



SHORT COMMUNICATION

First report of *Symphodus melops* (Linnaeus, 1758) with maximum length in the Black Sea

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ABSTRACT

An individual of corkwing wrasse *Symphodus melops* (female) was captured by trammel nets on May 15, 2020, at 20 m depths from Ordu, the southern Black Sea coast. The total length and weight were measured as 320 mm and 520 g. The specimen was female with a gonad weight of 42 g and it was determined to be eight years old. This is the first record for the *S. melops* from the Black Sea. Its total length and weight were the maximum observed values for the species for the World. The paper is considered to contribute to fisheries biology and international scientific literature.

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Introduction

Labridae has 504 species in the world (Parenti and Randall, 2011), there are 20 species in the Turkey coast (Bilecenoğlu et al., 2014) and eight of them live in the Black Sea (Keskin, 2010). Corkwing wrasse (*Symphodus melops* Linnaeus, 1758) is a native species to the eastern Atlantic Ocean, the Adriatic Sea and in the Mediterranean Sea (Fischer et al., 1987) but not reported in the Black Sea coast. Corkwing wrasse lives in coastal waters at depths of 1 to 30 m, near the rocky substrate and seagrass beds (Muus and Nielsen, 1999). Corkwing wrasse feed with various benthic invertebrates and they reach the first

reproductive length of 7-10 cm (1 year-old) for female and 13-15 cm (2-3 years old) for males (Fischer et al., 1987). Coloration very variable, the ground color of the male is greenish or blue while females are brownish to yellowish (Muus and Nielsen, 1999). The maximum length has been reported as 28 cm (Quignard and Pras, 1986; Fischer et al., 1987).

In this study, the first record of *Symphodus melops* for the Black Sea region and the maximum length and weight has been reported.

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Material and Methods

One female specimen of corkwing wrasse (Figure 1) was caught by using a trammel net at a depth of 20 m on May 15, 2020 from Fatsa, Ordu (41°03'44.17"N, 37°30'40.00"E) the northern Black Sea (Figure 2). Total length (TL) and weight (W) were measured to the nearest 0.1 cm and 0.1 g, respectively. Gonad weights, egg counts, and diameters were also determined.

Meristic characters were measured with digital caliper the nearest 0.01 cm sensitivity. Sixteen metric measurements from *S. melops* were performed. Fifteen morphometric characters were evaluated as TL%. Regression analysis of differences body parts against TL of the fish was drawn by the least square method. Dependent and independent variables, TL and morphometric measurements were transformed using log 10.



Figure 1. *Symphodus melops* 320 mm total length and 520 g weight from the Black Sea

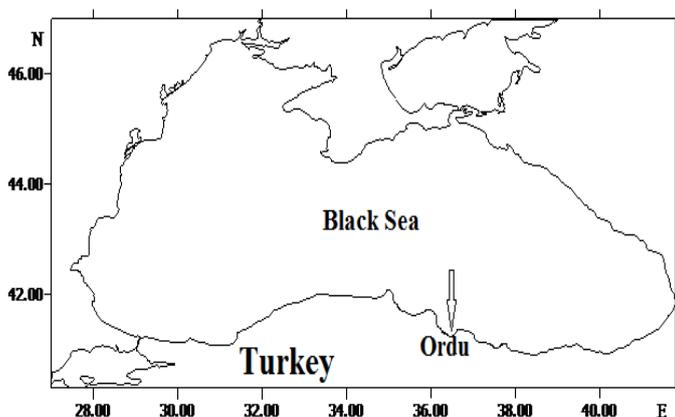


Figure 2. Sampling location from Ordu, Turkey

Results

The total length and weight of the sampled individual were 320 mm and 520 g, respectively. The morphometric properties of the *S. melops* were proportional to the total length. The smallest ratio was eye size (3.8 %), and the highest ratio was the standard length (89.1%). The body depth of the species is 33.8 % of the total length (Table 1).

The pectoral fin position is ahead of the location of the first dorsal and pelvic fin. Scales cycloid cover the entire body. The head length is about 27.8% of the total length (Table 1).

Seven meristic characters were examined. The lists of meristic characters used for the analysis of *S. melops* are presented in Table 2.

The swim bladder was measured 65 mm length and 36 mm diameter of *Symphodus melops* for a total length of 32 cm fish (Figure 3).

On the first gill arch has 14 on the upper part, 16 on lower gill raker (Figure 4).

Age determination was carried out by using the individual's vertebrae, and age of the specimen was determined to be 8 years (Figure 5).

The gonads of the sampled female individual were determined to have matured, and the total gonad weight was measured as 42 g. The number of eggs was 7526 /g (fecundity = 316092 eggs), and the average egg diameter was measured as $576.1 \mu\text{m} \pm 81.2$ (minimum: 314.3 – maximum: 679.44).

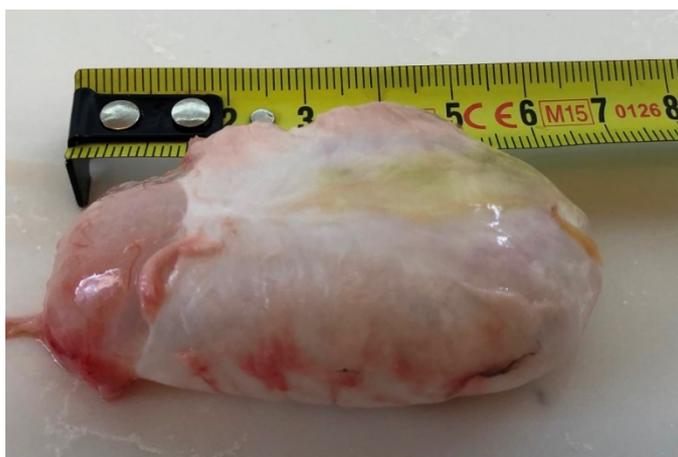


Figure 3. The swim bladder of *Symphodus melops*

Table 1. Some metric properties of *Symphodus melops*

Characters (mm)	Values	TL%
Total length	320	-
Standard length	285	89.1
Head length	89	27.8
Post-orbital distance	38	11.9
Eye diameter	12	3.8
Pre-dorsal distance	95	29.7
Length of dorsal fin basis	142	44.4
Pre-anal distance	177	55.3
Length of anal fin basis	67	20.9
Depth of anal fin	25	7.8
Max. body depth	108	33.8
Caudal peduncle minimal depth	42	13.1
Pectoral length	51	15.9
Pre pectoral length	82	25.6
Pelvic length	45	14.1
Pre pelvic length	106	33.1
Total weight (g)	520	-
Sex	Female	-
Gonad weight (g)	42	-

Table 2. Meristic features of *Symphodus melops*

Meristic features	Values
Dorsal fin	XV, 11
Pelvic fin	I, 5
Anal fin	III,10
Pectoral fin	14
Caudal fin	14
Gill rakers	14
Linea lateral	34



Figure 4. The first gill arch of *Symphodus melops*

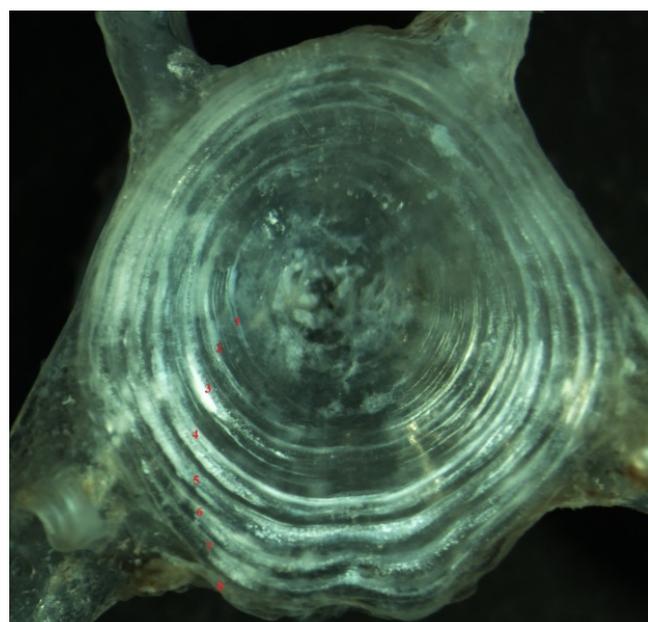


Figure 5. Cross-section of a vertebra of an eight years old *Symphodus melops* (32 cm TL) captured along the Fatsa region (southern Black Sea) on May 15, 2020

Discussion

The captured specimen of *S. melops* was 320 mm in total length and 520 g in total weight. Fischer et al. (1987) determined that this species is mostly in the range of 10-20 cm and the maximum length is 28 cm. Froese and Pauly (2020) are stated that the species can reach 28 cm standard length (Quignard and Pras, 1986; Froese and Pauly, 2020). The maximum total length for *S. melops*, is similar to other studies. This paper reports the largest individual so far registered in the world for *S. melops*. Fischer et al. (1987) reported 16 cm maximum length for *Symphodus (Crenilabrus) cinereus* which belongs to the same family and is very similar to *S. melops*.

Fischer et al. (1987) reported that there are 14-17 spine rays and 8-10 soft rays in the dorsal fin, three spine rays and 8-11 soft rays in the anal fin of the species. They also stated that there are 13-16 gill rakers on the first-gill arch and 31-37 cycloid structure scales on the lateral line. The meristic characters shared similarities with Fischer et al. (1987) findings. In addition, all descriptive characters are similar to Froese and Pauly (2020). The species presents sexual dimorphism with brownish females and larger, more colorful males (Quignard and Pras, 1986). The sampled female in the reproductive period in this study also has a more brownish color.

Labridae is one of the largest and most morphologically and ecologically diversified fish families in the world (Parenti and Randall, 2000; Hanel et al., 2002; Nelson, 2006; Tiralongo and Tirnetta, 2018). *S. melops* was reported by Bilecenoğlu et al. (2014) in the Aegean Sea. It is known that some species living in the Mediterranean in recent years have migrated through the Turkish Straits system and adapted to the Black Sea (Aydın and Sözer, 2016). It is known that 8 species are belonging to the same family in the Black Sea (Keskin, 2010). Therefore, *S. melops* which prefers similar ecological conditions, are likely to adapt to the Black Sea. The gonads of the sampled female individual were determined to have matured, and the total gonad weight was measured as 40 g. Considering these data, it can be said that the species spawned in the Black Sea. Torstensnes (2016) stated that the species was able to spawn at 12-18 °C between April and September, thus supporting the possibility of this species spawning in the Black Sea ecosystems. The females produce about 50000 eggs/per year (Darwall et al., 1992). In this study, the number of eggs was estimated as 316092 for this individual. Torstensnes (2016) reported the egg diameter as 0.75-0.8 mm for *S. melops*. In this study, the egg diameter was determined as 0.57 mm. This value is smaller than Torstensnes (2016).

Quignard and Pras (1986) reported a maximum age of 9 years while Sayer et al. (1996) reported 7 years. This article

reports the maximum age of the species as 8, similar to the previous two studies.

Conclusion

This is the first document for the presence of *S. melops* in the Black Sea. In addition, the largest (320 mm) and the heaviest (520 g) individuals were recorded in the world. The information presented here is considered to contribute to fisheries biology and international scientific literature.

Compliance with Ethical Standards

Conflict of Interest

The author declares that there is no conflict of interest.

Ethical Approval

This study was conducted in accordance with ethics committee procedures of animal experiments.

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