



## Occurrence of *Aulopus filamentosus* (Bloch, 1792) (Aulopidae) in the Turkish Aegean Sea (Sığacık Bay, E. Mediterranean)

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### ABSTRACT

Three specimens of *A. filamentosus* were captured by recreational anglers off Sığacık Bay, İzmir, at a depth of 220 m on 22 March 2023. The total length of these specimens was between 255 and 310 mm. Thus, the certain record number has reached at least twenty specimens in the Turkish seas. This paper presents the fifth confirmed record of *A. filamentosus* from the southeastern Aegean Sea. Though the sporadic occurrences of this species in the Aegean Sea do not indicate an established population for the time being, it signs that it is becoming abundant.

**Keywords:** Royal flagfin, Deep Sea fishing, Rarity, Sığacık Bay, İzmir

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## Introduction

The Aulopidae family consists of fifteen valid species, of which only one is in the Mediterranean (Froese & Pauly, 2023). Royal flagfin, *Aulopus filamentosus* (Bloch, 1792), is a marine demersal fish at 50-1000 m depths, usually 100-200 m (Froese & Pauly, 2023).

It is distributed from Morocco to Mauritania, Madeira and Canaries, Senegal, the western central Atlantic, the Gulf of Mexico and the Caribbeans, and recorded from the Mediterranean (Golani et al., 2006; Froese & Pauly, 2023).

In the central Mediterranean Sea, some records of *A. filamentosus* have been documented from off Tunisia (Bradai et al., 2004; Ben Souissi et al., 2010; Karachle et al., 2015), Libya (Al-Hassan & El-Silini, 1999; Elbaraasi et al., 2019), and the Adriatic Sea (Dulčić, 2006).

In the eastern Mediterranean, *A. filamentosus* from Turkish waters of the Mediterranean Sea was reported first in 1954 (Akşiray, 1954), and then, this species has been listed only by

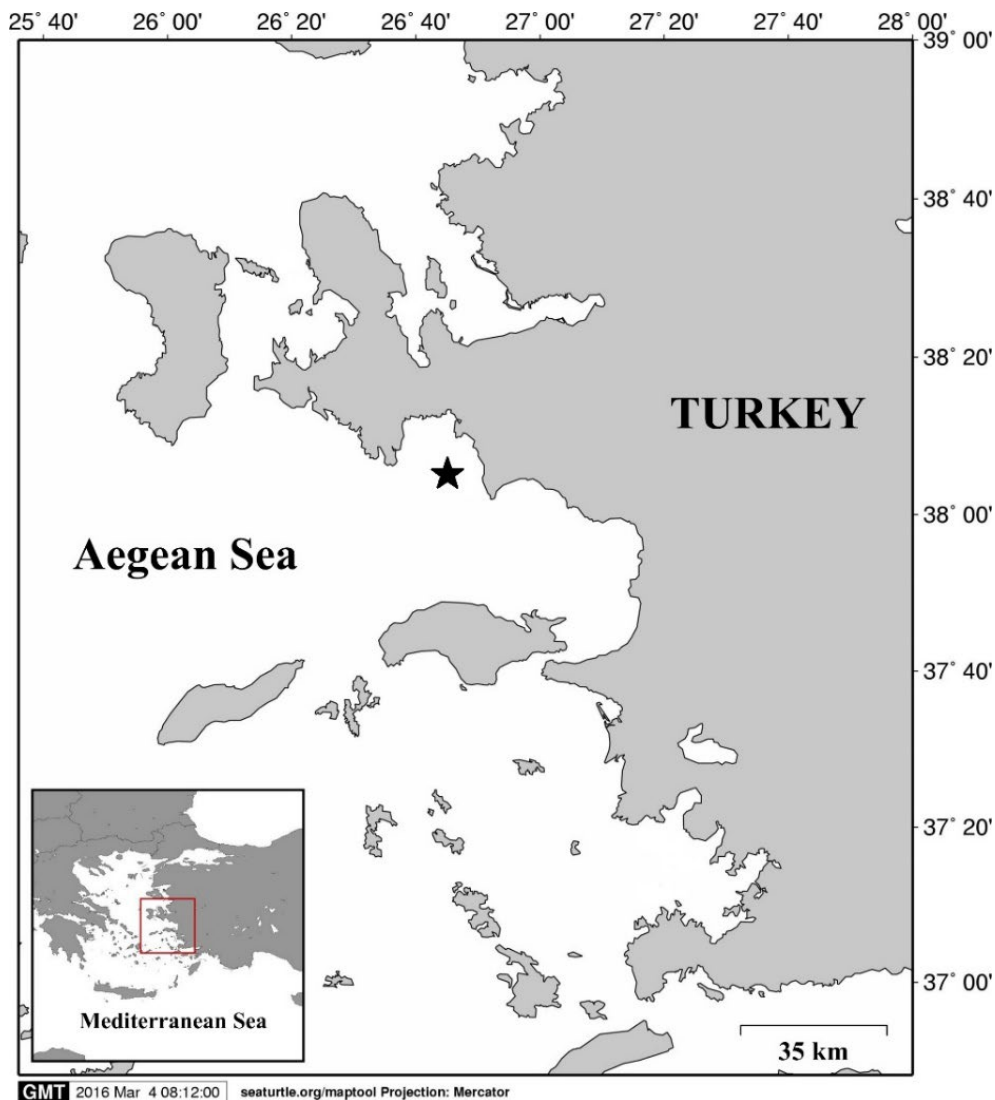
name on various checklists (Golani, 1996; Saad, 2005; Papaconstantinou, 2014; Bilecenoglu et al., 2014; Akel & Karachle, 2017; Bariche and Fricke, 2020). However, few studies on this species confirmed, as shown in Table 1. This paper provides an additional record of rare *A. filamentosus* from the Aegean and the eastern Mediterranean Sea.

## Material and Methods

On 22 March 2023, three specimens (two males and one female) of *Aulopus filamentosus* (Figure 1) were captured by anglers off Sığacık Bay, Izmir (coordinates: 38°07'16"N and 26°51'46"E), at a depth of 220 m (Figure 2). The bait was Mediterranean mud shrimp. Morphometric measurements were recorded to the nearest millimetre on fresh specimens. The specimens were preserved in 6% buffered formalin and deposited in the Ichthyological Collection of the Fisheries Faculty, Ege University, under the ESFM-PIS/2023-01 catalogue number.



**Figure 1.** Male (above) and female (below) *Aulopus filamentosus* specimens caught from Sığacık Bay, Izmir, southern Aegean Sea



**Figure 2.** Capture site (black star) of *Aulopus filamentosus* in the Aegean Sea

**Table 1.** Successive confirmed records of *Aulopus filamentosus* in the eastern Mediterranean Sea

| Location                   | Depth (m) | Record Date        | Number collected | Size (TL, mm) | References            |
|----------------------------|-----------|--------------------|------------------|---------------|-----------------------|
| Gökova Bay, SE Aegean Sea  | ?         | July 2003-Mar.2004 | ?                | ?             | Öziç & Yılmaz (2006)  |
| Babakale, NE Aegean Sea    | ?         | Feb.2005           | 1                | 440           | İşmen et al. (2006)   |
| Anywhere, SE Aegean Sea    | 30-225    | Oct.-Dec.2011      | 11               | 237-328       | Yapıcı et al. (2015)  |
| Mersin Bay, NE Med.        | 184       | 23 June 2015       | 3                | 230-290       | Ergüden et al. (2018) |
| Gökçeada, NE Aegean Sea    | 150       | 4 Feb. 2017        | 1                | 369           | Daban et al. (2017)   |
| Sığacık Bay, SE Aegean Sea | 220       | 22 March 2023      | 3                | 255-310       | This study            |

## Results and Discussion

The specimen was measured to the nearest millimetre (Table 2). *A. filamentosus* shows distinct sexual dimorphism that males have elongated dorsal rays. Also, an adipose fin is present, a conical head with large eyes whose diameter is half the head depth. All determined measurements and colour patterns are in accordance with the descriptions of Golani et al. (2006), İşmen et al. (2006), Ergüden et al. (2018) and Froese & Pauly (2023).

According to successive records, its population tends to rise in the eastern Mediterranean. Thus, the certain record number has reached at least twenty specimens in the Turkish seas.

Though the sporadic occurrences of this species in the Aegean Sea do not indicate an established population for the time being, it signs that it is becoming abundant.

## Conclusion

The occurrence of *A. filamentosus* is probable to increase where deep-sea fishing is. Bio-ecology of this fish is not well-known due to its rarity, so further records are needed to understand better the life cycle of *A. filamentosus* in the Mediterranean. This ichthyologic note presents the incidental catch of *A. filamentosus* from a recreational angler from the southeastern Aegean Sea. At the same time, it is the fifth substantiated record of *A. filamentosus* from the Aegean Sea.

**Table 2.** Morphometric measurements and percentages of total length (TL%) of three specimens of *Aulopus filamentosus*, captured from Sığacık Bay, southern Aegean Sea

| Sex                  | Male |      | Male |      | Female |      |
|----------------------|------|------|------|------|--------|------|
|                      | mm   | TL%  | mm   | TL%  | mm     | TL%  |
| <b>Morphometrics</b> |      |      |      |      |        |      |
| Total length (TL)    | 310  |      | 285  |      | 255    |      |
| Standard length (SL) | 260  | 83.9 | 248  | 87.0 | 215    | 84.3 |
| Fork length (FL)     | 281  | 90.6 | 258  | 90.5 | 224    | 87.8 |
| Predorsal length     | 101  | 32.6 | 88   | 30.9 | 78     | 30.6 |
| Preanal length       | 191  | 61.6 | 172  | 60.4 | 151    | 59.2 |
| Prepectoral length   | 83   | 26.8 | 75   | 26.3 | 65     | 25.5 |
| Maximum body depth   | 50   | 16.1 | 38   | 13.3 | 32     | 12.5 |
| Preorbital length    | 22   | 7.1  | 19   | 6.7  | 18     | 7.1  |
| Interorbital length  | 15   | 4.8  | 14   | 4.9  | 12     | 4.7  |
| Head length          | 80   | 25.8 | 72   | 25.3 | 63     | 24.7 |
| Eye diameter         | 18   | 5.8  | 17   | 5.9  | 16     | 6.3  |
| <b>Counts</b>        |      |      |      |      |        |      |
| Dorsal fin           |      | 15   |      | 15   |        | 15   |
| Anal fin             |      | 11   |      | 11   |        | 11   |
| Pelvic fin           |      | 9    |      | 9    |        | 9    |
| Pectoral fin         |      | 13   |      | 13   |        | 13   |

**Compliance with Ethical Standards**

**Conflict of interest:** The authors declare that for this article, they have no actual, potential, or perceived conflict of interest.

**Ethics committee approval:** Ethics committee approval is not required.

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