

SHORT COMMUNICATION

**Notes on the occurrence of smalltooth sandtiger shark,
Odontaspis ferox (Lamniformes: Odontaspididae) from
Antalya Bay, eastern Mediterranean, Turkey**

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Abstract

On 11 March 2019, a female specimen of *Odontaspis ferox*, was incidentally caught by a commercial bottom trawler, towed at the depths between 100 to 120 m, in Antalya Bay. Total length of the specimen was 400 cm. Based on the recent Red List assessment of Mediterranean elasmobranchs, *O. ferox* is a rare and endangered shark species. Capture of the mature females creates a significant threat to the survival of the species. Therefore, promoting fishermen to release live specimens, appears to be an urgent, feasible first step in the protection of this rare shark in Turkish waters.

Keywords: Smalltooth sandtiger shark, endangered, incidental catch, Levantine Basin

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Smalltooth sandtiger shark, *Odontaspis ferox* (Risso, 1810), is a large, bulky lamniform shark, which is possibly circumglobal in warm-temperate and tropical waters, with a spottily distribution (Compagno 2001). It is a little-known inhabitant of deep water, where it occurs on or near the bottom on continental and insular shelves and upper slopes at depths of 13 to 420 m (Compagno 2001). Furthermore, Compagno (2001) also suggests a possible epipelagic occurrence for *O. ferox*, over the ocean floor, at depths ranging from 140 to 180 m. In the Mediterranean Sea, it is occasionally a bycatch with gillnets, lines and trawls, and considered as a rare shark species in the entire region, with sporadic records of occurrence (Serena 2005; Golani *et al.* 2006; Storai *et al.* 2006; Corsini-Foka 2009; Damalas and Megalofonou 2012).

Occurrence of *O. ferox* in Turkish waters has always been a point of discussion. In a previous review of elasmobranch species inhabiting Turkish waters,

Kabasakal (2002) included *O. ferox* in the inventory of sharks of Turkey; however, the presence of the species in the mentioned area remained unconfirmed, until Fergusson *et al.* (2008) reported on the occurrence of three smalltooth sandtiger sharks in the Turkish Aegean waters. Currently, *O. ferox* is listed in a recent checklist of marine fishes of Turkey (Bilecenoğlu *et al.* 2014).

On 11 March 2019, a female specimen of *O. ferox*, of which the total length (TOT) was 400 cm, was incidentally caught by a commercial bottom trawler, towed at the depths ranging 100 to 120 m, in Antalya Bay (Figure 1). The present specimen was landed at Antalya Fishing Port, where it was displayed to public, and purchased by a local hotel following the auction. Since the present specimen was eviscerated and cut in pieces, it was not possible to carry out a detailed examination of the internal organs and to take samples. However, the second author obtained the head of the present specimen, which was almost intact (Figure 2a).

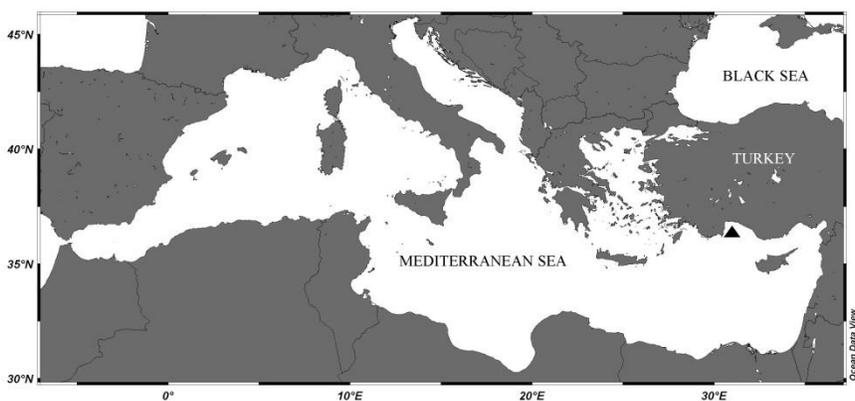


Figure 1. Approximate locality of the capture of *O. ferox* specimen in Antalya Bay

Identification of the present specimen is based on the dental characteristics of family Odontaspidae following Compagno (2001). In *O. ferox*, there are 2 to 5 (mostly 4) rows of small intermediate teeth between upper anterior and lateral tooth rows (Compagno 2001). In the present specimen, 4 rows of small intermediate teeth were counted between upper anterior and lateral tooth rows (Figure 2b). According to Compagno (2001), there are 48 to 56 teeth on the upper jaw and 36 to 46 teeth on the lower jaw. In the examined specimen, 49 teeth in a row on the upper jaw and 42 teeth in a row on the lower jaw were counted (Figure 2b). Teeth were moderately large with prominent narrow cusps and two or more pairs of lateral cusplets, and a pair of upper and a pair of lower symphyseal teeth are present (Figure 2b). The complete set of dried jaws is being preserved in the personal collection of Mr. Erdi Bayrı, and is available for

inspection on request. Snout is long and bulbously conical; mouth is long and extending behind eyes (Figure 2a). Selected measurements of the head based on Compagno (2001) are presented in Table 1.



Figure 2. (A) Ventral view of the head of present specimen of *O. ferox*; and (B) a complete set of upper and lower jaws of the examined specimen, arrows denote the 4 rows of small intermediate teeth, a diagnostic dental characteristic of *O. ferox*.

Table 1. Selected measurements of the head of *O. ferox* specimen caught in Antalya Bay

Measurement	cm	% of TOT
Total length (TOT)	400	-
Head length	79	19.8
Prebranchial length	69	17.25
Preorbital length	23	5.8
Prenasal length	18	4.5
Preoral length	30	7.5
Length of mouth	30	7.5
Interorbital length	36	9
Eye length	5.5	1.4
Interbranchial length	10	2.5

In the Aegean and eastern Mediterranean Seas, the occurrence of *O. ferox* was documented by rare sporadic captures. Recent captures of smalltooth sandtiger shark from the mentioned area are as follows: On 15 February 2001, a specimen of *O. ferox* was captured off Fethiye coast (southern Aegean Sea, Turkey),

which was reportedly *ca.* 400 cm TOT, and followed by the capture of another specimen (200 cm TOT) in the same area, in October 2002 (Fergusson *et al.* 2008). On 25 August 2004, a female, 190 cm TOT and 34 kg of weight, was captured by an artisanal fisherman, at the depth of 20 m, off Urla coast (central Aegean Sea, Turkey; Fergusson *et al.* 2008). A single specimen, 250 cm TOT and 180 kg approximately, was captured on 16 September 2007, by trawling, 1.5 miles off the southern coast of Rhodes Island, at 70 m of depth (Corsini-Foka 2009). In an extensive survey on the occurrences of large sharks in the open waters of the southeastern Mediterranean Sea, Damalas and Megalofonou (2012) reported on a rare capture of a smalltooth sandtiger shark, at a depth of 600 m in the bottom static net fishery of Andros Island (central Aegean Sea) in December 2007. Sporadic nature of *O. ferox* captures in the western Mediterranean waters is also emphasized in several recent studies. Due to lack of new records, Lipej *et al.* (2004) stated that *O. ferox* should be considered as very rare in the Adriatic Sea. The record of smalltooth sandtiger shark in the Sardinian large elasmobranch database is based on a single specimen, a female of 225 cm TOT, which is now preserved in the collection of the University of Cagliari (Storai *et al.* 2006). According to Sperone *et al.* (2012), *O. ferox* was reported in Calabria waters (central Mediterranean, southern Italy) only once or twice.

In the light of above data, the present recording of *O. ferox* in Antalya Bay confirms the contemporary presence of the species in Turkish waters, and eastern Mediterranean, as well.

O. ferox is one of the largest elasmobranch species and its maximum total length is at least 410 cm and possibly larger (Compago 2001; Serena 2005). Thus, the present specimen is one of the largest smalltooth sandtiger sharks captured in the Mediterranean Sea. According to Serena (2005), females reaches maturity at 350 cm TOT; therefore, the present female (400 cm TOT), should be considered as a mature specimen. Based on the recent Red List assessment of Mediterranean elasmobranchs, *O. ferox* is an endangered shark species (Cavanagh and Gibson 2007). Capture of the mature females creates a significant threat to the survival of the species, thus, before the implementation of evidence-based measures for the conservation, and even a ban on the fishing of *O. ferox*, promoting fishermen to release live specimens, appears to be an urgent, feasible first step in the protection of this rare shark in Turkish waters. However, regarding the safety of both fishermen and captured sharks, training of fishermen on, which species of sharks are endangered and under protection, and how these species should be kept alive on deck and handle before the release, is a critical demand. Graham *et al.* (2016), however, indicated that even if incidentally captured specimens of *O. ferox*, by trawls or nets, were returned to the sea intact, these sharks are unlikely to survive the trauma of their capture

from deepwater. Therefore, the development of bycatch mitigation measures such as the use of trawl exclusion devices should be undertaken in relevant fisheries, as proposed by Graham *et al.* (2016). For the moment, at least three countries, Spain, Malta and Croatia, protect the smalltooth sand tiger shark by law within the Mediterranean Sea (Graham *et al.* 2016). Thus, before the technical re-design on the configuration of fishing gear and a revision on the implementation of the trawling and netting activities in Turkish waters, *O. ferox* should be urgently included in the inventory of protected marine species of Turkey, following the legislative practice of the above three countries, which can serve as a legal model for the conservation of the species.

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Antalya Körfezi'nde (doğu Akdeniz) hedef dışı yakalanan küçük dişli kum kaplanı köpekbalığı, *Odontaspis ferox* (Lamniformes: Odontaspididae) üzerine notlar

Öz

11 Mart 2019 tarihinde Antalya Körfezi'nde, tam boyu 400 cm ve diş küçük dişli kum kaplanı köpekbalığı, *Odontaspis ferox*, ticari bir trol teknesi tarafından hedef dışı av olarak yakalanmıştır. Akdeniz'de yaşayan köpekbalığı türlerinin güncel Kırmızı Liste değerlendirmesine göre, *O. ferox* nadir rastlanan ve soyu tehlike altında olan bir köpekbalığı türüdür. Kazara yakalandıktan sonra henüz canlı olarak güverteye alınan küçük dişli kum kaplanı köpekbalıklarının denize geri atılmaları, *O. ferox* türünün tükenmemesi için gereklidir. Balıkçıların kazara yakalanan ve henüz canlı olan *O. ferox* bireylerini denize geri bırakmaya teşvik edilmeleri, türün korunması için gerekli olan ve acilen atılması gereken bir adımdır.

References

Bilecenoğlu, M., Kaya, M., Cihangir, B., Çiçek, E. (2014) An updated checklist of the marine fishes of Turkey. *Turkish Journal of Zoology* 38: 901-929.

Cavanagh, R. D., Gibson, C. (2007) Overview of the Conservation Status of Cartilaginous Fishes (Chondrichthyans) in the Mediterranean Sea. IUCN, Gland, Switzerland and Malaga, Spain.

Compagno, L.J.V. (2001) Sharks of the World. An Annotated and Illustrated Catalogue of Shark Species Known to Date. Volume 2. Bullhead, mackerel and carpet sharks (Heterodontiformes, Lamniformes and Orectolobiformes). FAO Species Catalogue for Fishery Purposes. No. 1, Vol. 2. Rome, FAO.

- Corsini-Foka, M. (2009) Uncommon fishes from Rhodes and nearby marine region (SE Aegean Sea, Greece). *Journal of Biological Research-Thessaloniki* 12: 125-133.
- Damalas, D., Megalofonou, P. (2012) Occurrences of large sharks in the open waters of the southeastern Mediterranean Sea. *Journal of Natural History* 46: 2701-2723.
- Fergusson, I.K., Graham, K.J., Compagno, L.J.V. (2008) Distribution, abundance and biology of the smalltooth sandtiger shark *Odontaspis ferox* (Risso, 1810) (Lamniformes: Odontaspidae). *Environmental Biology of Fishes* 81: 207-228.
- Golani, D., Öztürk, B., Başusta, N. (2006) The Fishes of the Eastern Mediterranean. Turkish Marine Research Foundation, Istanbul, Turkey.
- Graham, K.J., Pollard, D.A., Gordon, I., Williams, S., Flaherty, A.A., Fergusson, I., Dicken, M. (2016) *Odontaspis ferox* (errata version published in 2016). The IUCN Red List of Threatened Species: e.T41876A103433002. Available at <http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T41876A2957320.en>
- Kabasakal, H. (2002) Elasmobranch species of the seas of Turkey. *Annales Series Historia Naturalis* 12: 15-22.
- Lipej, L., De Maddalena, A., Soldo, A. (2004) Sharks of the Adriatic Sea. Knjižnica Annales Majora, Koper, Slovenia.
- 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.
- Sperone, E., Parise, G., Leone, A., Milazzo, C., Circosta, V., Santoro, G., Paolillo, G., Micarelli, P., Tripepi, S. (2012) Spatiotemporal patterns of distribution of large predatory sharks in Calabria (central Mediterranean, southern Italy). *Acta Adriatica* 53: 13-24.
- Storai, T., Cristo, B., Zuffa, M., Zinzula, L., Floris A., Campanile, A.T. (2006) The Sardinian large elasmobranch database. *Cybium* 30: 141-144.