



CRETE ANNUAL REPORT 2023

*Conservation efforts during 2023 at the nesting
habitat of *Caretta caretta* in Crete, Greece*

Athens, November 2023

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



Copyright © 2023 by ARCHELON

No part of this report may be reproduced in any form or
by any means without the written permission of
ARCHELON

ARCHELON, the Sea Turtle Protection Society of Greece

Solomou 57
GR-104 32 ATHENS
Greece

Tel.: +30-210-5231342
e-mail: info@archelon.gr
URL: www.archelon.gr

1 INTRODUCTION

ARCHELON has been systematically monitoring and protecting, on a yearly basis, the nesting activity of the Loggerhead sea turtle (*Caretta caretta*) in Crete since 1990.

The main nesting sites in Crete are included in the following Natura 2000 Network's 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

During the nesting season of 2023, ARCHELON successfully completed the Field Project for the monitoring and protection of the nesting activity of loggerhead sea turtles in Crete. The project was conducted by three separate groups of volunteers/researchers at the beaches of Rethymno, Chania and Messara Bay. Trained local volunteers also participated in the Chania and Messara Bay Project areas.

According to preliminary data, a total of 825 nests were recorded in all three Project areas. Most of the nests were protected against inundation, trampling, and light pollution.

Regarding sea turtle strandings, 18 dead sea turtles were recorded in Rethymno, 11 dead and 1 injured in Chania and 2 dead in Messara Bay.

Additionally, ARCHELON conducted Public Awareness actions on the beach, in various touristic facilities and at the seasonal Information Stations of each project area. Around 11,500 tourists and visitors were informed about sea turtles in Rethymno, 4,670 in Chania and 1,660 in Messara Bay.



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) at sundown, the prohibition of heavy vehicle usage during beach cleanings, 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 the environmental authorities of Crete were activated, informing businesses and carrying out on-site inspections. It is worrying that for another year, in 2023, too many cases of non-compliance with these 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

On a positive note, in Rethymno beach the percentage of businesses that did comply with the measure of removing sunbeds from the beach after sunset reached 50%, while the same percentage in 2022 was only in 25%. Thus, the available space for the nesting females increased compared to last year. In any case, there needs to be a coordinated effort in order for all businesses to comply with this protective measure, especially if we take into consideration that, in 2023, 7 businesses were recorded to leave water sport equipment on the beach during night time.

Light and noise pollution remained the prevalent threats. There were extensive parts of the beach with intense lighting that prevented the turtles from coming out of the sea and nesting and, most importantly, disorientated the hatchlings making them unable to find their way into the sea. It is important to note that in Rethymno in 2023 ARCHELON implemented the special measure of nest shading in the vast majority of the nests (85%). Nevertheless, hatchling disorientation incidents were recorded in 126 nests (56%).

Also, during the 5 months of the breeding season, a significant number of incidents of vehicle (368 incidents) and heavy machinery traffic (27 incidents) on the beach were recorded, causing immediate danger to the existing nests.

Finally, at least 3.830 incidents of human presence on the beach during the night were recorded, while the daily raking of the sand (1,176 incidents) created problems in locating and protecting the nests and posed immediate danger to the hatchlings.

Coastal erosion is one of the most important long-term threats to the nesting beach in Rethymno, where large parts of it (Rethymno town, Sfakaki, Skaleta) have been completely inundated by waves, resulting in the destruction of the nests.



In 2023, 127 businesses were recorded to operate in the beach front of Rethymno and the continuous urbanization of the last decades has completely changed the morphology of the nesting beach. Coast morphology has also been affected by large scale projects, like the installation of the biological treatment in Rethymno, that has been completed, and the fishing shelter in Skaleta, that began construction in early 2023.

3.2 CHANIA

The percentage of businesses that did comply with the measure of removing sunbeds from the beach after sunset showed a small increase, from 10% in 2022 to 35% in 2023. The observed improvement suggests an increase in the available space for nesting. However, most of the beach was not accessible to the protected species, as in 2023, 212 businesses with beach furniture and 10 businesses with sea sports equipment operated on the beach of Chania. In any case, all coastal businesses should comply with the protective measure in the near future.

The problem of light pollution was very serious for another year in Chania beach, as there are large sections of the beach without any dark spots, which would allow sea turtle nesting and safe hatching. In 2023 ARCHELON applied the shading measure to 300 of the 309 (97%) recorded nests in Chania. However, hatchlings from 215 nests (67%) still showed disorientation due to light pollution.

In addition, a significant number of incidents of vehicle traffic (154 cases) and heavy machinery on the beach (58 cases) were recorded. Unfortunately, nest vandalism was recorded for another year as well (63 incidents). The daily leveling of the sand with rakes in many places created problems in locating and protecting the nests (1,100 cases), while human presence on the beach during night time was recorded 1,465 times during the 5 months of the breeding period.



Coastal erosion keeps being one of the biggest problems in Chania, as the space available for nesting decreases every year. The continuous urbanization and construction along the entire length of the habitat, as well as the construction of three breakwaters in Kolymvari, seems to exacerbate the erosion.

3.3 MESSARA

In Messara Bay the vast majority (88%) of businesses did not remove beach equipment during night time, obstructing in many cases the nesting females. This protective measure issued by the Joint Ministerial Decision was not implemented by the same percentage of companies again in 2022, i.e. no improvement was observed in the removal of sunbeds in the evening hours to ensure free nesting space in Messara Bay.

Contrary to Retnymno and Chania, in Messara Bay light pollution does not occur along the entire length of the habitat, i.e. there are still dark spots. However, there are specific regions in the area (Kalamaki and Kokkinos Pyrgos settlements) where light pollution poses a threat. Thus, from the 290 nests that were recorded during the 2023 nesting season, 133 of them (46%) were impacted by light pollution.

In addition, even though it is known that vehicle traffic on the beach lurks the risk for complete destruction of the nests and premature hatching, presence of vehicles on the beach was recorded in 90 cases. Also, 13 cases of sand leveling and 173 cases of human presence in the evening hours were recorded.

The indifference of authorities, residents and vacationers to nest protection measures peaked on August 6, 2023, when a large night event (beach party) with hundreds of people took place. A stage was set up with floodlights and heavy sound equipment, and fireworks were used.



It is noteworthy that the event in question was organized in the quietest area of the habitat (Afrathia beach), endangering all the nests that had been recorded in this area.

Regarding the observed long-term threats, the new municipal lights installed along the Kalamaki beach road and, specifically, on the sandy part of the nesting beach indicate a possible widening of the existing road. Finally, the illegal road that was built in 2021 and connects Kalamaki with the Afrathia area is still open.

4 POPULATION TRENDS

Genetic research indicates that the sea turtle population breeding in Crete shows genetic differentiation from the populations breeding in other regions of Greece. Hence, its protection is of vital importance.

Analysis of long-term data series on turtle reproductive activity in Crete shows that the turtle population in rethymno seems to be stabilizing after a significant decrease recorded in previous years. The turtle population of Messara Bay shows a steady increase in recent years. The nesting population in Chania shows signs of recovery after a significant decrease recorded in previous years.

These encouraging trends are dependent on the conservation measures and possibly the result of over 30 years of conservation efforts from ARCHELON. It is therefore important that current conservation efforts continue.



5 CONSERVATION

Crete is considered the flagship of the Greek tourism industry and is now called to move towards sustainability and eco-tourism. Although the nesting beaches of Crete have been part of the Natura 2000 network for several years, they still do not have a specific legislative framework for their protection and management, i.e. Presidential Decrees (PD) and Management Plans (MP). These are expected to be published as a result of the Special Environmental Studies for all Natura 2000 areas, in the context of a project carried out on a national scale by the Ministry of Environment and Energy, in which, however, long delays are identified.

The Management Units (MUs) that are in charge of the protection and management of sea turtle habitats are the MU for the National Park of Samaria and Protected Areas of Western Crete (Chania) and the MU for Protected Areas of Eastern Crete (Rethymno and Messara Bay). The MUs are supervised at a central level by the Natural Environment and Climate Change Agency (NECCA) and remain inactive in habitat management to this day. The above described lack of legislative framework and the delays found in the management of the areas make the serious problems mentioned above unresolved.

The completion of the ongoing Special Environmental Studies, Presidential Decrees (PDs) and Management Plans (MPs) on a national scale for Natura 2000 sites is vital for the conservation of sea turtle habitats and must be completed immediately. Assessing the carrying capacity in areas such as Rethymnon and Chania is essential to address the overexploitation of beaches. The Management Units should be activated in the protection and management of the areas and, until the completion of the PDs and MPs, the implementation of all the management measures provided for in the Joint Ministerial Decision on the simple beach use must be ensured.

