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ON AN OLD RECORD OF THE SMALLTOOTH SAND TIGER SHARK *ODONTASPIS FEROX* (CHONDRICHTHYES: ODONTASPIDIDAE) FROM THE ALGERIAN COAST (SOUTHWESTERN MEDITERRANEAN SEA)

Farid HEMIDA
École Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral (ENSSMAL), BP 19, Bois des Cars, 16320 Dely Ibrahim, Algiers, Algeria

Christian REYNAUD
Laboratoire Interdisciplinaire en Didactique, Education et Formation, Université de Montpellier, 2, place Marcel Godechot, B.P. 4152, 34092 Montpellier cedex 5, France

Christian CAPAPÉ
Université de Montpellier, 34095 Montpellier cedex 5, France
e-mail: capape@orange.fr

ABSTRACT

The paper reports the capture of smalltooth sandtiger shark, Odontaspis ferox *(Risso, 1810), from the eastern region of the Algerian coast (GSA 04). It was probably an adult female specimen, with an estimated total length of 3 m and a total body weight of 200 kg. This finding constitutes the second record of* O. ferox *in Algerian ichthyofauna. The origin of this specimen remains uncertain and the presence of a viable population in the area needs further documentation. However, a management plan is needed to preserve this species and prevent its extinction – not only in Algerian waters but throughout the Mediterranean Sea.*

Key words: Odontaspididae, *Odontaspis ferox*, distribution, Algerian coast, Mediterranean Sea, origin, management plan

VECCHIO RITROVAMENTO DEL CAGNACCIO *ODONTASPIS FEROX* (CHONDRICHTHYES: ODONTASPIDIDAE) LUNGO LA COSTA ALGERINA (MEDITERRANEO SUDOCCIDENTALE)

SINTESI

L'articolo riporta la cattura di un esemplare di cagnaccio, Odontaspis ferox *(Risso, 1810), proveniente dalla regione orientale della costa algerina (GSA 04). Si tratta probabilmente di un esemplare femmina adulto, con una lunghezza totale stimata di 3 m e un peso corporeo totale di 200 kg. Questo ritrovamento costituisce il secondo dato di* O. ferox *nell'ittiofauna algerina. L'origine di questo esemplare rimane incerta e la presenza di una popolazione vitale nell'area necessita di ulteriore documentazione. Tuttavia, è necessario un piano di gestione per preservare questa specie e prevenirne l'estinzione, non solo nelle acque algerine ma in tutto il Mediterraneo.*

Parole chiave: Odontaspididae, *Odontaspis ferox*, distribuzione, costa algerina, piano di gestione

INTRODUCTION

The smalltooth sandtiger shark, *Odontaspis ferox* (Risso, 1810), has a cosmopolitan distribution in warm temperate and tropical waters. Although essentially demersal, it has also been captured pelagically in the open ocean (Compagno, 1984) and caught by trawl on the continental slope at depths of up to 880 m (Fergusson *et al*., 2008). The species has been recorded in the Pacific Ocean (Long *et al*., 2014) and sporadically along the western Atlantic coast, from North America (Sheehan, 1998) to Brazil (Menni *et al*., 1995). Along the eastern Atlantic coast, *O. ferox* has been reported from the Bay of Biscay (Quéro *et al*., 2003), Portugal (Carneiro *et al*., 2014), Morocco (Collignon & Aloncle, 1972), and as far south as Mauritania (Ebert & Stehmann, 2013). In addition, *O. ferox* is known to occur around the Azores (Barcelos *et al*., 2018), Madeira (Maul, 1955), the Canary Islands (Barría *et al*. (2018), and Cabo Verde (Wirtz *et al*., 2013).

In the Mediterranean Sea, *O. ferox* was first recorded on the coast of France, off Nice, by Risso (1810), and areas nearby by Bougis (1959) and Granier (1964), but was observed to be absent from the coast of Languedoc (Capapé *et al*., 2000). Barrull & Mate (2002) reported the species occurring off the Spanish coast. Tortonese (1956) documented the capture of a large female in the Gulf of Genoa, and two more specimens were reported southward by Vanni (1992). To the east, Soldo & Jardas (2000) reported sporadic captures of *O. ferox* in the Adriatic Sea. Kabasakal & Bayri (2019) and Kabasakal *et al*. (2023) summarised several captures of the species in Turkish waters, while Akbora *et al*. (2019) reported further captures around Cyprus. The species has also been recorded in the Levant Basin (Golani, 2005; Bariche & Fricke, 2020).

In the central Mediterranean Sea, specifically, captures of *O. ferox* in the Strait of Sicily have been reported by Vacchi & Serena (1997), and Sperone *et al*. (2012). Schembri *et al*. (2003) noted annual aggregations of specimens in small groups around the Maltese Islands, including adult females of up to 360 cm TL, as observed during 1998–1999. The species was first reported in the Gulf of Tunis by Capapé (1975), followed by a second specimen documented by Ben Amor *et al*. (2020) from the same area, which was landed at the fish harbour of Kelibia.

Dieuzeide *et al*. (1953) reported the presence of *O. ferox* in Algeria based on a specimen collected by Dr Bourjot at the end of the 19th century from an unspecified site along the Algerian coast. The specimen, described by Moreau (1881), is preserved at the Muséum d'Histoire Naturelle de Paris. Hemida & Labidi (2001) referred to Dieuzeide *et al*. (1953) to support a potential occurrence of *O. ferox* off the Algerian coast and suggested its likely future capture in the region. This hypothesis was later confirmed by the capture of a specimen in the eastern area some years ago. The details of this capture are presented here to determine the presence of this shark species both locally and in the wider the Mediterranean Sea.

MATERIAL AND METHODS

The specimen of *O. ferox* was observed by one of the authors (F. H.) at Algiers' main fish market, which receives catches from across Algeria's entire coast, spanning from the Moroccan to the Tunisian borders. According to the information provided *in situ* by fishermen and fishmongers, the specimen was caught by commercial trawler on 18 November 1998 off Annaba, a city located in the eastern Algerian coast, 37°06′10″ N and 7°51′02″ E (Fig. 1). The specimen was captured within the boundaries of GFCM geographical subarea

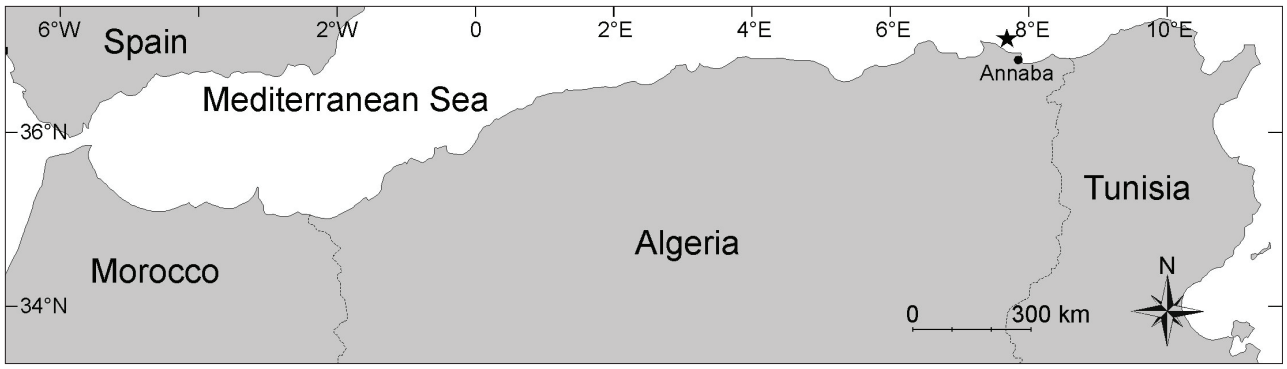


Fig. 1. Map of the Algerian coast indicating the capture site of *Odontaspis ferox* ***(black star) in the eastern region off Annaba.***
Sl. 1: Zemljevid alžirske obale z označeno lokaliteto ulova vrste *Odontaspis ferox* ***(črna zvezdica) v vzhodni regiji ob Annabi.***



Fig. 2. Jaws of the** Odontaspis ferox **specimen captured off Annaba (Photo: F. Hemida).
Sl. 2: Čeljusti primerka vrste** Odontaspis ferox **ujetega ob Annabi (Foto: F. Hemida).

(GSA) 04 (GFCM, 2018), at a depth of 120 m over sandy-muddy bottom, along with several specimens of Norway lobster *Nephrops norvegicus* (Linnaeus, 1758), as well as scorpaenid, lophiid and mullid species. Although the specimen had already been sliced, identification was possible based on the remaining portions that preserved key morphological features, particularly the jaws, which were photographed (Fig. 2, 3).

RESULTS AND DISCUSSION

Despite the fact that the shark was rapidly sectioned and sold, it could still be identified based on the teeth and several available morphological characters, including: a large, bulky body with a long conical snout; eyes more than four times smaller than snout length, without nictitating eyelids; mouth long, extending behind the eyes; teeth moderately large with a prominent narrow cusp and two or more pairs of lateral cusplets (Fig. 2, 3); caudal fin asymmetrical, with a stronger lower lobe; colour medium grey with darker reddish spots scattered over the body, lower edge of caudal fin almost black. These morphological characters are consistent with those described in Compagno (1984) and Ebert & Stehmann (2013).

According to the estimations of the fishermen and the fishmongers, the shark measured 3 m in total length and weighed 200 kg. Both estimations are consistent with previous records reported by Fergusson *et al.* (2008) and Higgs *et al.* (2021), as shown in Table 1. There appears to be a considerable difference in weight between large specimens and medium-sized or small-sized specimens, suggesting that the weight likely increases exponentially as the species reaches large sizes.

Ebert & Stehmann (2013) reported size at first sexual maturity for *O. ferox* as 200–250 cm in males (maximum 344 cm) and 300–350 in females (maximum 450 cm). This specimen, identifiable as female by the absence of claspers among the remains, appeared near adult size. The largest *O. ferox* known to date remains a 520 cm female captured near Walvis Ridge, southeastern Atlantic (Kukuev & Batal'yants, 2019).



Fig. 3. Median teeth of the lower jaw in the specimen of *Odontaspis ferox* ***captured off Annaba (Photo: F. Hemida).***
Sl. 3: Sredinski zob v spodnji čeljustnici primerka vrste *Odontaspis ferox* ***ujetega ob Annabi (Foto: F. Hemida).***

The present specimen constitutes the second documented record of *O. ferox* from the Algerian coast in over a century, highlighting the species' extreme rarity in the region, as is the case throughout the Mediterranean (Fergusson *et al*., 2008; Kabasakal *et al*., 2023), as well as various oceans and seas (Higgs *et al*., 2021). Since 1998, no specimen has been observed in Algerian waters despite regular investigations carried out by local researchers. As stated before, the first record was reported from nearby Tunisian waters by Capapé (1975), followed by a second specimen documented several years later (Ben Amor *et al*., 2020).

O. ferox had not been recorded along the Mediterranean coast of France for decades (Capapé, 1977; Capapé *et al*., 2000; Ziani, pers. com., 2025). Then, on 21 September 2013, a specimen was found stranded dead at Pénestin beach, Morbihan (northern Bay of Biscay). This specimen measured 3.24 m and weighed 220 kg, and was subsequently preserved (APECS, 2013). The earliest record of *O. ferox* in the Bay of Biscay dates back to January 1930, when a male *O. ferox* measuring 1.40 m in total length was captured by trawl, at approximately 46° N and 4° W, at a depth of about 250 m. More recently, a live specimen was found stranded off the western Cotentin Peninsula (English Channel) in August 2012 but was urgently discarded at sea. No further records have been confirmed in the region to date (Stephan, pers. comm., 2025).

According to the global ichthyological literature, *O. ferox* is only sporadically caught and there are no records of the species occurring in large numbers. Fergusson *et al*. (2008) reported a drastic decline in shark captures from south-eastern Australian trawl grounds. To date, no shoal of this species has been observed; unlike the bluntnose sixgill shark *Hexanchus griseus* (Bonnaterre, 1788), which has been reported in aggregations from Tunisian waters – the same region where the large specimen of *O. ferox* reported by Ben Amor *et al*. (2020) was found.

Barcelos *et al*. (2018) noted that *O. ferox* is globally captured in warm temperate waters. This may explain why more records occurred in the eastern Mediterranean Basin (Capapé, 1989; Kabasakal *et al*., 2023) and the eastern tropical Atlantic (Quéro, 1984). In an impor-

Tab. 1: Total length (TL, cm) versus total body weight (TWB, kg) measurements of *Odontaspis ferox* ***specimens from various marine areas around the world.***
Tab. 1: Podatki o meritvah celotne dolžine (TL, cm) in celokupne telesne mase (TWB, kg) primerkov vrste *Odontaspis ferox* ***iz različnih predelov sveta.***

Areas of capture	TL (cm)	TBW (kg)	Authors
Gulf of Tunis, northern Tunisia	247	70	Capapé (1975)
Cayo Nuevo, Mexico	366	289	Bonfil (1995)
Cape Hatteras, USA	340	250	Sheenan (1998)
Blake Plateau	200	47	Ross & Quatrini (2007)
Jacksonville, Florida, USA	250	96	Ross & Quatrini (2007)
Viosca Knoll 826, USA	300-400	170-430	Sulak *et al.* (2007) *in* Higgs *et al.* (2022)
South Cat Cay, Bahamas	314	191	Castro, 2011 *in* Higgs *et al.* (2022)
South Cat Cay, Bahamas	309	165	Castro, 2011 *in* Higgs *et al.* (2022)
Bay of Biscay	324	220	APECS (2013)
Colombia	212	90	Anguila *et al.* (2016)
Salvo, New Columbia, USA	237	81	VIMS 35382 *in* Higgs *et al.* (2022)
Cape Codera, Venezuela	180	30	Tavares *et al.* (2019)
Bermuda	275	130	Higgs *et al.* (2022)
Miami Terrace, USA	200	47	Higgs *et al.* (2022)
MC 109, USA	225	115	Higgs *et al.* (2022)
MC 401, USA	250	87	Higgs *et al.* (2022)
Off Annaba, eastern Algeria	300	200	This study

tant study on the presence of *O. ferox* in Turkish waters, Kabasakal *et al.* (2023) confirmed that the species is not completely extinct, as shown by the recent captures of four specimens in the region. However, while the establishment of a viable population cannot be totally ruled out, further records are needed to corroborate this hypothesis – particularly through the monitoring of social media posts and the use of local ecological knowledge, with the assistance of fishermen familiar with Turkish fishing grounds (Kabasakal *et al.*, 2023).

Large-sized sharks such as *O. ferox* are highly sensitive to fishing pressure, which has contributed to their decline throughout the Mediterranean Sea (Ferretti *et al.*, 2008). This pattern is further exacerbated by the *k*-selected life-history characteristics of *O. ferox* – as it is generally the case for all elasmobranch species (Mellinger, 1989) – making recruitment from regions where the species is captured in relative abundance highly uncertain. *O. ferox* inhabits deep waters, down to at least 520 m, and does not seem prone to large latitudinal migrations. It is likely a good swimmer, like many other shark species, and may occasionally be affected by environmental disturbances such as high tides, strong currents or storms – factors which could explain why it is sometimes found stranded on beaches.

Over a period of more than a century, only two specimens of *O. ferox* were recorded on the Algerian and two on the Tunisian coast, amounting to just four specimens from the Maghreb shore. These findings highlight the extreme rarity of the species in the region, approaching total disappearance. In full accordance with previous reports, such as Kabasakal *et al.* (2023), a management plan involving the collaboration of local fisheries needs to be implemented to prevent the species' total extinction in this region.

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O STAREM ZAPISU O DROBNOZOBEM MORSKEM BIKU *ODONTASPIS FEROX* (CHONDRICHTHYES: ODONTASPIDIDAE) Z ALŽIRSKE OBALE (JUGOZAHODNO SREDOZEMSKO MORJE)

Farid HEMIDA
École Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral (ENSSMAL), BP 19, Bois des Cars, 16320 Dely Ibrahim, Algiers, Algeria

Christian REYNAUD
Laboratoire Interdisciplinaire en Didactique, Education et Formation, Université de Montpellier, 2, place Marcel Godechot, B.P. 4152, 34092 Montpellier cedex 5, France

Christian CAPAPÉ
Université de Montpellier, 34095 Montpellier cedex 5, France
e-mail: capape@orange.fr

POVZETEK

Avtorji poročajo o ulovu drobnozobega morskega bika, Odontaspis ferox *(Risso, 1810), na vzhodnem predelu alžirske obale (GSA 04). Verjetno je šlo za odraslo samico z ocenjeno velikostjo 3 m in celokupno maso 200 kg. Ta najdba predstavlja drugi zapis o pojavljanju vrste* O. ferox *v alžirski ihtiofavni. Od kod je primerek prišel, ostaja nejasno, obstoj viabilne populacije po potrebuje dodatne dokumentirane vire. Za ohranitev te vrste in preprečitev njenega izumrtja je potreben načrt upravljanja – ne samo v alžirskih vodah, ampak po vsem Sredozemskem morju.*

Ključne besede: Odontaspididae, *Odontaspis ferox*, razširjenost, alžirska obala, Sredozemsko morje, izvor, načrt upravljanja

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