



ANNUAL
ACTIVITY REPORT
CRETE
PROJECTS

2024

Athens, November 2024

**ARCHELON, The Sea Turtle
Protection Society of Greece**



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1 INTRODUCTION

ARCHELON has been systematically monitoring and protecting, on a yearly basis, the nesting activity of the Loggerhead sea turtle (*Caretta caretta*) at the three main nesting beaches in Crete since 1990 (in Rethymno since 1990, in Chania since 1992, in Messara Bay since 1993). These main nesting sites are included in 4 Natura 2000 Network sites:

- Rethymno: GR4330004 "PRASSANO FARANGI - PATSOS - SFAKORYAKO REMA - PARALIA RETHYMNOU KAI EKVOLI GEROPOTAMOU, AKR. LIANOS KAVOS – PERIVOLIA"
- Chania: GR4340003 "CHERSONISOS RODOPOU – PARALIA MALEME – KOLPOS CHANION" and (partly) GR4340006 "LIMNI AGIAS – PLATANIAS – REMA KAI EKVOLI KERITI – KOILADA FASA"
- Messara Bay: GR4310004 "DYTIKA ASTEROUSIA (APO AGIOFARANGO EOS KOKKINO PYRGO)"



2 RESULTS

ARCHELON's Conservation Projects in Crete ran from early May 2024 until early October 2024 by three separate groups of volunteers/researchers and was successfully completed. Trained local volunteers also participated in the Chania and Messara Bay Projects.

According to preliminary data, more than 1,000 nests were recorded in the aforementioned nesting beaches - the biggest number of nests that has ever been recorded since 1990. Most of the nests were protected against inundation, trampling, and light pollution.

Regarding sea turtle strandings, in the duration of the Projects in Crete:

- 12 dead sea turtles were recorded in Rethymno (11 of them were reported by ARCHELON's team and 1 by a citizen),
- 12 dead (5 of them were reported by ARCHELON's team and 7 by citizens and local authorities) and 1 injured sea turtle (that was transferred to ARCHELON's Sea Turtle Rescue Centre) were recorded in Chania,
- 1 dead sea turtle was recorded in Messara Bay,
- 1 injured sea turtle was found in Pachia Ammos beach in Lasithi, Crete and was transferred to ARCHELON's Sea Turtle Rescue Centre.

ARCHELON's public awareness actions were carried out on the nesting beaches, in tourist businesses and in the seasonal ARCHELON Information Stations that had been installed in key locations of the three areas in question. Approximately 26,700 visitors and locals participated and were informed (18,214 people in Rethymno, 5,274 in Chania and 3,283 in Messara Bay).

ARCHELON placed 10 satellite transmitters on turtles after their nesting in Chania and Messara Bay to monitor their migrations, in the framework of the LIFE MareNatura programme. Tissue samples were also taken from turtles to investigate their feeding areas, using the stable isotope method.



3 THREATS

Based on the Joint Ministerial Decision (Government Gazette 1432/31-03-2023) prescribing beach use, Municipalities can lease portions of the beach to tourism and leisure related businesses. Regarding the sea turtle nesting beaches, including Rethymno, Chania and Messara Bay, the competent Municipalities can concede to local businesses the “simple beach use”, provided that the implementation of protection management measures is ensured during the nesting and hatching season. These measures include the removal of beach furniture (sunbeds, umbrellas) at sundown, the prohibition of heavy vehicle usage during beach clean-ups, the elimination of light pollution, the restriction of beach parties and the prohibition of vehicle traffic on the beaches.

For the enforcement of these measures local environmental authorities (Department of Environment, Destrict of Crete) were activated, informing businesses and carrying out on-site inspections. It is worrying that for another year, in 2024, too many cases of non-compliance with the management measures continued to be observed, with short and long-term consequences on the conservation of sea turtles and their habitats. Information for each nesting area is presented separately below.



3.1 RETHYMNO

In 2024, 103 businesses were operating on the beach front of Rethymno. The percentage of those businesses that did comply with the measure of removing sunbeds from the beach after sunset was reduced from 50% in 2023 to 20% in 2024. Additionally to the beach furniture, water sport equipment was also left on the beach during night-time by 9 related businesses (1 more than the number of water sport businesses in 2023). Thus, the available space on the beach for the nesting female turtles decreased compared to last year. In any case, there needs to be a coordinated effort in order for all beach-front businesses to comply with this protective measure.

Light and noise pollution continued to pose threats for the habitat. There were extensive parts of the beach with intense lighting that prevented the turtles from coming out of the sea and nesting, as well as disorientated the hatchlings making them unable to find their way into the sea (hatchlings are phototacting meaning they are attracted by lighting). To combat this problem, ARCHELON implemented nest shading in the vast majority of the nests (83%). Nevertheless, hatchling disorientation incidents were recorded in 151 nests (47%). In general, light pollution affected 89% of the nests.

A significant number of incidents of vehicle (287 incidents) and heavy machinery traffic (46 incidents) were recorded on the beach. Additionally, human presence at the beach during the night can deter turtles from nesting, as well as poses trampling danger for the hatchlings. 4,240 incidents of human presence at the beach during the night were recorded, and in many cases people were actively trying to locate turtles and hatchlings. In some cases, the crowding of people around the animals was so intense that ARCHELON researchers had to intervene and crowd-control to reduce the disturbance to the protected species.



The daily leveling of the sand with rakes and other tools (1,008 incidents recorded) carried out by beach-front businesses created problems in locating and protecting the nests, as well as seriously endangered the hatchlings. Protected nests were disturbed (i.e. ARCHELON's protection measures were moved) in 98 cases, probably due to the increased human presence on the beach.

Coastal erosion is one of the most important long-term threats. Waves erode large parts of the beach (Rethymno town, Sfakaki, Skaleta), resulting in the destruction of existing nests. In large parts of the nesting beach, the morphology has completely changed due to various interventions related to continuous urbanization. Problems are also created by large-scale projects, such as the waste treatment in Rethymno, which has already been completed, and the fishing shelter in Skaleta that began construction in early 2023.



3.2 CHANIA

In 2024, 38% of beach-front businesses in Chania did comply with the measure of removing beach furniture after sunset. A similar percentage (35%) was also recorded in 2023. In any case, all coastal businesses should comply with the protective measure in the near future. Considering that, in 2024, 150 businesses with beach furniture and 10 businesses with water sports equipment operated on the beach, it becomes apparent that most of the beach was not accessible for the protected species.

Light pollution is another significant problem in Chania beach. Large sections of the beach lack in any dark spots, which would allow sea turtle nesting and safe hatching. Light pollution affected almost all nests in Chania and as a protective measure we applied shading to most (98% of the total number of nests). Despite the shading, light pollution was so extensive that hatchling disorientation was observed in 198 nests (52% of the nests).

In addition, a large number of incidents of vehicle and heavy machinery movement on the beach were recorded (65 and 15 incidents respectively). Also, we observed 60 incidents of human intervention in the protection of the nests, apparently due to overcrowding. Similarly to Rethymno, there were many cases in Chania that people visited the beach in the evening hours and attempted to see the turtles and hatchlings up close. ARCHELON volunteers intervened to control the crowd in several incidents.

Coastal erosion, as a result of ongoing urbanization and coastal construction along the entire length of the habitat, continues to be one of the biggest problems in Chania, as it limits the available space for nesting. The construction of the three breakwaters in the Kolymbari area seems to exacerbate the erosion problem rather than contribute to its solution.



3.3 MESSARA

In Messara Bay, 27 businesses were recorded operating on the beach-front during the summer. 88% of them (24 businesses) did not remove beach equipment during night time, obstructing in many cases the nesting females. Therefore, no improvement was observed, compared to previous years, regarding this management measure of the Joint Ministerial Decision to ensure free space on the beach for the creation of nests.

Unlike the areas of Rethymno and Chania, in the Messara Bay the threat of light pollution does not occur throughout the entire length of the beach, i.e. there are still dark spots. However, in this part of Crete, there are areas such as the settlements of Kalamaki and Kokkinos Pyrgos, where the problem of light pollution is particularly intense. Therefore, out of the total of 313 nests identified in the summer of 2024, the protective measure of shading was applied to 77 (25%). However, disorientation of hatchlings was still noted in 59 nests (19%).

In addition, we recorded vehicles on the beach (which may cause destruction of the nests or premature hatching), while human presence on the beach in the evening hours was recorded almost every day. 74 incidents of interference with nest protection were also recorded, apparently due to overcrowding. On a positive note, no large night-time event (beach party) was recorded in 2024, compared to the previous year, when a big event was held in the quietest area of the habitat (Afrathia beach). Regarding the long-term threats, the illegal road constructed in 2021 connecting Kalamaki and Afrathia still remains open, while at the end of the road (towards Kalamaki) intense residential pressure has been observed in recent years (construction of tourist accommosation and a hotel unit).



4 POPULATION TRENDS

Genetic research has shown that the population of sea turtles breeding in Crete is genetically distinct from populations breeding in other areas of Greece. Therefore, its protection is of vital importance. Analysis of long-term nesting data series in previous years showed a significant decrease in the annual number of nests in Rethymno and Chania, while the trend in Messara Bay remained rather stable with annual fluctuations. However, the nest numbers in recent years and especially the nest records of 2024 give a tone of optimism for the recovery of the population in Rethymno and Chania, while Messara Bay shows a growing trend. Finally, it should be noted that these encouraging trends depend on protection measures and are largely the result of ARCHELON's long-term monitoring and conservation projects. It is therefore important that current conservation efforts continue.



5 CONSERVATION

Crete is considered the flagship of the Greek tourism industry and is called upon to move towards sustainability and develop sustainable destinations. The assessment of the carrying capacity of visitors in areas such as Rethymno and Chania is essential for the conservation of the Loggerhead sea turtle breeding habitats.

The Management Units (MUs) are part of the Natural Environment and Climate Change Agency (NECCA) and are responsible for the protection and management of the Natura 2000 Network sites, that include the loggerhead sea turtle nesting beaches in Crete. Thus, the MU of National Park of Samaria and Protected Areas of Western Crete is responsible for Chania, while the MU of Protected Areas of Eastern Crete is responsible for Rethymno and Messara Bay. The MUs have yet to take action in the protection and management of the habitats. It is estimated that NECCA's activation for the protection and management of these areas by dealing with the aforementioned threats (that have yet to be addressed) will help improve the situation.

There is no specific legislative framework like Presidential Decrees (PDs) or Management Plans (MPs) for the protection and management of the Natura 2000 sites in Crete. These are expected to be published after the approval of the Special Environmental Studies (SES) for all Natura 2000 sites in the framework of a nation-wide project carried out by the Ministry of Environment and Energy. This project however faces major delays. The completion of the SES, PDs and MPs for Natura 2000 sites is of vital importance for the conservation of sea turtle habitats and must be completed immediately. Until the PDs and MPs are completed, it is necessary to ensure the implementation of all management measures described in the Joint Ministerial Decision on "simple beach use", as well as the implementation of the general environmental legislation.

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