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FIRST RECORD OF THE MEDITERRANEAN DEALFISH, *TRACHIPTERUS TRACHYPTERUS* (GMELIN, 1789) (TRACHIPTERIDAE), IN SYRIAN MARINE WATERS

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ABSTRACT

Over the past few decades, the Mediterranean Sea has accommodated an increasing number of fish species arriving from the Atlantic Ocean via the Strait of Gibraltar, as well as from the Indo-Pacific region and the Red Sea via the Suez Canal. The ribbonfish (Trachipteridae) are rare deep-sea fishes only recorded in limited areas of the Mediterranean. The Mediterranean dealfish, Trachipterus trachypterus*, a member of the family Trachipteridae, is scientifically documented here for the first time from the Syrian coast (eastern Mediterranean).*

Key words: Mediterranean, Trachipteridae, Syrian marine water, *Trachipterus trachypterus*

PRIMA SEGNALAZIONE DEL PESCE NASTRO, *TRACHIPTERUS TRACHYPTERUS* (GMELIN, 1789) (TRACHIPTERIDAE), NELLE ACQUE MARINE SIRIANE

SINTESI

Negli ultimi decenni, il Mediterraneo ha accolto un numero crescente di specie ittiche provenienti dall'Oceano Atlantico attraverso lo Stretto di Gibilterra, nonché dalla regione Indo-Pacifica e dal Mar Rosso attraverso il Canale di Suez. I pesci nastro (Trachipteridae) sono rari pesci di acque profonde, segnalati solo in aree limitate del Mediterraneo. Nell'articolo il pesce nastro, Trachipterus trachypterus*, appartenente alla famiglia Trachipteridae, viene documentato scientificamente per la prima volta lungo la costa siriana (Mediterraneo orientale).*

Parole chiave: Mediterraneo, Trachipteridae, acque marine siriane, *Trachipterus trachypterus*

INTRODUCTION

Over the past few decades, the Mediterranean Sea has accommodated an increasing number of fish species arriving from the Atlantic Ocean via the Strait of Gibraltar (Azzurro *et al.*, 2022), as well as from the Indo-Pacific region and the Red Sea via the Suez Canal (Galil *et al.*, 2015; Ibrahim *et al.*, 2022). This biogeographic expansion signals changing ecological dynamics within the marine ecosystem of the area. Such expansion is promoted by climate change, hydrological processes, and human activities, and reflects the species' need to spread into new habitats that ensure their survival (Armas & Vila, 2019). Thus, the Mediterranean Sea occasionally witnesses the emergence of species far from their original environments, driven to seek prey in new areas (Ibrahim *et al.*, 2019; Orfanidis *et al.*, 2019).

The ribbonfish (Trachipteridae) are rare deep-sea fishes globally distributed in the eastern Atlantic, including the western Mediterranean, from Morocco to South Africa (Heemstra & Kannemeyer, 1986), as well as in the western Pacific (Japan and New Zealand) and the southeastern Pacific (Nakamura *et al.*, 1986). *Trachipterus trachypterus* (Gmelin, 1789), one of the family's member species, is characterized by elongated, ribbon-like bodies and large, elongated dorsal fins (Carpenter, 2002). It is usually found in bathypelagic habitats at depths between 300 and 600 m (Froese & Pauly, 2025). The species has previously been reported as rare in some areas of the Mediterranean Sea (*e.g.*, Garibaldi, 2015; Albano *et al.*, 2022; Geraci *et al.*, 2022; Gökoğlu & Özen, 2021). In the present study, *Trachipterus trachypterus* is scientifically documented for the first time from the Syrian coast (eastern Mediterranean).

MATERIAL AND METHODS

On 19 October 2025, a local fisherman caught a single *T. trachypterus* specimen using longline fishing in the marine waters off the city of Baniyas, Syria (N35°14′35.11″, E35°55′12″; Fig. 1). The presence of the species in the area came under attention ichthyologists through cooperation with fishermen. This specimen was identified following the criteria in Figueiredo *et al*. (2008); Albano *et al*. (2022), and Geraci *et al*. (2022). Meristic counts were taken, and morphometric measurements were recorded to the nearest 0.5 cm or 0.1 g. An X-ray of the specimen was performed to determine the number of vertebrae and ensure an accurate identification of the species. The specimen was then photographed, preserved in 7% formaldehyde, and deposited as a reference sample (ref. no. HIMR-2026-TA) at the fisheries laboratory of the High Institute of Marine Research, Latakia University (Latakia, Syria).

RESULTS AND DISCUSSION

A specimen of the Mediterranean dealfish, *Trachipterus trachypterus* (Gmelin, 1789) (Fig. 2), was caught at a depth of 850 m. The specimen was scaleless, with a lateral line of 80 forward-directed spines tapering from back to front. Its morphological characters were as follows: body long, significantly compressed and wide, with the maximum width midway between the head and the anus, and tapering towards the caudal fin; eyes large; mouth large and mobile, projecting forward and downwards; dorsal fin long, extending along the entire body, pectoral and pelvic fins relatively small. Coloration: body shiny silver with a light black spot behind the head and a black marking extending from mouth towards head up to the beginning of dorsal fin; dorsal fin transparent orange-red. The specimen's measurements and counts are presented in Table 1.

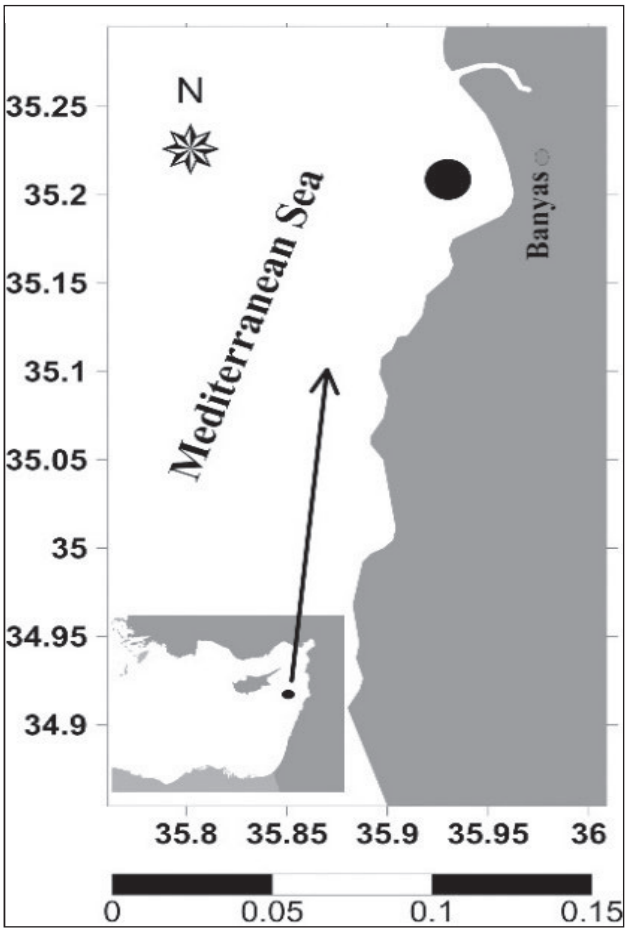

Fig. 1: Map showing the fishing area where the** T. trachypterus **specimen was caught, off the city of Baniyas, Syria.
Sl. 1: Zemljevid obravnavanega območja z lokaliteto Baniyas, kjer je bil ujet primerek vrste** T. trachypterus**.

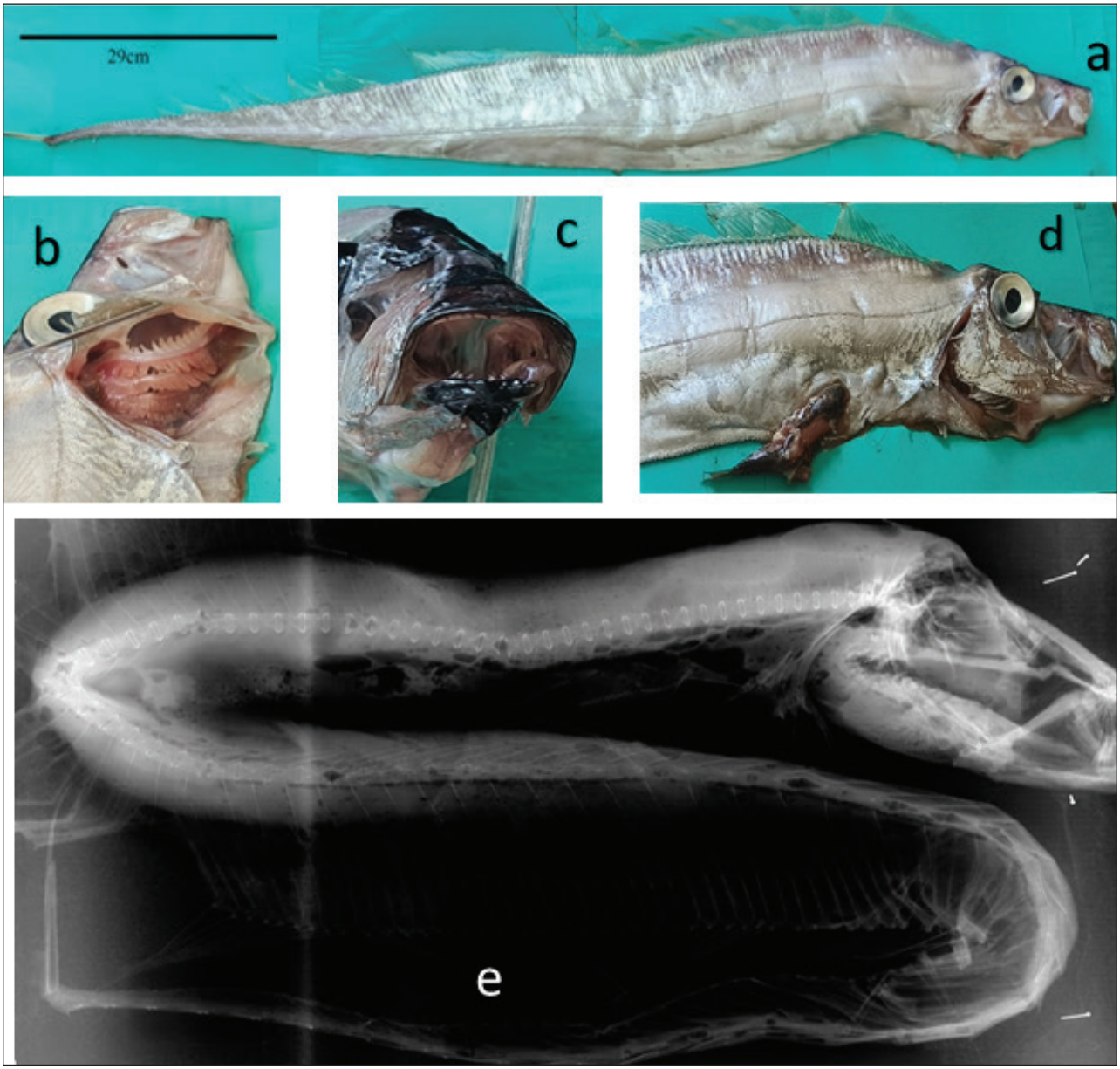

Fig. 2: Specimen of** T. trachypterus **collected from Syrian marine waters: (a) full lateral view; (b) fresh gill rakers; (c) head showing black marking; (d) post-dissection view, with stomach containing remains of a semi-digested local fish; (e) x-ray image of the vertebral column.
Sl. 2: Primerek vrste** T. trachypterus**, ujet v sirskih morskih vodah: (a) stranski pogled na celoten primerek; (b) sveži škržni izrastki; (c) glava s črno pego; (d) pogled po sekciji z želodcem z ostanki delno prebavljenih lokalnih rib; (e) x-ray posnetek hrbtenice.

Its morphological features are consistent with those reported for *T. trachypterus* by Figueiredo *et al.* (2008), Lipej *et al.* (2018), Albano *et al.* (2022), and Geraci *et al.* (2022).

T. trachypterus is considered a rare mesopelagic species, typically found stranded in deep waters across various regions of the Mediterranean Sea, including the Adriatic, Ionian, and Aegean Seas, Spain, the Strait of Sicily, and Türkiye (Lipej *et al.*, 2018; Macali *et al.*, 2020; Albano *et al.*, 2022, Geraci *et al.*, 2022; Stipa *et al.*, 2022). As previous surveys (Ibrahim *et al.*, 2025) did not document *T. trachypterus* in Syrian waters, this study reports the first record of the species on the Syrian coast. This new record, along with that reported from the Gulf of Antalya, Türkiye (Gökoğlu & Özen,

Tab. 1: Morphometric data of the** T. trachypterus **specimen caught off the coast of Baniyas, Syria.
Tab. 1: Morfometrični podatki za primerek vrste** T. trachypterus**, ujet ob obali Baniyas, Sirija.

Characteristics	Measurement (cm or g) / Counts	% of total length
Total length	138	-
Body depth (behind the head)	13.5	9.78
Body depth (near the tail)	4.5	3.26
Head Length	15	10.86
Eye dimeter	4	2.89
Pupil diameter	1.5	1.08
Mouth diameter	5.5	3.98
Caudal fin length	12	8.88
Total weight	973.52	-
No. teeth in lower jaw	7	-
No. teeth in upper jaw	7	-
No. dorsal fin rays	167	-
No. spines on lateral line	80	-
No. vertebra in vertebral column	89	-

2021), reveals that *T. trachypterus* has spread its distribution pattern to the eastern Mediterranean, and highlights the need for developing an effective and comprehensive management plan to monitor the species in this region.

From a marine biodiversity perspective, this first record of *T. trachypterus* in Syrian marine waters reflects significant ecological changes that warrant monitoring due to potential impacts on local native species. The arrival of Atlantic species in the Mediterranean Sea may be a result of global warming and/or changes in ocean current patterns, facilitating the dispersion of marine biota into the region (Albano *et al.*, 2024). In addition, the establishment of this species may be supported by the available ecological niches and abundant food resources in Syrian marine waters (Gilaad *et al.*, 2017). The increasing frequency of new fish records off the Syrian coast, as reported by Ibrahim *et al*. (2025), underscores the need for structured survey programmes to detect non-native and exotic species, complemented by effective species identification methods such as eDNA metabarcoding (Ibrahim *et al.*, 2023; Xanthopoulou *et al.*, 2025).

CONCLUSIONS

This article confirms, for the first time, the presence of the Atlantic fish species *Trachipterus trachypterus* in the marine waters of Syria (eastern Mediterranean). The arrival of this species into the area may be attributed to global warming and/or changes in ocean current patterns.

ACKNOWLEDGEMENTS

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PRVI ZAPIS O POJAVLJANJU KOSICE, *TRACHIPTERUS TRACHYPTERUS* (GMELIN, 1789) (TRACHIPTERIDAE), V SIRSKIH MORSKIH VODAH

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POVZETEK

V zadnjih nekaj desetletjih se v Sredozemskem morju pojavlja vse večje število vrst rib, ki prihajajo iz Atlantskega oceana prek Gibraltarske ožine, pa tudi iz indo-pacifiške regije in Rdečega morja prek Sueškega prekopa. Kosice (Trachipteridae) so redke globokomorske ribe, ki se pojavljajo le na omejenih območjih Sredozemskega morja. Avtorji sporočajo o prvem znanstveno dokumentiranem pojavljanju kosice, Trachipterus trachypterus*, iz družine Trachipteridae, s sirske obale (vzhodno Sredozemlje).*

Ključne besede: Sredozemsko morje, Trachipteridae, sirske morske vode, *Trachipterus trachypterus*

REFERENCES

Albano, M., C. D'Iglio, N. Spanò, J.M.d.O. Fernandes, S. Savoca & G. Capillo (2022): Distribution of the Order Lampriformes in the Mediterranean Sea with notes on their biology, morphology, and taxonomy. Biology, 11(10), 1534.

Albano, P.G., L. Schultz, J. Wessely, M. Taviani, S. Dullinger & S. Danise (2024): The dawn of the tropical Atlantic invasion into the Mediterranean Sea. Proceedings of the National Academy of Sciences, 121(15), e2320687121.

Armas, B.G. & L. Vila (2019): La influencia humana, clave para entender la Biogeografía de especies invasoras en el Antropoceno. Cuadernos de investigación geográfica: Geographical Research Letters, 45(1), 61–86.

Azzurro, E., S. Smeraldo & M. D'Amen (2022): Spatio-temporal dynamics of exotic fish species in the Mediterranean Sea: Over a century of invasion reconstructed. Global Change Biology, 28(21), 6268–6279.

Carpenter, K.E. (2002): The living marine resources of the Western Central Atlantic Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals. Norfolk, Virginia, USA, 1375–2127.

Figueiredo, I., T. Moura & L.S. Gordo (2008): Vertebrae counting—a way to resolve species identification of the genus *Trachipterus* (Osteichthyes: Trachipteridae). Marine Biodiversity Records, 1, e65.

Froese, R. & D. Pauly (2025): FishBase. Fisheries Centre, University of British Columbia Vancouver, BC, 1/5.

Galil, B.S., F. Boero, M.L. Campbell, J.T. Carlton, E. Cook, S. Fraschetti, S. Gollasch, C.L. Hewitt, A. Jelmert, E. Macpherson, A. Marchini, C. McKenzie, D. Minchin, A. Occhipinti-Ambrogi, H. Ojaveer, S. Olenin, S. Piraino & G.M. Ruiz (2015): 'Double trouble': the expansion of the Suez Canal and marine bioinvasions in the Mediterranean Sea. Biological Invasions, 17(4), 973–976.

Garibaldi, F. (2015): By-catch in the mesopelagic swordfish longline fishery in the Ligurian Sea (Western Mediterranean). Collect. Vol. Sci. Pap. ICCAT, 71(3), 1495–1498.

Geraci, M.L., D. Scannella, F. Falsone, G. Sardo, S. Gancitano, V. Gancitano & S. Vitale (2022): First record of *Trachipterus trachypterus* Gmelin 1789 (Lampriformes) in the Strait of Sicily. Acta Adriatica, 63(2), 231–240.

Gilaad, R.-L., B.S. Galil, A. Diamant & M. Goren (2017): The diet of native and invasive fish species along the eastern Mediterranean coast (Osteichthyes). Zoology in the middle East, 63(4), 325–335.

Gökoğlu, M. & M.R. Özen (2021): First record of *Trachipterus trachypterus* (Gmelin, 1789) in the Gulf of Antalya (Turkey). Acta Aquatica Turcica, 17(4), 505–507.

Heemstra, P. & S. Kannemeyer (1986): Trachipteridae: In:Smith's sea fishes. Springer-Verlag, Berlin, 399–402.

Ibrahim, A., F. Alshawy & C. Hussein (2019): Stonefish *Synanceia verrucosa* Bloch & Schneider, 1801 (Actinopterygii: Synanceiidae): the first record in the Syrian coast and the fourth in the Mediterranean. International Journal of Aquatic Biology, 7(6), 383–386.

Ibrahim, A., C. Hussein, F. Alshawy, M. Badran, W. Ghanem & S.A. Ahmad (2022): First Record of the Red Sea Bannerfish *Heniochus intermedius* Steindachner, 1893, (Chaetodontidae) in the Syrian Marine Waters (Eastern Mediterranean). Species, 23(72), 459–463.

Ibrahim, A., F. Alshawy & C. Hussein (2023): Pencil cardinal *Epigonus denticulatus* Dieuzeide 1950, a western Mediterranean fish: Newly recorded from the Syrian marine waters (Eastern Mediterranean). Species, 24, e25s1025.

Ibrahim, A., C. Hussein, F. Alshawy & A.A. Ahmad (2025): Marine Fishes (Teleostei/Osteichthyes) of Syria (Eastern Mediterranean): An Updated Checklist. Annales, Ser. Hist. Nat., 35(2), 269–284.

Lipej, L., D. Trkov & B. Mavrič (2018): Occurrence of ribbon fish (*Trachipterus trachypterus*) in Slovenian waters (northern Adriatic Sea). Annales, Ser. Hist. Nat., 28(2), 129–134.

Macali, A., A. Semenov, F. Paladini de Mendoza, A. Dinoi, E. Bergami & F. Tiralongo (2020): Relative influence of environmental factors on biodiversity and behavioural traits of a rare mesopelagic fish, *Trachipterus trachypterus* (Gmelin, 1789), in a continental shelf front of the Mediterranean Sea. Journal of Marine Science Engineering, 8(8), 581.

Nakamura, I., T. Inada, M. Takeda & H. Hatanaka (1986): Important fishes trawled off Patagonia. Japan Marine Fishery Resource Research Center, Tokyo, 369 pp.

Orfanidis, S., A. Alvito, E. Azzurro, A.H. Badreddine, J.B. Souissi, M.C.G. Chamorro, F. Crocetta, C. Dalyan, A. Fortič, L.N. Galanti, K. Geyran, R. Ghanem, A. Goruppi, D. Grech, S. Katsanevakis, E. Madrenas, F. Mastrototaro, F. Montesanto, M. Pavičić, D. Pica, L. Pola, M. Pontes, M. Ragkousis, A. Rosso, L. Sánchez-Tocino, J.M.T.d. Figueroa, F. Tiralongo, V. Tirelli, S. Tsioli, S. Tunçer, D. Vrdoljak, V. Vuletin, J. Zaouali & A. Zenetos (2019): "New Alien Mediterranean Biodiversity Records" (March 2021). Mediterranean Marine Science, 22(1), 180–198.

Stipa, M.G., F. Longo, G. Aammendolia, T. Romeo & P. Battaglia (2022): New data on *Trachipterus trachypterus* Gmelin, 1789 and *Zu cristatus* (Bonelli, 1820) (Pisces: Trachipteridae) from the Mediterranean Sea. Acta Adriatica, 63(1), 65–74.

Xanthopoulou, P., S. Katsanevakis, M. Ragkousis, O. Papadakis, M. Zotou, N. Kamidis, O.S. Wangensteen, V. Papathanasiou, D. Karampetsis & A.D. Mazaris (2025): Complementing underwater visual surveys with eDNA metabarcoding to detect Mediterranean non-indigenous fishes. Mediterranean Marine Science, 26(1), 216–229.