Journal of Herpetology, Vol. 20, No. 3, pp. 471–474, 1986

Captures and Strandings of the Leatherback Sea Turtle, *Dermochelys coriacea*, in Greece (1982–1984)

DIMITRIS N. MARGARITOULIS, *Ministry of the Environment, Physical Planning and Public Works, Patission 147, GR-112 51 Athens, Greece.*

The leatherback sea turtle, *Dermochelys coriacea* (L.), is considered a pelagic, circumglobal species nesting mainly in the tropics and regularly visiting temperate seas (Carr, 1952; Pritchard, 1971). Leatherback turtles have been reported in the Mediterranean Sea (e.g., Heldt, 1933; Capra, 1949; Petit, 1951; Harant, 1956; Loveridge and Williams, 1957). In Greece, although *Dermochelys* is included in the country's herpetofauna (Ondrias, 1968) no specific records, as far as can be ascertained, have been documented. This paper presents data on captured or stranded individuals from January 1982 until December 1984.

Leatherback turtles are rare and impressive animals, therefore when captured by fishermen or found stranded on beaches they are frequently reported to local authorities or appear in newspapers. Two, and occasionally three, daily newspapers were examined during the study period with the aim of locating reports on captured or stranded individuals. Relevant information was also solicited by a circular on sea turtles which has been distributed by the Ministry of the En-

TABLE 1. Leatherback turtles captured accidentally or found stranded in Greece from January 1982 to December 1984 (CCL: curved carapace length in cm. Numbers in parentheses are estimated lengths).

Specimen number	Date	Locality	CCL	Comments
	Feb. 1982	Aghios Constantinos	134	Stranded alive, died soon. Preserved at Goulandris Museum of Natural History.
	Nov. 1982	Gulf of Corinth	159	Entangled in net and killed by fishermen. Carcass stranded on nearby beach, carapace taken by a resident.
3	Jun. 1983	Korinos	180	Entangled and died in net. Carcass buried.
4	Aug. 1983	Nea Michaniona	(180)	Entangled and died in net.
5	Aug. 1983	Nea Heraklitsa	132	Entangled in net, brought to port alive, released offshore with minor injuries.
6	Aug. 1983	Amaliapolis	140	Entangled in net, died during transportation to port. Carapace and plastron taken by fishermen.
7	Sep. 1983	Kouvela	(130)	Stranded dead with a fractured skull, buried.
8	Oct. 1983	Nea Krini	(160)	Entangled in net, brought to port alive, released offshore with minor injuries.
9	Jul. 1984	Paralia Katerinis	123	Entangled and died in net. Carcass buried.
10	Sep. 1984	Makrigialos	(170)	Stranded dead with a fractured skull, buried.
11	Nov. 1984	Aghia Triada	146	Entangled and died in net. Carapace and plastron taken by fishermen.

vironment to fisheries and port police authorities throughout the country. A number of cases were also reported directly to the author by various people. Every report was investigated as soon as possible in order to confirm it. This was done either by inspecting the specimen or preserved parts of it, or by collecting photographs and additional information from reliable eye-witnesses. Measurements were taken of curved carapace lengths (CCL) over the median ridge with a flexible tape, or estimates were made based on photographs or measurements taken by others.

A total of eleven leatherback appearances have been confirmed during the study (Table 1). In the course of the study three older leatherback appearances came to light and were confirmed by photographs and reliable accounts. These are described below.

A. In June 1968 a *Dermochelys* was captured in a fishing net about 3 km off the mouth of river Evros (40°45'N × 26°00'E). It was transported to the harbor of Alexandroupolis where it was kept for a couple of days before it died. According to the magazine "Hunting News" of June 1968, the animal weighed about 300 kg.

B. In October 1978 a leatherback was caught in fishing nets approx. 2 miles off Aghia Triada in the Gulf of Thessaloniki (approx. at the same position of specimen number 11) and it was brought ashore alive. Photographs show a large and extremely "fat" turtle. As reported in the newspaper "Ta Nea" of 14 October 1978, the animal weighed about 500 kg. According to the secretary of the local community, the turtle was kept on the beach for approx. five hours and then it was towed and released offshore.

C. On 18 September 1981 a dead individual was photographed while drifting in the shallows of Agria (39°21'N × 23°00'E) in Pagasitikos Gulf. Part of the intestine was floating around and the skin on top of the head was missing. Carapace length was estimated to be 120 cm. The carcass was taken to the Municipality refuse site where it was buried.

The difficulties pertinent to data collection, in the present study, are apparent. The inshore fishery in Greece comprises about 15,000 vessels which are scattered to numerous landing places. In addition, about 14,000 non-motorized boats are also used for fishing throughout the country (Anon., 1984). Furthermore, *Dermochelys*, together with *Caretta caretta* and *Chelonia mydas*, is nominally protected by Greek legislation and consequently fishermen are not inclined to report captures, especially when these have resulted in the death of the animal. Apart from this, the strongly broken coastline of Greece with a total length of about 15,000 km, much of which is scarcely inhabited, precludes a number of possible strandings to be noticed by people who would eventually report them. It seems reasonable therefore to assume that the eleven leatherbacks recorded herewith, during 2 years, represent a fraction of those actually captured or stranded in the same period. Nonetheless, the species is not common in Greek waters. The fishermen who caught the turtle in the Gulf

of Corinth (specimen 2) reported that although they have worked in the area for more than 40 years, they had never before seen this kind of turtle.

Eight of the recorded individuals (73% of the total) in the study period were found entangled in gillnets (Table 1) within 200 m to about 3.6 km off the coastline. Of these, one and possibly two turtles were killed by fishermen (specimens 2 and 6), two were released after being brought to port (specimens 5 and 8) and the remaining four reportedly succumbed while entangled (specimens 3, 4, 9 and 11). Gillnets are widely used, throughout the year, in the inshore fishery in Greece. It seems that leatherbacks encountering gillnets push forward continuously until they are entangled, their front flippers first. All entangled individuals seemed to be robust, healthy and active as indicated by eye-witnesses and by the damage caused to the nets.

Individuals found stranded might also have been caught previously in nets as suggested by specimens 7 and 10 which bore fatal injuries similar to that of specimen 2 which was killed deliberately while entangled. Specimen 1 was found stranded alive, but in a very weak condition it soon died. In the absence of any serious external injuries the cause of its death was not apparent. Since this specimen was found in February its death could be attributed to cold stress. However, average values of sea surface temperatures in the area do not fall below 14°C (Anon., 1957) and this is not considered critical, as leatherbacks have been found swimming actively at lower temperatures (MacAskie and Forrester, 1962; Bleakney, 1965; Threlfall, 1978). Furthermore, dissection of this individual revealed that although the only solid material in the stomach and the intestine were some pieces of plastic, these were too small in size and quantity to account for a probable blocking of the intestinal tract similar to that described by Duguy et al. (1980) in France.

Distribution of records over the months of the year shows a concentration in summer and in fall typical of the species' occurrence in other temperate localities (Bleakney, 1965; Brongersma, 1972, Lazell, 1980; Duguy and Duron, 1982). It is of interest also to note that, although inshore fishing in Greece is more or less widespread, all records come from coasts of the Aegean Sea, northwards of 38° (Fig. 1). This spatial preference is further corroborated by the fact that fishermen in southern and western Greece do not "know" the species, whereas fishermen in the northern Aegean are, generally, familiar in one way or another with the "black turtle" or "keeled turtle" as *Dermochelys* is known among them.

The presence of *Dermochelys* in Greece cannot be attributed to breeding reasons since regular nesting of the species in the Mediterranean is not known. Reports of one nesting and of two juvenile specimens in Italy (Bruno, 1978) as well as of a nesting attempt in Israel (Sella, 1981) cannot support the idea of a breeding colony. On the other hand, *Dermochelys* is well known for its long travels over the oceans. Five individuals tagged in the Guianas were recovered more than 5000 km away, one of them crossing the Atlantic (Pritchard, 1976). Moreover, leatherbacks seem to move regularly into cool temperate zones following jellyfish on which they feed. Bleakney (1965) described the presence of *Dermochelys* in the coastal waters of Canada and the eastern U.S. as a regular annual event. A similar seasonal concentration appears on the European side of the Atlantic (Brongersma, 1972) and especially along the French coast in the Gulf of Biscay (Duguy et al., 1980; Duguy and Duron, 1981, 1982, 1983). A reasonable way to account for the existence of *Dermochelys* in Greece is, therefore, to assume that a fraction of the stock visiting regularly the Eastern Atlantic enters in the Mediterranean. In such a case the question arises as to whether this movement of *Dermochelys* into the Mediterranean is part of a general migration pattern as that suggested for the Atlantic by Lazell (1980) or it is simply a consequence of a random search for sheltered seas where medusans can be abundant.

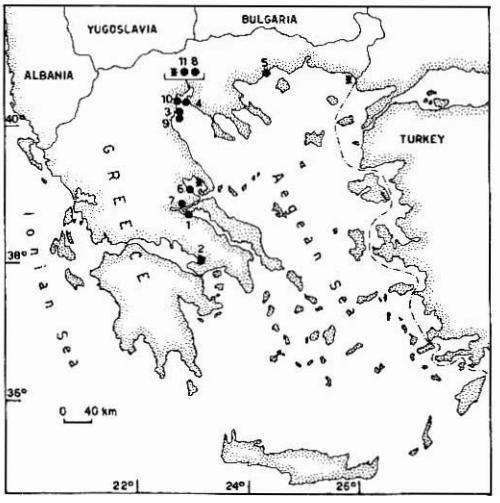

FIG. 1. Sketch map showing approximate localities of captured or stranded leatherbacks in Greece from January 1982 to December 1984. Numbers refer to "specimen number" (see text and Table 1). Asterisks indicate localities of older records.

Acknowledgments.—I wish to thank all those who provided information and photographs. Especial thanks are due to G. Chandrinos, P. Economides, E. Floulis, L. Manazi, E. Maragianni, S. Mitsoudi, J. Papanagiotou, and E. Roidou. I would like also to thank the fisheries and the port police authorities for their cooperation. I am indebted to J. Frazier and an anonymous reviewer for valuable comments.

LITERATURE CITED

ANON. 1957. Middellandse Zee, Oceanografishe en Meteorologische gegevens. Koninklijk Nederlands Meteorologisch Instituut, Gravenhage.

———. 1984. Agricultural statistics of Greece. Year 1981. National Statistical Service of Greece, Athens.

BLEAKNEY, J. S. 1965. Reports of marine turtles from New England and eastern Canada. Canadian Field Nat. 79:120–128.

BRONGERSMA, L. D. 1972. European Atlantic turtles. Zool. Verh. 121:1–318.

BRUNO, S. 1978. Le Tartarughe nei Mari Italiani e nel Mediterraneo. Natura e Montagna 3:5–17.

CAPRA, F. 1949. La *Dermochelys coriacea* (L.) nel golfo di Genova e nel Mediterraneo. Ann. Mus. Civ. St. Nat. Genova 63:270–282.

CARR, A. 1952. Handbook of Turtles. Comstock Publ., Ithaca, N.Y.

DUGUY, R., AND M. DURON. 1981. Observations de Tortues luth sur les côtes de France en 1980. Ann. Soc. Sci. nat. Char.-Mar. 6(8):819–825.

———, AND ———. 1982. Observations de Tortues luth sur les côtes de France en 1981. Ann. Soc. Sci. nat. Char.-Mar. 6(9):1015–1020.

———, AND ———. 1983. Observations de Tortues luth (*Dermochelys coriacea*) sur les côtes de France en 1982. Ann. Soc. Sci. nat. Char.-Mar. 7(1):153–157.

———, ———, AND C. ALZIEU. 1980. Observations de Tortues luth (*Dermochelys coriacea* L.) dans les Pertuis charentais en 1979. Ann. Soc. Sci. nat. Char.-Mar. 6(7):681–691.

HARANT, H. 1956. Caractéristiques d'une tortue luth capturée par les pêcheurs de Valras. Vie et Milieu 7(1):121.

HELDT, H. 1933. La Tortue luth *Sphargis coriacea* (L.). Captures faites sur les côtes tunisiennes (1930–33). Contribution anatomique et biologique de l'espèce. Ann. Stat. Océanogr. Salammbô 8:1–40.

LAZELL, J. D. 1980. New England waters: Critical habitat for marine turtles. Copeia 1980:290–295.

LOVERIDGE, A., AND E. E. WILLIAMS. 1957. Revision of the African tortoises and turtles of the suborder Cryptodira. Bull. Mus. Comp. Zool. 115:163–557.

MACASKIE, I. B., AND C. R. FORRESTER. 1962. Pacific leatherback turtles (*Dermochelys*) off the coast of British Columbia. Copeia 1962:646.

ONDRIAS, J. 1968. Liste des amphibiens et des reptiles de Grèce. Biologia Gallo-Hellenica 1: 111–135.

PETIT, G. 1951. Capture d'une Tortue luth à La Nouvelle (Aude). Vie et Milieu 2(1):154–155.

PRITCHARD, P. C. H. 1971. The leatherback or leathery turtle, *Dermochelys coriacea*. IUCN Monogr. 1:1–39, 2 pls.

———. 1976. Post-nesting movements of marine turtles (Cheloniidae and Dermochelyidae) tagged in the Guianas. Copeia 1976:749–754.

SELLA, I. 1981. Sea turtles in the eastern Mediterranean and northern Red Sea. *In* K. Bjorndal (ed.), Biology and Conservation of Sea Turtles. Pp. 417–423. Smithsonian Instit. Press, Washington, D.C.

THRELFALL, W. 1978. First record of the Atlantic leatherback turtle (*Dermochelys coriacea*) from Labrador. Canadian Field Nat. 92:287.

Accepted: 27 November 1985.