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The maximum size of Bogue, *Boops boops* (Perciformes: Sparidae) for the Mediterranean*

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Abstract

A specimen of *Boops boops*, 402 mm in total length (986 g weight), was caught on 27 March 2018 by gill net from Güllük Bay on the muddy bottom at a depth of 55 m. This record is the maximum size both for Turkish seas and Mediterranean basin.

Keywords: Bogue, maximum size, measurement, Güllük Bay, Aegean Sea

Akdeniz için Kupesin *Boops boops* (Perciformes: Sparidae) Maksimum Boyu

Özet

27 Mart 2018 tarihinde Güllük Körfezi'nde 55 m derinlikte çamurlu dip yapısında 402 mm TL (ağırlık 986 g) sahip bir adet *Boops boops* bireyi yakalanmıştır. Bu boyut hem Türk denizleri hem de Akdeniz için maksimum boy olarak kaydedilmiştir.

Anahtar kelimeler: Kupes, maksimum boy, ölçüm, Güllük Körfezi, Ege Denizi

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INTRODUCTION

Bogue, *Boops boops* (Linnaeus, 1758), is a teleost fish species belonging to the Sparidae family. This species is mainly distributed in the eastern Atlantic, from Norway to Angola, common from the Bay of Biscay to Gibraltar and the Mediterranean Sea, including the Black Sea (Froese and Pauly, 2018). It also occurs in the western Atlantic in the Gulf of Mexico and the Caribbean Sea (Bauchot and Hureau, 1986).

The bogue is a medium sized species, commonly between 100- and 200-mm TL (Bauchot and Hureau, 1986) but with a reported maximum size of 400 mm from the Portuguese coast (Gordo, 1996). Maximum published weight is 455 g (Froese and Pauly, 2018). *B. boops* is inshore schooling demersal or semipelagic species that can be found in midwater above sandy, muddy or rocky substrate to a depth of 300 m (Bauchot and Hureau, 1986). This short paper reports a new maximum size of *Boops boops* for Mediterranean and Turkish waters.

MATERIAL and METHODS

On 27 March 2018, a specimen of *Boops boops* (Fig. 1) with 402 mm in total length and 986 g round weight was captured by a gill net (64 mm stretched mesh size) from Apostol islet (37°09'N-27°23'E) in Güllük Bay on muddy bottom at a depth of 55 m. The

specimen was measured to the nearest millimetre, fixed in 5% formaldehyde solution and deposited in the Ichthyological Collection of Ege University, Fisheries Faculty with the catalogue number: ESFM-PIS/2018-02. Description, measurements and percentage in total length (Table 1) of *B. boops* are in line with those reported by Bauchot and Hureau (1986) and Froese and Pauly (2018).



Figure 1. *Boops boops* with 402 mm TL (ref. ESFM-PIS/2018-02), captured from Güllük Bay. Scale bar = 50 mm (Photo: O. Ertosluk)

Table 1. Capture records of *Boops boops* from the Mediterranean Sea

Location	Record Date	N	TL (mm)	References
Cyclades, Greece	Sep.1995-Dec.1997	2375	104-281	Stergiou et al. (2004)
Edremit Bay, N Aegean Sea	Sept.1997-Sept.2000	1231	94-221	Türker-Çakır et al. (2008)
off Alexandria, Egypt	Mar.-Dec.1999	435	105-224	Allam (2003)
Babadıllımanı Bight, Mersin	May1999-Apr.2000	391	75-214	Çiçek et al. (2006)
Tunisian waters, Tunisia	Feb.2000-Mar.2002	3000	61-320	Khemiri et al. (2005)
NE Mediterranean, Turkey	2001-2003	172	112-211	Sangun et al. (2007)
Gulf of Tunis, Tunisia	Feb.2003-Jan.2004	243	120-260	Cherif et al. (2008)
Saloum Bay, Egypt	Sep.2003-Aug.2004	319	70-240	El-Hawet et al. (2005)
Gökçeada, NE Aegean Sea	Mar.2004-Feb.2005	428	102-263	Karakulak and Erk (2008)
İzmir Bay, NE Aegean Sea	July 2004-June 2007	421	110-238	Soykan et al. (2015)
İzmir Bay, NE Aegean Sea	Jan.-Dec.2005	1190	92-276	Kara and Bayhan (2008)
Gökçeada, NE Aegean Sea	Mar.2004-Feb.2005	518	102-321	Karakulak et al. (2006)
İzmir Bay, NE Aegean Sea	Feb.-Dec.2005	39	113-167	Özaydın et al. (2007)
Saros Bay, NE Aegean Sea	Feb.2005-Apr.2006	189	105-220	İşmen et al. (2007)
İzmir Bay, NE Aegean Sea	June 2005-May 2006	378	112-238	İlkyaz et al. (2008)
Gökova Bay, SE Aegean Sea	2006	32	165-270	Ceyhan et al. (2009)
Gulf of Argolikos, Greece	Aug.2007-Aug.2008	281	13-349	Kapiris and Klaoudatos (2011)
Southern Adriatic Sea	Sep.2007-Aug.2008	933	100-259	Markovic et al. (2013)
İzmir Bay, NE Aegean Sea	Nov.2008-Oct.2009	932	113-279	Kara and Bayhan (2015)
SE Adriatic Sea	Sep.2009-Aug.2010	861	90-266	Kasalica et al. (2011)
SE Aegean Sea	Dec.2009-Nov.2010	68	94-244	Bilge et al. (2014)
Tyrrhenian Sea, Italy	Jan.-Dec.2010	2285	79-330	Bottari et al. (2014)
Nador-Saidia, Morocco	Jan.-Dec.2011	1550	60-280	Layachi et al. (2015)
SE Adriatic Sea	Dec.2011-Nov.2012	676	133-293	Dobroslavic et al. (2017)
Western coast of Algeria	Jan.2012-June2013	1074	90-323	Kherraz et al. (2016)
Gulf of Antalya	Sept.2012-June 2013	124	100-202	Özvarol (2014)
Gulf of Antalya	Oct.-Dec.2012	487	90-205	Özvarol (2016)
Beghazi coast, Libya	Nov.2012-Oct.2013	500	95-314	El-Maramie and El-Mor (2015)
Kuşadası, SE Aegean Sea	Jan.-March 2015	6835	100-220	İlkyaz et al. (2017)
Güllük Bay, SE Aegean Sea	27 March 2018	1	402	This study

RESULTS and DISCUSSION

The specimen and the morphometric data reported the following ratios, as percent of TL or head length (HL): fork length 89.6%, standard length 83.3%, maximum body depth 23.4%, head length 17.4%, pre-dorsal length 26.4%, pre-anal length 54.7%, pre-pectoral length 17.7%, all in TL; eye diameter 20% in HL.

B. boops is a well-known sparid species all over the Turkish seas and several studies on the population structures of *B. boops* for both the Turkish seas and the Mediterranean are available in the literature (Table 1).

The maximum reported the size of 400 mm TL for the species (n=9244) was recorded by Gordo (1996) from the Peniche and Algarve coasts, Portugal. This size is also like that reported in the present study for both Turkish seas and the Mediterranean. Moreover, the present study also reported the maximum weight for the species (986 g), namely bigger more than double the maximum published weight, 455 g (Crec'hriou et al., 2013) in FishBase.

The huge *B. boops* was caught near a sea-cage fish farm by using gillnet for targeting bogue. Thus, the specimen of *B. boops* might be reaching the largest size via plenty of taking nourishment beneath the sea-cages. According to the length-weight relationship reported for the species by İlkyaz et al. (2008) the estimated weight for a specimen of 400 mm should be around 788 g. Froese (2006) stated that seasonal, geographic, climatic or other patterns in the variation of the condition factor should be used to explain within-species variation in weight-length relationships. Therefore, an abundance of food beneath the sea-cages can be the explanation for this excess of flesh.

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