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NOTE ON A JUVENILE COMMON THRESHER SHARK *Alopias vulpinus* (Bonnaterre 1788) IN THE WATERS OF SLOVENIA (NORTHERN ADRIATIC SEA)

Lovrenc Lipej, Leon L. Zamuda*, Borut Mavrič

Marine Biology Station Piran, National Institute of Biology, Fornače 41, Slovenia

*Corresponding Author: leon.lojze.zamuda@nib.si

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ABSTRACT

A specimen of common thresher shark *Alopias vulpinus* (Bonnaterre 1788) was caught in a fishing net in the waters off Piran (Gulf of Trieste, northern Adriatic Sea). It was a juvenile male with a total length of 2841 mm. In recent decades, other cases of juvenile specimens of common thresher shark have been recorded in Slovenian coastal waters. Despite the drastic decline in the population of this species, thresher shark continues to be caught in local Adriatic fisheries.

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INTRODUCTION

Thresher shark of the family Alopiidae includes three species of large epipelagic sharks represented by a single genus (*Alopias*). Common thresher shark *Alopias vulpinus* (Bonnaterre 1788) is a large epipelagic neritic and oceanic shark that lives in the warm and temperate waters of the Atlantic, Pacific, Indian and Mediterranean Oceans (Compagno, 2001). In the Mediterranean Sea, it seems to be more common in its western part (Capapé, 1989). In the Adriatic Sea, it has been reported in all parts (e.g. Tortonese, 1956; Bini, 1967; Costantini, 1997; Dulčić and Lipej, 2002; Cugini and De Maddalena, 2003; Lipej et al., 2004; Jardas et al., 2008; Lipej et al., 2020). Common thresher shark feeds primarily on schools of small epipelagic fish. It is an aplacental viviparous species that mates (Gubanov, 1978; Gervelis and Natanson, 2013) in summer and bears young in spring after a gestation period of 9 months (Smith et al., 2008). Common thresher shark is a long-lived species with a life expectancy of up to 45-50 years (Moreno et al., 1989). Its meat is highly valuable for human consumption throughout the world. Common thresher shark is especially vulnerable to overfishing due to its slow growth, late sexual maturity, long gestation period, and small litter size (Cailliet and Bedford, 1983). Common thresher shark has declined sharply throughout the Mediterranean in recent decades (Barausse et al., 2014; Finotto et al., 2016).

The aim of this paper is to present morphometric data and ecological information on the common thresher shark specimen caught in Slovenian waters.

METHODS

On 13 October 2022, a local fisherman caught a large shark in the waters off Strunjan (Slovenia) over a muddy bottom at a depth of about 20 m. The specimen was brought to the port of Piran where it was measured according to the recommendations of Compagno (2001). In addition, the specimen was examined for the possible presence of ectoparasites. Unfortunately, it was not possible to weigh the specimen. Afterwards, the specimen was photographed in the port before being delivered to the local fish market.

RESULTS AND DISCUSSION

The specimen was a juvenile male of common thresher shark with a total length (TL) of 2841 mm (Figure 1). It was identified by its enormous scythe-like tail which was approximately half of its total length. Measurements taken after delivery to the port of Piran are shown in Table 1. Considering the percentage of total length, most of the measured parameters are consistent with the morphometric data published by Moreno (1991) and Barrull and Mate (2002).

Fig 1. Specimen of common thresher shark *Alopias vulpinus* caught on 13 October 2022 in the waters off Piran (Gulf of Trieste): close up of the head (above), whole specimen (below) (photos by Leon L. Zamuda)

Thresher shark size at birth ranges from 114 to 156 cm in total length (Moreno et al., 1989; Compagno, 2001). According to Smith et al. (2008), size at sexual maturity in the Pacific Ocean is estimated to exceed 166 cm fork length for both sexes. Natanson and Gervelis (2013) mentioned that males mature at a fork length of 181-198 cm, while Natanson et al. (2016) reported the age at sexual maturity as 14 years for females and 8 years for males. Since our specimen had a total length of 284 cm and a fork length of about 150 cm, we can speculate that it is an immature male probably younger than 8 years.

Nowadays, many once widespread shark species have become rare. This is also true for thresher shark which used to be a regularly occurring species in the northern Adriatic Sea (Lipej et al., 2004). At present, the species is considered rare in the northern Adriatic (*sensu* Finotto et al., 2016) and in Slovenian marine waters, with occurrence mainly concentrated in the summer period. So far, at least twelve documented detections are known for Slovenia, nine of which were caught in August and September (Lipej et al., 2020). Some specimens were juveniles (Table 2).

Table 1. Morphometric measures (also expressed as a proportion of total length) of juvenile common thresher shark caught in waters off Strunjan on 13 October 2022

Parameter	Abbreviation	Size (mm)	%TL
Total length		2481	100.00
Preorbital length	POB	89	3.59
Preoral length	POR	100	4.03
Prepectoral length	PP1	471.86	19.02
Prepelvic length	PP2	717.97	28.94
Preanal length	PAL	1029.55	41.50
Precaudal length	PCL	1420	57.23
Pectoral fin anterior margin	P1A	400	16.12
Pectoral fin posterior margin	P1P	350	14.11
Pectoral fin base	P1B	220	8.87
First dorsal fin anterior margin	D1A	200	8.06
First dorsal fin posterior margin	D1P	193	7.78
First dorsal fin base	D1B	177	7.13
Second dorsal fin anterior margin	D2A	24	0.97
Second dorsal fin posterior margin	D2P	39	1.57
Second dorsal fin base	D2B	53	2.14
Pelvic fin anterior margin	P2A	173	6.97
Pelvic fin posterior margin	P2P	170	6.85
Pelvic fin base	P2B	128	5.16
Anal fin anterior margin	ANA	28	1.13
Anal fin posterior margin	ANP	37	1.49
Anal fin base	ANB	43	1.73
Preventral caudal fin margin	CPV	170	6.85
Lower postventral caudal fin margin	CPL	132	5.32
Dorsal caudal fin margin	CDM	1421	57.28
Upper postventral caudal fin margin	CPU	1410	56.83
Terminal caudal fin margin	CTR	112	4.51
Eye length	EYL	28	1.13
Eye width	EYH	19	0.77
First gill slit length	GS1	54.51	2.20
Fifth gill slit length	GS5	51.86	2.09
Intergill length	ING	122.98	4.96
Prenarial length	PRN	63.09	2.54
Interdorsal space	IDS	311.99	12.58
Dorsal caudal fin space	DCS	112.26	4.52

Table 2. Juvenile and immature sharks collected in recent years in waters off Slovenia

Date	Locus	TL (cm)	Weight (kg)	Source
18 Aug 2015	Slovenian waters	150	6.5	Lipej et al. (2020)
10 Aug 2020	Cape Ronek, Izola	186	30	Lipej et al. (2020)
24 Aug 2020	3 Nm off Izola	187	30	Lipej et al. (2020)
13 Oct 2022	Strunjan	284	?	This study

The first juvenile caught on 18 August 2015 was 150 cm long, the second specimen caught on 10 August 2020 was 186 cm long, and the third specimen caught on 24 August 2020 was 187 cm long. The northern Adriatic Sea is considered a nursery area for common thresher sharks. In fact, Finotto et al. (2016) pointed out that the vast majority, nearly 90%, of all common thresher sharks caught were juveniles. According to Hattour and Nakamura (2004), neonate thresher sharks were targeted in the Tunisian small-scale fishery. Constantini (1997) mentions a case of a 430 cm long female with four 17-18.5 cm long embryos and numerous eggs from the central Adriatic.

According to Hemida et al. (2022), thresher sharks have been caught relatively rarely on the Algerian coast since 2002. The same is true for the Adriatic Sea. In a comprehensive study of thresher sharks in the northern Adriatic Sea based on landing data, Finotto et al. (2016) indicated that the main cause of the decline of common thresher sharks is their mortality in commercial target and by-catch fisheries. According to Barause et al. (2014), thresher sharks in the western part of the northern Adriatic were already depleted before 1945. Thresher shark has many biological characteristics that make it biologically vulnerable to fishing. Because of slow development and growth, small numbers of juveniles, and late sexual maturity, thresher sharks are vulnerable to overfishing (Rigby et al., 2019). Recovery from depletion generally takes many decades (Erguden et al., 2022).

Although stocks are depleted and common thresher shark is listed as vulnerable in the IUCN Red List (Rigby et al., 2019), it continues to be exploited by local Adriatic fisheries. As suggested by Finotto et al. (2016), an action plan incorporating the release of immature and especially newborn specimens should be developed and implemented. This action plan should be realised even though the survival rate of thresher sharks caught and released in Southern California is only 26% (Heberer et al., 2010).

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BILJEŠKA O POJAVNOSTI JUVENILNOG MORSKOG PSA LISICE *Alopias vulpinus* (Bonnaterre 1788) U VODAMA SLOVENIJE (SJEVERNI JADRAN)

SAŽETAK

U ribarskoj mreži u Piranskom akvatoriju (Tršćanski zaljev, sjeverni Jadran) ulovljen je primjerak morskog psa lisice *Alopias vulpinus* (Bonnaterre, 1788). Radilo se o mladom mužjaku ukupne dužine 2841 mm. Posljednjih desetljeća u slovenskim su obalnim vodama uhvaćeni i drugi primjerci juvenilnog morskog psa lisice. Unatoč drastičnom padu populacije ove vrste, morski pas lisica i dalje se lovi u lokalnim jadranskim vodama.

Ključne riječi: morski pas lisica, morfometrija, zapis, Tršćanski zaljev

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