



Evidence of Nesting Area of *Caretta caretta* and Potential Foraging Areas of *Caretta caretta* and *Chelonia mydas* on Samos and Lipsi Islands, North-Eastern Aegean Sea

Pietroluongo G., Quintana B., Dias V., Falquina Fernández F.J., Gheorghiu A., Moscatelli S., Grandjean T., Antichi S., Ashok K., Delaveri K., Miliou A.

Archipelagos Institute of Marine Conservation, Marine Research Base: P.O. Box 42, Pythagorio, Samos 83103, Greece, www.archipelago.gr

INTRODUCTION

The regular presence of two species of sea turtles, *Caretta caretta* and *Chelonia mydas*, was recorded in the Eastern Mediterranean Sea¹. The Aegean Sea is known to be a foraging habitat related to *Posidonia oceanica* meadows. Greece and Turkey alone represent more than 75% of the nesting effort in the Mediterranean^{2,3}. The North-Eastern Aegean area is considered data-deficient or data-absent, despite significant research advances in the recent years. This study aims to determine the presence of foraging and nesting areas on the islands of Samos and Lipsi.

MATERIALS AND METHODS

Previous records of *C. caretta* and *C. mydas* presence (boat-based surveys, ferry-based fixed transect surveys, strandings and citizen science sightings) were used to predict foraging distribution (Fig. 1). Site examinations and satellite imagery were used to assess the suitability for nesting areas at the beaches of Lipsi and Samos islands (Fig. 1). Each sandy beach (>20% of sand) was evaluated for the factors: anthropic presence; light pollution; beach pollution; width. A value between 0 and 1 (e.g. anthropogenic 0 and remote 1) is assigned to each factor, following an unweighted scaling system in order to equalise the parameters in importance.

In addition, three *C. caretta* nests were localised on Samos Island and monitored during the hatching events (Fig. 2). The following data were collected: nest characteristics; number of eggs; survival rate; biometric measurements of hatchlings.

DISCUSSION

This study demonstrates potential distribution of *C. caretta* and *C. mydas* in relation to foraging and nesting areas on Samos and Lipsi Islands. Anthropic presence was taken into account for the nesting suitability maps, although the evidence of recent nesting events indicates the adaptation of the species to a synanthropic habitat.

RESULTS

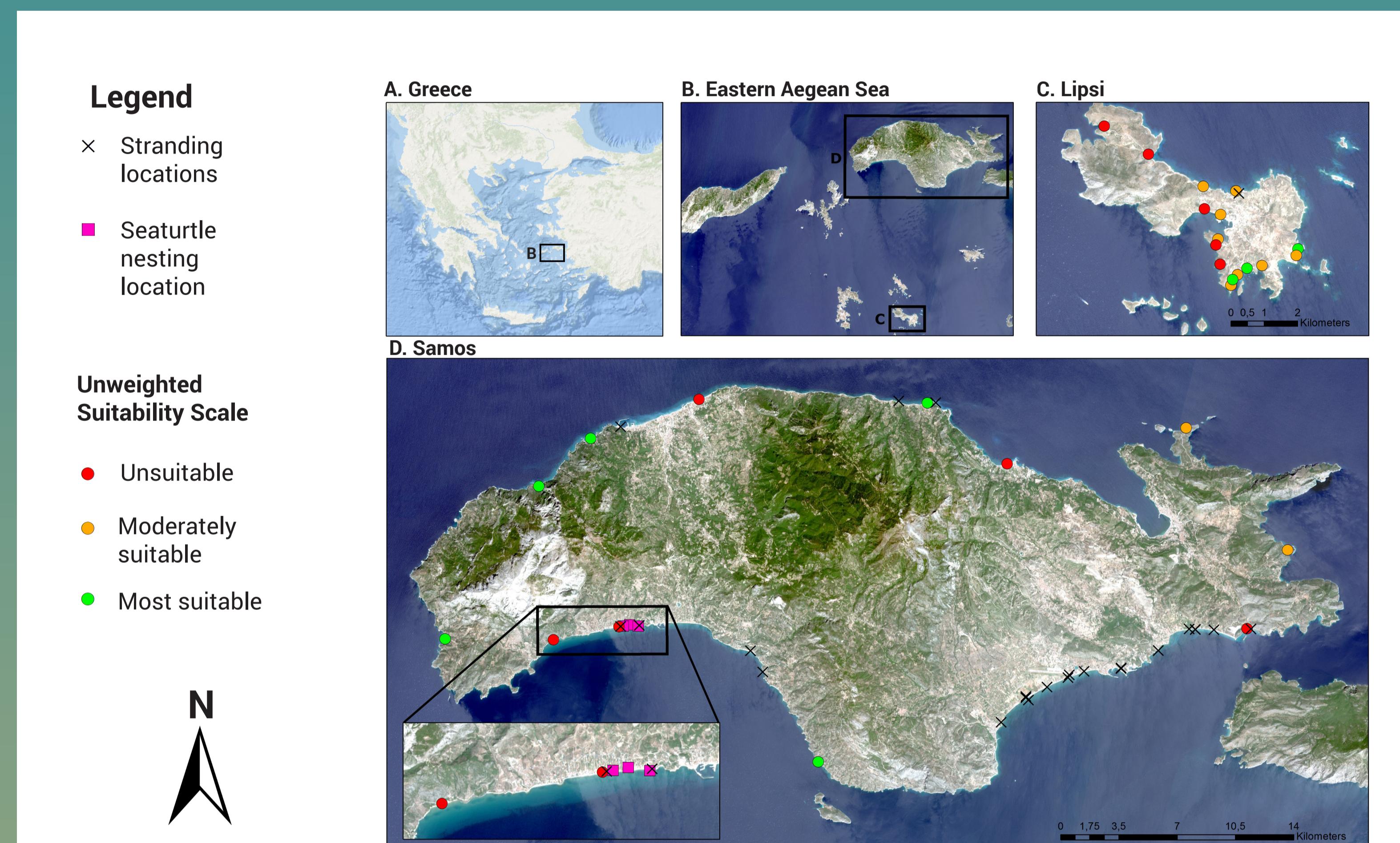


Fig. 1: Suitability map of nesting sites.



Fig. 2: Specimen of *C. caretta* hatchling on Kambos beach.

The stranding response in the last five years shows the presence of both species in the area. Historical data demonstrates the presence of nests on both islands (Delaveri K., personal communication). Samos and Lipsi Islands show several beaches suitable for nesting of sea turtles. On one of them (Kambos, South-West Samos), characterised by a very coarse sand with pebbles and high human presence, three *C. caretta* nests were patrolled during the nesting season of 2018 (Tab. 1).

Tab. 1: Characteristics of the 3 nests and survival rate of the hatchlings.

Nest	Nest characteristics				Hatching characteristics		
	Depth - 1st egg (cm)	Depth - bottom (cm)	Width (cm)	Distance to shoreline (m)	Total eggs	Failed eggs	Survival rate (%)
Nest 1	43	60	30	27,4	72	4	94,44
Nest 2	30	60	45	14,7	103	16	84,47
Nest 3	18	49	42	19	83	48	42,17

CONCLUSION

Significant knowledge gaps are evident in the North-Eastern Aegean Sea and should be filled with geographically wider targeted research and seasonal patrolling. These preliminary and pioneering results confirm the urgency of establishing a conservation strategy for these protected species, particularly in remote coastlines.