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- SHORT COMMUNICATION -

The second record of the Seychelles dragonet *Synchiropus sechellensis* in the Northeastern Mediterranean coasts of the Turkey

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Abstract
Two female and one male specimens of the Seychelles dragonet *Synchiropus sechellensis* were caught by a commercial trawl at a depths of about 55-65 m on 04 November 2017 from the Aydıncık coast, Turkey. The present paper reports the second record of *S. sechellensis* with its extention to eastward coast of Mediterranean of Turkey. The present observation also indicate that *S. sechellensis* has established population in the southern coast of Turkey.

Keywords:
Occurrence, Dragonet, *Synchiropus sechellensis,* eastward extention, Mediterranean Sea

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Introduction

The family Callionymidae is represented by three genera with ten species namely as *Callionymus fasciatus* Valenciennes, 1837, *Callionymus filamentosus* Valenciennes, 1837,*Callionymus lyra,* Linnaeus, 1758, *Callionymus maculates* Rafinesque, 1810, *Callionymus pusillus* Delaroche, 1809, *Callionymus reticulatus* Valenciennes, 1837, *Callionymus risso* LeSueur, 1814, *Synchiropus phaeton* (Günther, 1861), *Synchiropus sechellensis* Regan, 1908, *Diplogrammus randalli* Fricke 1983 in the Mediterranean Sea (Bilecenoğlu et al., 2014; Gökoğlu et al., 2014; Seyhan et al., 2017; Fricke & Ordines, 2017). Three of them, *C. filamentosus*, *S. sechellensis* and *D. randalli,* are

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lessepsian immigrants (Turan et al., 2007; Bilecenoğlu et al., 2014; Fricke & Ordines, 2017; Seyhan et al., 2017).

The genus of the dragonets, *Synchiropus*, are benthic fishes occurring mainly on muddy bottoms at depths of 99-650 m (Froese & Pauly, 2017). This benthic species usually occur on sandy or muddy substrates (Gökoğlu et al., 2014).

In 2014, the first record of *S. sechellensis* was reported from the Gulf of Antalya in the Mediterranean Sea (Gökoğlu et al., 2014) and then the presence of the species in the southern Aegean Sea and east Mediterranean waters were reported with two locations, Kastellorizo Island and Rhodes, in Greeke marine waters (Kondylatos et al., 2016). Later, this species was reported from Moni, south Cyprus in the eastern Mediterranean Sea (Michailidis & Chartosia, 2016). Eventually, Akel & Rizkalla (2017) obtained a large number of specimens of *S. sechellensis* from Egyptian Mediterranean waters.

The present study first report the occurrence and extention of *S. sechellensis* with the female specimens and second record of the lessepsian dragonet, *S. sechellensis* in the southern coasts of the Turkey (Northeastern Mediterranean Sea).

Materials and Methods

On 04 November 2017, two female (76-105 mm standard length, SL) and one male (82 mm standard length, SL) specimens of *S. sechellensis* (Figure 1) were collected by a commercial trawler from Aydıncık, Mersin province (36° 07' N, 33° 16' E) on a sandy bottom at a depths of about 55-65 m (Figure 2). The specimens were taken to the Laboratory of Molecular Ecology and Fisheries Genetic Laboratory, Iskenderun Technical University for further examination, where the main morphometric measurements were collected by means of a digital caliper with an accuracy of 0.01 mm. The specimens were identified according to Fricke (1983, 2000) and Gökoğlu et al. (2014). The collected specimens were preserved in 4% formalin and deposited in the Museum of the Faculty of Marine Sciences and Technology, Iskenderun Technical University, (MSM-PIS/2017-2).

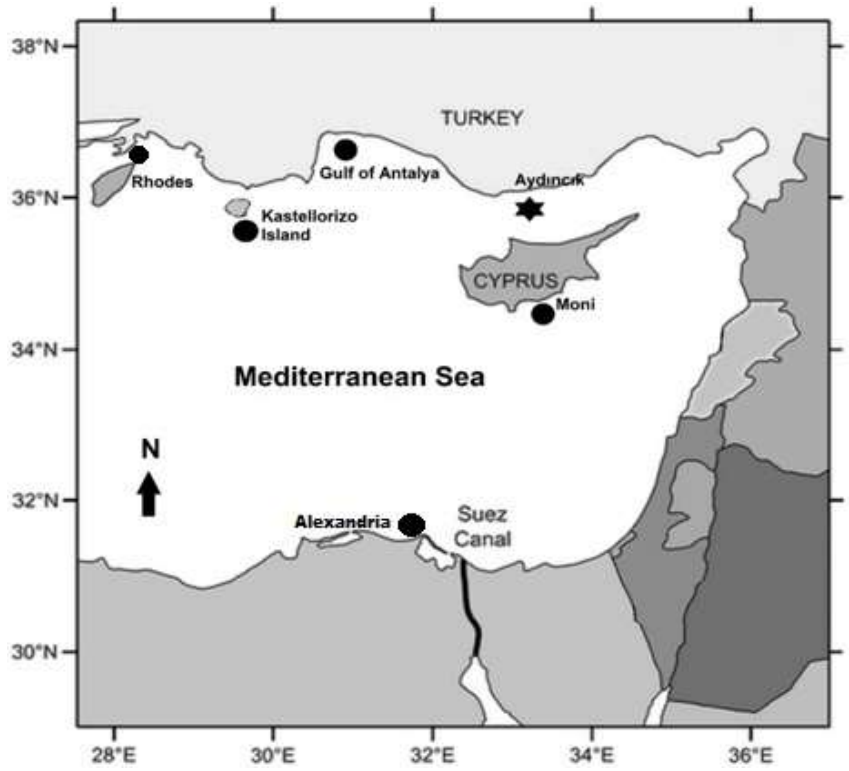

Figure 1. Map shoving capture sites of *Synhiropus sechellensis* in the Mediterranean Sea (●, the previous reports; ∗, the present record).

Figure 2. The female specimen of *Synchiropus sechellensis* (Standart length 105 mm) from Aydıncık, Turkey.

Results

The distinguishing meristic and morphometric characteristics of the specimens are given in Table 1, compared with Gökoğlu et al. (2014) and Michailidis & Chartosia (2016). Additionally, record details of *S. sechellensis* in Mediterranean waters between 2014 and 2017 are shown in the Table 2.

Color of fresh female and male specimen; the body is elongated and slightly depressed. In females, the first dorsal fin is shorter than that of the male and the membrane between the spines is orange with few black blotches. Snout short and rounded, eye large. However, in males, the first spine of the first dorsal fin is long, followed by three little and shorter spines and between the spines there is a yellow membrane with small black blotches at the fin base increasing in size upward to the distal part of the fin. Snout long and not rounded. In females and males; Second dorsal fin rays reddish-orange. Pectoral fin rays reddish and at the tip of the fin is black. Anal fin rays are red colored distal parts dark black. Caudal fin has vertical dark colored bands with two arches.

Table 1. Comparison of morphometric and meristic characteristics of the specimens with previous records in the Northeastern Mediterranean Sea.

Parameters	**Present study**			**Gokoglu et al. (2014)**	**Michailidis & Chartosia (2016)**
Specimen No	1	2	3	1	1
Sex	♀	♂	♀	♂	♂
Morphometric Measurements (mm)					
Wet weight (g)	18.85	12.3	11.51	10.64	29.2
Total length	117	101	98	107	131.2
Standard length	105	82	76	82	102.3
Body width	18	16	13	16.4	22.2
Body depth	20	17	15	17.16	21.1
Head length	23.78	20.72	17.94	26.41	29
Caudal-peduncle depth	8.0	6.1	5.0	7.64	9.2
Predorsal length	13.33	13.05	11.18	22.46	31.9
Preanal length	48.01	41.06	38.92	-	51.1
Prepelvic length	19.54	17.88	15.98	-	20.7
Caudal-fin length	24.86	20.87	19.34	26.42	-
Pectoral-fin length	21.91	21.31	14.72	17.70	-
Pelvic-fin length	30.57	20.42	18.91	27.70	-
Eye diameter	4.30	3.38	3.28	7.70	3.8

Snout length	3.67	1.49	1.12	9.01	-
Upper-jaw length	7.48	6.29	5.8	8.96	-
Interorbital width	8.88	7.01	6.97	1.55	7.1
Preorbital length	5.66	4.13	2.85	-	9.1
Preopercular spine length	7.72	5.72	4.52	5.50	-
Meristic counts					
First dorsal-fin spines	IV	IV	IV	IV	IV
Second dorsal-fin rays	8	9	9	8	8
Pectoral-fin rays	18	17	17	18-19	19
Pelvic-fin rays	5	5	5	5	5
Anal-fin rays	VI, I	VI, I	VI, I	VI, I	VI+1
Principal caudal-fin rays	I, 7, II	I, 7, II	I, 7, II	I, 7, II	I, 7, II

Table 2. Details of records of *Synchiropus sechellensis* in the Mediterranean waters over the 2014-2017 period.

Location	Date	Depth (m)	Habitat	Gear	Sex	No. of Individuals	Size (TL, mm)	Authors
Gulf of Antalya, Turkey	April 2014	30-50	-	Trawl	Male	1	107	Gokoglu et al. (2014)
Gulf of Trianda, Rhodes, Southeastern Aegean Sea, Greece	February 2016	10-30	Sandy to Muddy bottom	Boat Seine	Male	1	126.2	Kondylatos et al. (2016)
Moni, Cyprus	March 2016	40	Muddy bottom	Trammel Net	Male	1	131.2	Michailidis & Chartosia (2016)

*Kastellorizo Island,*Greece	September 2016	3	Muddy and Rocky substrate	Fishing Net	Male	2	80	Kondylatos et al. (2016)
off Alexandria (Egypt)	March 2017	50	-		Female Male	10 15	90* 98*	Akel & Rizkalla (2017)
Aydıncık coast, Turkey	November 2017	55-65	Sandy to Muddy bottom	Trawl	Female Male	2 1	117-101 98	Present study

*; Average value

Discussion

The present study is the first documantation of female specimens of *S. sechellensis* collected from the southern coasts of the Turkey (Northeastern Mediterranean Sea) after from Egyptian waters, southern part of the Mediterranean Sea (Akel & Rizkalla, 2017). According to Akel & Rizkalla (2017) this species has established a large population in the Egyptian waters in the Mediterranean.

S. sechellensis is found in a wide range from the Indo West Pasific to the Red Sea and lastly Mediterranean. They commonly feed on worms, snails and crustaceans. Dragonets are oviparous, with pelagic eggs and larvae (Fricke, 1986).

The *S. sechelensis* can be easily distinguished from *S. phaeton* by dorsal fin (in *S. phaeton*; dorsal fin with black blotch), anal fin rays (VI, I for *S. sechelensis*, 8-9 for *S. phaeton)* and a dissimilar overall color pattern.

The increasing of water temperature has been considered as the main reason for the increasing introductions of non-indigenous fish species in the Mediterranean Sea (Ben Rais Lasram et al., 2010, Turan et al., 2016). However, rapid expansion may also affect diversity and abundance of native species in the near future. In the last ten years, an increasing number of lessepsian species seem to have extended their distributions from the eastern Mediterranean (Galil & Zenetos 2002). Many fish species are now well established in the Mediterranean Sea, Turkey (Ergüden et al., 2016).

Gökoğlu et al. (2014) point outed that *S. sechelensis* reported from the Mediterranean Sea may has been accidentally introduced to by marine traffic and shipping activities. However, Michailidis & Chartosia (2016) stated that that the introduction of this species was not accidental but via the Suez Canal. We also think that the occurrence of this species in the Mediterranean Sea is most probably due to Lessepsian migration phenomenon.

In this study, the second record of *S. sechellensis* is presented in the southern coasts of Turkey. According to the present observations, the species can now be considered as established in the southern coasts of Turkey.

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