

IS THE LEATHERBACK (*DERMOCHELYS CORIACEA* VANDELLI, 1761) A PERMANENT SPECIES IN THE MEDITERRANEAN SEA ?

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Abstract

Dermochelys coriacea is a marine turtle that appears, according to the literature, in the Mediterranean Sea for many centuries. The authors agree on the non existence of reproduction in beaches of this Sea, although many specimens are present during the reproduction period within the Mediterranean. Leatherbacks can travel long distances, and tagging experiences register specimens from Guyana along the Atlantic European coast, mainly in France, Spain and Portugal. Migratory paths to this Atlantic border indicate the entry of the species into the Mediterranean Sea. New data of incidental fishing captures and strandings in the Western Mediterranean Sea indicate the importance of *Dermochelys coriacea* in the Mediterranean, where it is present all around the year. Western Mediterranean new data presented in this paper confirms the presence of the species near Gibraltar Strait mainly during the first and last months of the year and the presence in higher number at the Balearic Sea during summer and autumn. The presence of leatherback in Israel area is not so scarce as previously reported supporting the hypothesis of a distribution in the whole Mediterranean basin. The final proposal includes the change of the characterization of the species, usually rare or uncommon in the literature to a common or regular species in the Mediterranean Sea.

Key-words: turtles, conservation, biogeography, Mediterranean Sea

Introduction

According to most of the consulted authors, *Dermochelys coriacea* (Vandelli, 1761) is a marine turtle that does not normally reproduce in the Mediterranean Sea, though it could occasionally (1). Leatherback presence in these waters has been mainly referred to by the catches of some specific fishing gear (2-6) or by strandings produced in beaches, whether live or dead (7-12). The main Atlantic nesting areas of this species are concentrated in beaches of Central and South America, mainly in the French Guyana (13, 14). But also important are the beaches extending from Costa Rica to Colombia, including Trinidad and the Guyanas, in addition to various Caribbean islands (15). It is the marine turtle that presents the greatest distribution area (16). Tagged specimens of the French Guyana have reached as far off as the waters of Placentia Bay (Newfoundland, Canada) (17). Numerous leatherbacks of American origin arrive each year to the Eastern Atlantic coast (18), including France (19, 20, 21), Northwestern Spain (22-24), Portugal (25, 26) and the South Atlantic Spanish coast (27), making possible their entry into the Mediterranean Sea through the Gibraltar Strait. During the last years we have found numerous large-size dead leatherbacks along the South Atlantic coast of Spain, though none of the strandings had been tagged.

The presence of this species in the Mediterranean has been plagued with uncertainties, although in the last decades much new information has been gathered, and it has been observed in waters of nearly all the Mediterranean countries (28) including Spanish waters (29, 30), French ones (31), the Northeastern Adriatic (32) and the Eastern Mediterranean. *Dermochelys coriacea* is known from ancient times in the Mediterranean Sea (33), but due to its great size and non-commercial interest, it has not been recorded and sighted with frequency. This review on the status of the species into the Mediterranean indicates its presence in all the basins, although the authors indicate it as a rare turtle, uncommon or infrequent (34, 35). Likewise, it has been recorded frequently off the coasts of Israel (36).

Material and methods

In this document, new data is presented on fortuitous captures and strandings of leatherbacks in two distinct geographical areas of the Mediterranean: the Alborán and the Balearic Sea. To complete the discussion, I have used in addition some published data. Data from the coast of Israel (between 1956 and 1987) were compiled by Dr. S. Ashkenazi and other personnel from the Ecological Date Center of Israel Nature Reserve Authority (MAP, 1990 and pers. comm.). Also included in this paper is a citation of published data by Ben Tuvia and other two turtles included in an unpublished document that was sent to us by Dr. Ashkenazi ("Sea turtles from the Mediterranean and the Red Sea coast of Israel and Sinai").

Results

Western Mediterranean (Alboran Sea and Balearic Sea)

The leatherback turtles captured by the Spanish surface longline in the Western Mediterranean from 1985 are presented in Table I. Furthermore, they include data of 1 or 2 specimens (37); a specimen that was affected by an oil spill that expelled a small hook, cleaned and recovered by the Aula del Mar (Málaga), and another one that was captured in Sicily, (50 Km. from Palermo) sent to me by Prof. R. Sará from a local paper. Two were captured in the coast of Africa (south of the Alboran Sea): one was captured in Melilla (Sagarminaga, pers. com.), Spanish territory of the North of Africa, in November of 1989; the other one was captured in the Alhoceima proximity, next to the Moroccan locality to Melilla (Srou, pers. com.), in March of 1993. Two other turtles appeared in the newspapers of Alicante and Nerja (Málaga). The other data correspond to incidental captures of the Spanish longline fleet. Data corresponding to 1985 and 1986

Table I. New *Dermochelys coriacea* data from Alborán Sea, Balear Sea and Sicily.

Nº	DATE	SITE/AREA	WEIGHT/LENGTH	OBSERVATIONS
1	10/85	South Ibiza	1200 kg.	
1	31/86	East of Mallorca	350-400	
1	9/86	Gulf of Valencia	/ 1.70 m.	
1	10/88	South of Alicante		
1	5/89	Gibraltar Strait		Gillnet. Alive
1	7/89	East. of Cartagena		Alive freed
1	9/89	South of Ibiza		Very big. Alive
1	10/89	Altea (Alicante)	/1.90 m.	Death (Newspaper)
1	11/89	Melilla (N. Africa)	250-300/1.4 m	Sagarminaga
1	11/89	South of Alicante		Alive. Freed
1	8/91	SE of Cartagena		Alive freed
1	1/92	Nerja (Málaga)	200/	Newspaper. Death
1	3/93	Alhoceima (Morocco)	200/1.50 m	A. Srou. ISPM
1	23/7/95	Gulf of Valencia		Vessel Roselló Blanquer
1	24/6/96	E. of Palermo	250-300/1.85	Gillnet. Alive (R. Sará.)
1	33/ 92	Málaga Bay	Freed Alive	Oil covered. Aula del Mar
1-2	7/8/92	Balear Sea	Alive	Aguilar, Mas & Pastor, 1992
1	18/9/93	Ebro river Delta	Dead	Pérez et al., 1994
1	5/6/93	Palma Bay	Dead	Pérez et al., 1994

has not been included in the previous paper. Leatherback that could be measured presented carapace length over 1.4 m. and mean weights superior to 200 Kg., though the weight, as well as the length, were estimated in some instances *de visu* by the fishermen or informers.

If we group all the Table I data (with exception of the turtle captured in Sicily) and we distribute them by month, we will observe that in the western Mediterranean *D. coriacea* is present during every month of the year except February, April and December. The greatest number of observations corresponds to the months of September and October, with 3 turtles in each month.

If we analyzed the data in function of their geographical origin, separating the Alboran Sea and the Balearic Sea, observations in Alboran Sea are concentrated in the final and initial months of the year (winter and spring), while the data from the Balear Sea correspond with the summer and autumn months, indicating a certain geographical distribution in relation with the annual seasons. Previous data refer 17 leatherbacks from Gibraltar Strait to Alboran Sea during winter (9).

On the other hand, the geographic distribution indicates that the turtle strandings are grouped mainly South of the Ebro river Delta and in a marine area between the Balearic Islands and the Iberian Peninsula known as the Ibiza Channel, with an important surface current in a southern direction. The total surface Spanish long line fishing area includes waters much more to the east of the Balearic Islands.

Eastern Mediterranean Basins.

Among the four species of marine turtles in Israel (38), the leatherback is observed in counted occasions in the Mediterranean as well as in the Red Sea. Fourteen records from the coast of Israel (Table II), correspond to captures with nets or strandings between 1956 and 1987. Only one turtle was freed after capture by a long line; the others appeared dead, or we do not have information on what occurred with them. Some are in Museums of that country. The length of the carapace of the measured specimens varies between 138 and 175 centimeters, though we can not indicate what carapace measurement. The greatest incidence originate from the fishing nets.

All the leatherback were captured or appeared dead in the first months of the year. Information on strandings, captures or sightings during the last year period are non existent.