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LIGURIA: NEW NESTING AREA FOR CARETTA CARETTA (LINNAEUS, 1758)

LIGURIA: NUOVA AREA DI NIDIFICAZIONE DI CARETTA CARETTA (LINNAEUS, 1758)

Abstract - Liguria is the northernmost region of the western Mediterranean Sea recently interested by the nesting of *Caretta caretta*. The first hatchlings were found in Finale Ligure (SV) in 2021, then a sea turtle laying eggs was observed in Levanto in 2022 and five nests sites were recorded along the Ligurian coast in 2024. This study summarize preliminary data collected during this last monitoring season, highlighting the role and the positive collaboration among Regional Authorities, University and local associations.

Keywords: *Caretta caretta*, Ligurian Sea, Habitat Directive, turtle nesting, marine biodiversity

Introduction – In recent years, an expansion of loggerhead sea turtle (*Caretta caretta*) nesting area has been observed towards west and north of Mediterranean basin, where Liguria is the northernmost location (Mancino *et al.*, 2022). In this region, the first hatchlings were found in Finale Ligure (SV) in 2021, then a nesting sea turtle was observed in Levanto in 2022 (Castellano *et al.*, 2024) and five nests were found and monitored at five different sites along the western Ligurian coast. This study reports the preliminary results for the last season, collected by GLIT members (biologist of Acquario di Genova, ARPAL, DISTAV and IZS-PLV) in collaboration with local research group and the municipal administrations involved.

Materials and methods - The nesting sites recorded in the 2024 season are shown in Fig. 1-left. Environmental data (sand granulometry, distance from the shoreline and sand temperature) were collected for each site, together with sea and weather condition in order to support management activities (see Fig. 1-right). Post-hatching nest inventories were performed for all nests; excavations were conducted more than 70 hours after the last recorded emergence in accordance with Mo *et al.* (2013) and DPR 357/97.

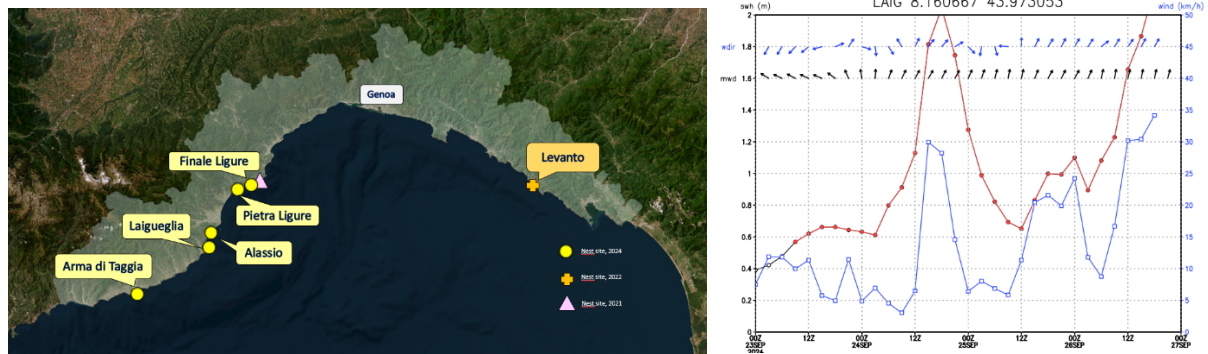


Fig. 1 - (left) Municipalities interested by *C. caretta* nesting along Liguria coast from 2021 to 2024; (right) Example of forecast bulletin produced by Centro Meteo ARPAL (Laigueglia site on 23 September 2024); black-red line: high wave; black arrow: wave direction; blue line: wind speed; blue arrow: wind direction).

(sinistra) Comuni interessati da nidificazioni di *C. caretta* lungo la costa ligure dal 2021 al 2024; (destra) Esempio di bollettino previsionale emesso dal Centro Meteo ARPAL (sito di Laigueglia, 23 settembre 2024); linea nera-rossa: altezza dell’onda; freccia nere: direzione dell’onda; linea blu: velocità del vento; freccia blu: direzione del vento.

Results - The main results relating to the five monitored nests are summarized in Table 1. In general, the nests laid at the beginning of summer in the municipalities of Laigueglia and Arma di Taggia recorded an average temperature of 27.4 and 27.1 °C and exhibited high hatching rates of 89% and 92% respectively. Nests laid after mid-July, specifically in the municipalities of Alassio (July 21), Finale Ligure (August 2) and Pietra Ligure (August 13) showed a hatching rate of 0%, most likely due to the repeated storm events and the associated temperature drop that occurred from mid-September onwards.

Tab. 1 - Data collected during Ligurian nesting season, 2024.

Dati raccolti durante la stagione di nidificazione del 2024 in Liguria.

Sample column heading	Bagni Diana, Laigueglia (SV)	Bagni P.Lido, Arma di Taggia (IM)	Bagni Londra, Alassio (SV)	Bagni Boncardo, Finale L. (SV)	Bagni Iguana, Pietra L. (SV)
Data of nesting	20/06/2024	27/06/2024	21/09/2024	02/08/2024	13/08/2024
Distance from shoreline (m)	7,5	17,2	10,5	8	9,8
Date of first emersion	27/08/2024	05/09/2024	n.d.	n.d.	n.d.
Date of last emersion	04/09/2024	09/09/2024	n.d.	n.d.	n.d.
Hatchlings (n°)	110	93	0	0	0
Date of nest inspection	09/09/2024	15/09/2024	07/10/2024	no inspection	no inspection
Total laid eggs (n°)	119	104	87 (estimate)	unknown	unknown
Unhatched eggs (n°)	5	11	87 (estimate)	n.d.	4 (at least)
hatched eggs (n°)	110	93	0	n.d.	n.d.
Death piped (n°)	4	0	0	n.d.	n.d.
Hatching success (%)	92,44	89,42	0	0	0
Emergence success (%)	92,44	89,42	0	0	0

Conclusions - The study of this new nesting area is of great interest for understanding the drivers behind the species' range expansion and for evaluating appropriate measures to preserve its habitat.

Furthermore, the work carried out by GLIT during the 2024 season has highlighted how close cooperation between institutional organizations, associations, and local administrations, together with the contribution of numerous volunteers, can contribute to the proper protection of biodiversity, even in a highly anthropized area such as the Ligurian coast.

References

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