Tag Recovery of a Rehabilitated Sea Turtle Confirms the Connection Between Italy and Greece

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ARCHELON (The Sea Turtle Protection Society of Greece) is a nonprofit organization dedicated to the study and conservation of sea turtles and their habitats in Greece. Since 1983, ARCHELON monitors nesting activity on the country's most important loggerhead nesting beaches. Zakynthos and Kyparissia Bay are among the longest monitored nesting areas worldwide. Every nesting season (May–October), researchers and trained volunteers conduct daily morning surveys to locate and protect nests, and during night patrols they tag nesting females with metal flipper tags and collect morphometric data.

CESTHA (Experimental Center for Habitat Conservation) works to promote the coexistence of productive human activities and the conservation of marine and coastal ecosystems in Italy. Part of its operation is running the official Sea Turtle Rescue, Therapy and Rehabilitation Centre in Ravenna, which responds to strandings and bycatch events along the provinces of Ferrara and Ravenna. Besides providing veterinary care and rehabilitation to injured sea turtles, the Centre investigates interactions between turtles and fisheries, contributing valuable information on threats affecting turtle populations at sea.

In the past century, recoveries of tagged turtles have enabled scientist to map turtle migrations between nesting and foraging grounds (Meylan 1982). Although nowadays new technologies, such as satellite telemetry, allow for a better understanding of migrations by providing additional information of migration routes (Godley et al. 2008), flipper-tag recoveries continue to be an important resource for studying turtle migration (Perez et al. 2022, Margaritoulis & Rees 2026). In addition, tag recoveries foster communication between researchers, rescue centres and fishers who report tagged turtles, creating collaborative conservation networks. The following case study demonstrates these connections and the importance of long-term tagging programs.

Rescue and Rehabilitation in Italy

On 19 September 2024, professional fishermen operating in the northern Adriatic Sea landed an adult loggerhead turtle that had been accidentally captured during trawling operations at the port of Cesenatico, Italy. Thanks to their cooperation with CESTHA, the turtle was transferred alive to the CESTHA Sea Turtle Rescue Centre, where it was admitted for veterinary assessment, treatment and rehabilitation. The turtle was subsequently named "*Lasagna*".

Upon admission to the Rescue Centre, Lasagna was identified as an adult female and was marked with the flipper-tag CTH346. She weighed 58.4 kg, with a curved carapace length of 75 cm and a curved carapace width of 67 cm. The animal was depressed/lethargic but maintained vigilance. A radiographic examination was performed as part of the initial veterinary assessment, revealing moderate bilateral pulmonary oedema, referable to drowning; routine blood analyses evidenced increased PCV (41%) and total protein (8.5 g/100ml), consistent with the drowning event.

During her stay at the CESTHA Rescue Centre, *Lasagna* was kept under veterinary supervision and underwent a period of rehabilitation and monitoring. Her clinical

condition, including respiratory patterns, behaviour, appetite and general recovery were regularly assessed by the rehabilitation team.

Following her recovery and the completion of the rehabilitation period, *Lasagna* was released back into the Adriatic Sea on 15 October 2024 (Fig. 1).



Figure 1. Preparing *Lasagna* for release at CESTHA Rehabilitation Centre (Photo: Andrea Fiumana).

Nesting in Greece

Approximately ten months after its release, in the early hours of 19 July 2025, *Lasagna* was encountered by the ARCHELON team during a routine night survey in Kalo Nero in southern Kyparissia Bay, Greece (37.3051°N, 21.6953°E). Following oviposition, standard monitoring procedures were carried out. Researchers recorded the existing Italian tag CTH346 on the right front flipper. A second flipper tag (Z7812) was applied to the left front flipper as part of ARCHELON's monitoring program, together with a Passive Integrated Transponder (PIT) tag (No. 00082068DD), providing more lasting identification should external tags be lost. Morphometric measurements were also recorded (CCL: 76.5 cm; CCW: 63.0 cm). The turtle exhibited no visible injuries, although numerous barnacles were present over her carapace.

Nest Success

The nest was left in situ and was protected using a flat metal screen anchored with bamboo sticks. It hatched on 6 September 2025, and excavation was performed on 18 September 2025 according to ARCHELON's standard protocols. Excavation revealed a clutch of 68 eggs, with 92.6% hatching success and 89.7% hatchling emergence success. These values indicate a highly successful reproductive event, demonstrating that the turtle had fully regained its mating and reproductive capacity following rehabilitation.

Final Observation

On 21 June 2026, approximately one year after her observed nesting in Kyparissia Bay, CESTHA received notification of a deceased stranded loggerhead turtle at Pinarella di Cervia (Ravenna), Italy. Because the stranding occurred outside CESTHA's official intervention area, the Centre could not collect morphometric data or perform a necropsy. However, the turtle still carried the ARCHELON flipper tag Z7812 (Fig. 2), allowing immediate identification. Although the original Italian tag was no longer present, communication between the two organizations confirmed that the stranded turtle was *Lasagna*. The turtle's final recovery completed an extraordinary documented life history linking accidental capture in the northern Adriatic, successful rehabilitation, release, migration to Greece (where she probably mated), successful reproduction in Kyparissia Bay, migration to the Adriatic, and eventual observation after death.

Conclusion

Lasagna's history provides a compelling demonstration of the scientific and conservation value of long-term tagging programmes and rehabilitation efforts in the context of international collaboration. Recent analysis of more than four decades of ARCHELON's tagging programme (Margaritoulis & Rees 2026) showed that loggerhead turtles nesting in Greece disperse widely across the Mediterranean after reproduction. Most tag recoveries from the population nesting in Kyparissia Bay occurred in the Central Mediterranean, particularly the



Figure 2. Lasagna's retrieved metal tag showing ARCHELON's return address (left) and its identification code Z7812 (right).



Figure 3. Map showing Lasagna's journey with the approximate locations of her release in Ravenna, Italy (blue circle), nesting in Kyparissia Bay, Greece, and final stranding location back in Ravenna, Italy (red cross). Shown routes are indicative and do not represent the migratory pathways.

Adriatic Sea and the Tunisian Plateau, regions that serve as important neritic foraging grounds. *Lasagna's* movements (See Fig. 3) perfectly fit these long-term patterns. After rehabilitation and release in the northern Adriatic, the turtle migrated to southern Kyparissia Bay to reproduce before apparently returning to Adriatic foraging grounds. This documented migration reinforces the strong ecological connectivity between loggerhead nesting beaches in Greece and Adriatic feeding habitats, previously identified through decades of tag recoveries as well as genetic studies (Garofalo et al. 2013, Baldi et al. 2022, Vela-Garcia et al. 2025). This also points to the importance of the collaboration between rescuers and local

fisheries in such a key area as the Northern Adriatic where specimens of the highest relevance for species conservations, i.e. mature females, come to feed.

The case study also highlights both the value and the inherent challenge of sea turtle rescue and conservation. *Lasagna's* successful migration from the Adriatic to Greece and its subsequent nesting only months after release demonstrate that rehabilitated adult females can fully resume their reproductive role, reinforcing a similar conclusion from the 30-year operation of ARCHELON's Sea Turtle Rescue Centre in Glyfada, Attika, Greece (Margaritoulis et al. 2026). Yet, this story also serves as a sobering reminder that release is not the end of the conservation journey. Like many loggerhead turtles, *Lasagna* spent only a brief period on protected nesting beaches, while the vast majority of her life unfolded at sea, where she remained exposed to numerous human-induced threats (Casale et al. 2010). Her eventual recovery as a dead stranded turtle in the Adriatic reflects the reality revealed by decades of tag recoveries: many reproductively active turtles face significant mortality in their marine foraging grounds (Margaritoulis & Rees 2026). Effective sea turtle conservation therefore requires coordinated international management of both terrestrial and marine habitats.

Acknowledgements

The authors would like to thank all the ARCHELON volunteers that worked in Kyparissia Bay in 2025 for their contribution to the monitoring and protection of the turtle's nesting activity, as well as Lenio Margaritouli, for creating the map graphics based on a map provided by Maptool, a product of seaturtle.org

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