Research Article
Turkish Journal of Maritime and Marine Sciences Volume: 5 Issue: 1 (2019) 64-68

First record of *Gonostoma denudatum*, Rafinesque 1810 (Family: Gonostomatidae) from Mersin Bay (Northeastern Mediterranean, Turkey)

Mersin Körfezi'nden (Kuzeydoğu Akdeniz, Türkiye) *Gonostoma denudatum*, Rafinesque 1810'un (Familya: Gonostomatidae) İlk Kaydı

Türk Denizcilik ve Deniz Bilimleri Dergisi Cilt: 5 Sayı: 1 (2019) 64-68

Yusuf Kenan BAYHAN[1], Deniz ERGÜDEN[2,*]

[1]*Department of Fisheries, Vocational School of Kahta, University of Adıyaman, Kahta, Adıyaman, Turkey*
ORCID No: https://orcid.org/0000-0002-7403-900X
[2]*Marine Science and Technology Faculty, Iskenderun Technical University, Iskenderun, Hatay, Turkey*
ORCID No: https://orcid.org/0000-0002-7682-6867

ABSTRACT

One specimen of *Gonostoma denudatum* was caught by a commercial deep trawler (Boat length: 26.15 m and Engine Power: 400 Hp) at a depth of about 595 m on 08 July 2019 from the Erdemli coast (Mersin Bay, Turkey). After the capture, the fresh specimen was identified, photographed, measured to the nearest millimetre, and weighed to the nearest gram. The present paper reports the first record of *G. denudatum* in the northeastern Mediterranean, Turkey. Although *G. denudatum* has been previously reported from the Mediterranean Sea, this species is extremely rare in the eastern part of the Mediterranean Sea. Thus, the present study is an indication of the occurrence of *G. denudatum* in the eastern Mediterranean Sea coast of Turkey. Morphometric and meristic characters of the specimen are given in the text.

Keywords: Deep Sea Fish, Bristlemouth, Report, Eastern Mediterranean Waters

Article Info
Received: 24 July 2019
Revised: 24 September 2019
Accepted: 22 October 2019

[*](corresponding author)
E-mail: deniz.erguden@iste.edu.tr

ÖZET

Erdemli açıklarından (Mersin Körfezi, Türkiye) ışıldak balığı, *Gonostoma denudatum'*un bir bireyi 08 Temmuz 2019 tarihinde yaklaşık 595 m derinlikten ticari dip trolü (Tekne Uzunluğu: 26,15 m ve Motor Gücü: 400 Hp) ile avlanmıştır. Yakalanan birey daha sonra tanımlanarak, fotoğraflanmış, ölçümleri ve ağırlığı alınmıştır. Sunulan bu çalışmada, *G. denudatum* Türkiye'nin kuzeydoğu Akdeniz kıyılarından ilk kez rapor edilmiştir. *G. denudatum* daha önce Akdeniz'den bildirilmiş olmasına rağmen, bu tür Akdeniz'in doğu kısmında oldukça nadir görülmektedir. Bu nedenle sunulan bu çalışma Türkiye'nin doğu Akdeniz sahillerinden *G. denudatum*'un varlığını işaret etmektedir. Türün morfolojik ve meristik ölçümleri metin içerisinde verilmiştir.

Anahtar sözcükler: Derin deniz balığı, Dikenağız, Rapor, Doğu Akdeniz Suları

1. INTRODUCTION

The genus *Gonotoma* is represented with two valid species around the worldwide. From this genus, only *Gonostoma denudatum*, Rafinesque 1810 is locally common in the Mediterranean Sea, characterised as native to this area (Froese and Pauly, 2019).

Gonostoma denudatum is distributed from the subtropical to temperate North Atlantic and the Mediterranean (IUCN, 2019). This species is widespread throughout the Eastern Central and Western Central Atlantic (Schaefer et al., 1986).

In Turkish waters, *G. denudatum* has been previously stated in the marine checklist of Turkey by Bilecenoglu et al. (2014). Although the occurrence of *G. denudatum* has been reported from Turkish marine waters in the Mediterranean Sea in previous year (Bilecenoglu et al., 2014), this species is extremely rare in the eastern part of the Mediterranean Sea. Besides, up to date any individual of this species was not captured data by bottom trawls from Mersin Bay.

The present paper reports the first record of *G. denudatum* in the northeastern Mediterranean, Turkey. This study also to confirm its occurrence with some morphological properties from Erdemli coast (Mersin Bay, Northeastern Mediterranean).

2. MATERIAL AND METHOD

A single specimen of *G. denudatum* was caught by a commercial trawler at a depth of 595 m on 08 July 2019 from Mersin Bay (Erdemli coast) (Coordinate; 36°12′N, 34°42′E), in the North-eastern Mediterranean coast of Turkey (Figure 1). The coordinate and depth was measured by satellite GPS and echo sounder on the boat. After the capture, the fresh specimen was identified, photographed, measured to the nearest mm, and weighed to the nearest g. The specimen was preserved in 4% formalin and were deposited in the Museum of the Faculty of Marine Sciences and Technology, Iskenderun Technical University (MSM-PIS/2019-4) (Figure 2).

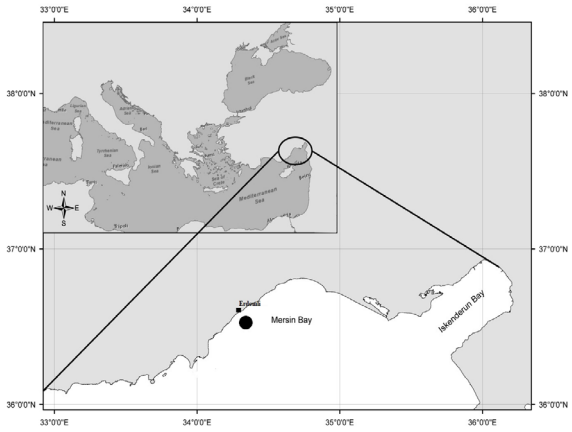

Figure 1. Map showing capture site (●) of *Gonostoma denudatum* from coast of Erdemli (northeastern Mediterranean, Turkey)

Figure 2. *Gonostoma denudatum*, 117.5 mm SL from the northeastern Mediterranean coast of Turkey (MSM-PIS/2019-4)

3. RESULTS AND DISCUSSION

The main diagnostic characters and morphometric measurements of the captured specimen of *G. denudatum* are given in millimeters: the specimen was 130.7 mm in total length and 7.89 g in total weight. Some morphometric and meristic measurements of this specimen were made and presented in Table 1. Besides, morphometric and meristic measurements of the captured specimen were compared with the measurements of previous record of *G. denudatum* which was caught from the coast of İskenderun by Bilecenoglu et al. (2014), (Table 1).

The specimen is described as follows: Body moderately elongate. Mouth large; angle of jaw extending posterior to the eye. Eyes moderate to small. Dorsal finrays 14, behind midpoint of body, followed by a small adipose fin; pectoral finrays 10; pelvic finrays 8; anal finrays 28, anal fin origin a little in advance of dorsal fin origin. Head length 25.7%, pre-dorsal length 61.2%, pre-anal length 59.5%, pre-pectoral length 24.6%, pre-pelvic length 46.8%, all of Standart length, SL. Eye diameter 15.5%, snout length 20.8%, post orbital length 68.9%, all of head length, HL. Photophores: Paired photophore near symphysis of lower jaw (SO) 1, anterior orbital (ORB), 1, opercular (OP) 3, branchiostegal (BR) 9, ventral series between pelvic-finbase and origin of anal fin (VAV) 5, ventral series posterior to anal-fin origin (AC) 19, lateral series (OA) 13.

Colour (Fresh specimen): Body transparent, dorsal side dark, head silvery gray, flanks silver, a distinctive dark gular pigment patch, finrays speckled.

Gonostoma denudatum is mesopelagic, usually associated with continental and slopes. The depth range for juveniles and adults is 700-400 m during the day and 100-200 m at night (Badcock, 1984). This species reaches a maximum size of 14 cm, SL (Quero et. al., 1990). It feeds on zooplankton. Eggs and larvae is planktonic (Golani et al., 2006).

Gonostoma denudatum has been included in the checklist of marine fishes of Turkey about 5 years ago by Bilecenoglu et al. (2014). Bilecenoglu et al. (2014) has mentioned caught one *G. denudatum* individual from Iskenderun Bay by a commercial trawler at depths of 200 m. Our specimen was obtained by a commercial trammel net at a depth of 595 m. The specimen was identified according to Harold and Weitzman (1996) and Quero et al. (1990).

Table 1. Comparison of *G. denudatum* individuals in terms of morphometric and meristic measurements

	This study		Bilecenoglu et al. (2014)	
Specimen No	n=1		n=1	
Measurements	**Size (mm)**	**Values (%)**	**Size (mm)**	**Values (%)**
Total length (TL)	130.7		-	
Standard length (SL)	117.5		118.0	
Head length (HL)	30.3	25.7	29.0	24.6
Eye diameter	4.7	15.5	5.0	17.2
Inter orbital distance	4.3	14.1	4.5	15.5
Post orbital length	20.9	68.9	17.0	58.6
Snout length	6.3	20.8	6.9	24.1
Pre-dorsal length	72.0	61.2	70.4	59.7
Pre-anal length	69.9	59.5	69.5	58.9
Pre-pectoral length	28.9	24.6	-	-
Pre-pelvic length	55.0	46.8	-	-
Meristic				
Dorsal fin rays	14		14	
Pectoral fin rays	10		11	
Pelvic fin rays	8		8	
Anal fin rays	28		-	

To date there is little information available about habitat, ecology, and population of *G. denudatum*. However, there are no species-specific threats and no species-specific conservation measures in place for this species (IUCN, 2019).

This species is listed as Least Concern (LC) in the Global Red List by the International Union for Conservation of Nature, IUCN (Harold, 2015; IUCN, 2019) and considered as Data Deficient (DD) in the Mediterranean Sea (Abdul Malak et al., 2011).

Nowadays, marine ecosystems are greatly affected by bottom trawling in Turkish coasts, which destroys benthic and pelagic fauna (Abdul Malak et al., 2011). Although *G. denudatum* is not a commercial and target species, obtained as by-catch in deep-waters during commercial bottom trawls targeting shrimp fishing, it is important for diversity of Mersin Bay and Turkish ichthyofauna.

4. CONCLUSIONS

The present paper reports the first record of *G. denudatum* from the Mersin Bay (northeastern Mediterranean, Turkey). This species could be considered as exceptionally rare in the Mediterranean. Thus, the present study is an indication of the occurrence of *G. denudatum* in the northeastern Mediterranean Sea coast of Turkey.

ACKNOWLEDGEMENTS

We would like to thank, the owner of the Çınar Bey boat, captain Murat ÇINAR and boat staff for their assistance in this study

6. REFERENCES

Froese, R., Pauly, D., (2019). FishBase. World Wide Web electronic publication, www.fishbase.org is retrieved [version 02/2019] (accessed date: 20.07.2019).

IUCN, (2019). The IUCN Red List of Threatened Species, www.iucnredlist.org. [version 2019-2]. (accessed date: 19.07.2019).

Schaefer, S., Johnson, R.K. Badcock, J., (1986). Gonostomatidae. In: "Smiths'Sea Fishes", (M.M. Smith & P.C. Heemstra, eds), pp, 247-253, Johannesburg, South Africa, MacMillan.

Bilecenoğlu, M., Kaya, M., Cihangir, B., Çiçek, E., (2014). An updated checklist of the marine fishes of Turkey. *Turkish Journal of Zoology* 38: 901-929.

Badcock, J., (1984). Gonostomatidae. In: "Fishes of the North-eastern Atlantic and the Mediterranean", (P.J.P. Whitehead, M.L. Bauchot, J.C. Hureau, J. Nielsen, E. Tortonese, eds), pp. 284-295, UNESCO.

Quéro, J.C., Njockand, J.C., de la Hoz, M.M., (1990). Gonostomatidae. In: "Check-list of the fishes of the easter ntropical Atlantic (CLOFETA)", (J.C. Quero, J.C. Hureau, C. Karrer, A. Post & L. Saldanha, eds.) Vol. 1, pp. 283-292. JNICT, Lisbon; SEI, Paris; and UNESCO, Paris.

Golani, D., Öztürk, B., Başusta, N. (2006). The fishes of the eastern Mediterranean, Turkish Marine Research Foundation, Publication No. 24, Istanbul, 259 pp.

Harold, A.S., Weitzman. S.H., (1996). Inter relationships of Stomiiform Fishes. In: "The Inter relationships of Fishes", (M.L.J. Stiassny, L.R. Parenti & G.D. Johnson, eds), pp. 333-353, London, Academic Press.

Harold, A., (2015). *Gonostoma denudatum*. The IUCN Red List of Threatened Species 2015: e.T190471A42691749.http://dx.doi.org/10.2305/IUCN.UK.20154.RLTS.T190471A42691749.en. Downloaded on 20.07.2019.

Harold, A., (2015). *Gonostoma denudatum*. The IUCN Red List of Threatened Species 2015: e.T190471A42691749.http://dx.doi.org/10.2305/IUCN.UK.20154.RLTS.T190471A42691749.en. Downloaded on 20.07.2019.

Abdul Malak, D., Livingstone, S.R., Pollard, D., Polidoro, B.A., Cuttelod, A., Bariche, M., Bilecenoglu, M., Carpenter, K.E., Collette, B.B., Francour, P., Goren, M., Kara, M.H., Massuti, E., Papaconstantinou, C., Tunesi. L., (2011). *Overview of the conservation status of the marine fishes of the Mediterranean Sea*. VII, p. 61, Gland, Switzerland and Malaga, Spain, IUCN.