

The first record of the oilfish *Ruvettus pretiosus* Cocco, 1833 (Pisces: Gempylidae) from the Sea of Marmara, Turkey

by

Deniz Acarli¹, Uğur Altınağaç²,
Uğur Özekinci², Bahar Bayhan^{3,*}

DOI: [10.1515/ohs-2017-0026](https://doi.org/10.1515/ohs-2017-0026)

Category: **Short communication**

Received: **April 25, 2016**

Accepted: **August 17, 2016**

¹Çanakkale Onsekiz Mart University, Gökçeada School of Applied Sciences, Çanakkale, Turkey

²Çanakkale Onsekiz Mart University, Faculty of Marine Sciences and Technology, Çanakkale, Turkey

³Ege University, Department of Hydrobiology, Faculty of Fisheries, 35100 Bornova, Izmir, Turkey

Abstract

The benthopelagic oilfish *Ruvettus pretiosus* Cocco, 1833 was recorded for the first time from the Marmara Sea coast in Turkey. In addition, this is the third record of the species from the Turkish sea waters.

Key words: Gempylidae, oilfish, *Ruvettus pretiosus*, Marmara Sea, Dardanelles Strait

* Corresponding author: bahar.bayhan@ege.edu.tr

Introduction

The oilfish, *Ruvettus pretiosus* Cocco, 1833, is a member of the family Gempylidae (snake mackerels), which are common in tropical, subtropical and warm temperate waters all over the world and are represented by 23 species belonging to 16 genera (Parin 1986). Only one gempylid species, *R. pretiosus*, exists in the Mediterranean Sea. *R. pretiosus* is an oceanic, benthopelagic species found worldwide in tropical and warm temperate seas, generally living at depths ranging from 100 to 700 m in the open ocean, mostly solitary or in pairs near the bottom (Nakamura & Parin 1993). *R. pretiosus* is usually found in Atlantic, Pacific, Indian oceans as well as in the Mediterranean Sea (Froese & Pauly 2012).

The first report from the Mediterranean comes from 1887 by Kolombatović (Bettoso & Dulčić 1999). Rarely found on the Mediterranean coast of Turkey, *R. pretiosus* was first recorded in 1999 from Antalya Bay (Kaya & Bilecenoğlu 1999) and then in 2013 from Iskenderun Bay (Gürlek et al. 2013). The species has not been previously recorded from the Sea of Marmara (Torcu et al. 2012; Bilecenoglu et al. 2014), hence this is the first record for this basin and the third reported occurrence in Turkish waters.

Materials and methods

The Sea of Marmara is an inland sea, located entirely within the borders of Turkey that connects the Black Sea with the Aegean Sea: the Bosphorus Strait connects it with the Black Sea and the Dardanelles (Çanakkale) Strait with the Aegean Sea. The latter is 62 km long but only 1.3 to 7 km wide, on average 55 m deep, with a maximum depth of 103 m. Water flows in both directions along the strait, from the Sea of Marmara to the Aegean Sea via a surface current and in the opposite direction via an undercurrent (Beşiktepe 2003). The Dardanelles strait waters are economically

very important to Turkey, because the region supports the main commercial surroundings and purse seine fisheries.

One specimen of *R. pretiosus* was found on the shore at sunrise by a commercial fisherman on the Güzelyalı coast of the Dardanelles strait (40°02'N; 026°20'E), on the 25th of November 2012 (Fig. 1). The specimen was identified according to Nakamura & Parin (1993) and immediately measured and photographed. It was preserved in 4% formalin and then deposited in the Admiral Piri Reis Marine Museum, the Faculty of Marine Sciences and Technology, (PRM-PIS 2012-0069) Çanakkale Onsekiz Mart University, Turkey.

Results and Discussion

Morphometric measurements and meristic counts are presented in Table 1. Oilfish was 139 cm long (TL) and weighed 12.4 kg. Body elongated, semi-fusiform, laterally compressed. The mouth large, the lower jaw extends slightly anteriorly to the upper jaw. Strong vomer teeth present in both jaws, fang-like in the anterior part of the upper jaw. The maxilla exceeds the vertical level from the posterior border of the eyes. Two detached dorsal and anal finlets. The anal fin similar to the second dorsal fin in shape and size. Body covered with small cycloid scales interspersed with rows of rough spiny tubercles and dark-brown (Kaya & Bilecenoğlu 1999).

R. pretiosus is generally captured by a bottom trawl in northern Japan (Yamamura 1997), a handline hook in the Indian Ocean (Stobbs & Bruton 1991), a long line in the eastern Mediterranean Sea (Damalas & Megalofonou 2010; Gabr & El-Haweet 2012), the North Aegean Sea (Kampouris et al. 2013), Mexico and in the north-western Atlantic Ocean (Keller & Kerstetter 2014), at night at a depth of approximately 400 m. However, we found a dead specimen on the shore. Although members of the family Gempylidae are common



Figure 1

Ruvettus pretiosus, 139 cm TL, from the Dardanelles strait, the Marmara Sea, Turkey

Table 1

Morphological and meristic data for the specimen of *Ruvettus pretiosus* in the Dardanelles straits

Morphometric data	Value (cm)
Total length	139
Fork length	127.5
Standard length	120
Anal length	80
Predorsal length	35
Head length	23
Maxillary length	14.5
Snout length	10
Eye diameter	6
Preorbital space	12.5
Dorsal fin base length	72
Anal fin base length	25
Pelvic fin length	11
Caudal fin length	12.5
Anal height	17
Body height	23
Meristic data	Counts
Dorsal fin rays	XIII + 16
Pelvic fin rays	I + 5
Pectoral fin rays	15
Anal fin rays	17
Total weight (g)	12 400

in tropical and temperate seas all over the world (Table 2), the specimen of *R. pretiosus* was found in relatively cold water of the Dardanelles straits (7-26°C). *R. pretiosus* usually lives in deep waters but at night it travels to the surface waters to feed on fish, squids and crustaceans (Nakamura & Parin 1993). We obtained the oilfish in shallow waters, which they usually do not inhabit, so it is likely that the specimen came to the shore for feeding. Because, prey groups mentioned above were also reported in the studies conducted in the same region where our study was carried out (Özen et al. 2009; Ateş et al. 2011). The temperature in the Dardanelles strait is abruptly changing from

the surface to the bottom due to opposite currents. Therefore, we hypothesize that the specimen might have been affected by these changes and also died for this reason.

In the last two decades, the advance of thermophilic species has been the first and most cited evidence for the linkage between climate change and distribution patterns of the biodiversity in the Mediterranean Sea. More than 30 Mediterranean warm-water indigenous fish species have now been recorded north of their original geographical distribution. In poikilothermic organisms such as fishes, the temperature may determine the population and community structure through its direct influence on the survival, reproduction and resource-use patterns of single individuals. Climate warming is driving species ranges toward the poles and this 'harbinger' is now perceptible in the Mediterranean realm where a variety of thermophilic organisms, belonging to macroalgae, plankton, invertebrates and, as we expect, fishes, extend their distribution toward northern areas (CIESM, 2008). The northward advance of thermophilic fishes is one of the first, and maybe most detectable biotic response to climatic changes (Azzurro 2008).

References

- Ateş, A.S., Katağan, T., Sezgin, M., Berber, S., Özdilek, H.G. et al. (2011). Recent data on the effects of sewage pollution on the assemblage of decapod crustaceans in the Dardanelles (the Turkish Straits System). *Journal of the Black Sea/Mediterranean Environment* 17(2): 90-115.
- Azzurro, E. (2008). The advance of thermophilic fishes in the Mediterranean Sea: overview and methodological questions. Climate warming and related changes in Mediterranean marine biota. N°35 in *CIESM Workshop Monographs* [F. Briand, Ed.], Monaco, 39-45.
- Beşiktepe, S.T. (2003). Density currents in the two-layer flow:

Table 2

Catch depth and fishing gears of *Ruvettus pretiosus* by region

Fishing Gear	Depth (m)	Region	References
Tuna longline	200-400	In the south-central Pacific	Nakamura & Parin (1993)
Longline	-	Mediterranean, Strait of Gibraltar	Buencuerpo et al. (1998)
Shoreline	-	Northern Adriatic Sea	Bettoso & Dulčić (1999)
Longline	180	Mediterranean, Antalya Bay	Kaya & Bilecenoglu (1999)
Commercial bottom trawl	65	Southern Mediterranean	Elbaraasi et al. (2007)
Tuna longline handline	50-250	Brazilian coast	Viana et al. (2012)
Gillnet	100-150	South-eastern coast of India	Sureshkumar et al. (2013)
Bottom trawl	160	Mediterranean, Iskenderun Bay	Gurlek et al. (2013)
Longline	2	North Aegean Sea	Kampouris et al. (2013)
By hand	Shore	Marmara Sea	This study

- an example of Dardanelles outflow. *Oceanol. Acta* 26: 243-253. DOI: 10.1016/S0399-1784(03)00015-X.
- Bettoso, N. & Dulčić, J. (1999). First record of the oilfish *Ruvettus pretiosus* (Pisces: Gempylidae) in the northern Adriatic Sea. *J. Mar. Biol. Assoc. U.K.* 79: 1145-1146. DOI: 10.1017/S0025315499001496.
- Bilecenoglu, M., Kaya, M., Cihangir, B. & Çiçek, E. (2014). An updated checklist of the marine fishes of Turkey. *Turk. J. Zool.* 38: 901-929. DOI: 10.3906/zoo-1405-60.
- Buencuerpo, V., Rios, S. & Moron, J. (1998). Pelagic sharks associated with the swordfish, *Xiphias gladius*, fishery in the eastern North Atlantic Ocean and the strait of Gibraltar. *Fishery Bulletin* 96: 667-685.
- CIESM (2008). Climate warming and related changes in Mediterranean marine biota. N° 35 in CIESM Workshop Monographs [F. Briand, Ed.], Monaco, 152 pp.
- Damalas, D. & Megalofonou, P. (2010). Environmental effects on blue shark (*Prionace glauca*) and oilfish (*Ruvettus pretiosus*) distribution based on fishery-dependent data from the eastern Mediterranean Sea. *J. Mar. Biol. Assoc. U.K.* 90(3): 467-480. DOI: 10.1017/s0025315409991214.
- Elbaraasi, H., Elmariami, M., Elmeghrabi, M. & Omar, S. (2007). First record of oilfish, *Ruvettus pretiosus* (Actinopterygii, Gempylidae), off the coast of Benghazi, Libya (southernMediterranean). *Acta Ichthyol. Piscat.* 37(1):67-69. DOI: 10.3750/AIP2007.37.1.10.
- Fischer, W., Bauchot, M.L. & Scheneider. M. (1987). Fishes FAO d'identification des espèces pour les besoins de la pêche (rev.1) Méditerranée et Mer Noire, FAO, Rome. 1530 pp. (In French).
- Froese, R. & Pauly, D. (2012). Fishbase (www Database). World Wide Web Electronic Publications. Available at: <http://www.fishbase.org>. version/ (accessed on 30 September 2012).
- Gabr, M.H. & El-Haweet, A.E. (2012). Pelagic Longline Fishery for Albacore (*Thunnus alalunga*) in the Mediterranean Sea off Egypt. *Turkish Journal of Fisheries and Aquatic Sciences* 12(4): 735-741. DOI: 10.4194/1303-2712-v12_4_01.
- Gürlek, M., Ergüden, D. & Turan, C. (2013). Occurrence of the oilfish, *Ruvettus pretiosus* Cocco, 1833 (Gempylidae) in Iskenderun Bay, northeastern Mediterranean, Turkey. *J. Appl. Ichthyol.* 29: 1158-1159. DOI: 10.1111/jai.12202.
- Kampouris, T.E., Batjakas, I. & Nikolopoulou, I. (2013). Occurrence of oilfish *Ruvettus pretiosus* Cocco, 1833 (Perciformes: Gempylidae) in Chalkidiki peninsula, north Aegean Sea, Greece. *Journal of Biological Research-Thessaloniki* 19:165-167.
- Kaya, M. & Bilecenoglu, M. (1999). *Ruvettus pretiosus* Cocco, 1833 (Teleostei: Gempylidae): A new fish record for the Mediterranean coast of Turkey. *Ege Journal of Fisheries and Aquatic Sciences* 16: 433-435.
- Keller, H.R. & Kerstetter, D.W. (2014). Length-length and length-weight relationships of oilfish (*Ruvettus pretiosus*), escolar (*Lepidocybium flavobrunneum*), snake mackerel (*Gempylus serpens*), and longnose lancetfish (*Alepisaurus ferox*) from the Gulf of Mexico and the western North Atlantic Ocean. *J. Appl. Ichthyol.* DOI: 30(1): 241-243.10.1111/jai.12229.
- Nakamura I. & Parin, N.V. (1993). Snake mackerels and cutlassfishes of the world (Families Gempylidae and Trichiuridae). An annotated and illustrated catalogue of the snake mackerels, snoeks, escolars, gemfises, sackfishes, domine, oilfish, culassfishes, scabbardfishes, hairtails, and frostfishes known to date. *FAO species catalogue*. Vol: 15. FAO, Rome.
- Özen, O., Ayyıldız, H., Öztekin, A. & Altın, A. (2009). Length-weight relationships of 17 less-studied fish species from Çanakkale, Marmara region of Turkey. *J. Appl. Ichthyol.*, 25:238-239. DOI: 10.1111/j.1439-0426.2009.01235.x.
- Parin, N.V. (1986). Gempylidae. In P.J.P. Whitehead, M.L. Bauchot, J.C. Nureau, J. Nielsen & E. Tortonese (Eds.), *Fishes of the north-eastern Atlantic and the Mediterranean* (pp. 967-973). UNESCO, Paris.
- Stobbs, R.E. & Bruton, M.N. (1991). The Fishery of the Comoros, with Comments on its possible impact on coelacanth survival. *Environmental Biology of Fishes.* 32(1-4): 341-359. DOI: 10.1007/978-94-011-3194-0_23.
- Sureshkumar, K., Kannan, K., Ranjith, L., Sivadas, M. & Madan, M.S. (2013). Large sized oilfish *Ruvettus pretiosus* (Cocco, 1833) ever recorded from Gulf of Mannar, south-east coast of India. *Marine Fisheries Information Service T&E Ser.*, No. 215.
- Torcu Koç, H., Üstün, F., Erdoğan, Z. & Artüz, L. (2012). Species composition of benthic fish fauna in the Sea of Marmara, Turkey. *J Appl. Ichthyol.* 1-4. DOI: 10.1111/j.1439-0426.2012.02037.x.
- Viana, D.L., Tolotti, M.T.M., Porto, R.J.V., Araujo, T.V. Junior & Hazin, H.V. (2012). Diet of the oilfish *Ruvettus pretiosus* (Perciformes: Gempylidae) in the Saint Peter and Saint Paul Archipelago, Brazil. *Braz. J. Oceanogr.* 60(2): 181-188. DOI: 10.1590/S1679-87592012000200008.
- Yamamura, O. (1997). Scavenging on discarded saury by demersal fishes off Sendai Bay, northern Japan. *J. Fish Biol.* 50(5): 919-925. DOI: 10.1111/j.1095-8649.1997.tb01618.x.