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RESEARCH ARTICLE

Maximum Length Record of Common Two-banded Seabream (*Diplodus vulgaris* Geoffroy Saint-Hilaire, 1817) for Aegean Sea with Turkish Waters

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ABSTRACT

The maximum length, weight, and age information of living things in an ecosystem are necessary for population dynamics and stock assessment studies. Hence, the recording of such data may be beneficial for scientific databases for life history and fisheries science. The common two-banded seabream (*Diplodus vulgaris* Geoffroy Saint-Hilaire, 1817) is a widespread demersal marine fish, which belongs to the Sparidae family and inhabits down to 90 m depth. Because it is a demanded seafood, it has commercial importance and usually available in the fish market almost every month of the year in Turkey. A single specimen of common two-banded seabream with 31.9 cm in total length and 467.00 g in total weight, which was caught off İbrice Bight (Saroz Bay) with handline by a professional fisherman on 12 June 2015, was obtained from a fishmonger. This study aims to present the maximum size record of this species for the Aegean Sea with Turkish waters.

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Introduction

The common two-banded seabream (*Diplodus vulgaris* Geoffroy Saint-Hilaire, 1817) is a demersal marine fish, which inhabits inshore waters on rocky or sandy bottoms and posidoniabeds down to 90 m depth. It is a common fish with a wide distribution range in the Eastern Atlantic, from the Bay of Biscay to the Cap Verde Islands and around the Madeira and the Canary Islands, and from Angola to South Africa. It is also present throughout the Mediterranean Sea and in the Black Sea (Bauchot and Hureau 1986; Mouine et al. 2010).

Maximum length and weight are important parameters used in life history studies and fishery science. These measurements are applied directly or indirectly in most stock assessment models (Borges 2001; Cengiz 2014). Therefore, it is important to regularly update the maximum size of commercially important species (Navarro et al. 2012; Cengiz et al. 2019a). This study presents the maximum size record of the species for the Aegean Sea with Turkish waters.

Materials and Methods

Saroz Bay, which is situated in the Northeastern Aegean Sea, is connected to the North Aegean with a depth of approximately 600 m to the west. The shelf extends at a water depth of 90-120 m. The length of the bay is about 61 km and

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the width at the opening to the Aegean Sea is about 36 km (Eronat and Sayın 2014; Cengiz et al. 2019b). As Saroz Bay had been closed to bottom trawl fishing since 2000 (Cengiz et al. 2011) and no industrial activity was prevalent in the area (Sarı and Çağatay 2001), the bay can be considered as a pristine environment (Cengiz et al. 2013; 2019c; 2019d).

A single specimen of *D. vulgaris* was caught off İbrice Bight (Saroz Bay) (Fig. 1) at 15 m depth with handline by fisherman on 12 June 2015. In legal regulations of Turkey (communique no: 2016/35), the total length is expressed as the projection length between the front end of the fish head and the end point of the longest ray of the caudal fin when the mouth is closed. Hereby, the specimen was subsequently measured to the nearest mm and weighted to the nearest g. Some morphometric and meristic characters were measured. Unfortunately, the specimen was not preserved as it was sold by a professional fisherman at the fish market.

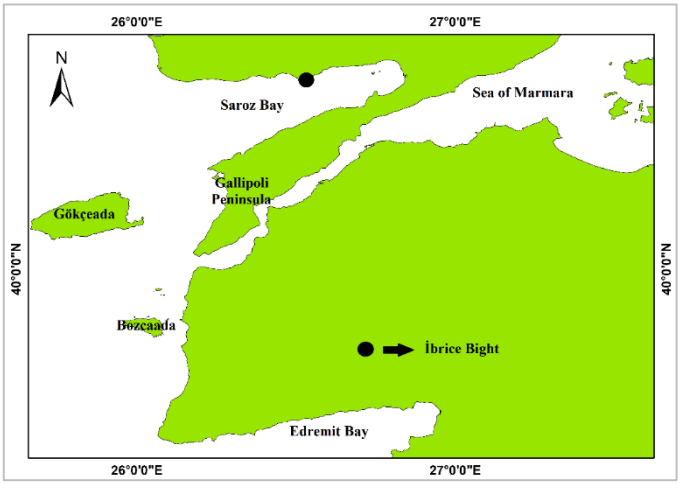

Figure 1. Saroz Bay and sampling station

Results and Discussion

The captured common two-banded seabream was 31.9 cm in total length and 467.00 g in total weight (Fig. 2). Some morphometric and meristic characters for *D. vulgaris* is presented in Table 1. The comparison of the maximum lengths and weights recorded for *D. vulgaris* in the Aegean Sea with Turkish waters is given in Table 2.

Figure 2. The common two-banded seabream with 31.9 cm TL and 467.00 g TW

Table 1. Some morphometric and meristic characters for *D. vulgaris* captured in the İbrice Bight (Saros Bay)

Morphometric characters	Value
Weight (g)	467.0
Total length (mm)	319.0
Fork lenght (mm)	302.0
Standard length (mm)	269.4
Body depth (mm)	100.0
Head length (mm)	70.9
Snout length (mm)	23.4
Eye diameter (mm)	17.4
Dorsal fin base length (mm)	135.4
Anal fin base length (mm)	57.8
Pectoral fin base length (mm)	98.5
Prepectoral length (mm)	105.6
Postorbital length (mm)	30.5
Caudal peduncle (mm)	48.2
Meristic characters	
Dorsal fin rays	XII - 15
Anal fin rays	III - 14
Pectoral fin rays	15

Table 2. The comparison of the maximum lengths and weights recorded for *D. vulgaris* in the Aegean Sea with Turkish waters

Author(s)	Area	N	L_{max} (cm)	W_{max} (g)
Petrakis and Stergiou (1995)	Euboikos Gulf, Greece	28	14.7	-
Can et al. (2002)	İskenderun Bay, Turkey	105	27.0	-
Moutopoulos and Stergiou (2002)	Cyclades, Greece	122	29.6	-
Karakulak et al. (2006)	Gökçeada Island, Turkey	93	25.0	-
Özaydın and Taşkavak (2006)	İzmir Bay, Turkey	63	15.4	80.00
Akyol et al. (2007)	Gökova Bay, Turkey	69	26.5	-
Gökçe et al. (2007)	North Aegean, Turkey	18	13.3	28.00
Gökçe et al. (2010)	İskenderun Bay, Turkey	22	17.9	91.77
İşmen et al. (2007)	Saroz Bay, Turkey	23	19.1	104.00
Özaydın et al. (2007)	İzmir Bay, Turkey	1615	23.1	-
İlkyaz et al. (2008)	İzmir Bay, Turkey	242	18.7	-
Karachle and Stergiou (2008)	Thermaikos Gulf, Greece	50	16.7	-
Acarli et al. (2009)	Homa Lagoon, Turkey	68	14.1	45.83
Gürkan et al. (2010)	Candarli Bay, Turkey	119	10.1	11.60
Cengiz (2013)	Gallipoli Peninsula, Turkey	50	28.4	347.08
Acarli et al. (2014)	Homa Lagoon, Turkey	81	15.2	52.90
Bilge et al. (2014)	Southern Aegean , Turkey	1893	23.1	-
Altın et al. (2015)	Gökçeada Island, Turkey	334	22.6	160.60
Kara et al. (2017)	Gediz Estuary, Turkey	87	13.0	31.80
This study	Saroz Bay, Turkey	1	31.9	467.00

As well known, the individuals in populations exposed to high levels fishing pressure will respond by reproducing at smaller average sizes and ages and so reached maximum

lengths may getting and getting smaller. But, the one individual that subjected to no overfishing pressure could be reached that kind of length (Filiz 2011; Cengiz et al. 2019e). On the other hand, any factor that might possibly influence growth has been shown to have an effect, including nutrient availability, feeding, light regime, oxygen, salinity, temperature, pollutants, current speed, nutrient concentration, predator density, intra-specific social interactions and genetics (Helfman et al. 2009; Acarli et al. 2018). In conclusion, the present study proves that this species can grow above the previous maximum data reported in the Aegean Sea with Turkish waters. The information presented here may be used to compare the similar parameters in ongoing fishery studies all over world by providing the scientific support to the fisheries scientists.

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