

## ADDITIONAL RECORDS OF THE BIGEYE THRESHER SHARK *ALOPIAS SUPERCILIOSUS* (LOWE, 1839) (CHONDRICHTHYES: LAMNIFORMES: ALOPIIDAE) FROM TURKISH WATERS

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### ABSTRACT

*Recent captures of the bigeye thresher shark, Alopias superciliosus (Lowe, 1839) from Turkish waters are reported. Available data confirmed that the distribution range of A. superciliosus extends to the Sea of Marmara. Regarding the size of specimen No 2, 450 cm TOT, it is one of the largest bigeye thresher sharks ever recorded in the Mediterranean Sea, and worldwide. Due to scarce existing data, no speculations could be made upon the status of pelagic sharks in Turkish waters and the time trend in catches (declining, stable or increasing). Therefore, further study is needed to monitor and assess the current status of bigeye thresher sharks caught off Turkish coast.*

**Keywords:** bigeye thresher, Alopiidae, *Alopias superciliosus*, Turkey, eastern Mediterranean

## NUOVE SEGNALAZIONI DI SQUALO VOLPE OCCHIONE, *ALOPIAS SUPERCILIOSUS* (LOWE, 1839) (CHONDRICHTHYES: LAMNIFORMES: ALOPIIDAE), IN ACQUE DELLA TURCHIA

### SINTESI

*L'articolo segnala catture recenti di squalo volpe occhione, Alopias superciliosus (Lowe, 1839), in acque della Turchia. I dati disponibili confermano che il range di distribuzione di A. superciliosus si estende fino al Mar di Marmara. L'esemplare catturato No 2, con una lunghezza totale pari a 450 cm, è uno degli individui di squalo volpe occhione più larghi mai segnalati per il mare Mediterraneo, e per l'intero pianeta. In merito allo stato degli squali pelagici delle acque turche, vista la scarsità di dati, nessuna speculazione può venir fatta in merito alla tendenza temporale delle catture (in calo, stabile o in aumento). Pertanto gli autori concludono che siano necessari ulteriori studi per monitorare e capire lo stato attuale degli esemplari di squalo volpe occhione, che vengono catturati nelle acque al largo della Turchia.*

**Parole chiave:** squalo volpe occhione, Alopiidae, *Alopias superciliosus*, Turchia, Mediterraneo orientale

## INTRODUCTION

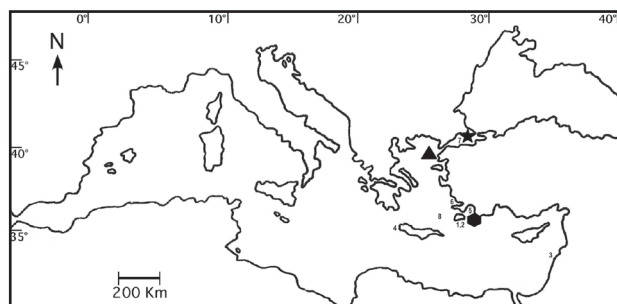
The bigeye thresher shark, *Alopias superciliosus* (Lowe, 1839), is a cosmopolitan species occurring in the Atlantic, Pacific and Indian Oceans (Quéro, 1984). It is found in warm to temperate waters in its distribution range and occurs in coastal waters over the continental shelves, sometimes close inshore in shallow waters (Compagno, 1984). *A. superciliosus* has been listed among the Mediterranean ichthyofauna by several researchers (e.g., Quéro, 1984; De Maddalena & Baensch, 2005; Serena 2005). Its occurrence in the Mediterranean was unknown until the beginning of the 1980s, when it was recorded for the first time in the Ionian Sea (Gruber & Compagno, 1981), followed by the capture of four specimens by the fishermen of Mazara del Vallo (Trapani) in the Sicilian Channel (Cigala Fulgosi, 1983). However, a recent study by Corsini-Foka & Sioulas (2009) suggests that the oldest samples of the bigeye thresher shark could have been recorded in Mediterranean waters during the 1950s, based on two males of 310 and 450 cm TOT, caught in Dodecanese waters and preserved as embalmed specimens at the Hydrobiological Station of Rhodes collection.

*A. superciliosus* is listed also among the fish fauna of the eastern part of the Mediterranean basin (Golani *et al.*, 2006). The first occurrence of the bigeye thresher shark in Aegean waters was mentioned by Megalofonou *et al.* (2005), after surveys carried out during 1998–2001. More recently, the species was recorded from Gökova Bay on 23 May 2005, which was the first record of *A. superciliosus* in Turkish waters, and followed by its Marmaric record (Kabasakal & Karhan, 2007). Complete set of jaws of the latter Marmaric specimen is currently preserved at the Ichthyological Research Society (IRS) collection in İstanbul, Turkey.

In the present article, authors report on the recent captures of the bigeye thresher shark in Turkish waters.

## MATERIAL AND METHODS

This study is a part of an extensive research, which was initiated by IRS in 2000, to determine the status of sharks that occurred in the seas of Turkey. Three specimens of *Alopias superciliosus* were caught by commercial fishing vessels on different localities along the Turkish coast (Fig. 1). The present specimens of thresher sharks were identified as *A. superciliosus* based on following diagnostic characters (Compagno, 1984): snout rather long; a deep horizontal groove on each side of nape; eyes large, reaching the dorsal surface of the head (Figs. 2, 3, 4). The following data were recorded for each specimen whenever possible: total length (TOT, in Compagno, 1984), weight, sex, capture locality, type of fishing gear, date of capture, and depth of capture. Photographs of the specimens are kept in the IRS archives and available for inspection on request.



**Fig. 1:** Map showing the locality of recent captures (symbols) and previous records (numerals) of the bigeye thresher sharks off Turkish coast, as well as in the eastern Mediterranean.

**Legend:** ★ denotes specimen No 1; ● denotes specimen No 2; ▲ denotes specimen No 3, recorded in the present study; 1, 2 denote specimens recorded by Corsini-Foka & Sioulas (2009) in the early 1950's; 3 denotes two neonates caught off Israel (Clo *et al.*, 2008); 4 denotes a specimen caught off western Crete (Clo *et al.*, 2008); 5 denotes a specimen caught off Marmaris in 2004 (Clo *et al.*, 2008); 6 denotes a specimen caught in Gökova Gulf in 2005 (Kabasakal & Karhan, 2007); 7 denotes a specimen caught in the Sea of Marmara in 2007 (Kabasakal & Karhan, 2007); 8 denotes two specimens caught in the Aegean Sea (Megalofonou *et al.*, 2005).

**Sl. 1:** Zemljevid z označenimi točkami ulova velikookih morskih lisic ob obalah Turčije in v vzhodnem Sredozemlju, novejši (simboli) in starejši podatki (številke).

**Legenda:** ★ označuje primerek št. 1; ● označuje primerek št. 2; ▲ označuje primerek št. 3, vsi obravnavani v pričujoči raziskavi; 1, 2 označujeta primerka, ki sta ju zabeležila Corsini-Foka & Sioulas (2009) v zgodnjih 1950-ih; 3 označuje dva novorojena primerka, ujeta ob obali Izraela (Clo *et al.*, 2008); 4 označuje primerek, ujet ob zahodni obali Krete (Clo *et al.*, 2008); 5 označuje primerek, ujet pri kraju Marmaris leta 2004 (Clo *et al.*, 2008); 6 označuje primerek, ujet v Zalivu Gökova leta 2005 (Kabasakal & Karhan, 2007); 7 označuje primerek, ujet v Marmarskem morju leta 2007 (Kabasakal & Karhan, 2007); 8 označuje dva primerka, ujeta v Egejskem morju (Megalofonou *et al.*, 2005).

## RESULTS AND DISCUSSION

Specimen No 1 (Fig. 2) was a male, captured off Sivrice coast (NE Aegean Sea) on 21 May 2006, by means of a stationary net set at a depth of nearly 100 m. Its total length was 4 m; the weight could not be recorded. Claspers were calcified and stiff, seminal fluid was observed at the tip of claspers upon the compression of sperm sacs.

Specimen No 2 (Fig. 3) was captured off Fethiye coast (eastern Mediterranean Sea, Turkey) on 28 February 2011, by means of a trammel-net (inner mesh 30

**Tab. 1: Selected morphometric measurements of *A. superciliosus* (Lowe, 1839) specimen No 2 caught off Fethiye.**

**Tab. 1: Izbrani morfometrični podatki za vrsto *A. superciliosus* (Lowe, 1839) primerek št. 2, ujet ob kraju Fethiye.**

Measurement	cm	% of TL
Total length (TL)	450	
First dorsal fin length	41	9.1
First dorsal fin base length	32	7.1
Pectoral fin length	82	18.2
Pectoral fin base length	30	6.6
Ventral fin length	39	8.6
Ventral fin base length	30	6.6
Predorsal length	128	28.4
Preventral length	165	36.6
Prepectoral length	55	12.2
Tail length	217	48.2

mm, outer mesh 120 mm) on a mixed bottom of sand and pebbles at the depth of 110 m. It was a female of 450 cm TOT and weighing 300 kg. Morphometric measurements were recorded by the first author at the site of display (Tab. 1). According to fishermen's statements, the shark was entangled in the net during early hours of dawn. A row of 24 of teeth on upper jaw and a row of 23 teeth on lower jaw. Dental formula of the examined specimen is 12-12 / 11-12.

Specimen No 3 (Fig. 4), a female of 2.5 m TOT and weighing 65 kg, was caught by a commercial purse-seine on 2 July 2011 off Silivri coast (the northern Sea of

Marmara). It was examined by the third author and photographed in a shopping mall near Istanbul city, where it was displayed to public at a fishmonger.

The bigeye thresher shark grows to a large size, and attains a maximum size of 461 cm TOT (Smith *et al.*, 2008). According to Gruber & Compagno (1981), the heaviest reliably reported specimen was a female from Cuba, weighing 284.5 kg, which corresponds to a pre-caudal length of 237 cm and a total length of about 452 cm. Regarding the size of the specimen No 2, 450 cm TOT and weighing 300 kg, it is one of the largest bigeye thresher sharks ever recorded in the Mediterranean Sea, and worldwide, as well.

The first record of *A. superciliosus* in the Sea of Marmara dates back to 25 February 2007 (Kabasakal & Karhan, 2007). The recent capture of the specimen No 3 off Silivri coast confirms the extension of the Mediterranean distribution of the bigeye thresher shark to the Sea of Marmara.

Interviews with the local fishermen revealed that the bigeye thresher shark is a very rare bycatch of commercial fishing boats operated off Fethiye coast. The rarity of *A. superciliosus* in the eastern Mediterranean was emphasized after an extensive survey of the pelagic sharks occurring in the region also by Megalofonou *et al.* (2005). During the 3 year survey on board of pelagic fishing boats, only 2 specimens of *A. superciliosus* were recorded by the authors. Previous and recent records of the bigeye thresher shark in the eastern Mediterranean are shown on the map (Fig. 1). In the regional assessment of Chondrichthyans in the Mediterranean Sea, the IUCN Shark Specialist Group listed the species as data deficient (Cavanagh & Gibson, 2007). For the moment, it is not clear whether the bigeye thresher shark is rare



**Fig. 2: Specimen No 1 (★ in Fig. 1) captured off Sivrice coast on 21 May 2006. Arrow denotes a groove on the nape. (Photo: İ. Öz)**

**Sl. 2: Primerek št. 1 (★ na Sl. 1), ujet ob obali Sivrice 21. maja 2006. Puščica kaže na brazdo na tilniku. (Foto: İ. Öz)**



**Fig. 3:** Specimen No 2 (● in Fig. 1) captured off Fethiye coast on 28 February 2011. (Photo: IRS archive)  
Sl. 3: Primerek št. 2 (● na Sl. 1), ujet ob obali Fethiye 28. februarja 2011. (Foto: arhiv IRS)

in the Mediterranean, or just rarely caught or reported. According to Serena (2005), *A. superciliosus* is an occasional/rare species in the entire Mediterranean; however, recent multiple records from the eastern basin and Sicilian Channel, which were reviewed by Clo *et al.* (2008), as well as the historical occurrence of several specimens (Corsini-Foka & Sioulas, 2009), indicate that it cannot be considered a vagrant in these areas. According to De Maddalena & Baensch (2005), the species can't be considered rare in the Mediterranean and, at least in some areas, may be relatively common. The specimens described here are the most recent proof of the occurrence of *A. superciliosus* in the eastern Mediterranean. Like other pelagic sharks, *A. superciliosus* is not a targeted species of Turkish fishermen; however, every fishing season, unknown number of specimens are accidentally captured and landed, especially by pelagic fishing ves-



**Fig. 4:** Specimen No 3 (▲ in Fig. 1) captured off Silivri coast on 2 July 2011. Arrow denotes a groove on the nape. (Photo: A. Yurtsever)  
Sl. 4: Primerek št. 3 (▲ na Sl. 1), ujet ob obali Silivri 2. julija 2011. Puščica kaže na brazdo na tilniku. (Foto: A. Yurtsever)

sels. Due to scarce existing data, no speculations could be made upon the status of pelagic sharks in Turkish waters and the time trend in catches (declining, stable or increasing). Therefore, further study is needed to monitor and assess the current status of bigeye thresher sharks, as well as other pelagic sharks, caught off Turkish coast.

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NOVI PODATKI O VELIKOOKI MORSKI LISICI *ALOPIAS SUPERCILIOSUS* (LOWE, 1839)  
(CHONDRICHTHYES: LAMNIFORMES: ALOPIIDAE) V TURŠKIH VODAH

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## POVZETEK

Avtorji v članku poročajo o pred kratkim ujetih velikookih morskih lisicah *Alopias superciliosus* (Lowe, 1839) v turških vodah. Razpoložljivi podatki tako potrjujejo, da se območje razširjenosti *A. superciliosus* razteza vse do Marmarskega morja. Glede na izmerjeno dolžino primerka št. 2, 450 cm TOT, lahko trdimo, da gre za eno največjih velikookih morskih lisic kdajkoli opaženo v Sredozemskem morju in na svetu. Zaradi pomanjkanja podatkov ne moremo sklepati o statusu pelagičnih morskih psov v turških vodah in časovnem trendu ulova (v upadu, stabilen ali v porastu). Potrebne bi bile nadaljnje raziskave, s katerimi bi opazovali in ocenili status velikookih morskih lisic, ujetih ob obalah Turčije.

**Ključne besede:** velikooka morska lisica, Alopiidae, *Alopias superciliosus*, Turčija, vzhodno Sredozemlje

## REFERENCES

**Cavanagh, R. D. & C. Gibson (2007):** Overview of the conservation status of cartilaginous fishes (Chondrichthyans) in the Mediterranean Sea. IUCN, Gland, Switzerland and Malaga, Spain, 42 p.

**Cigala Fulgosi, F. (1983):** First record of *Alopias superciliosus* (Lowe, 1839) in the Mediterranean, with notes on some fossil species of the genus *Alopias*. Ann. Mus. Civ. Stor. Nat. Genova, 84, 211-229.

**Clo, S., R. Bonfil & E. De Sabata (2008):** Additional records of the bigeye thresher shark, *Alopias superciliosus*, from the central and eastern Mediterranean Sea. JMBA2, Biodiversity Records, 6168. <http://www.mba.ac.uk/jmba/jmba2biodiversityrecords.php>

**Compagno, L. J. V. (1984):** FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. FAO Fish. Synop., 4, 1-249.

**Corsini-Foka, M. & A. Sioulas (2009):** On two old specimens of *Alopias superciliosus* (Chondrichthyes: Alopiidae) from the Aegean waters. Mar. Biodiversity Rec., 2; e72.

**De Maddalena A. & H. Baensch (2005):** Haie im Mittelmeer. Franckh-Kosmos Verlags-GmbH & Co., Stuttgart, 240 p.

**Golani, D., B. Öztürk & N. Başusta (2006):** Fishes of the eastern Mediterranean. Turkish Marine Research Foundation, Publication no. 24. Istanbul, Turkey, 259 p.

**Gruber, S. H. & L. J. V. Compagno (1981):** Taxonomic status and biology of the bigeye thresher shark, *Alopias superciliosus* (Lowe, 1839). Fishery Bulletin, National Marine Fisheries Service 79, 617-640.

**Kabasakal, H. & S. Ü. Karhan (2007):** On the occurrence of the bigeye thresher shark, *Alopias superciliosus* (Chondrichthyes: Alopiidae), in Turkish waters. JMBA2, Biodiversity Records 5745, <http://www.mba.ac.uk/jmba/jmba2biodiversityrecords.php>

**Megalofonou, P., D. Damalas & C. Yannopoulos (2005):** Composition and abundance of pelagic shark by-catch in the eastern Mediterranean Sea. Cybium, 29, 135-140.

**Quéro, J.-C. (1984):** Alopiidae. In: Whitehead, P. J. P., M.-L. Bauchot, J.-C. Hureau, J. Nielsen & E. Tortonese (eds.): Fishes of the North-Eastern Atlantic and Mediterranean, Vol. 1. UNESCO, Paris, pp. 91-92.

**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.

**Smith, S. E., R. C. Rasmussen, D. A. Ramon & G. M. Cailliet (2008):** The biology and ecology of thresher sharks (Alopiidae). In: Camhi, M. D., E. K. Pikitch, E. A. Babcock (eds.): Sharks of the Open Ocean: Biology, Fisheries and Conservation. Blackwell Publishing, Oxford, UK, pp. 60-68.