



## -RESEARCH ARTICLE-

### The New Maximum Length of the Invasive Lessepsian Fish, Bluespotted Cornetfish *Fistularia commersonii* (Syngnathiformes:Fistulariidae) in the Eastern Mediterranean Sea

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#### Abstract

Fourty-two fishes of the *Fistularia commersonii* species were caught with trawl hauls in İskenderun Bay on 21<sup>st</sup> December, 2017. One of the fish caught during the investigation was a female with 116.5 cm long in total length, 1291.88 g. in total weight. These measurements make *F. commersonii* the largest fish to have been collected in the Eastern Mediterranean Sea, so far.

#### Keywords:

*Fistularia commersonii*, maximum length, Iskenderun Bay

#### Article history:

Received 05 September 2019, Accepted 27 December 2019, Available online 30 December 2019

#### Introduction

The opening of the Suez Canal in 1869 started a process of invasion from the Red Sea into the Mediterranean. Migrating individuals were termed Lessepsian immigrants, after the Canal engineer Ferdinand de Lesseps. Lessepsian migration (movement from Red Sea biota into the Mediterranean by way of the Suez Canal), represents the major pathway of invasion for the Mediterranean Sea (Galil, 2008; Bariche et al., 2013). Currently, more than 85 species of Lessepsian fishes have been recorded in Mediterranean waters, and the list is constantly increasing (Bariche, 2011; Edelist et al., 2011; Salameh et al., 2011; Fricke et al. 2012), have probably displaced several native taxa (Golani 2010). *Fistularia commersonii* Ruppell, 1838, has been reported from Red Sea and East Africa to Rapa and Easter Island, north to southern Japan, south to Australia and New Zealand (Paulin et al., 1989), Eastern Central Pacific: Mexico to Panama, including offshore islands (Fritzsche et al., 1995), from Adriatic to Turkish Seas ((Whitehead et al., 1986-1987).. The bluespotted cornetfish, was first recorded in the Mediterranean Sea off the coast of Israel (Golani, 2000). after that, its population rapidly expanded over the basin (Bilecenoglu et al., 2002; Pipitone

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et al., 2004; Garibaldi & Orsi -Relini, 2008; Azzurro et al., 2012) that it was nicknamed the “Lessepsian sprinter” (Karachle et al., 2004). *F. commersonii* inhabits sandy bottoms adjacent to reef areas (Watson & Sandcop, 1996). According to the Mediterranean records, *F. commersonii* is an Indo-Pacific (including Red Sea) reef-associated fish, occurs in many different habitats, ranging from rocky bottoms and reefs to muddy and sandy ones to seagrass meadows (Azzurro et al., 2004; Pais et al., 2007; Garibaldi & Orsi-Relini 2008; Kara & Oudjane 2009; Psomadakis et al. 2009) and it has minor commercial importance (Froese et al., 2011; Froese & Pauly, 2012; Froese, & Pauly, 2019). The species is carnivorous and feeds on small fishes, crustaceans (squids and shrimps) (Golani, 2000) and squids (Myers, 1999). Since *F. commersonii* is relatively large and elongated, a morphology unlike any other fish in the Mediterranean and a shallow water species, it is very likely that they were identified a very short time after their arrival. The further findings were recorded in the Aegean Sea (Rhodes Island) (Corsini et al., 2002), Mediterranean (Italian Waters and French Coasts) (Fiorentino et al., 2004; Occhipinti-Ambrogi et al., 2010; Bodilis et al. 2011), from Libya (Elbaraasi & Elsalini, 2009) and from the Anatolian Coasts (Bilecenoglu et al., 2002; Türker Çakır et al., 2014).

Maximum length is important theoretical parameter used in stock assessments of fishes. Maximum length and age are important theoretical parameters in fisheries science. Therefore, updating information about the maximum size of a species might be important for commercially or recreationally exploited stocks in the future (Dulcic and Soldo, 2005). The maximum observed length is a use tool for a rapid evaluation of growth rates in the absence of basic data [Froese, 2003; Froese & Pauly, 2006, 2010, 2012, 2019; Froese et al., 2011).

In this work, we report the maximum size of bluespotted cornetfish from the central Mediterranean.

This study presents maximum length and some body measurements of *Fistularia commersoni* from the Eastern Mediterranean.

## Material and Methods

Fourty-two *F.commersonii* individuals were caught as by-catch, using trawl hauls at 40–60 m depths in Samandağ district of İskenderun Bay on December 21<sup>st</sup>, 2017 (**36° 1' 34.8528" N ve 35° 59' 13.3908"E**) to sample the invasive demersal fish species in the Mediterranean Sea (Figure 1). The specimen was measured to the nearest centimetre and weighed to the nearest gram. The specimen was fixed in 96% alcohol, deposited in the Balikesir University Faculty of Science and Arts, section of Hydrobiology collection. Fish species were identified according to Whitehead et al. (1986) and Turan et al. (2007) and checked with FishBase (Froese and Pauly, 2011).The sex was determined (Avşar, 2005) and the main biometric measurements and meristic characters are given.



Figure 1. *Fistularia commersonii* (Original photo)

## Results

The captured smallest bluespotted cornetfish (11.56 g) was of 31.8 cm long, whereas the largest female individual (1291.88 g) was 116.5 cm long in TL. Vertically flattened rather than laterally compressed body. Long whiplike tail filament. Color is green dorsally, grading to silvery white ventrally, with two blue stripes or rows of blue spots on the back. Dorsal and anal fin orange becoming transparent at base. Caudal filament white. Broadly banded at night (Kuitert & Tonzuka, 2001)( Reference: 48435 in [www.fishbase.org](http://www.fishbase.org)). Morphometric measurements and counts of the sampled individual are given in Table 1.

Table 1. Morphometric measurements and counts of female *Fistularia commersonii* from Iskenderun Bay

Sex	Female
Total Length	116.50
Weight	1291.88
Standard Length	109.0
Fork Length	114.5
Head length	38.0
Horizontal eye diameter	2.8
Vertical eye diameter	1.4
Interorbital distance	3.2
Snout length	28.0
Predorsal fin distance	90.5
Dorsal fin base	6.7
Prepelvic fin distance	54.0
Pelvic fin base	2.7
Preanal fin distance	90.5
Anal fin base	6.2
Caudal filament length	20.0
Prepectoral fin distance	40.0
Pectoral fin base	4.4

The relevant studies on the maximum length and weight values of *Fistularia commersonii* in the Mediterranean Sea and the other seas are given in Table 2.

Table 2. The maximum lengths and weight values of *Fistularia commersonii* in various regions of the Mediterranean Sea and the other Seas.

References	Maximum length (cm)	Length	Sex	Maximum weight (g)	Locality
Golani (2000)	51.6	SL		82.5	Mediterranean S.
Bilecenoglu et al. (2002)	72.8	SL			Antalya Bay
Gökoglu et al. (2002)	77.5	TL		350.0	Antalya Bay
Gökoglu et al. (2002)	64.0	TL		180.0	Gökova Bay
Corsini et al. (2002)	73.4	SL		-	Rhodes Island
Karachle et al. (2004)	92.0	TL	-	448.1	North Aegean Sea
Ben Soussia et al. (2004)	98.7	SL	-		Gabes Gulf
Fiorentino et. al (2004)	90.4	TL	-	345.0	Strait of Sicily
Dalyan (2006)	64.8	TL	-	-	Iskenderun Bay
Gülyavuz et al.(2006)	77.0	TL	-	350.0	Antalya Bay
Joksimovic et al.2008	71.5				Montenegrin Coast
Dulcic et al. (2008)	115.0	TL	-	1210	Adriatic Sea
Somadikis et al.(2008)	84.7	-	-	-	Italy
Bariche et al. (2009)	112.0	TL	-	-	Lebanon
Kara & Oudjane (2009)	86.3	TL		405.0	Algerian Coast
Psomadakis et. al (2009)	101.3	TL	-	-	Aegean Sea
Deidun & Germanà (2011)	102	TL	-	450.0	Maltese Waters
Bodilis et al.(2011)	100	TL	-	-	French Coast
Ergüden et al. (2011)	98.20	TL	-	65.0	
Bariche & Kajajian (2012)	100.0	TL		-	Mediterranean S.
Bariche et al. (2013)	113.0	TL	F	-	Mediterranean S.
Bariche et al. (2013)	113.0	TL	M	-	Mediterranean S.
Meloni & Piras (2013)	90.0	TL.	M	170.0	Sardinia (Italy)
Edelist (2014)	99.5	TL	-	926.0	Israel
Castriosa et al. (2014)	107.5	TL	-	-	Mediterranean S.
Türker-Çakır et al. (2014)	53.9	-	-	68.8	Edremit Bay
Mouine-Oueslatia et al. (2017)	80.	TL	-	930.2	Gulf of Tunis
Bănaru & Harmelin-Vivien (2018)	99.0	TL	F	347.2	Bay of Marseille
This study	116.5	TL	F	1291.88	Iskenderun Bay

Upon evaluating the maximum lengths reported for the bluespotted cornetfish all over the world in Table 2, it was determined that the individual obtained in this study is the largest individual in length and weight in Mediterranean Sea. The results in the study are harmony with one of studies which was conducted in Adriatic Sea. If an individual does not face to face any fishing pressure, it reaches maximum length ((Filiz, 2011; Cengiz, 2018b; Cengiz et al., 2019). İlave Any factor that might possibly influence growth might show to have an effect on fishes, such as temperature, food

availability, light, oxygen, salinity, predator density, intra-specific interactions and genetics (Wootton, 1992; Helfman et al. 1999; Froese, 2006).

The bluespotted cornetfish presents a conspicuous external appearance and it was probably discovered a very short time after arrival to the new region. This species demonstrate a great capability to adapt to the to local hydro-climatic conditions, extending its range to the central and northern Tyrrhenian In Mediterranean enviroment and possibly further northward (Psomadikis et al. 2009). The spreading of *F. commersonii* over the whole Mediterranean Sea and the increasing of its abundance, especially in the eastern Mediterranean (Golani, 2010), indicate a successful colonization of this non indigenous species which will be easily becoming established in Mediterranean coastal waters.

In conclusion, an increase in the number of lessepsian fish species arriving in the Mediterranean is expected to continue in the future. Because of the global heating and no barriers for dispersals of Lessepsian fishes towards westward, the rate of lessepsian fish species entering the eastern Mediterranean is still increasing with time.

### Acknowledgment

The authors would like to thank Cafer Erenler and his crew for providing the valuable specimen and also Yunus Koyun for measurements of the specimen. This is presented in the International Next Generation Biometry Workshop and Course held on 04-06 October 2019 in İskenderun, Hatay, Turkey.

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