

First record of the side gill slug *Pleurobranchaea meckeli* (Blainville, 1825) (Gastropoda: Heterobranchia) from Dardanelles (Çanakkale Strait) and new records from the Sea of Marmara, Turkey

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ABSTRACT

One specimen of *Pleurobranchaea meckeli* was collected from the Çanakkale Strait in 2014 and two were collected from two different stations in the Sea of Marmara in August 2015. The first specimen was collected at 35 meters depth in Çanakkale Strait, Turkey. The second and third specimens were collected at 61 and 1000 meters depths respectively in the Sea of Marmara. This is the first record of *Pleurobranchaea meckeli* from Çanakkale Strait and the second record from Sea of Marmara, which provides a new depth range for the species as well as a new record for the area.

Keywords: Seaslug, Pleurobranchaea, Dardanelles, Northwestern Turkey, Range expansion, deep record

INTRODUCTION

The genus *Pleurobranchaea* comprises 17 valid species worldwide (Alvim et al. 2014). However, only one species has been recorded from the Turkish waters (Demir et al., 1952, Öztürk et al. 2014). This record was based on specimens of *Pleurobranchaea meckeli* found in the Sea of Marmara (Demir, 1952) while

there are no other records of the species from the Çanakkale Strait (the Dardanelles), the connecting path of the Aegean Sea to the Sea of Marmara. Previous records of the species from the Aegean Sea come from the North Aegean Sea (Koutsoubas et al., 1993, Gönülal & Güreşen 2014). Here, we present new findings of the species from Çanakkale Strait

and new bathymetric record from the Sea of Marmara.

MATERIALS AND METHODS

One animal was collected alive in May, 2014 in Çanakkale Strait (Çanakkale, Turkey; 40° 13.994' N; 26° 32.408' E) from a sandy-muddy seabed by a 20-22 mm gill net at 35 meters depth. Field constraints did not allow taking pictures of the live animal in high resolution and in good quality. The specimen was deposited at Çanakkale Onsekiz Mart University, Piri Reis Marine Museum with specimen code PRM-MOL-0035. Two animals were collected from the Sea of Marmara on July 28, 2015 with the first to be caught at a depth of 61 m off Gemlik Bay, in the Sea of Marmara, Turkey (40° 27.517' N / 28° 45.600' E; 40° 27.150' N / 28° 45.133' E; Fig. 1) on sapropel-mud seabed and the second at a depth of 1000 m, in the central basin in the Sea of Marmara, Turkey (40° 44.483' N / 27° 59.183' E; 40° 44.617' N / 27° 58.667' E) from a clay-fine mud seabed. The specimens from the Sea of Marmara were landed with 3.50 m beam-trawl with 6 mm stretched mesh sizes at the cod-end, were measured and photographed alive for the inventory database of MAREM (Marmara Environmental Monitoring) project. Subsequently the specimens were narcotized with menthol flakes and preserved in mixture of 70% ethanol solution for further examinations. Both specimens were deposited at MAREM collection (#259-15AL and #288-15A, respectively).

RESULTS

The total length of the first specimen collected in the Çanakkale Strait was 119.0 mm and the mantle length was 89.1 mm. The

weight of the specimen was 21.25 g. The total length of the second specimen collected from the Sea of Marmara was 101.4 mm and the mantle length was 75.9 mm (Fig 1). The live weight of the specimen was 20.33 g. The total length of the third specimen was 121.2 mm and the mantle length was 90.7 mm. The live weight of the specimen was 24.12 g. The following external morphology is based on prominent features of collected specimens: Body is oval and elongated with no external or internal shell. The color was overall translucent with densely patterned white lines forming a conspicuous reticulation along the dorsal side. Internal organs were partly visible. The gill was visible on the right side of the body. The foot was rounded in the front and pointed at the back and anteriorly. A broad oral veil together with two rhinophores is evident. Posteriorly, metapodial gland was visible as a cream colored organ extending from the center of the posterior mantle towards the foot sole. At the dorsal end of the metapodial gland, a spur was visible as a tiny protrusion.

DISCUSSION

The presence of *Pleurobranchaea meckeli* represents the first record of this species in the Çanakkale Strait. The specimens collected from the Sea of Marmara further prove that suitable habitats exist for the *Pleurobranchaea meckeli* in this region, even at depths of around 1000 m following its first record (Demir, 1952). *Pleurobranchaea meckeli* has been recorded in the Mediterranean Sea in a bathymetric range from 8 to 100 meters depth (Koutsoubas et al., 1993, 2000, Rudman et al., 2000, Mazzioti et al., 2014, Domènech et al., 2006, Wirtz 2005, Lipej et al., 2014), while the present work provide new data from deep



Figure 1. Dorsal (left) and ventral (right) view of the *Pleurobranchaea meckeli* (Blainville, 1825).

waters. Although there is very limited information on the ecobiology of *Pleurobranchaea meckeli* to understand its ability to adapt deep sea environments, this finding indicate habitat flexibility of this species. Bathymetric range data of benthic invertebrates are scarce along the Mediterranean due to insufficient studies of these peculiar and important habitats (Danovaro et al., 2010). The Sea of Marmara, an intercontinental basin, is under the increasing influence of heavy maritime transportation and anthropological impacts. Water influxes and out fluxes through the Bosphorus and Çanakkale Straits drive the dynamic structure of marine life in this otherwise inland saltwater basin. Efforts towards characterizing the marine biodiversity

in this dynamic region are important to locate potential microhabitats for rare and endangered species. Further efforts are needed to characterize habitat structure and hydrological conditions and to better understand the level of anthropological disturbance on the regional species richness.

ACKNOWLEDGEMENTS

This work was partly supported by the Sevinç-Erdal İnönü Foundation. We wish to thank Mr. Hasan Doğuş Tunç for providing the specimen from the Çanakkale Strait.

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Received: 10. 02. 2016.

Accepted: 21. 04. 2016.

**Prvi nalaz morskog puža sa škrigama na strani
Pleurobranchaea meckeli (Blainville, 1825) (Gastropoda:
Heterobranchia) iz Dardanela (Çanakkale moreuz) i novi
nalaz iz Mramornog mora, Turska**

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SAŽETAK

Jedan primjerak puža *Pleurobranchaea meckeli* je sakupljen iz Çanakkale moreuza u 2014. g. a dva su sakupljena sa različitih lokacija u Mramornom moru u avgustu 2015. g. Prva jedinka je sakupljena sa 35 m dubine u Çanakkale moreuzu, Turska. Druga i treća jedinka su sakupljene sa 61 i 1000 m dubine u Mramornom moru. Ovo je prvi nalaz *Pleurobranchaea meckeli* iz Çanakkale moreuza i drugi nalaz za Mramorno more, što daje nove podatke o dubinskom rasprostranjenju vrste, kao i novu lokaciju za ovo područje.

Ključne riječi: morski puž, *Pleurobranchaea*, Dardaneli, sjeverno-zapadna Turska, širenje rasprostranjenja, dubinski rekord