

The first occurrence of male specimen of *Nemichthys scolopaceus* (Richardson, 1848) from Eastern Mediterranean

Doğu Akdeniz'den *Nemichthys scolopaceus* (Richardson, 1848)'nin Erkek Bireyinin İlk Bulunuşu

Türk Denizcilik ve Deniz Bilimleri Dergisi

Cilt: 6 Sayı: 2 (2020) 137-143

Yusuf Kenan BAYHAN¹ , Deniz ERGÜDEN^{2*} , Deniz AYAS³ 

¹Vocational School of Kahta, University of Adiyaman, Adiyaman, Kahta, Turkey

²Faculty of Marine Science and Technology, University of Iskenderun Technical, Iskenderun, Hatay, Turkey

³Faculty of Fisheries, University of Mersin, Mersin, Turkey

ABSTRACT

A single male specimen of *Nemichthys scolopaceus* Richardson, 1848 was caught by a commercial deep trawler from Erdemli coast, Mersin Bay at a depth of about 595 m on 08 July 2019. After the capture, the fresh male specimen was identified, photographed, and measured. Morphometric and meristic characters of

the specimen are given in the text. This paper first confirms the occurrence of a male specimen for *N. scolopaceus* from the Eastern Mediterranean coast of Turkey.

Keywords: Nemichthyidae, Slender snipe eel, Record, Mature male, Mediterranean Sea

Article Info

Received: 17 June 2020

Revised: 11 July 2020

Accepted: 12 July 2020

* (corresponding author)

E-mail: deniz.erguden@iste.edu.tr

ÖZET

Nemichthys scolopaceus Richardson, 1848'un bir erkek bireyi 08 Temmuz 2019 tarihinde Mersin Körfezi, Erdemli sahilinden ticari derin bir trol teknesi tarafından yaklaşık 595 m derinlikte yakalandı. Yakalandıktan sonar, taze erkek birey tanımlandı, fotoğraflandı ve ölçüldü. Morfometrik ve meristik karakterler metinde verilmiştir. Bu makale, Türkiye'nin Doğu Akdeniz kıyılarında *N. scolopaceus*'un bir erkek bireyinin ilk olarak bulunuşunu teyit etmektedir.

Anahtar sözcükler: Nemichthyidae, İnce belli yılan balığı, Kayıt, Yetişkin erkek, Akdeniz

1. INTRODUCTION

The genus *Nemichthys* is represented by only one species in the Mediterranean Sea (Abdul Malak *et al.*, 2011). *N. scolopaceus* Richardson, 1848 is a mesopelagic and bathypelagic fish species (Coad and Reist, 2004) and inhabits tropical and temperate waters in the world (Riede, 2004). It occurs in the Northwest Pacific, Eastern Pacific, Western Atlantic, and Eastern Atlantic including in the Mediterranean Sea, (Hart, 1973; Nielsen, 1984; Froese and Pauly, 2020).

Slender snipe eel, *N. scolopaceus*, is characterized by the body more or less pigmented, postorbital pores 3-20, and preopercular pores 2-18, small teeth (Nielsen and Smith, 1978). The jaws of adult male specimens may become shorter over time. *N. scolopaceus* is a highly color variable species distributed throughout the Atlantic, Indian, and Pacific Ocean (Nielsen and Smith, 1978). The color usually brown or gray, often darker ventrally than dorsally, intensity variable. The first report of *N. scolopaceus* in the Mediterranean was made by Quignard and Tomasini (2000). Then, successively reports of the occurrence of this species in the Mediterranean Sea was made from Eastern Ionian Sea (Mytilineou *et al.* 2005), the southern Aegean Sea and the southern Mediterranean, Turkey (Bilecenoglu *et al.* 2006; Filiz *et al.* 2007; Gökoglu *et al.* 2009, Bayhan *et al.*, 2015; Ayas and Sen Ağilkaya, 2018). Ayas and Şen Ağilkaya (2018) misrepresented the

gender of this species and reported a female individual as a male individual. All of these samples reported from Turkish waters are female individuals of this species.

This paper first confirms the occurrence of this male specimen for *N. scolopaceus* on the Eastern Mediterranean coast of Turkey. Besides, the first detailed morphometric measurements of the male individual as well as comparing with the previous reports of this species is also given.

2. MATERIAL AND METHOD

A single male specimen of *N. scolopaeus* was caught by a commercial trawler at a depth of 595 m on 08 July 2019 in Mersin Bay (Erdemli coast) (Coordinate: 36°10'N, 34°41'E), from the Northeastern Mediterranean coast of Turkey (Figure 1). After the capture, the fresh specimen was identified, photographed, and measured in the boat. All measurements and counts, as well as morphological and color descriptions of a male specimen of *N. scolopaeus*, are given. The specimens were preserved in 4% formalin and were deposited in the Museum of the Faculty of Fisheries, Mersin University (Catalog number: MEUFC-19-11-129) (Figure 2 and Figure 3).

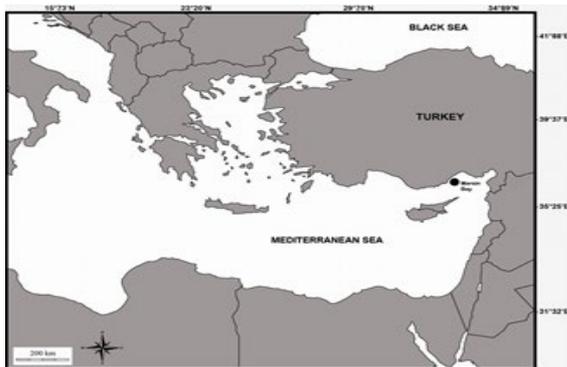


Figure 1. Map showing the capture locality (black circle) of *Nemichthys scolopaceus*



Figure 2. General view of male specimen of *Nemichthys scolopaceus* (Photo: Y.K. Bayhan)



Figure 3. Head and gill opening the view of *Nemichthys scolopaceus* (Photo: Y.K. Bayhan)

3. RESULTS

In the study, a male individual with a total length of 53.90 cm and weighing 8.420 g caught (Figure 2). The male specimens differ from female specimens were anterior nostrils (small jaw strongly tubular and forwardly directed in mature males) and due to the non-occlusible beak (pointed beak is fairly short in males). The male specimen is described as follows (see Table 1 for morphometric and meristic characters): The body is elongate, moderately to strongly compressed. The tail is moderately attenuate with a small caudal fin; anus far forward, either under pectoral fins or less than one head length behind it. Eyes are well developed. Cleft of mouth ends under or slightly behind the eye. Teeth are small with recurved tips and closely set in diagonal rows. Teeth are visible when the mouth is closed. Anterior and posterior nostrils are located on side of head, just in front of eye. Gill opening crescentic, located in front of and below pectoral fins. Dorsal and anal fins are long and confluent with caudal fin when latter is present. Anal fin is higher than dorsal; dorsal fin is begins over or slightly in front of pectoral fins; anal fin begins just behind the anus. Pectoral fins are present.

All morphometric measurements were made to the nearest 0.01 mm using dial calipers. Morphometric values were given as cm. Head length 8.1% of total length (TL), maximum body depth at gill opening 1.8% of TL, snout length 0.8% of head length (HL), eye diameter (horizontal) 18.2% of HL, eye diameter (vertical) 14.7% of HL and interorbital distance 9.6% of HL. Color: Body uniformly dark brown, dorsal fins and anal fins bases of dark and also tips of pectoral fins almost black.

4. DISCUSSIONS

In the present study, it is reported a male individual belonging to the slender snipe eel, *N. scolopaeus* captured from Mersin Bay in July 2019. The identification of the

male specimen was carried out using the characteristics of the species given in Nielsen and Smith (1978). Besides, detailed morphometric measurements of the individual were made and presented in Table 1. In addition, these measurements compared with previous Mediterranean records (Table 1). Although in the present study are found slightly different measurement values from other previous studies for this species. These differences may be related to the sampling area, habitat, feeding behavior, and spatial segregation of both sexes and environmental factors. The historical records in the Mediterranean waters of this species are given in Table 2.

Slender snipe eel, *N. scolopaeus* distributed with a depth range from the surface to 2,000 m in the Mediterranean (Nielsen, 1984) and down to 3,656 m in the Atlantic (Coad and Reist, 2004). However, it is commonly found in marine deep waters between depths of 100-1000 m (Mundy, 2005). Although its maximum size may not exceed 100 cm total length, up to now, the maximum total length is reported as 130 cm for this species (Muus and Nielsen, 1999). It feeds commonly on crustaceans, especially decapods and euphasids (Maigret, 1986; Smith, 1989; Feagans, 2008). According to Castonguay and McCleave (1987), juvenile specimens do not exhibit a vertical migration, which generally occurs at depths down to 100 m, but larger specimens (>80 mm, TL) perform diurnal migration.

The present study was the first confirmed reports of the slender snipe eel male

specimen of *N. scolopaceus* specimen from Turkey (Northeastern Mediterranean) and we were aimed to present the morphometric and meristic data a male individual of *N. scolopaceus*, which caught from Mersin Bay.

5. CONCLUSIONS

Although this species is uncommon, it is a deep-water species that is not targeted in commercial deep-sea fisheries and it is only rarely caught as bycatch (IUCN, 2020). Up to date, *N. scolopaceus* is listed as Least Concern (LC) in the Mediterranean (Karmovskaya and Papaconstantinou, 2015).

In the Mediterranean, further investigations and monitoring are needed for a rare deep-sea fish species. This research will make a significant contribution to many researchers working in this field in the future.

DISCLOSURE STATEMENT

The authors declare that there is no conflict of interest.

ORCID IDs

Yusuf Kenan BAYHAN:

 <https://orcid.org/0000-0002-7403-900X>

Deniz ERGÜDEN:

 <https://orcid.org/0000-0002-2597-2151>

Deniz AYAS:

 <https://orcid.org/0000-0001-6762-6284>

Table 1. Previous reports of the *Nemichthys scolopaceus* from the Mediterranean coast of Turkey

Measurements	This study	Bayhan et al. (2015)	Bilecenoglu et al. (2006)	Filiz et al. (2007)	Gokoglu et al. (2009)	Ayas and Sen Agilkaya (2018)
Metric (cm)						
Number of Samples	1	1	1	1	2	1
Total length	53.9	47.5	82.5 (SL)*	97.4 (SL)*	82.0-55.0	95.0
Maximum body depth	0.99	0.64	-	-	-	-
Head length	%1.83 TL	%1.35 TL	%0.98 SL	%4.45 TL	-	%5.7 TL
Snout length	4.35	4.20	-	-	-	-
	%8.07 TL	%8.84 TL	%9.15 SL	%9.78 TL	-	%12.3 TL
Eye diameter	0.80	0.53	-	-	-	-
	%18.39 HL	%12.61 HL	%66.67HL	%25.15 HL	-	%27.5 HL
Interorbital distance	0.79	0.42	-	-	-	-
	%18.16 HL	%10.01 HL	%8.27 HL	%15.03 HL	-	%19.74 HL
Pre-orbital length	0.42	0.11	-	-	-	-
	%9.65 HL	%2.62 HL	-	%13.78 HL	-	%14.0 HL
Pre-pectoral length	0.77	-	-	-	-	-
	%17.7 HL	-	-	-	-	-
Meristic	3.05	-	-	-	-	-
	%5.66 TL	-	-	-	-	-
Dorsal fin rays	342	345	-	-	-	-
Anal fin rays	315	318	-	-	-	-
Pectoral fin rays	10	15	-	-	-	-
Weight (g)	8.420	-	-	-	47.2-25.2	24.22

*This measurements are given as Standard length (SL)

Table 2. Previous reports of the *Nemichthys scolopaceus* from the Mediterranean Sea

Location	Date	Number of Samples	Sex	Size (TL, SL cm)	Depth (m)	References
Mediterranean Sea	1935	>1	Juvenile	0.9-144.5	915-1830	Bebee and Crane (1935)
Greece, Eastern Ionian Sea	September 1999-September 2000	>1	-	-	390-1079	Mytilineou et al. (2005)
Marmaris Coasts, Aegean Sea, Turkey	12 April 2005	1	Female	82.5 (SL)	550-600	Bilecenoglu et al. (2006)
Sığacık Bay (southern Aegean Sea, Turkey)	24 August 2006	1	Female	97.4 (SL)	150-600	Filiz et al. (2007)
Mersin Coast, Turkey	25 June 2014	1	Female	47.5 (TL)	349-513	Bayhan et al. (2015)
Antalya Bay, southern Turkey	13 February 2007	2	Female	82.0-55.0 (TL)	350	Gökoglu et al. (2009)
Büyükeceli Coast, north-eastern Mediterranean	04 February 2018	1	Female*	95.0 (TL)	100	Ayas and Sen Agilkaya (2018)
Erdemli coast, Mersin Bay, Eastern Mediterranean	08 July 2019	1	Male	53.9 (TL)	595	This study

TL; Total Length, SL; Standard Length

*This specimen is misidentified as male individual

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