and equipped with its satellite tag, but this track represents the furthest distance from its nesting beach that a turtle known to nest in Greece has been tracked (>1700 km). Other published records of turtles nesting in Greece do not include any migratory distances greater than 1300 km from the nesting area; these include all known flipper-tag returns as well as all published satellite tracks (Margaritoulis 1988, Margaritoulis *et al.* 2003, Margaritoulis & Rees 2011, Zbinden *et al.* 2011, Schofield *et al.* 2013, Patel *et al.* 2015). Additionally, one nesting female from Kyparissia Bay, west Peloponnese (90km SE from Zakynthos), has been tracked to her nesting beach from the northern Adriatic (Luschi *et al.* 2013) ca. 1,100 km away.

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