

## ON THE CAPTURE OF A LARGE BASKING SHARK *CETORHINUS MAXIMUS* (CHONDRICHTHYES: CETORHINIDAE) IN THE BAY OF EDREMIT (NORTHEASTERN AEGEAN SEA)

Hakan KABASAKAL

Ichthyological Research Society, Tantavi Mahallesi, Menteşoğlu Caddesi, İdil Apt., No. 30/4, Ümraniye, TR-34764 İstanbul, Turkey  
E-mail: hakankabasakal@superposta.com

### ABSTRACT

On January 2, 2009, an adult male basking shark, *Cetorhinus maximus* (Gunnerus, 1765), was accidentally caught in a stationary net in the waters some 2 nautical miles off Küçükkuyu (Bay of Edremit, NE Aegean Sea) by local fishermen. Total length of the basking shark was ca. 1,000 cm and weighing approximately 2,000 kg. Basking sharks occur along the Aegean and Mediterranean coastal waters of Turkey throughout the year with a peak in late spring and early autumn. The specimen under consideration is the largest well-documented basking shark recorded in the Mediterranean to date. Due to the inshore occurrence of *C. maximus* in Turkish waters, coastal artisanal fishermen should be informed about the conservation status of the basking sharks, and should also be forced to release the entangled basking sharks.

**Key words:** basking shark, *Cetorhinus maximus*, Aegean Sea, coastal occurrence, coastal fishery, conservation

## SULLA CATTURA DI UN GRANDE SQUALO ELEFANTE *CETORHINUS MAXIMUS* (CHONDRICHTHYES: CETORHINIDAE) NELLA BAIA DI EDREMIT (MAR EGEO NORD-ORIENTALE)

### SINTESI

Il 2 gennaio 2009 è stato accidentalmente catturato con una rete da posta un maschio adulto di squalo elefante, *Cetorhinus maximus* (Gunnerus, 1765), 2 miglia al largo di Küçükkuyu (Bay of Edremit, NE Aegean Sea) da pescatori del luogo. La lunghezza totale dell'esemplare era di circa 1000 cm per un peso di circa 2000 kg. Gli squali elefante sono presenti nelle acque costiere egee e mediterranee della Turchia durante tutto l'anno con picchi nella tarda primavera e nel primo autunno. L'animale considerato è lo squalo elefante più grande mai documentato nel Mediterraneo fino ad oggi. Vista la presenza in acque costiere turche di *C. maximus*, gli autori ritengono che i pescatori artigianali debbano venir informati in merito allo stato di conservazione della specie, e debbano venir obbligati a rilasciare gli esemplari di squalo elefante catturati.

**Parole chiave:** squalo elefante, *Cetorhinus maximus*, Mar Egeo, avvistamento costiero, pesca costiera, conservazione

## INTRODUCTION

Basking shark, *Cetorhinus maximus* (Gunnerus, 1765), occurs in warm and temperate waters of both Atlantic and Pacific Oceans, but is apparently absent in the Indian Ocean (Compagno, 1984). This giant plankton feeding shark is the largest fish living in the Mediterranean waters (Serena, 2005), and has been credited as reaching a maximum total length of 15.2 m (Compagno, 1984). Presence of the basking shark in the western Mediterranean has been accounted by numerous researches (e.g. Barrul *et al.* (1999) from Catalan waters; Capapé (1977) from Toulon waters; Capapé *et al.* (2003) from Maghreb coastal waters; Lipej *et al.* (2000, 2004) from the Adriatic Sea). Despite its presence in the Aegean (Papaconstantinou, 1988; Kabasakal & Kabasakal, 2004) and Levant Seas (Ben-Tuvia, 1971; Kıdeys, 1997; Kabasakal, 2002, 2004; Golani *et al.*, 2006), it is considered a rare shark in the eastern Mediterranean (Serena, 2005).

In Turkish waters, basking shark is considered to be a relatively rare and occasional species (Akşiray, 1987;

Fricke *et al.*, 2007). According to Fricke *et al.* (2007), records of *C. maximus* in Turkish waters are mostly reported from around the Mersin coast.

On January 2, 2009, a male basking shark was entangled in stationary nets set close to the shore off Küçükuyu in the Bay of Edremit. The aim of the present article is to give information on this accidentally caught specimen, as well as to discuss the present status of the basking shark in Turkish waters.

## MATERIAL AND METHODS

The basking shark was measured and photographed after the fishing boat docked in the Küçükuyu harbour. Total length (TOT in Compagno, 1984) was measured with a measuring tape to the closest cm. Unfortunately the specimen was immediately eviscerated and sold at the fish market in Küçükuyu (Bay of Edremit, NE Aegean Sea). Photographs and the page of the newspaper presenting the capture of the caught specimen are kept in the archives of the Ichthyological Research Society (IRS).



**Fig. 1:** Page of the newspaper presenting the accidental catch of a basking shark, *Cetorhinus maximus* (Gunnerus, 1765), off the coast of Küçükuyu (Bay of Edremit, NE Aegean Sea). Translation of the subtitle reads: "Surprising 10 metre shark from Dardanelles!"

**Sl. 1:** Stran iz časnika, v katerem so poročali o morskem psu orjaku *Cetorhinus maximus* (Gunnerus, 1765), naključno ujetem v bližini kraja Küçükuyu (Edremitski zaliv, SV Egejsko morje). Prevod podnaslova se dobesedno glasi: "Presenetljivi desetmetrski morski pes iz Dardanel!"

## RESULTS AND DISCUSSION

On January 2, 2009, an adult male basking shark (Fig. 1) was accidentally caught in a stationary net in the waters some 2 nautical miles off Küçükkuşu by local fishermen (Fig. 2). Total length of the basking shark was ca. 1,000 cm, while its weight was approximately 2,000 kg. After a short display in the harbour, the shark was eviscerated and purchased by a local fishmonger who intended to export it.

According to the available literature dealing with the elasmobranchs of Turkey, at least 5 basking sharks were recorded in Turkish waters to date (Kıdeys, 1997; Kabasakal, 2002, 2004; Kabasakal & Kabasakal, 2004). Four of these records were from the Mediterranean coast of Turkey (Kabasakal, 2004), and only one from the Bay of Saros (northeastern Aegean Sea off the Anatolian coast; Kabasakal & Kabasakal, 2004).

On April 18, 1987, a basking shark was accidentally captured by stationary nets set very close to the shore of Kemer in the Bay of Antalya (Kabasakal, 2004). The specimen's total length measured by the fishermen was

4 m, its weight ca. 800 kg. 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 May 1995, coastal fishermen captured two basking sharks near Erdemli in the Bay of Mersin (Kıdeys, 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, a small school of basking sharks was sighted in the same area while feeding on the bloom of ctenophoran *Pleurobrachia pileus* (Kıdeys, 1997). On May 16, 1997, a basking shark of ca. 800 cm TL was sighted by a swordfish harpooner some 5 nautical miles off the southern coast of Gökçeada, NE Aegean Sea (Kabasakal & Kabasakal, 2004). This sighting was the most recent record of *C. maximus* from Turkish coastal waters of the NE Aegean Sea. In December 2001, another basking shark was also captured by means of a stationary bonito net, set only 100 m off the shore in the Bay of Antalya (Kabasakal, 2002). 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, too.



**Fig. 2:** Map indicating the approximate locality of capture (black circle) of the basking shark.  
**Sl. 2:** Zemljevid s približno lokacijo (črni krogec), kjer se je v mrežo zapletel morski pes orjak.

The present record of *C. maximus* in the Bay of Edremit, as well as the records by Papaconstantinou (1988) and Kabasakal & Kabasakal (2004) indicate that the distribution range of the basking shark extends to the northern Aegean Sea; it is still not clear, however, whether the basking shark is an occasional species in the area or occurs here seasonally.

Barrul *et al.* (1999) reported on 20 basking sharks from Catalan waters (western Mediterranean), whose total lengths ranged from 250 to 800 cm. Total lengths of 21 basking sharks caught in Maghrebin coastal waters varied between 270 and 735 cm (Capapé *et al.*, 2003). According to Lipej *et al.* (2004), Serena (2005) and Golani *et al.* (2006), total length of *C. maximus* can reach 1,000 cm in general. Tortonese (1956) and Compagno (1984) stated even greater sizes, 1,300 and 1,520 cm, respectively. Hence, it is possible to suggest that the present specimen (ca. 1,000 cm TL) is one of the largest basking sharks ever captured in the Mediterranean Sea.

Although basking sharks are non-target species in the Mediterranean Sea, they are accidentally caught by numerous fishing gears (Soldo, 2003). Thus, they are evidently vulnerable to bycatch. Accidental capture of basking sharks by coastal fishermen have been reported from several regions in the Mediterranean Sea by Ben-Tuvia (1971), Kideyş (1997), Lipej *et al.* (2000), Kabasakal (2002) and Capapé *et al.* (2003). One of the basking sharks (267 cm of TL) reported by Ben-Tuvia (1971) was entangled in gill-nets at a depth of 3 m near Akko (eastern Mediterranean) on January 11, 1965, while yet another individual (259 cm of TL) was caught in the very same area on March 7, 1965. Capapé *et al.* (2003) reported that all the specimens from Maghrebin coastal waters were captured by pelagic fishing gear at depths of max. 30 m. A 6 metre long (TL) sub-adult female was entangled in a stationary bonito net, set only 100 metres off the shore in the Bay of Antalya (Kabasakal, 2002). Two basking sharks recorded by Kideyş (1997) off Erdemli coast, Bay of Mersin, were entangled in stationary nets, set close to the shore. Lipej *et al.* (2000) reported on two juvenile basking sharks (249 and 299 cm TL, and weighing 70 and 120 kg, respectively), which were accidentally caught in stationary nets in the waters off Piran. The present specimen, too, was a victim of a gill-net set close (ca. 2 nautical miles) to the shore. Basking shark is a rather rare but constantly present species in the eastern Adriatic Sea (Soldo *et al.*, 2008). Over the 2000–2002 period, their occurrence in this area highly

increased owing to the abundance of copepods, especially *Calanus helgolandicus* (Soldo *et al.*, 2008).

According to Francis & Duffy (2002), inshore records of *C. maximus* from miscellaneous sources peaked in spring-summer, with few winter records. Just occasionally, an isolated individual – like the present basking shark or the Antalya specimen caught in December 2001 – is caught during the winter months (Steel, 1985). The basking shark accounted by Kabasakal (2002) was also accidentally caught during the winter in a stationary bonito net set in coastal waters in the Bay of Antalya. Migrations of basking sharks in the seas of Turkey, particularly in coastal waters where intensive fishery by means of several kinds of stationary nets is carried out, should be determined in detail in order to reduce the possible impacts of this vulnerable shark by-catch.

Gill-netting is a popular technique of small-scale fishery in Turkish coastal waters and operated throughout the year. Therefore, coastal fishermen should be informed about the basking shark's status, about the ban on trading endangered marine animals, and encouraged to release the entangled specimens. Budgeting of conservation of endangered marine animals is an important obstacle, preventing fishermen to release the entangled specimens. Generally, fishermen claim that they have to land and sell large sharks in order to compensate for the cost of damaged fishing gear. Thus, in addition to including the basking shark on the list of endangered marine animals of Turkish seas, the government should set a plan for the compensation of damaged fishing gear in the event of the sharks' entanglement. Basking shark is listed in the Act 37/2 – Endangered Species of the Seas of Turkey; however, this regulation seems ineffective for the protection of this gentle giant, if fishermen have no intention of releasing the entangled specimens. Available studies on the distribution of basking sharks in Turkish waters indicate that the species occurs along the Aegean and Mediterranean coastal waters of Turkey throughout the year with a peak in late spring and early autumn. This annual occurrence necessitates revising the terms of coastal year-round artisanal fishery.

#### ACKNOWLEDGMENTS

The author wishes to thank Mr. Halil ATAÇ (Manager of Fishermen Cooperative of Altınoluk) for providing me with the information on the basking shark discussed in this article.

O MORSKEM PSU ORJAKU *CETORHINUS MAXIMUS* (CHONDRICHTHYES: CETORHINIDAE), UJETEM V EDREMITSKEM ZALIVU (SEVEROVZHODNO EGEJSKO MORJE)

Hakan KABASAKAL

Ichthyological Research Society, Tantavi Mahallesi, Menteşoğlu Caddesi, İdil Apt., No. 30/4, Ümraniye, TR-34764 İstanbul, Turkey  
E-mail: hakankabasakal@superposta.com

POVZETEK

Dne 2. januarja 2009 so lokalni ribiči v mreži, ki so jo nastavili kaki dve morski milji od Küçükkyuya (Edremitski zaliv, SV Egejsko morje), našli po nesreči ujetega odraslega samca morskega psa orjaka *Cetorhinus maximus* (Gunnerus, 1765). Njegova celotna dolžina je merila cca 1000 cm, teža pa približno dve toni. Ta vrsta morskih psov se pojavlja v obalnih vodah Egejskega morja in Turčije vse leto, z vrhuncem v poznem spomladanskem in zgodnjem jesenskem času. Obravnavani morski pes orjak je največji dobro dokumentirani primer te vrste, kar jih je bilo kdaj zabeleženih v Sredozemskem morju. Zaradi pojavljanja morskih psov orjakov v turških obalnih vodah je po avtorjevem mnenju treba lokalne ribiče, ki lovijo na tradicionalni način z manjšimi mrežami in čolni, dodobra seznaniti z naravovarstvenim statusom morskega psa orjaka in jih hkrati prisiliti, da spustijo na prostost v mreže zapletene orjake.

**Ključne besede:** morski pes orjak, *Cetorhinus maximus*, Egejsko morje, pojavljanje v obrežnih vodah, obalno ribištvo, naravovarstvo

REFERENCES

- Akşıray, F. (1987):** Türkiye Deniz Balıkları ve Tayin Anahtarı. 2<sup>nd</sup> Edition. Publications of İstanbul University, İstanbul, no. 3490, 811 p.
- Barrull, J., I. Mate & M. Bueno (1999):** Observaciones de tiburones (Chondrichthyes Euselachii) en aguas de Cataluña (Mediterraneo No), con algunos aspectos generales de su ecología. Sci. Gerund., 24, 127–151.
- Ben-Tuvia, A. (1971):** Revised list of the Mediterranean fishes of Israel. Isr. J. Zool., 20, 1–39.
- Capapé, C. (1977):** Liste commentée des sélachiens de la région de Toulon (de la ciutat à Saint-Tropez). Bull. Mus. Hist. Nat. Marseille, 37, 5–9.
- Capapé, C., F. Hemida, J. Bensaci, B. Saïdi & M. N. Bradaï (2003):** Records of basking sharks, *Cetorhinus maximus* (Gunnerus, 1765) (Chondrichthyes: Cetorhinidae) off the Maghrebine shore (southern Mediterranean): a survey. Annales, Ser. Hist. Nat., 13(1), 13–18.
- Compagno, L. J. V. (1984):** FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of sharks species known to date. Part 1. Hexanchiformes to Lamniformes. FAO Fish. Synop., 4, 1–249.
- Francis, M. P. & C. Duffy (2002):** Distribution, seasonal abundance and bycatch of basking sharks (*Cetorhinus maximus*) in New Zealand, with observations on their winter habitat. Mar. Biol., 140, 831–842.
- Fricke, R., M. Bilecenoğlu & H. M. Sarı (2007):** Annotated checklist of fish and lamprey species (Gnathostomata and Petromyzontomorphi) of Turkey, including a Red List of threatened and declining species. Stuttg. Beitr. Natkd. A. Biol., 706, 1–169.
- Golani, D., B. Öztürk & N. Başusta, (2006):** Fishes of the eastern Mediterranean. Turkish Marine Research Foundation (Türk Deniz Araştırmaları Vakfı) TÜDAV, İstanbul, 260 p.
- Kabasakal, H. (2002):** Capture of a female basking shark, *Cetorhinus maximus* (Gunnerus, 1765), from southern Turkey. Annales, Ser. Hist. Nat., 12(1), 31–34.
- Kabasakal, H. (2004):** *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. Annales, Ser. Hist. Nat., 14(1), 29–34.
- Kabasakal, H. & E. Kabasakal (2004):** Sharks captured by commercial fishing vessels off the coast of Turkey in the northern Aegean Sea. Annales, Ser. Hist. Nat., 14(2), 171–180.
- Kıdeys, A. E. (1997):** Occurrence of the basking shark, *Cetorhinus maximus*, in the northern Levantine, the eastern Mediterranean. The International Mediterranean Fisheries Congress. Book of Abstracts. University of Ege, İzmir, pp. 120.



- Lipej, L., T. Makovec, M. Orlando & V. Žiža (2000):** Occurrence of the basking shark, *Cetorhinus maximus* (Günnerus, 1765), in the waters off Piran (Gulf of Trieste, Northern Adriatic). *Annales, Ser. Nist. Nat.*, 10(2), 211–216.
- Lipej, L., A. De Maddalena & A. Soldo (2004):** Sharks of the Adriatic Sea. *Knjižnica Annales Majora, Koper*, 253 p.
- Papaconstantinou, C. (1988):** Check-list of marine fishes of Greece. *Fauna Graeciae* 4. National Center for Marine Research, Hellenic Zoological Society, Athens, 257 p.
- Serena, F. (2005):** Field identification guide to the sharks and rays of the Mediterranean and Black Sea. *FAO Species Identification Guide for Fishery Purposes*. FAO, Rome, 97 p.
- Soldo, A. (2003):** Status of sharks in the Mediterranean. *Annales, Ser. Hist. Nat.*, 13(2), 191–200.
- Soldo, A., D. Lučić & I. Jardas. (2008):** Basking shark (*Cetorhinus maximus*) occurrence in relation to zooplankton abundance in the eastern Adriatic Sea. *Cy-bium*, 32(2), 103–109.
- Steel, R. (1985):** *Sharks of the World*. Facts on File Publications, New York, 192 p.
- Tortonese, E. (1956):** *Fauna d'Italia*. Vol. II. Leptocardia, Ciclostomata, Selachii. Calderini, Bologna, 334 p.