

Reconfirmed occurrence and northward expansion of the royal flagfish *Aulopus filamentosus* (Bloch, 1792) from the Aegean Sea

Aulopus filamentosus türünün Ege Denizi'nden yeniden onaylanmış gözlemi ve en kuzey dağılımı

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Abstract: A single male specimen of the royal flagfish (*Aulopus filamentosus*), 369 mm total length was caught with the longline from the Gökçeada Island, north Aegean Sea. This report constitutes the reconfirmed occurrence with gives precise locality information from the Turkish waters and this record reflects northernmost expansion of this species in the Aegean Sea.

Keywords: *Aulopus filamentosus*, male, expansion, Aegean Sea

Öz: Kuzey Ege Denizi Gökçeada'da paragat ile 369 mm toplam boya sahip bir adet erkek *Aulopus filamentosus* bireyi yakalanmıştır. Bu kayıt Türkiye suları için türün kesin lokalite bilgisini içeren yeniden onaylanmış gözlemdir ve türün Ege Denizi için en kuzey dağılımını göstermektedir.

Anahtar kelimeler: *Aulopus filamentosus*, erkek, dağılım, Ege Denizi

INTRODUCTION

The family Aulopidae has 12 species in all around the world whereas a great majority of these species are originated from South Western Pasific and some of them are endemic for Australia. Aulopidae is represented by single species with *Aulopus filamentosus* in the Mediterranean Sea. *A. filamentosus* is distributed in the eastern Atlantic from Canary Islands to Senegal, western central Atlantic from Gulf of Mexico to Caribbean and also distributed in the Mediterranean (Robins et al., 1991). It is marine demersal fish species and distributed at 50 - 1000 m (Sanches, 1991) depth interval but generally found at 100 – 200 m (Sulak, 1990). Data on biology of the species are very rare. Feeding type consist of mainly animals as cephalopods, finfish and benthic crustacea (Costa, 1991). Isometric growth type (b: 3.099; r²: 0.99) was reported from south east part of the Aegean Sea that known single weight-length relationship study (Yapıcı et al., 2015). This paper presents the northern expansion of this species in the Aegean Sea, which is the reconfirmed occurrence of the royal flagfish for the Turkish waters.

MATERIALS AND METHODS

A single specimen of *A. filamentosus* was caught on 4 February 2017 by fishermen. It was caught by longline with 9 no fishhook baited with *Sephia officinalis* at 150 m depth in the Northwestern part of the Gökçeada Island (lat 40° 9' 16" N, long 25° 36' 19" E) (Fig. 1).

The specimen was identified according to Mater et al. (2009). It was photographed, some morphometric characters measured and meristic characters were counted. The specimen was then fixed and preserved in 5% formalin solution. The single specimen was deposited in the Piri Reis Marine Museum of Çanakkale Onsekiz Mart University, Çanakkale, Turkey (PRM – PIS 2017-007) (Fig. 2).

RESULTS

Some morphometric measurements and meristic counts of the individual are given in Table 1. The specimen has relatively high head length, eye diameter and snout length. Dorsal fin origin is located behind the pelvic fin insertion. First ray of the

dorsal fin stretched and extend over the dorsal fin insertion. Pectoral fin base reach up to third dorsal fin ray. Lateral line go along nearly straight and has 50 ctenoid scales. Adipose fin present that located last quarter of the total length. The sex of the individual was male whereas no remarkable spermatozoa on the testes. However elongated first dorsal fin ray reflects the sex toward male. The stomach of the specimen was empty.

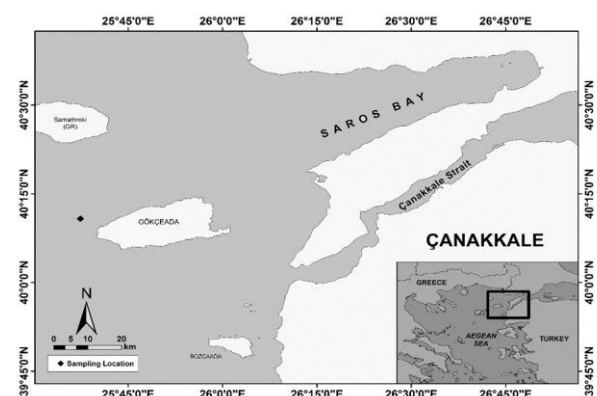


Figure 1. Sampling point (Black rhombus) of *Aulopus filamentosus* and general view of the Northern Aegean coasts of Turkey



Figure 2. Royal flagfish *Aulopus filamentosus* and its first dorsal fin ray, which reflects sex of the individual

Table 1. Morphometric measurements and meristic counts of the single specimen of *Aulopus filamentosus* (Bloch, 1792) captured from the Gökçeada Island, Northern Aegean Sea (Turkey)

Morphometric measurements	mm	TL%
Total length	369	100
Fork length	341	92.4
Standard length	323	87.5
Head length	68	18.4
Interorbital width	24	6.5
Body width	46	12.5
Body height	56	15.2
Snout length	28	7.6
Eye diameter	21	5.7
Pre – pectoral length	98	26.6
Pre – dorsal length	118	32

Pre – anal length	240	65
Pre – pelvic length	125	33.9
Pre – adipose length	259	70.2
Pre – anus length	215	58.3
Mouth height	31	8.4
Total mass (g)		440
Meristic counts		
Dorsal fin rays		15
Pectoral fin rays		12
Pelvic fin rays		9
Anal fin rays		11
Caudal fin rays		19
Lateral line scale		50

DISCUSSION

A. filamentosus has been reported by various researchers in the Mediterranean, Aegean and Adriatic Sea (Faber, 1883; Akşiray, 1954; Akyüz, 1957; Geldiay, 1969; Whitehead et al., 1984; Fischer et al., 1987; El Sayed, 1994; Al Hassan and El-Silini, 1999; Mater and Meriç, 1996; Mater and Bilecenoğlu, 1999; Bilecenoğlu et al., 2002) but provided no precise locality information and were presented in check list studies. Considering that precise locality information, this species was reported by Dulcic (2006) from the Adriatic Sea (Molunat Bay) and by Ben Souissiet al. (2010) from the northeastern Tunisia.

As for Turkish waters, only report based upon precise locality information was observed by İşmen et al. (2006) from the Aegean Sea (Babakale Harbour). In current study, the record of *A. filamentosus* from the Gökçeada Island demonstrated that northernmost extension range in the Aegean Sea. In addition, this is the first male individual compared with the other records which gives information about biology or locality. In accordance of fishermen observations in the area, *A. filamentosus* is quite rare species and one fishermen notified that he was firstly seen this species 4 years ago. Beside, informed that they have not seen any individual which was captured by bottom trawls up to day, encountered individuals were captured only by longlines. Cengiz et al. (2011) reported that 96 teleost fish species belonging to 43 families were identified from the Saros Bay, North Aegean Sea. However *A. filamentosus* was not sampled in that study. When considered that it was firstly reported 11 years ago from the Aegean Sea, the biomass and occurrence of the species has not been increased. Conversely, the biomass of the species has been risen in the southernmost of the Aegean Sea due to the study conducted by Yapıcı et al. (2015). They were presented weight-length relationship of the species for the first time with 11 individual from the samples taken from the bottom trawl. Changes of physico-chemical parameters in seawater may affect the physiology and distribution ranges of fishes, due to changes in prey abundance and distribution (Papaconstantinou, 2014). Southern part of the Aegean Sea has more temperate, saline and deeper waters than northern part of the Aegean Sea. This situation may provide more suitable biotope for *A. filamentosus*. However *A. filamentosus*

has not been reported yet in the Marmara Sea and Black Sea from the Turkey. In these areas has less temperate, saline and shallower waters. Possible reports from these areas may help us to understand the biological requirements in deal with more northernmost expansion.

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