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ELASMOBRANCH SPECIES OF THE SEAS OF TURKEY

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ABSTRACT

Field surveys and review of the available literature have revealed the presence of 69 elasmobranch species representing 21 families from the seas of Turkey. Ten of the 69 species are still questionable and require confirmation.

Key words: Seas of Turkey, elasmobranchs, distribution, species list

SPECIE DI ELASMOBRANCHI NEI MARI DELLA TURCHIA

SINTESI

Nell'articolo l'autore presenta una revisione dei dati di letteratura che, completa di nuove indagini sperimentali, rivela nei mari della Turchia la presenza di 69 specie di elasmobranchi appartenenti a 21 famiglie. Dieci delle 69 specie sono tuttora contestabili e richiedono conferma.

Parole chiave: mari della Turchia, elasmobranchi, distribuzione, lista delle specie

INTRODUCTION

The group of sharks, rays and skates is considered poorly known as far as the fish fauna of the Turkish seas is concerned. Cartilaginous fishes have not been commercially important in the Turkish sea fishery for a number of years, which is the reason why most of the ichthyological research has been focused on commercially important fish species. As a consequence of this circumstance, very limited data have been available concerning the elasmobranch species of the Turkish seas until the last two decades of the 20th century. During the mentioned period, elasmobranch species have been superficially researched only in general ichthyological studies (Akşıray, 1987; Devedjian, 1926; Erazi, 1942; Mater & Meriç, 1996). However, the recent drastic reduction in stocks of the traditional commercially important sea fishes means that chondrichthyan fishes are now considered new opportunities for sustaining the fisheries. Due to the highly increased catch of sharks and rays in Turkey within the last few years, a more thorough research into Chondrichthyan fauna in the seas of Turkey would be required. However, with the exception of some pioneering studies *(e.g.* Başusta *et al.*, 1998a, 1998b; Benli *et al.*, 1993; Kabasakal, 1995, 1998a, 1998b, 1998c; Kabasakal & Ünsal, 1999; Kutaygil & Bilecik, 1977, 1979; Okuş *et al.*, 1996; Uysal *et al;* 1996) no extensive investigations have been carried out on this subject so far.

The present paper aims to provide detailed information on the actual status of elasmobranch species occurring in the seas of Turkey.

MATERIAL AND METHODS

An extensive field survey was carried out between 1995 and 1999, and a total of 23 fishing ports along the Turkish coast were visited to collect or examine the specimens of elasmobranch species (Fig. 1). Whenever possible, the author joined to the fishermen (mostly otter-trawlers, purse-seiners, gill-netters and bottom- and pelagic-long liners) for collecting samples. Furthermore, the available literature of elasmobranchs of the Turkish seas was critically reviewed. In every case the following data were recorded: total length (TL) in cm, weight (W) in kg, and sex of the animal, date and location of capture. Whenever possible, individual specimens together with teeth and skin samples were collected. Formalin fixed specimens, including skin samples, were preserved at the Faculty of Fisheries of the University of Istanbul; jaws are preserved in the author's personal collection.

Identification of the species follows CLOFNAM (Whitehead *et al.*, 1984); taxonomic nomenclature follows the check-list proposed by the European Register of Marine Species:
(http://erms.biol.soton.ac.uk./lists/brief/Chondrichthyes.shtml).

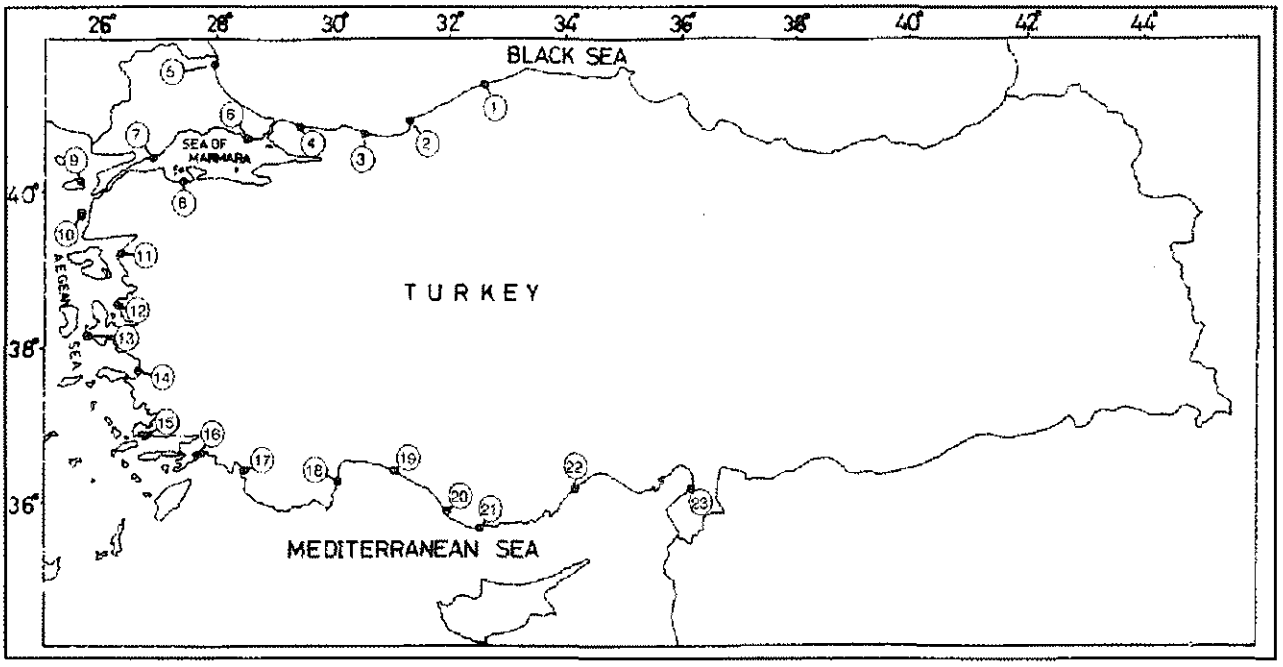

Fig. 1: Fishing ports visited during the field surveys along the coast of Turkey; names of the fishing ports are as follows: (1) Ereğli, (2) Akçakoca, (3) Karasu, (4) Şile, (5) Kıyıköy, (6) Küçükçekmece, (7) Şarköy, (8) Erdek, (9) Gökçeada, (10) Bozcaada, (11) Ayvalık, (12) Foça, (13) Çeşme, (14) Kuşadası, (15) Bodrum, (16) Marmaris, (17) Fethiye, (18) Kemer, (19) Manavgat, (20) Gazipaşa, (21) Anamur, (22) Erdemli, (23) İskenderun.
Sl. 1: Imena ribiških pristanišč vzdolž turške obale, obiskanih med terenskimi raziskavami.

For an easier understanding, actual status of elasmobranch species occurring in the seas of Turkey was classified under the following three categories: A) species examined in the present study; B) species cited by other researchers but not examined in the present study; and C) questionable species.

RESULTS AND DISCUSSION

Following the field surveys and the review of the available literature, a total of 69 elasmobranch species representing 21 families were recorded from the seas of Turkey. Forty-eight of the 69 species were captured during the present study, and these species, their examined numbers and sampling stations are listed in Table 1. Eleven of the remaining 21 species have been reported by other authors, while the last 10 elasmobranchs are represented by the species with a questionable occurrence in the area. Therefore, it should be understood that the total species number reported here is an estimated value and only 59 of them with a verified occurrence in the seas of Turkey. Classification of the actual status, zoogeographical characterisation and distribution in Turkish seas of this 69 species are summarised in Tables 2 and 3.

Zoogeographically, 34 (20.06%) of the 59 confirmed species are of Atlanto-Mediterranean origin, 19 (11.21%) are of cosmopolitan distribution, 4 (2.36%) of the Indo-Pacific origin are the so-called "Lessepsian" immigrants, and 2 (1.18%) are Mediterranean endemics. Before the present study, Akşıray (1987) recorded 59, Bauchot (1987) 50 and Mater & Meriç (1996) 53 elasmobranch species from the Turkish seas. These are the best literature on the chondrichthyan fauna of the seas of Turkey. Although these 10 questionable elasmobranchs, *Carcharias taurus*, *Carcharhinus limbatus*, *C. longimanus*, *C. obscurus*, *Sphyrna lewini*, *S. tudes*, *Echinorhinus brucus*, *Somniosus rostratus*, *Pristis pectinata* and *P. pristis*, have been recorded from the Turkish seas by Akşıray (1987) and Bauchot (1987), no information is available on these species in the most recent list of the Turkish sea fishes by Mater & Meriç (1996). However, with the exception of *C. longimanus*, *C. obscurus*, *Sphyrna lewini*, *P. pectinata* and *P. pristis*, the remaining questionable elasmobranchs *(C. taurus, C. limbatus, S. tudes, E. brucus* and *S. rostratus)* have been recorded from localities adjacent to Turkey by Ben-Tuvia (1971), Papaconstantinou (1988) and Papaconstantinou (1990). It could be assumed, therefore, that the species in the parenthesis may exist in the seas of Turkey. The former five sharks have only been reported by Akşıray (1987) without giving any information on the sampling location or where these species are kept for inspection.

All the 59 confirmed elasmobranch species are present in the Mediterranean and Aegean Seas, while only 27 of them have been recorded in the Sea of Marmara and 8 in the Black Sea. A clear decrease in the species number is observed from the Mediterranean to the Black Sea. Generally speaking, the main reason for this decrease lies in the interactions between the bio-ecological characteristics of chondrichthyans and the oceanographical peculiarities of the Turkish seas. After the opening of the Suez Channel in 1869, as well as due to the general heating of the world oceans, many extra-Mediterranean species have entered the area (the phenomenon known as the "tropicalisation" of the Mediterranean). In this context, the Mediterranean coast of Turkey has been subjected to a remarkable migration of Lessepsian fishes for many years (Gücü *et al.*, 1994). During the present study, the Lessepsian elasmobranchs, *Carcharhinus melanopterus*, *C. altimus*, *Himantura uarnak* and *Taeniura grabata*, have only been recorded along the eastern Mediterranean coast of Turkey (Başusta *et al.*, 1998a, 1998b).

The Aegean Sea is topographically divided into two basins by (approximately) the 38° parallel, *i.e.* into the North and South Aegean (Papaconstantinou, 1992). By taking in consideration the spreading of the Lessepsian immigrants, Papaconstantinou (1987) characterised the North Aegean Sea as an area of cold-water fauna and the South Aegean as the sea of warm-water fauna. Although a number of Lessepsian teleosts have been recorded from the South Aegean (Papaconstantinou, 1987), none of the mentioned Lessepsian elasmobranchs have been recorded in the same area. In comparison with the south part, the north Aegean Sea is characterised by the extended continental shelf and a constant annual water temperature range (13.5°C to 14°C) below 250 m (Papaconstantinou, 1992). Due to the steady environmental conditions and the presence of the considerable amount of juveniles and subadults of *Scyliorhinus canicula* below 200 m, D'Onghia *et al.* (1995) considered the bathyal grounds of the North Aegean Sea as an important spawning and nursery area of the lesser-spotted catshark. In the light of this result, catches of the otter-trawlers operated on the bathyal grounds of the mentioned area have been carefully examined, and not only the juveniles and subadults of *S. canicula*, but those of *Hexanchus griseus*, *Galeus melastomus*, *Etmopterus spinax*, *Dalatias licha*, *Centrophorus granulosus*, *C. uyato* and *Dipturus oxyrinchus*, and the holocephalan *Chimaera monstrosa* that have also been captured in the same area in considerable numbers. Therefore, the bathyal grounds of the North Aegean Sea could be considered as a breeding area for the mentioned species.

According to Öztürk & Öztürk (1996), the Sea of Marmara is an ecological barrier, a transition zone or an acclimatisation area, influencing the dispersal of the species between the Mediterranean and Black Seas. Twenty-five (92.59%) of the 27 recorded elasmobranchs from the Sea of Marmara are demersal fishes. The

Tab. 1: Elasmobranch species captured or examined during the field surveys.
Tab. 1: Morski psi in skati, ujeti ali pregledani med terenskimi raziskavami.

SPECIES	SPECIMENS	STATIONS
Hexanchus griseus (Bonnaterre, 1788)	(20)	6,7,9
Carcharodon carcharias (Linnaeus, 1758)	(2)	12,18
Isurus oxyrinchus Rafinesque, 1810	(5)	18,19,20
Cetorhinus maximus (Gunnerus, 1765)	(2)	19,23
Alopias vulpinus (Bonnaterre, 1788)	(3)	4,6,9,12,15,18,20
Galeus melastomus Rafinesque, 1810	(650)	6,7,9,10,13,14,16,23
Scyliorhinus canicula (Linnaeus, 1758)	(1200)	6,7,8,9,10,14,15,20,21,23
Scyliorhinus stellaris (Linnaeus, 1758)	(85)	8,9,10,11,13,15,19,20
Carcharhinus brevipinna (Müller & Henle, 1839)	(3)	14,16,23
Carcharhinus plumbeus (Nardo, 1827)	(2)	9,15,23
Prionace glauca (Linnaeus, 1758)	(6)	9,13,18,19,20
Galeorhinus galeus (Linnaeus, 1758)	(2)	9,17
Mustelus asterias Cloquet, 1821	(152)	6,7,9,11,17,18
Mustelus mustelus (Linnaeus, 1758)	(68)	6,7,8,9,10,11,12,21,22
Mustelus punctulatus Risso, 1827	(19)	9,10,17
Sphyrna zygaena (Linnaeus, 1758)	(3)	9,16
Etmopterus spinax (Linnaeus, 1758)	(97)	9,17
Oxynotus centrina (Linnaeus, 1758)	(6)	6,9,17
Dalatias licha (Bonnaterre, 1788)	(8)	6,9,17
Centrophorus granulosus (Bloch & Schneider, 1801)	(6)	6,9,18
Centrophorus uyato (Rafinesque, 1810)	(4)	6,7,15,16
Squalus acanthias Linnaeus, 1758	(540)	1,2,3,4,5,7,9,10,12,18,22
Squalus blainvillei (Risso, 1827)	(64)	3,4,9,10,17
Squatina aculeata Cuvier (ex Duméril), 1829	(1)	20
Squatina oculata Bonaparte, 1840	(3)	9,16,23
Squatina squatina (Linnaeus, 1758)	(51)	4,9,10,14,15,20,22
Rhinobatos rhinobatos (Linnaeus, 1758)	(4)	9,13,20,23
Torpedo (Tetronarce) nobiliana Bonaparte, 1835	(9)	7,9,10,12,18
Torpedo (Torpedo) marmorata Risso, 1810	(54)	7,9,10,11,20,23
Torpedo (Torpedo) torpedo (Linnaeus, 1758)	(2)	8,10,14,21
Dipturus batis (Linnaeus, 1758)	(9)	9,10,15,17
Dipturus oxyrinchus (Linnaeus, 1758)	(84)	6,9,14,20
Leucoraja naevus (Müller & Henle, 1841)	(9)	9,10
Raja asterias Delaroche, 1809	(65)	9,10,16
Raja clavata Linnaeus, 1758	(850)	1,2,3,4,5,6,7,8,9,10,14,18,22
Raja miraletus Linnaeus, 1758	(156)	9,10,15
Raja montagui Fowler, 1910	(6)	9,10,13,18
Raja polystigma Regan, 1923	(2)	10
Raja radula Delaroche, 1809	(96)	6,9,10,14,19
Raja undulata Lacepède, 1802	(3)	9,10,15
Rostroraja alba (Lacepède, 1803)	(2)	9,10
Dasyatis pastinaca (Linnaeus, 1758)	(175)	2,5,6,8,9,10,16,22
Dasyatis tortonesei Capapé, 1977	(6)	15,17
Gymnura altavela (Linnaeus, 1758)	(9)	9,23
Myliobatis aquila (Linnaeus, 1758)	(43)	8,9,10,15,18,19
Pteromylaeus bovinus (Geoffroy Saint-Hilaire, 1817)	(36)	9,10,15,20,22
Rhinoptera marginata (Geoffroy Saint-Hilaire, 1817)	(8)	9,14,23
Mobula mobular (Bonnaterre, 1788)	(2)	9,10,18,19

Tab. 2: List of the sharks recorded from the seas of Turkey up to date (list also includes the questionable species): (A) species examined during the present study; (B) species cited by other researchers but not examined during the present study; (C) questionable species; (*) denotes the presence and (–) the absence of species; (?) also denotes the questionable species; (+) previous recordings of the species; (Cos.) cosmopolitan; (Atl.M.) Atlanto-Mediterranean; and (Ind.P.) Indo-Pacific.

Tab. 2: Seznam morskih psov do zdaj ugotovljenih v turških morjih (vključuje tudi vprašljive vrste): (A) vrste, pregledane med pričujočo študijo; (B) vrste, ki jih navajajo drugi avtorji, a niso bile raziskane med pričujočo študijo; (C) vprašljive vrste; (*) označuje pojavljanje in (–) odsotnost vrst v območju; (?) ponazarja tudi vprašljive vrste; (+) prejšnji zapisi o vrstah; (Cos.) kozmopolitska vrsta; (Atl.M.) atlantsko-mediteranska vrsta; in (Ind.P.) indo-pacifiška vrsta.

SPECIES	MEDITERRANEAN SEA	AEGEAN SEA	SEA OF MARMARA	BLACK SEA	Devedjian, 1926	Erazi, 1942	Slastenenko, 1955-56	Akşiray, 1987	Bauchot, 1987	Beni *et al.*, 1993	Kocataş *et al.*, 1993	Meriç, 1995	Mater and Meriç, 1996	Okuş *et al.*, 1996	Uysal *et al.*, 1996	Kideyş, 1997 (in Başusta *et al.*, 1998a)	Başusta *et al.*, 1998a	Kabasakal, 1998a	Kabasakal, 1998b	Kabasakal & Ünsal, 1999	Classification & Zoogeographic Characterization
Heptranchias perlo	*	*	–	–				+	+				+								B/Cos.
Hexanchus griseus	*	*	*	–	+			+	+			+	+					+			AB/Cos.
Odontaspis ferox	*	*	–	–					+				+								B/Cos.
Carcharias taurus	?	?	–	–					+												C/Cos.
Carcharodon carcharias	*	*	?	–	+			+	+				+								AB/Cos.
Isurus oxyrinchus	*	*	–	–				+	+				+								AB/Cos.
Lamna nasus	*	*	*	–	+			+	+				+								B/Cos.
Cetorhinus maximus	*	*	–	–				+	+				+			+					AB/Cos.
Alopias vulpinus	*	*	*	*	+	+		+	+		+		+						+		AB/Cos.
Galeus melastomus	*	*	*	–				+	+		+	+	+		+						AB/Atl.M.
Scyliorhinus canicula	*	*	*	*	+	+	+	+	+		+	+	+	+			+				AB/Atl.M.
Scyliorhinus stellaris	*	*	*	–				+	+		+	+	+								AB/Atl.M.
Carcharhinus brevipinna	*	*	–	–				+	+				+								AB/Cos.
Carcharhinus melanopterus	*	–	–	–				+	+				+								B/Ind.P.
Carcharhinus plumbeus	*	*	–	–				+	+				+				+				AB/Cos.
Carcharhinus altimus	*	–	–	–													+				B/Ind.P.
Carcharhinus limbatus	?	–	–	–					+												C/Cos.
Carcharhinus longimanus	?	–	–	–				+													C/Cos.
Carcharhinus obscurus	?	–	–	–				+													C/Cos.
Prionace glauca	*	*	–	–	+			+	+				+								AB/Cos.
Galeorhinus galeus	*	*	–	–				+	+				+								AB/Cos.
Mustelus asterias	*	*	*	–				+	+			+	+								ABAtl.M.
Mustelus mustelus	*	*	*	–	+	+		+	+		+	+	+	+			+				AB/Atl.M
Mustelus punctulatus	*	*	–	–				+	+				+								ABAtl.M.
Sphyrna lewini	?	–	–	–				+													C/Cos.
Sphyrna tudes	?	–	–	–				+													C/Atl.M.
Sphyrna zygaena	*	*	–	–				+	+				+								AB/Cos.
Echinorhinus brucus	?	?	–	–				+	+												C/Cos.
Etmopterus spinax	*	*	–	–				+	+				+							+	AB/Atl.M.
Somniosus rostratus	?	?	–	–				+													C/Atl.M.
Oxynotus centrina	*	*	*	–		+		+	+				+				+				AB/Atl.M.
Dalatias licha	*	*	*	–				+	+			+									AB/Cos.
Centrophorus granulosus	*	*	*	–				+	+	+		+	+								AB/Atl.M.
Centrophorus uyato	*	*	*	–				+				+									AB/Atl.M.
Squalus acanthias	*	*	*	*	+	+	+	+	+		+	+	+								AB/Cos.
Squalus blainvillei	*	*	*	*		+	+	+	+		+	+	+	+							AB/Cos.
Squatina aculeata	*	–	–	–																	A/Atl.M.
Squatina oculata	*	*	–	–				+	+				+								AB/Atl.M.
Squatina squatina	*	*	*	*	+	+		+	+		+		+								AB/Atl.M.

Tab. 3: List of rays and skates recorded in the seas of Turkey up to date (list also includes the questionable species): A) species examined in the present study; (B) species cited by other researchers but not examined in the present study; (C) questionable species; (*) denotes the presence and (–) the absence of species; (?) also denotes the questionable species; (+) previous recordings of the species; (Cos.) cosmopolitan; (Atl.M.) Atlanto-Mediterranean; and (Ind.P.) Indo-Pacific.

Tab. 3: Seznam skatov do zdaj ugotovljenih v turških morjih (vključuje tudi vprašljive vrste): (A) vrste, pregledane med pričujočo študijo; (B) vrste, ki jih navajajo drugi avtorji, a niso bile raziskane med pričujočo študijo; (C) vprašljive vrste; (*) označuje pojavljanje in (–) odsotnost vrst v območju; (?) ponazarja tudi vprašljive vrste; (+) prejšnji zapisi o vrstah; (Cos.) kozmopolitska vrsta; (Atl.M.) atlantsko-mediteranska vrsta; in (Ind.P.) indo-pacifiška vrsta.

SPECIES	MEDITERRANEAN SEA	AEGEAN SEA	SEA OF MARMARA	BLACK SEA	Devedjian, 1926	Erazi, 1942	Slastenenko, 1955-56	Kutaygil & Bilecik, 1979	Akşiray, 1987	Bauchot, 1987	Kocataş *et al.*, 1993	Kabasakal, 1995	Mater & Meriç, 1996	Okuş *et al.*, 1996	Uysal *et al.*, 1996	Başusta *et al.*, 1998a	Başusta *et al.*, 1998b	Kabasakal, 1998c	Classification & Zoogeographic Characterization
Pristis pectinata	?	–	–	–					+										C/Atl.M.
Pristis pristis	?	–	–	–					+										C/Atl.M.
Rhinobatos cemiculus	*	*	–	–					+	+			+						B/Atl.M.
Rhinobatos rhinobatos	*	*	–	–					+	+			+			+			AB/Atl.M.
Torpedo (Tetronarce) nobiliana	*	*	*	–						+			+			+			AB/Atl.M.
Torpedo (Torpedo) marmorata	*	*	*	–	+					+			+			+			AB/Atl.M.
Torpedo (Torpedo) torpedo	*	*	*	–						+			+						AB/Atl.M.
Dipturus batis	*	*	–	–	+								+						AB/Atl.M.
Dipturus oxyrinchus	*	*	*	–						+	+		+		+				AB
Leucoraja fullonica	–	*	–	–									+						B/Atl.M.
Leucoraja naevus	*	*	–	–						+			+		+				AB/Atl.M.
Raja asterias	*	*	*	–						+			+			+			AB/Atl.M.
Raja clavata	*	*	*	*	+	+	+	+		+	+	+	+	+		+			AB/Cos.
Raja miraletus	*	*	*	–						+			+			+			AB/Cos.
Raja montagui	*	*	*	–									+						AB/Atl.M.
Raja polystigma	–	*	–	–									+					+	AB/E.
Raja radula	*	*	*	–						+		+	+			+			AB/Atl.M.
Raja undulata	*	*	–	–						+			+						AB/Atl.M.
Rostroraja alba	–	*	–	–									+						AB/Atl.M.
Dasyatis centroura	*	*	–	–						+			+			+			B/Atl.M.
Dasyatis pastinaca	*	*	*	*		+	+			+	+		+	+		+			AB/Atl.M.
Dasyatis tortonesei	*	*	–	–									+						AB/E.
Dasyatis violacea	–	*	–	–									+						B/Cos.
Himantura uarnak	*	–	–	–									+				+		B/Ind.P.
Taeniura grabata	*	–	–	–												+	+		B/Ind.P.
Gymnura altavela	*	*	*	*						+			+			+			AB/Atl.M.
Myliobatis aquila	*	*	*	–	+	+				+	+		+	+					AB/Atl.M.
Pteromylaeus bovinus	*	*	–	–						+			+			+			AB/Atl.M.
Rhinoptera marginata	*	*	–	–						+			+			+			AB/Atl.M.
Mobula mobular	*	*	–	–						+			+						AB/Atl.M.

presence of pelagic sharks in this sea has always been considered a point of discussion. The earliest records of pelagic sharks from the Sea of Marmara have been reported by Devedjian (1926). He stated that *Carcharodon carcharias* (= *Carcharodon Rondeletii* in Devedjian), *Lamna nasus* (= *Lamna cornubica)* and *Alopias vulpinus* (= *Alopias vulpes)* occurred in the Sea of Marmara and that these sharks seldom landed at the Istanbul Fish Market as by-catches. Among these pelagic sharks, occurrence of *Alopias vulpinus* in the Sea of Marmara has been well documented (Erazi, 1942; Kocataş *et al.*, 1993), as well as a juvenile male thresher shark (190 cm TL) caught in this sea on April 12th 1997 and examined during the present study. On the other hand, *Lamna nasus* has been recorded in the Sea of Marmara by Akşıray (1987), Bauchot (1987) and Mater & Meriç (1996), although the most recent record of the porbeagle shark is probably based on the former two recordings. Furthermore, no specimens of this shark was captured during the present study. Devedjian (1926) recorded the great white shark in the Sea of Marmara, and more recently, Fergusson (1996) reported 3 records of the great white shark in the Bosporus. Further research is therefore required for confirm the presence of Lamnoid sharks in this sea.

The Black Sea has a very poor chondrichthyan fauna and only 8 species were recorded during the present study. Pelagic sharks, following the schools of pelagic teleosts, rarely enter the Black Sea (Kabasakal, 1998b). The high hydrogen sulphide concentration prevailing below 150 to 200 m in the Black Sea is an important factor preventing the dispersal of fishes in the deep zones of this sea (Kutaygil & Bilecik, 1976). In the Sea of Marmara, some of the elasmobranch species, *H. griseus, G. melastomus, C. granulosus, C. uyato, D. licha, O. centrina* and *Isurus oxyrinchus*, have also been recorded on bathyal grounds (Benli *et al.*, 1993; Meriç, 1995; Uysal *et al.*, 1996; Kabasakal, 1998a). Due to above reason, it is very clear that in the Black Sea a similar bathymetric distribution of fishes is not possible.

Although the present study presents the most extensive research on shark and ray species from the seas of Turkey up to date, the list given here is far from complete, but it is hoped that it may soon increase with new records of elasmobranchs occurring in the Turkish seas.

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MORSKI PSI IN SKATI (ELASMOBRANCHII) TURŠKIH MORIJ

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POVZETEK

Pričujoča študija je bila izdelana z namenom zagotoviti nove podatke o trenutnem statusu morskih psov in skatov, pojavljajočih se v turških morjih. Avtor je med letoma 1995 in 1999 obiskal 23 ribiških pristanišč vzdolž turške obale, da bi zbral ali preučil ujete primerke iz podrazreda Elasmobranchii. S terenskimi raziskavami in pregledom obstajajoče literature je ugotovil, da v turških morjih živi ali se pojavlja 69 vrst morskih psov in skatov iz 21 različnih družin. Deset od 69 vrst je še vedno vprašljivih in jih je treba še potrditi. Zoogeografsko je 34 (20,06%) od 59 potrjenih vrst atlantsko-mediteranskega, 19 (11,21%) kozmopolitskega in 4 (2,36%) indo-pacifiškega izvora, medtem ko sta 2 vrsti (1,8%) mediteranska endemita. Vseh 59 potrjenih vrst se pojavlja v Sredozemskem in Egejskem morju, 27 vrst v Marmarskem in 8 v Črnem morju.

Ključne besede: turška morja, hrustančnice, razširjenost, popis vrst

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