Video Evidence of a Monk Seal Attack on a Loggerhead Turtle in Syros Island, Greece, and a Review of Previous Monk Seal/Sea Turtle Interactions

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The loggerhead sea turtle (*Caretta caretta*), the most abundant sea turtle species in the Mediterranean, has a wide geographical distribution in the basin and shows high nesting density in its eastern part, especially along the coasts of Greece, Turkey and Cyprus (Casale et al. 2018). The Mediterranean monk seal (*Monachus monachus*) is one of the most emblematic threatened marine mammals and the most endangered seal species with its global population currently estimated at less than 1000 individuals (Karamanlidis & Dendrinos 2026).

The predation of large juvenile and adult sea turtles in the marine environment is relatively rare compared to hatchlings and small juveniles, which are known to be preyed upon by a plethora of natural predators (see Heithaus (2013) for a review). For adult sea turtles, the most common natural predators are large sharks, particularly the tiger shark (*Galeocerdo cuvier*) (Heithaus 2013). Reports of other marine predators attacking or feeding on large sea turtles are extremely rare, with only occasional cases involving crocodilians, killer whales (*Orcinus orca*) and monk seals (Heithaus 2013). In Greece, several instances of loggerhead turtle predations have been recorded by monk seals (Margaritoulis et al. 1996, Margaritoulis & Touliatou 2011, Quintano & Chatzipavlis 2023).

Therefore, any interactions between these two species can be considered particularly interesting for exploring the dynamics of their populations and associated behaviours. Although earlier reports exist of turtles with injuries attributed to monk seals (Margaritoulis et al. 1996, Margaritoulis & Touliatou 2011, Quintano & Chatzipavlis 2023), only recently has video evidence become available documenting such attacks in progress. Here, we present a case from the island of Syros along with other incidents in Greece, including the green sea turtle (*Chelonia mydas*). This suggests that "monk seal–sea turtle" interactions may be a predator-prey relationship that is more widespread or on the rise than previously thought.

On 10 August 2025, at 01:45, an adult loggerhead turtle was spotted in the port of Hermoupolis (37.4361°N, 24.9420°E), at the island of Syros (Cyclades, central Aegean Sea), being attacked by a monk seal. The event was recorded by a crane operator at the Neorion shipyard, who recorded the incident from an elevated position using a mobile phone and a shipyard lamp for lighting. The original video is approximately 4 minutes long (we share a less than 1 minute clip showing the most informative part) and shows clearly a monk seal attacking a loggerhead turtle. The monk seal repeatedly bites and drags the loggerhead turtle, at the dorsal part of the neck breaking also the anterior part of the carapace (https://drive.google.com/file/d/13AjvYlFDCtc31U5Bk3QLED9JliXBcvtm/view?usp=drive_link).

Several hours later, the carcass was found stranded in the port. Photographs taken at the site confirm that it was a recently deceased adult loggerhead turtle, with extensive damage to the neck and the anterior part of carapace with exposure of the internal organs (Fig. 1).

Figure 1. The attacked loggerhead turtle in Syros found stranded at a beach near Neorion shipyard the following morning.

Figure 2. Locations of the herein presented six unpublished records of sea turtle-monk seal interactions in Greece (red circles). Yellow star shows Zakynthos where the phenomenon was first recorded.

This behaviour is not consistent with previous evidence from Zakynthos, where the monk seals mainly attacked loggerhead turtles through the soft tissues at the rear of the plastron and, presumably, consumed the entrails (Margaritoulis & Touliatou 2011). In the current report the loggerhead turtle's entrails, dragged out by the monk seal, are visible hanging outside, showing that the monk seal, although managed to break the shell, did not consume them.

Table 1. Additional cases of interactions between monk seals and sea turtles in Greece recorded through amateur videos (U: unknown, M: male, Cc: *Caretta caretta*, Cm: *Chelonia mydas*).

Date	Location	Seal age class	Seal sex	Turtle species	Turtle age class	Video links and comments
19/03/2017	Sitia, Crete	Subadult	U	Cc	Subadult	https://drive.google.com/file/d/1mJesUkPr8Gh0d_7FiEGgbXAMOG0JO5lU/view?usp=drive_link A subadult monk seal attacks a loggerhead turtle. At the beginning of the incident, the turtle was observed struggling at the water surface, attempting to dive and escape. Later, it is seen bleeding and floating while swimming weakly. The monk seal remains at a distance, possibly having been deterred by the approach of the observer's boat. No information on the final outcome of the interaction is available.
22/10/2017	Elounda, Crete	Subadult	U	Cc	Subadult	https://drive.google.com/file/d/1mO7R0hmdAxdXo9zG4zB0pYkNtJhCWJcY/view?usp=drive_link A subadult monk seal interaction reported with a subadult loggerhead turtle.
17/07/2021	Kastelorizo, Dodecanese	Weaner	U	Cm	Juvenile	https://drive.google.com/file/d/1LCGD7e_hjGoE9RrhWOaTc9Cquh-G6BvC/view?usp=drive_link The incident was recorded in the port of Kastelorizo. The monk seal bites and tries to tear apart the dead green turtle (probably thrown overboard by fishers as bycatch).
20/07/2024	Paros, Cyclades	Adult	M	Cc	Subadult	https://drive.google.com/file/d/1RV2NtPhzNQLPbOuigNT3l6EDx5Ru1t_U/view?usp=drive_link The monk seal is seen attacking the loggerhead turtle and trying to drag it underwater, then circling around it. The seal's behaviour was likely influenced by the presence of the observer's boat, which may have discouraged further interaction. No information is available regarding the final outcome of the incident.
03/09/2025	Chalki, Dodecanese	Adult	M	Cc	Juvenile	https://drive.google.com/file/d/1vrr1206e1UkJ9dUuQPbSeaODjCadCzNx/view?usp=drive_link The monk seal attacks the loggerhead turtle on the surface of the water, attempting to bite and possibly remove pieces of tissue, likely targeting the softer parts of the body. After some time, the turtle appears motionless and was subsequently dragged underwater by the seal toward the end of the video recording.

Reviewing the literature on previous competitive interactions between monk seals and sea turtles in the Mediterranean, revealed the following:

1. Zakynthos, Greece (1996–2010): Margaritoulis et al. (1996) first reported loggerhead turtles killed by monk seals in Laganas Bay. A major outbreak with 21 loggerhead turtles found with injuries that occurred in 2010 was attributed to monk seals (Margaritoulis & Touliatou 2011).

2. Lesvos, Greece (2021): Quintano & Chatzipavlis (2023) reported the simultaneous presence of a dead loggerhead turtle and a live monk seal during a dive near Tartis Beach. Wounds

on the posterior part of the loggerhead turtle's plastron, with missing internal organs, supported the hypothesis of predation by monk seals.

3. Turkey (2016–2021): Tonay et al. (2016) found remains of green turtles (*Chelonia mydas*) in the stomach of a monk seal that had washed ashore in Antalya. Two additional cases were recorded by Kıraç & Türkozan (2023): (a) turtle remains were found in the digestive tract of a dead monk seal in 2018 at Mersin, and (b) an attack by a young monk seal on a young green turtle indicated to be filmed in 2021 at Kaş.

We examined the national archives of the Sea Turtle Protection Society of Greece (ARCHELON) and of the Hellenic Society for the Study and Protection of the Monk Seal (MOm) for sea turtle and monk seal sightings (2017–2025) and uncovered five additional incidents (Table 1). Two interactions were located around Crete, two in the Dodecanese and one in the Cyclades (Fig. 2). These cases in Greece, together with the published incidents, indicate that "monk seal–sea turtle" interactions have occurred repeatedly in the last decades across several regions of the Aegean Sea and the eastern Mediterranean.

The Syros case represents the first documented video in which both the predation attempts and its outcome (entrails exposed but not consumed) are clearly documented. This observation provides novel insight into the hunting or competitive mechanisms of the monk seal in interactions with sea turtles. In contrast to previous reports, where turtles were found already dead or partially consumed, the present case documents the attack process itself.

Previous incidents in Zakynthos, where the monk seals consumed the entrails of preyed loggerhead turtles, were attributed to the limited fish stocks (Margaritoulis & Touliatou 2011). However, in this instance the internal organs were not consumed which suggests that this was not a simple case of predation. Instead, it may reflect competitive behaviour associated with competition for food resources, particularly discarded fish from nearby fishing boats in the port area of Syros.

The ecological implications of this observation are threefold:

1. Individual differences in monk seal behaviour: Not all monk seals attack in the same way. Due to possible lack of food, such aggressive behaviours may be limited to a few individuals.

2. As fish stocks in the Mediterranean decline (Tsikliras 2014), interactions of this type may become more frequent, causing concern for a possible new pressure impacting sea turtle populations.

3. The increasing population trend of the loggerhead turtle's Mediterranean subpopulation (Casale 2015).

The present case in Syros was reported via ARCHELON's Citizens Science web portal where the public can log observations of sea turtles or their nests (https://archelon.gr/en/support-us/found-a-turtle). This event would probably have gone unnoticed or unconfirmed, without the video and the photos taken by witnesses. The importance of citizen science in reporting such events should not be underestimated.

Based on the above observations, future measures should include:

- Enhanced monitoring of "monk seal–sea turtle" interactions in Greek and Turkish waters.
- Closer collaboration between ARCHELON and MOm to compile and compare records of such incidents.
- Cooperation with local communities and fishermen to report such interactions.
- Further research about the particular role of declining fish populations as an ecological factor that may be responsible for such behaviours in monk seals.

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Literature cited

Casale P (2015) *Caretta caretta* (Mediterranean subpopulation). The IUCN Red List of Threatened Species 2015: e.T83644804A83646294. Accessed on 06 April 2026

Casale P, Broderick AC, Camiñas JA, Cardona L, Carreras C, Demetropoulos A, Fuller WJ, et al. (2018) Mediterranean sea turtles: current knowledge and priorities for conservation and research. Endangered Species Research 36: 229-267

Heithaus MR (2013) Predators, prey and the ecological roles of sea turtles. In: J Wyneken, KJ Lohmann, JA Musick (eds) Biology of Sea Turtles, Volume III. CRC Press, Boca Raton, FL, p. 249-284

Karamanlidis AA, Dendrinos P (2026) Mediterranean monk seal *Monachus monachus* (Hermann, 1779). In: A Loy, P Ciucci (eds) Handbook of the Mammals of Europe: Carnivora. Springer Cham, p. 455-475

Kıraç CO, Türkozan O (2023) Green sea turtle (*Chelonia mydas*) predation by Mediterranean monk seal (*Monachus monachus*) along Turkish coast. Marine Turtle Newsletter 166: 16-19

Margaritoulis D, Karavellas D, Irvine C (1996) Predation of adult loggerheads by Mediterranean monk seals. In: JA Keinath, DE Barnard, JA Musick, BA Bell (comps) Proceedings of the 15th Annual Workshop on Sea Turtle Biology and Conservation. NOAA Tech Memo NMFS-SEFSC-387, p. 193–196

Margaritoulis D, Touliatou S (2011) Mediterranean monk seals present an ongoing threat for loggerhead sea turtles in Zakynthos. Marine Turtle Newsletter 131: 18-23

Quintano N, Chatzipavlis AE (2023) Evidence of Mediterranean monk seal predation on loggerhead sea turtle in Lesvos Island, Greece. Examines in Marine Biology and Oceanography 5(3): 612

Tonay AM, Danyer E, Dede A, Öztürk B, Öztürk AA (2016) The stomach content of a Mediterranean monk seal (*Monachus monachus*): finding of green turtle (*Chelonia mydas*) remains. Zoology in the Middle East 62: 212-216

Tsikliras A (2014) Fisheries mismanagement in the Mediterranean: A Greek tragedy. Fisheries and Aquaculture Journal 5(4): 1000e113