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SHORT NOTE

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Sporadic nesting records of the loggerhead sea turtle *Caretta caretta* along the Greek shores of the Aegean Sea

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ABSTRACT – In Greece, about 18% of loggerhead sea turtle nesting occurs around the Aegean Sea, on specific beaches that are monitored regularly. Sporadic nesting is also recorded incidentally in other areas. We present here the sporadic nesting events, along the Aegean coasts of Greece, for the 41-year period 1984–2024. Beaches with multiple nesting events, in the same or different nesting seasons, should be further investigated as this may lead to the discovery of new nesting sites that support regular nesting.

INTRODUCTION

The loggerhead turtle *Caretta caretta* (L.) is the most common species of marine turtle in the Mediterranean Sea where it breeds mainly in its eastern basin (Margaritoulis et al., 2003). Casale et al. (2018) identified 52 major nesting sites of loggerhead turtles around the Mediterranean using as a criterion sites exhibiting an average nesting magnitude of > 10 nests/year and an average nesting density of > 3 nests/km/year. These 52 sites comprise an average of 6,751 nests/year, with Greece hosting approximately 45.7% of these (Casale et al., 2018).

Within Greece, 82% of nesting occurs in the Ionian Sea, with the nesting sites of Zakynthos and Kyparissia Bay exhibiting the highest nest numbers and densities, while only 18% of nesting activity occurs in the Aegean Sea, primarily on the island of Crete (Casale et al., 2018). Since the beginning of the 1990s, the three major nesting sites on Crete have been monitored annually by ARCHELON (Margaritoulis & Panagopoulou, 2010). In addition, since 2016 the south-eastern coast of Lakonia, not included in the list of sites set by Casale et al. (2018), is monitored by a local organisation (Toulipa Goulimi) in co-operation with ARCHELON.

Besides the regular nesting that is monitored in these nesting areas, so-called 'sporadic' or 'diffused' nesting activity occurs across the country (Margaritoulis et al., 2003). Information on sporadic nesting is useful as it may result in the discovery of new regular nesting (Prato et al., 2022). Here, we present sporadic nesting records of loggerhead turtles that have been collected during 41 years along the Greek coasts of the Aegean Sea.

MATERIALS & METHODS

As early as 1984, ARCHELON encouraged its members and volunteers, and later the general public, to report any sea turtle nesting events encountered across the country. By 'nesting event' we consider the appearance of a sea turtle (adult or hatchling) on a beach, as well as tracks, imprinted on the beach sand, that are left either by adult turtles (after their emergence for nesting) or by hatchlings (after their emergence from a hatched nest). In the early years, such reports were collected in the form of hand-written messages, and later through the 24h-7d telephone line of the ARCHELON's Sea Turtle Rescue Network and through email. In 2024, we developed a specific platform (in Greek and in English) on ARCHELON's website https://archelon.gr/en/support-us/found-a-nest-or-hatchlings which was used directly by citizens. A number of records were also obtained from publicly shared information in social media.

Citizens were asked to provide photographic documentation and, if willing to do so, to protect the nest on site. Occasionally, the local Coast Guard or the municipality were called and assisted in the protection of the nest. Nesting events reported by citizens within the regularly monitored areas were not included. Photographs showing tracks, adult turtles or hatchlings were studied to confirm the nesting event and if possible to identify the turtle species.

We entered all records in an electronic database, this involved registering the date, the relevant municipality and the name of the beach, as well as the name and contact details of the reporter. We cleaned up the database, as much as possible, by deleting multiple reports of the same event and reports of hatchlings that were hatched from previously reported nests.

RESULTS & DISCUSSION

We recognised in total 577, presumably different, nesting events along the Greek coasts of the Aegean Sea (Fig. 1). However, due to difficulty in differentiating non-nesting emergences (when a female sea turtle crawls out of the water to lay eggs but then returns to the sea without nesting) and nestings, the results presented here should not be used as a measure of the frequency of nesting in a specific area but rather to indicate the beaches for which

Figure 1. Nesting records of loggerhead sea turtles *Caretta caretta* on the Greek coasts of the Aegean Sea (area in blue) reported in the period 1984–2024. Numbers indicate different records on same or neighbouring beaches. The four areas, coloured in green, are sites of regular nesting monitored by ARCHELON.

turtles showed a preference for nesting. The opportunistic nature of data collection and the long period (> 40 years) of data accumulation, assures an acceptable general picture of the sporadic nesting distribution of *C. caretta* along the Greek shores of the Aegean Sea.

Nesting events were more frequent in southern latitudes, with maximum occurrence on Crete (309 events), and this may be due to the higher sea water temperatures in the southern Aegean in comparison to its northern part (Pastor et al., 2018). Northernmost events were reported from Samothraki (non-nesting emergence), Halkidiki (confirmed nests), Magnesia (confirmed nests) and Lesvos (confirmed nests). Of note, a non-nesting emergence of a loggerhead turtle was described by Kasparek (1991) on the western coast of Limnos Island.

Several areas, and specific beaches, exhibited repeated nestings during the same or subsequent seasons (e.g. Attica, eastern Peloponnese, Rhodes, Komi beach in southern Hios, Kantouni beach in Kalymnos), and this deserves further investigation. Five confirmed nests, not included in our database, were reported by Pietroluongo et al. (2021) for Samos Island. Sporadic nesting reports may provide strong clues leading to the discovery of new sites hosting regular nesting when the area in question is subject to adequate monitoring (Prato et al., 2022).

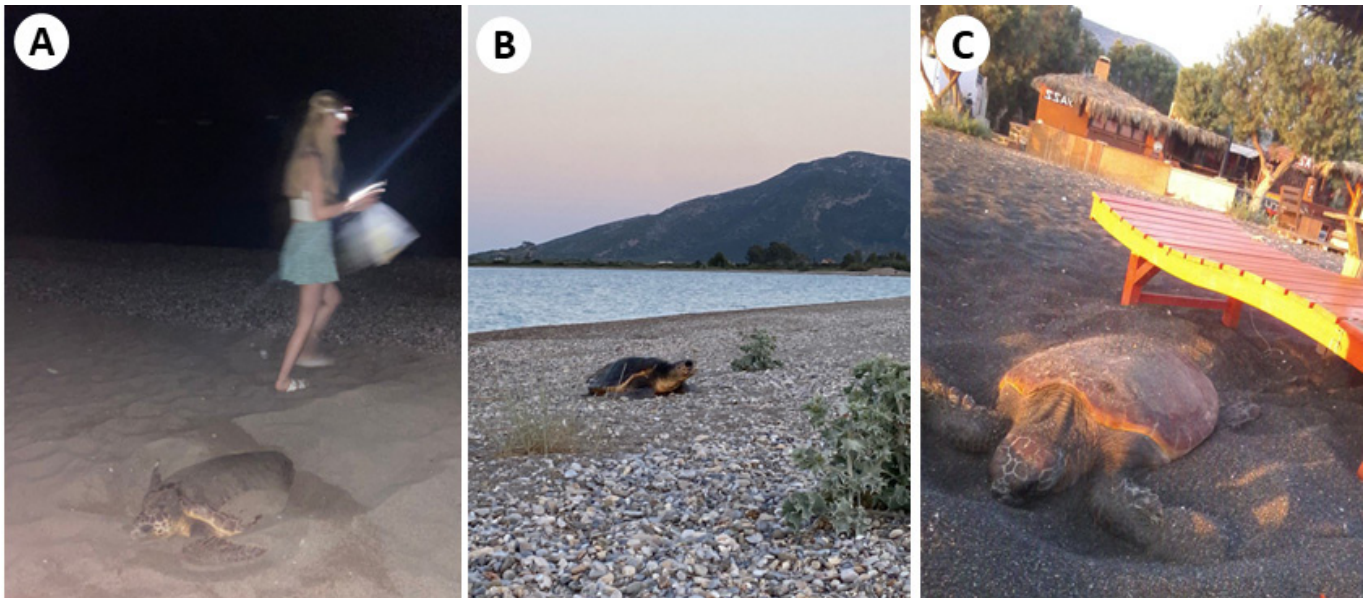

Figure 2. Emergent loggerheads, photographed by citizens - **A.** Lardos beach, Rhodes (4 July 2022), **B.** Daytime emergence at Moustou Lake, East Peloponnese (3 June 2022), **C.** Excavation of a body pit among beach furniture at Perissa beach, Thira Island (22 June 2018)

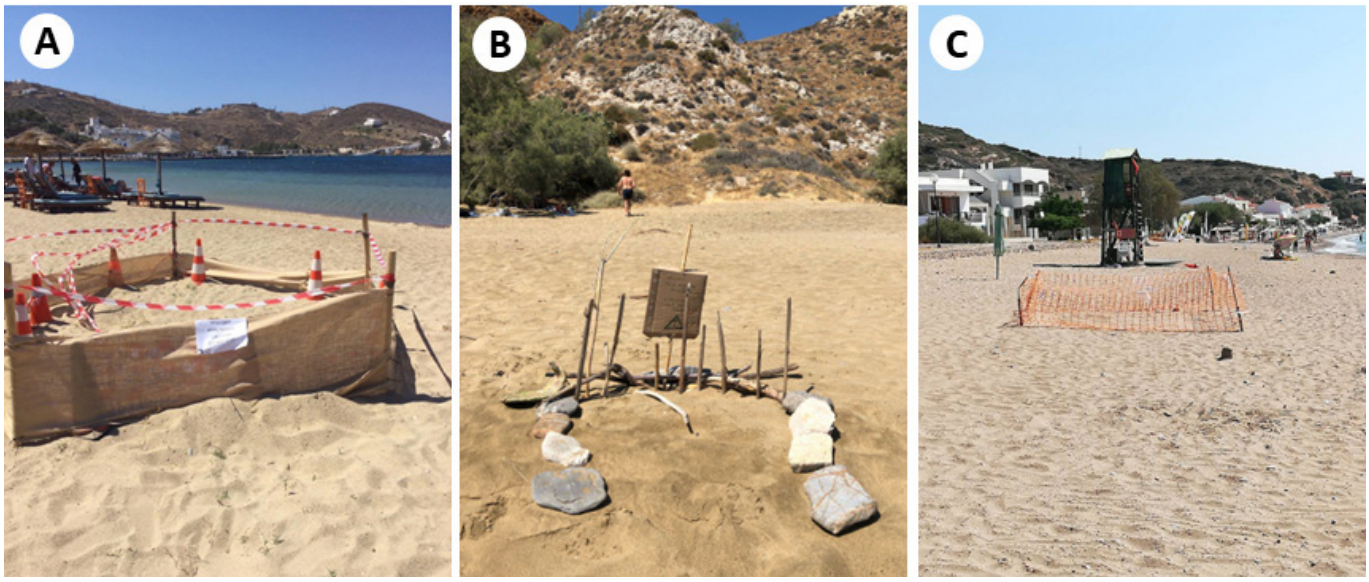

Figure 3. Makeshift protection of nests - **A.** Ios Island, Cyclades (11 July 2022), **B.** Anafi Island, Cyclades (28 July 2022), **C.** Komi, Hios Island (24 June 2018)

All photographed turtles, both adult females and hatchlings, were identified as loggerheads (Fig. 2).

Most nests, or possible nest sites, were protected by citizens or by the local Coast Guard or municipality, with makeshift constructions aiming primarily to prevent trampling (Fig. 3).

A similar spatial distribution of loggerhead nests appears along the Turkish coasts of the Aegean Sea with fewer nests reported in northern latitudes, as in Çanakkale province (39° 30.675' N, 26° 05.024' E) (Yalçın Özdilek et al., 2020), and on the Island of Gökçeada (Imvros) (Sandik et al., 2023). More nests have been reported in southern latitudes of Turkish coasts, as in Urla (Region İzmir, opposite to Hios), Kuşadası (Region Aydin, close to Samos), and Marmaris (Region Muğla, opposite to Kos and Rhodes) (Sandik et al., 2023).

Loggerhead turtles are not strongly philopatric so females may deviate from their usual nesting sites and explore other beaches (Carreras et al., 2018). Consequently, despite the incidental nature of our data, it seems reasonable to assume that loggerhead turtles may be expected to nest at any suitable beach in the Aegean Sea, at least south of 39° N.

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