

The New Maximum Length of the Striped Sea Bream (*Lithognathus mormyrus* L., 1758) in the Black Sea Region

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ABSTRACT

Thirty-nine fish of the *Lithognathus mormyrus* species were caught on October 26, 2017 in Fatsa, Ordu with trammel nets set for the sampling of invasive demersal fish in the Black Sea. It was determined that one of the fish that was caught was 30 cm long, 336.39 g, and 7 years old. These measurements make *L. mormyrus* the largest fish to have been collected in the Black Sea.

Keywords: *Lithognathus mormyrus*, maximum length, Black Sea

INTRODUCTION

The striped sea bream (*Lithognathus mormyrus* Linnaeus, 1758) is a demersal fish species. The species is more prevalent in sandy and muddy areas (Bauchot and Hureau, 1986; Fischer et al., 1987; Smith and Smith, 1986). It is also widely abundant in the Aegean, Mediterranean, and Marmara Seas (Bilecenoğlu et al., 2014). The first individual of record on the Turkish shores of the Black Sea was taken in the province of Sinop by Satılmış et al. (2014), and the species was next recorded in Istanbul, Trabzon, Rize, and Artvin by Engin et al. (2015). The latest incidence was recorded by Aydın (2017) in the province of Ordu, and the author stated that it was found in a school. The striped sea bream was reported by Guchmanidze and Boltachev (2017) at the Georgian and Crimean shores of the Black Sea and at the Caucasus shores by Guskov (2017). The species is carnivorous and feeds in the benthic region. The striped sea bream shows hermaphroditic features; small individuals of the species have male characteristics, whereas femininity is dominant in individuals larger than 14 cm in length (Vasil'eva, 2007).

In this study, we report the maximum size for *L. mormyrus*, a species that has migrated from the Mediterranean and adapted to the Black Sea.

MATERIAL AND METHOD

The study was carried out on the Ordu shores of the Black Sea (Figure 1). Thirty-nine *L. mormyrus* individuals were caught in the Fatsa district on October 26th, 2017 by using trammel nets (300 m long with a mesh size of 44 mm) set at 5–10 m depths to sample the invasive demersal fish species in the Black Sea.

The smallest individual (59.69 g) was 16.5 cm long, whereas the largest individual (336.39 g) was 30 cm long (Figure 2).

Metric measurements conducted on the sampled individual are given in Figure 3.

The metric and meristic characteristics, measured according to Satılmış et al. (2014), of the male individual are given in Table 1.

The age of the sampled individual was determined from the vertebra of the individual, and it was determined to be 30 cm length and 7

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years old. Furthermore, the diameter of the vertebrae from which the age determination was made was measured to be 4478.2 microns (Figure 4).



Figure 1. Sampling area



Figure 2. *L.mormyrus* sampled from Black Sea Region

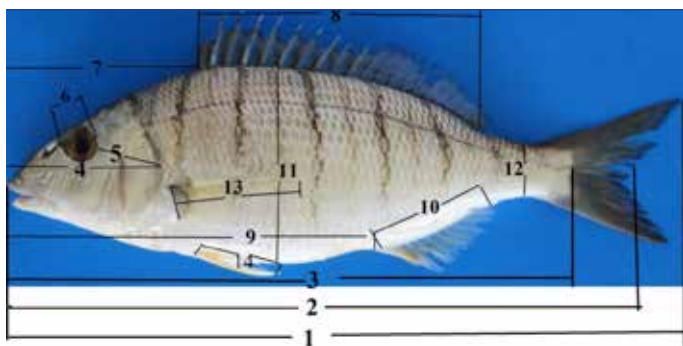


Figure 3. Overview of the morphometric measurements used in this study (1:Total length, 2:fork length, 3: standard length, 4: head length, 5: post orbital length, 6: eye diameter, 7: predorsal fin distance, 8: dorsal fin base length, 9: preanal fin distance, 10: anal fin base length, 11: body depth, 12: minimal caudal peduncle depth, 13: pectoral fin length, 14: pelvic fin length)

RESULTS AND DISCUSSION

The studies on the presence of *L. mormyrus* in the Black Sea Basin are given in Table 2.

Upon evaluating the maximum lengths reported for the striped sea bream in the Black Sea in Table 2, it was determined that the individual obtained in this study is the largest individual in length and weight to have been studied in the Black Sea Basin. Also, there are no age data in the studies conducted in the Black Sea. Pajuelo et al. (2002), in their study at the Canary Islands, reported that individuals 30 cm in length were 5 years old, while Kraljevic et al. (1996), in their study at the Northern Adriatic, reported that individuals of 30 cm length were 6 years old. Türkmen and Akyurt (2003), in their study at the Mediterranean Sea, reported that individuals of 27.7 cm length were 7 years old, and Emre et al. (2010), in their study also in the Mediterranean Sea, reported that individuals of 27.4 cm length were 4 years old. In this study, it was determined that the individual with a length of 30 cm in the Black Sea was 7 years old. According to this age value obtained in the Black Sea, it can be argued that growth in the Canary Islands and the Northern Adriatic Sea is faster. There is a difference in the results of studies conducted in similar regions in the Mediterranean Sea.

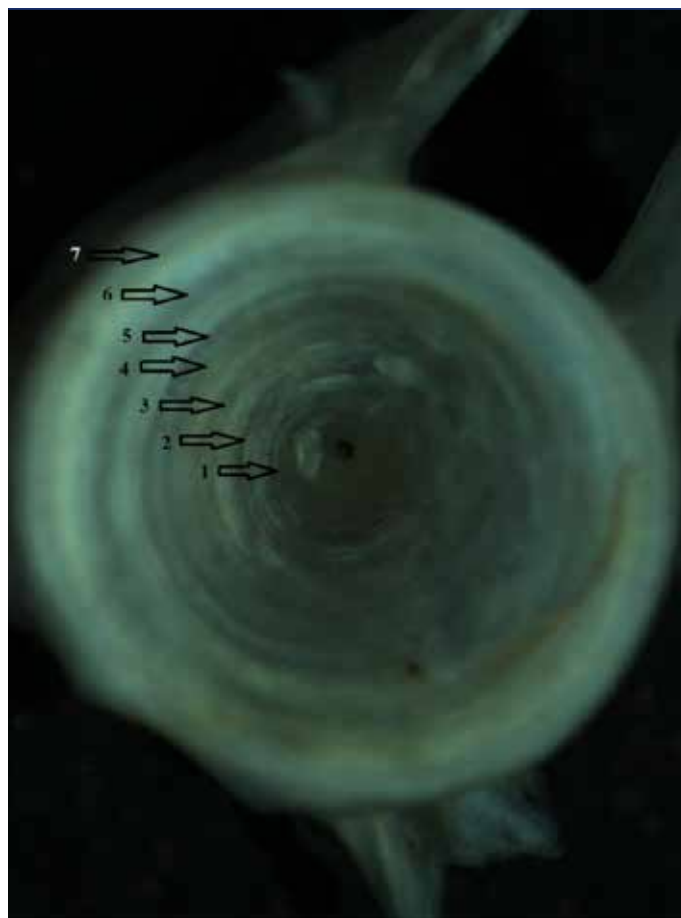


Figure 4. Vertebrae of *L. mormyrus* at 7 years old (30.0 cm total length)

Table 1. Metric and meristic values

Measurements	
Sex	Male
Total length (cm)	30.0
Weight (g)	336.39
Standard length (cm)	27.7
Fork length (cm)	26.7
Body depth (cm)	8.1
Head length (cm)	7.5
Post orbital length (cm)	2.9
Eye diameter (cm)	1.25
Predorsal fin distance (cm)	9.6
Dorsal fin base length (cm)	12.6
Preanal fin distance (cm)	15.7
Anal fin base length (cm)	4.4
Pectoral fin length (cm)	5.2
Pelvic fin length (cm)	3.4
Minimal caudal peduncle depth (cm)	2.3
Dorsal fin	XI/12
Anal fin	III/10
Pectoral	14
Pelvic	6
Caudal	23
Gill rakers	28
Lateral line	64

Table 2. Length and weight values obtained in other studies carried out in the Black Sea

Reference	Maximum length (cm)	Maximum weight (g)	Black Sea Region
Satılmış et al., (2014)	25.4	196.01	Turkey (Sinop)
Engin et al., (2015)	22.6		Turkey (Rize)
Guskov (2017)	15-24	70-250	Russia (Caucasus)
Guchmanidze and Boltachev (2017)	19.6		Georgian (Batumi)
Guchmanidze and Boltachev (2017)	21.9	138.3	Russia (Crimea)
Guchmanidze and Boltachev (2017)	17.2	65.4	Russia (Crimea)
Guchmanidze and Boltachev (2017)	21.8	102.6	Russia (Crimea)
Aydın (2017)	20.1	100.3	Turkey (Ordu)
This study	30.0	336.39	Turkey (Ordu)

CONCLUSION

In the previous studies in the Black Sea, one sample in each study has been reported; however, Engin et al. (2015) observed 20–30 individuals in the Rize region during their dive. Aydın (2017) sampled 25 individuals in a two-day interval with a two-part trammel net. In this study, 39 individuals were sampled in a single day. Upon evaluating these results, it can be stated that this species has adapted to the region and that a stock has formed.

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