

*CETORHINUS MAXIMUS* (GUNNERUS, 1765) (LAMNIFORMES, CETORHINIDAE) IN THE GULF OF ANTALYA IN 1987: A SUMMARY OF THE PREVIOUS RECORDS OF THE SPECIES FROM TURKISH COASTAL WATERS IN THE MEDITERRANEAN

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ABSTRACT

A basking shark, *Cetorhinus maximus* (Gunnerus, 1765), was accidentally captured in the Bay of Antalya in 1987 by stationary nets set very close to the shore. With the capture of this 4 m long specimen weighing 800 kg, the number of basking sharks recorded in the Mediterranean waters of Turkey rose to 4. Basking sharks are sighted or accidentally captured by fishermen along the southern coast of Turkey in spring and summer. Although it is not yet considered an endangered or threatened species in Turkey, this shark species should be immediately added to the list of protected species. This proposed legal regulation seems necessary in order to protect this vulnerable "k-selected" species from the pressures exerted by coastal fishery.

**Key words:** basking shark, *Cetorhinus maximus*, eastern Mediterranean, distribution, coastal occurrence

*CETORHINUS MAXIMUS* (GUNNERUS, 1765) (LAMNIFORMI, CETORINIDI) NEL GOLFO DI ANTALIA NEL 1987: RIASSUNTO DEI DATI PRECEDENTI RIGUARDANTI LA SPECIE NELLE ACQUE DELLA COSTA TURCA DEL MEDITERRANEO

SINTESI

Nel 1987, in una rete calata nelle immediate vicinanze della riva nel Golfo di Antalia, rimase intrappolato uno squalo elefante *Cetorhinus maximus* (Gunnerus, 1765). Con questo esemplare di quattro metri e del peso di ottocento chilogrammi, il numero degli squali elefante individuati nelle acque turche del Mediterraneo è salito a quattro. Nelle acque litoranee della Turchia meridionale, gli squali elefante sono stati osservati o catturati incidentalmente dalle reti dei pescatori soprattutto in primavera ed estate. In Turchia, questo tipo di squalo non è ancora inserito nella lista delle specie minacciate, tuttavia andrebbe compreso senza indugio tra quelle da tutelare; una misura giuridica necessaria soprattutto per proteggere lo squalo elefante dal pericolo della pesca costiera.

**Parole chiave:** squalo elefante, *Cetorhinus maximus*, Mediterraneo orientale, diffusione, presenza nelle acque costiere

## INTRODUCTION

Basking sharks occur in warm to temperate waters of both Atlantic and Pacific oceans, but are apparently absent in the Indian Ocean (Compagno, 1984). This giant plankton-feeding shark is the largest fish living in the Mediterranean waters (Quero, 1984), and has been credited as reaching a maximum total length of 15.2 m (Compagno, 1984). Its presence in the Mediterranean Sea has been well documented (see for example Risso, 1810; Moreau, 1881; Carus, 1889–1893; Ninni, 1912; Tortonese, 1956; Bini, 1967; Quignard & Capapé, 1971; Papaconstantinou, 1988; Lipej *et al.*, 2000; Cugini & De Maddalena, 2003; Soldo, 2003). However, most of these records are confined to the western parts of this sea. Although the presence of basking shark in Turkish waters has been reported by some researchers (Akyüz, 1957; Akşiray, 1987; Kıdeyş, 1997; Bilecenoğlu *et al.*, 2002; Kabasakal, 2002), the species' distribution and seasonality of occurrence along the Anatolian coast have not been studied in detail. According to Akşiray (1987), basking shark is a very rarely encountered species in

Turkish waters.

Accidental capture of a basking shark in stationary nets set very close to shore in the Bay of Antalya in 1987 was revealed during literature search, carried out in order to find out sighted or captured specimens of *Cetorhinus maximus* in Turkish waters. The purpose of the present study is to give information about this accidentally captured specimen, as well as to discuss the distribution and seasonality of *C. maximus*' sightings or captures along the Mediterranean coast of Turkey.

## MATERIAL AND METHODS

Information on sightings and captures of basking sharks in Turkish waters was obtained from the following sources: (a) available scientific literature, (b) interviews with fishermen, and (c) popular literature, such as newspapers, fishing magazines, etc. Whenever possible, total length of body, weight, sex and biological condition of the specimen were recorded. Photograph of the specimen captured in the Bay of Antalya is kept in the author's personal archives.

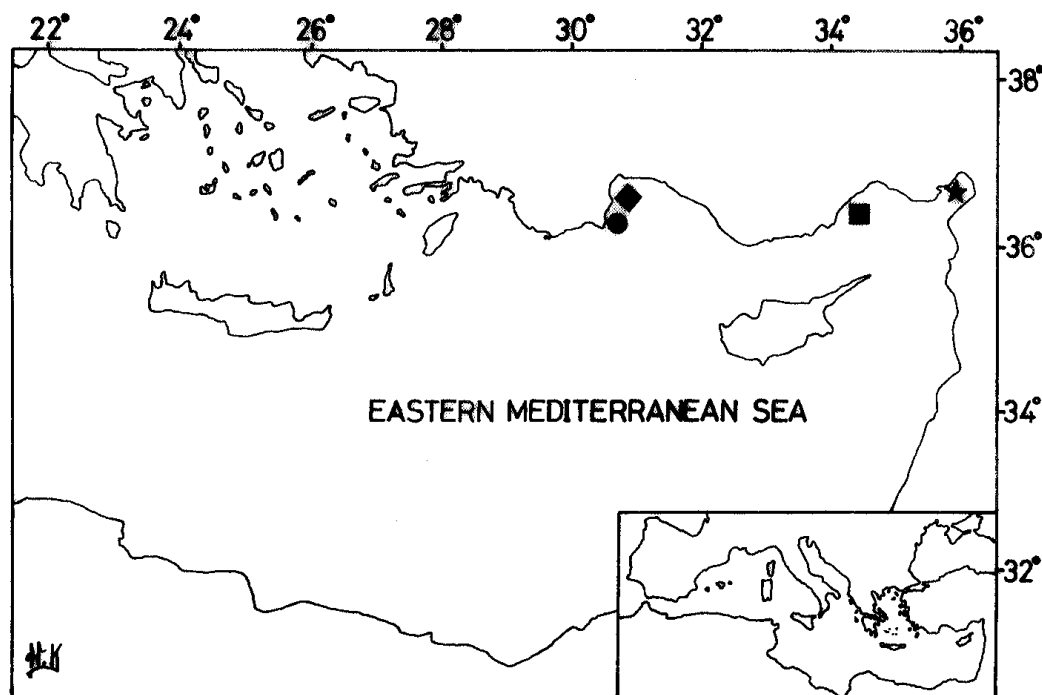


Fig. 1: Map showing the investigated area, with symbols indicating approximate localities, where basking sharks have been captured or sighted along the Mediterranean coast of Turkey: (●) Kemer specimen (TL 4 m), captured on 18 April 1987; (◆) specimen recorded by Kabasakal (2002); (■) specimens recorded by Kıdeyş (1997) and (☆) specimen recorded by Akyüz (1957).

Sl. 1: Zemljevid raziskanega območja s simboli, ki ponazarjajo približne lokalitete v turških obalnih vodah Sredozemlja, kjer so bili ujeti ali opaženi morski psi orjaki: (●) primerek (TL 4 m), ujet 18. aprila 1987 v bližini Kemerja; (◆) primerek, ki ga je zabeležil Kabasakal (2002); (■) primerki, ki jih je zabeležil Kıdeyş (1997) in (☆) primerek, ki ga je zabeležil Akyüz (1957).

## RESULTS AND DISCUSSION

Literature search revealed accidental captures of at least 4 basking sharks in the coastal waters of Antalya and Mersin Bay (eastern Mediterranean, Fig. 1) since 1987 (Kıdeyş, 1997; Kabasakal, 2002). Furthermore, small groups of basking sharks (number of individuals not specified) have been sighted by Kıdeyş (1997) in the Bay of Mersin near Erdemli (Fig. 1) in the summer of 1996.

On 18 April 1987, a basking shark has been accidentally captured by stationary nets very close to the shore of Kemer in the Bay of Antalya (A. Savul, *pers. comm.*). The specimen's total length measured by the fishermen was 4 m, while its weight was nearly 800 kg (Fig. 2). The girth of the specimen was 140 cm. It was pulled on to the beach by a tractor and displayed to the public for a few days.

In December 2001, another basking shark was captured also by means of stationary bonito net, set only 100 m off the shore in the Bay of Antalya (Kabasakal, 2002), and this was the second confirmed record of the species from Turkish waters. Total length of this female (believed to be a sub-adult in view of its size) was 6 m (Kabasakal, 2002). Unfortunately, this basking shark was immediately eviscerated and sold, and therefore no detailed examination could be carried out.

In May 1995, coastal fishermen near Erdemli in the Bay of Mersin captured two basking sharks (Kıdeyş, 1997). One of these basking sharks was 4.7 m long, while sex of the two specimens remains unknown. In August and September of the ensuing year, small schools of basking sharks were sighted in the same area, while feeding on the bloom of ctenophoran *Pleurobrachia pilleus* (Kıdeyş, 1997).

Historical records of basking sharks from the Bay of Iskenderun date back to 1950's. Although Iskenderun Bay is a small marine area, some remarkable fishing activities, particularly in terms of mid-water trawling, are carried out here. In the report given by Akyüz (1957), dealing with the environmental characteristics of fishing grounds of *Mullus barbatus* in the Bay of Iskenderun, its author added *C. maximus* to the ichthyological list of the area. However, no recent record of basking shark is available from this bay. On the other hand, as it can be clearly seen in figure 1, the distance between Erdemli coast, from where Kıdeyş (1997) reported on captures or sightings of basking sharks, and Iskenderun Bay is quite short. Regarding the highly migratory behaviour of *C. maximus* (Compagno, 1984), it would not be illogical extending the basking sharks' distribution range to the latter bay.

All of the basking sharks mentioned in the present study have been captured or sighted in coastal waters. With the exception of the specimen captured in December 2001, all individuals were captured or sighted in

spring, summer and early autumn (September) (Kıdeyş, 1997; Kabasakal, 2002). According to Francis & Duffy (2002), inshore occurrences of basking sharks reach their peak in spring and summer, while winter sightings are remarkably rare. Seasonality of inshore occurrence of basking sharks reported by Francis & Duffy (2002) coincides with the period of captures or sightings of the specimens along the Turkish Mediterranean coast. The Adriatic Sea is another region, where young basking sharks have been captured or sighted in coastal waters. Lipej *et al.* (2000) recently reported the capture of two juvenile basking sharks by stationary nets set in the coastal waters off Piran. Both specimens were captured between May and July. Capapé *et al.* (2003) reported on the capture of 21 basking sharks off the Maghrebin shore (south Mediterranean Sea) between 1966 and 2002. The authors also reported that all the specimens had been captured in coastal waters by pelagic fishing gear at depths of max. 30 m. According to Capapé *et al.* (2003), among the 21 basking sharks captured off the Maghrebin shore, 12 individuals were caught between March and August, which is yet another indication of coastal occurrence of basking sharks in spring and summer. Sims *et al.* (2000) reported that surface feeding by basking sharks in coastal waters along south-western Britain during spring and summer is closely associated with zooplankton bloom along oceanographic fronts in the area. Similarly, Kıdeyş (1997) reported that basking sharks, sighted in August and September of 1996, were also feeding on the bloom of ctenophorans *P. pilleus* near the coast of Erdemli. Kovalev *et al.* (2003) reported that in the coastal regions of the Mediterranean Sea, two to three peaks (spring, summer and autumn) are reached for the zooplankton abundance. According to Kıdeyş (1997), basking sharks also helps eutrophic areas by



**Fig. 2: Basking shark captured off the Kemer coast in the Bay of Antalya (TL 4 m). (Photo: A. Savul's archive)**  
**Sl. 2: Morski pes orjak (TL 4 m), ujet v bližini Kemerja v Antalijskem zalivu. (Foto: osebni arhiv A. Savula)**

converting surplus organic matter (including gelatinous organisms) into shark flesh, and for this very reason this shark is recommended as one of the most suitable species for the biological control of the voracious predatory ctenophore *Mnemiopsis leidyi*.

To summarise, coastal zooplankton bloom, which occurs in spring, summer and autumn, seems to be an important factor attracting basking sharks to inshore waters (Fig. 3). Seasonality of captures or sightings of basking sharks in the present study is remarkably well correlated with the period of coastal zooplankton bloom, as reported by Kovalev *et al.* (2003). Basking shark is now considered an endangered species in the *IUCN Red List of Threatened Species* (Fowler, 1996). On the other hand, Mediterranean basking sharks are now listed in two important conventions (Annex II – Endangered or Threatened species – of a Protocol of the Barcelona Convention for the Protection of the Mediterranean Sea, and Appendix II of the Bern Convention of

European Wildlife and Natural Habitats) (Anonymus, 1998). According to these listings, the species should be given full protection in the Mediterranean. Gill netting is a popular technique of small-scale fishery along the Turkish Mediterranean coast and operated throughout the year. Therefore, coastal fishermen should be informed about the basking shark's status and encouraged to release the entangled specimens. Basking shark should be immediately added to the list of protected species in Turkey, and this proposed legal regulation seems to be necessary in order to protect this vulnerable 'k-selected' species from the pressure exerted by coastal fishery.

#### ACKNOWLEDGEMENTS

The author wishes to thank Mr Agop Savul for his kind permission to work in his archive.



**Fig. 3: Basking shark (*Cetorhinus maximus*) grazing at the sea surface in inshore waters. (Photo: B. Šuligoj)**  
**Sl. 3: Morski pes orjak (*Cetorhinus maximus*) se pase na gladini priobalnega morja. (Foto: B. Šuligoj)**

***CETORHINUS MAXIMUS* (GUNNERUS, 1765) (LAMNIFORMES, CETORHINIDAE)  
V ANTALIJSKEM ZALIVU LETA 1987: POVZETEK PREJŠNJIH PODATKOV O TEJ VRSTI  
V TURŠKIH OBREŽNIH VODAH SREDOZEMLJA**

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POVZETEK

Leta 1987 se je v mrežo, postavljeno v neposredni bližini kopnega v Antalijskem zalivu, po naključju ujel morski pes orjak *Cetorhinus maximus* (Gunnerus, 1765). S tem primerkom, dolgim 4 m in težkim 800 kg, se je število morskih psov orjakov, zabeleženih v turških vodah Sredozemlja, povzpelo na 4. Morski psi orjaki so v turških južnih obrežnih vodah opaženi ali po naključju ujeti v ribiške mreže predvsem spomladi in poleti. Čeprav ta morski pes v Turčiji še ni na seznamu ogroženih vrst, bi ga morali nemudoma vpisati v seznam zaščitenih vrst. Takšno predlagano pravno določilo se zdi potrebno predvsem zato, da bi morskega psa orjaka kot ranljivo vrsto zaščitili pred pritiski razširjenega obalnega ribištva.

**Ključne besede:** morski pes orjak, *Cetorhinus maximus*, vzhodno Sredozemlje, razširjenost, pojavljanje v obrežnih vodah

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