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RANGE EXPANSION OF *PRIACANTHUS HAMRUR* (FABRICIUS, 1775) IN THE NORTHEASTERN MEDITERRANEAN (MERSIN BAY, TURKEY)

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ABSTRACT

A single male specimen of Priacanthus hamrur *(Fabricius, 1775) was caught by hook and line at a depth of 35 m in Mersin Bay (Taşucu, Turkey) in February 2024. This is the second record from Turkish waters and the first from Mersin Bay (northeastern Mediterranean coast of Turkey). The finding of a male specimen may suggest successful adaptation and potential establishment of a population in the near future. Also, available records may indicate that the species has migrated westward in the Mediterranean waters of Turkey.*

Key words: Moontail bullseye, Pricanthidae, Occurence, Taşucu coast, Eastern Mediterranean

ESPANSIONE DELL'AREALE DI *PRIACANTHUS HAMRUR* (FABRICIUS, 1775) NEL MEDITERRANEO NORD-ORIENTALE (BAIA DI MERSIN, TURCHIA)

SINTESI

Un singolo esemplare maschio di Priacanthus hamrur *(Fabricius, 1775) è stato catturato con amo e lenza a 35 m di profondità nella baia di Mersin (Taşucu, Turchia) nel febbraio 2024. Si tratta della seconda segnalazione dalle acque turche e della prima dalla baia di Mersin (costa mediterranea nord-orientale della Turchia). Il ritrovamento di un esemplare maschio può suggerire il successo dell'adattamento e il potenziale insediamento di una popolazione nel prossimo futuro. Inoltre, i dati disponibili possono indicare che la specie è migrata verso ovest nelle acque mediterranee della Turchia.*

Parole chiave: occhio di bue lunare, Pricanthidae, occorrenza, costa di Taşucu, Mediterraneo orientale

INTRODUCTION

So far, four species of the genus *Priacanthus* have been reported so far in the Mediterranean Sea: the Atlantic bigeye, *Priacanthus arenatus* Cuvier, 1829, the moontail bulleye, *P. hamrur* (Fabricius, 1775), the elongated bulleye, *P. prolixus* Starnes, 1988, and the arrow bulleye, *P. sagittarius* Starnes, 1988. Another priacanthid, the paeony bulleye, *P. blotchi* Bleeker, 1853, is known from the Red Sea (Golani *et al.*, 2011), but there have been no confirmed reports of its presence in Mediterranean waters.

P. hamrur is widely distributed in the Indo-Pacific, from the Red Sea and southern Africa in the west to French Polynesia in the east, reaching northward and southward to southern Japan and Australia, respectively, and even including Easter Island (Fricke, 1999). The species is commonly found on outer reef slopes and deep lagoon pinnacles at depths ranging from 8 to 80 m at least (Kuiter & Tonozuka, 2001), but may also be seen under ledges or hovering near coral heads during the day (Allen & Erdmann, 2012).

The first record of the arrow bulleye *P. hamrur* in the Mediterranean was reported from the Tunisian coast (off Mahdia) by Abdelmoleh (1981). Although this record remains questionable, the species is included in the checklists for the Mediterranean compiled by Bradai *et al*. (2004) and Golani and Bogorodsky (2010). Some 37 years later, it was reported for the second time in Mediterranean waters, and for the first time from the Bay of Iskenderun, Turkey, by Ergüden *et al*. (2018).

This paper reports a second record of *P. hamrur* from Turkish Mediterranean waters and represents the third consecutive record of this species in the Mediterranean basin. The record suggests a westward migration of the species in the waters of Turkey. This finding importantly contributes to a better understanding of the species' distribution in the region.

MATERIAL AND METHODS

A male specimen of *P. hamrur* Starnes, 1988 was caught with a fishing rod at a depth of 35 m on February

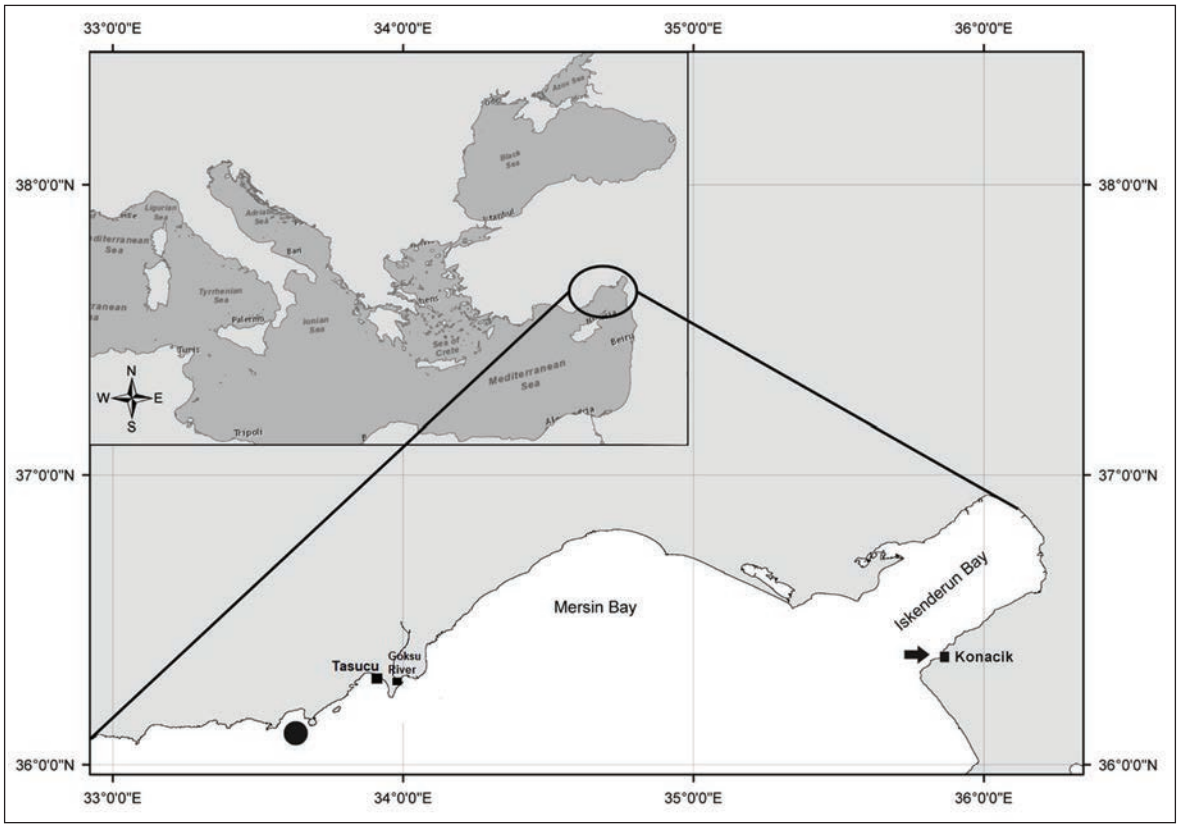

Fig. 1: Map showing the capture sites of** P. hamrur **in the Mediterranean Sea. → Previous record: Konacık (Iskenderun Bay), Turkey; • Present record: Taşucu (Mersin Bay), Turkey.
Sl. 1: Zemljevid obravnavanega območja z označenima lokalitetama ulova primerkov vrste** P. hamrur **v Sredozemskem morju. → Predhodni zapis o pojavljanju: Konacık (zaliv Iskenderun), Turčija; • Pričujoči zapis o pojavljanju: Taşucu (zaliv Mersin), Turčija.

Fig. 2: The specimen of moontail bullseye** P. hamrur **was captured (190 mm, TL) from Mersin Bay, Turkey. Top left corner: photograph taken immediately upon capture.
Sl. 2: Primerek lunastorepega veleokega ostriža** P. hamrur **(190 mm telesne dolžine), ujetega v zalivu Mersin, Turčija. Zgornji levi rob: fotografija posneta takoj po ulovu.

11, 2024, off the Taşucu coast (near Dana Island, Turkey), at 36°12′29″ N, 33°45′36.9″ E (Fig. 1). The captured specimen was taken to the laboratory, where morphometric measurements were made using a digital caliper with an accuracy of 0.01 mm. The specimen's gonads were examined under a stereomicroscope and found to be immature. The identification of *P. hamrur* aligns with that provided by Starnes (1988). The measurements and counts, morphological description, and coloration correspond to the descriptions by Starnes (1988), Philip (1994), and Ergüden *et al.* (2018). The specimen was deposited at the Mersin University Marine Life Museum under catalog number MEUFC-24-11-146 (Fig. 2).

RESULTS AND DISCUSSION

The recorded specimen of *P. hamrur* measured 190 mm total length (TL) and 155 mm standard length (SL), and weighed 120.45 g. It displayed the following morphological characteristics: dorsal fin rays: X +14, anal fin rays: III +15, pectoral fin rays; 16, total gill rakers in the first gill arch: 26 (13 on the lower and 13 on the upper limb of the first arch); body laterally compressed, depth at the sixth dorsal fin spine 2.62 times the standard length; soft part of dorsal fin higher than spiny part and angled posteriorly; pectoral fins shorter than pelvic vertebrae; pelvic fins long and extending posteriorly to spiny portion of anal fin; caudal fin distinctly emarginate. Head length 32.69% of standard length (SL); body depth 39.58% of standard length; eyes large, with eye diameter 45.40% of head length; interorbital width 30.92% of head length; distance from upper lip to orbit 41.99% of head length; distance from upper lip to origin of dorsal fin 35.03% of standard length. The meristic and morphometric characteristics of the specimen are presented in Table 1 and compared with previous Mediterranean records.

Coloration of the specimen: body entirely red or pinkish with about 6 red bars and large spots on upper side; dorsal and anal fins red to light pink; membranes of caudal and pelvic fins blackish distally.

P. hamrur is a nocturnal species that naturally occurs at depths ranging between 8 and 250 m (Kuiter & Tonozuka, 2001), but most commonly between 30 and 50 m (Starnes, 2001; Sivakami *et al.*, 2001). Starnes (1988) reported a depth range from the surface down to 440 m. The species frequently feeds on small fish, crustaceans, and other small invertebrates (Fisher *et al.*, 1990).

Although *P. hamrur* and *P. prolixus* share similarities, *P. hamrur* exhibits a more elongated body structure, with the body depth at the sixth dorsal fin spine approximately 2.6 to 2.8 times the standard length (Starnes, 1988). *P. hamrur* also differs from other priacanthid species in the number of gill rakers, having 24–26 compared to 28–31 in *P. arenatus*, 29–31 in *P. prolixus*, and 19–22 in *P. sagittarius* (Starnes, 1988).

P. sagittarius typically lives solitarily but can occasionally form small schools in oceanic locations (Kuiter & Tonozuka, 2001). Male specimens can reach a maximum standard length of up to 450 mm (Heemstra, 1986). Ergüden *et al.* (2018) reported a standard length

Tab. 1: Morphometric measurements of the** P. hamrur **specimen collected from the northeastern Mediterranean, Turkey, and comparison with a previous record from the Mediterranean.
Tab. 1: Morfometrične meritve primerka vrste** P. hamrur **iz severovzhodnega Sredozemskega morja, Turčija, in primerjava s predhodnim zapisom o pojavljanju vrste v Sredozemskem morju.

Measurements (mm)	This study	Ergüden *et al.* (2018)
Total length	190	367
Standard length	155	285
Head length	50.68	64.77
Head depth	46.35	60.03
Maximum body depth	61.36	109.30
Eye diameter	23.01	26.23
Inter-orbital width	15.67	19.48
Distance between orbit and upper lip	21.28	36.09
Distance between upper lip and dorsal fin	54.30	77.62
Pre-orbital length	12.86	14.73
Post-orbital length	33.88	43.56
Pre-dorsal fin length	43.49	69.56
Post-dorsal fin length	13.75	26.2
Pre-pelvic fin length	52.42	78.85
Pre-pectoral fin length	50.41	67.97
Pre-anal fin length	9.36	15.0
Caudal peduncle length	20.09	26.72
Anal fin length	57.32	117.21
Pelvic fin length	60.77	85.84
Pectoral fin length	33.68	43.13
Meristic characters		
Total number of gill rakers on 1st gill arch	26	26
Scales in lateral line series	78	80
Vertical scale row	47	48
Number of dorsal fin ray spines	X + 14	X + 13
Number of anal spines	III + 15	III + 15
Number of pelvic spines	I + 5	I + 5
Number of pectoral rays	16	16
Number of caudal fin rays	19	20
Weight (g)	120.45	760.59

of 285 mm for *P. hamrur* in Iskenderun Bay (southeastern Mediterranean, Turkey), whereas in our study, the specimen from the northeastern Mediterranean coast of Turkey measured 155 mm standard length. Although a common length of 400 mm has been reported for this species, the specimens observed in the Mediterranean Sea seem to exhibit smaller lengths. Previous records of *P. hamrur* from the Mediterranean are listed in Table 2 along with the results of our study.

Tab. 2: Records of** P. hamrur **from the Mediterranean Sea for the period 1980–2024.
Tab. 2: Zapisi o pojavljanju vrste** P. hamrur **v Sredozemskem morju v obdobju 1980–2024.

References	Record Date	Number of Samples	Location	Sampling Gear	Depth (m)	Length, SL (mm)
Abdelmoleh (1981)	1981	1	Tunisian coast, Mahdia, Tunisia	-	-	-
Ergüden et al. (2018)	December 2017	1	Konacık, Iskenderun Bay, Türkiye	Longline	30	285
This study	February 2024	1	Tasucu, Mersin Bay, Türkiye	Fishing rod	35	155

P. hamrur is widely distributed in the Indo-West Pacific and Red Sea and is locally abundant in certain areas of its natural range (Starnes, 2001). It is also a very common commercial species in the southwestern Indian Ocean (Mablouké *et al.,* 2013). The occurrence of *P. hamrur* in the Mediterranean is most likely the result of the species' migration from the Red Sea via the Suez Canal (Ergüden *et al.,* 2018), with climate change and the tropicalization of the Mediterranean accelerating the arrival of alien fish species to Turkish Mediterranean waters (Turan *et al.,* 2016). While a single specimen does not necessarily indicate the presence of an established population in Mersin Bay, the past and present records of two specimens (Gürlek *et al.,* 2017; Ergüden *et al.,* 2018) may suggest a westward migration of the species in the Mediterranean waters of Turkey.

This study reports the first record of *P. hamrur* occurring in Mersin Bay (northeastern Mediterranean Sea), Turkey, and the second confirmed record from the Mediterranean waters of Turkey.

CONCLUSIONS

This new record indicates that the *P. hamrur* species did not enter the Mediterranean by chance. The presence of a male specimen in the waters of Turkey may indicate successful adaptation and potential small aggregations in the near future. This ichthyological note is important as it suggests a westward expansion of the species in Turkish Mediterranean waters.

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ŠIRJENJE AREALA LUNASTOREPEGA VELEOKEGA OSTRIŽA *PRIACANTHUS HAMRUR* (FABRICIUS, 1775) V SEVEROVZHODNEM SREDOZEMSKEM MORJU (ZALIV MERSIN, TURČIJA)

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POVZETEK

Primerek samca lunastorepega veleokega ostriža Priacanthus hamrur *(Fabricius, 1775) so februarja 2024 ujeli na trnek na globini 35 m v zalivu Mersin (Taşucu, Turčija). Gre za drugi zapis o pojavljanju te vrste iz turških voda in prvi iz zaliva Mersin (severovzhodna sredozemska obala Turčije). Najdba samca te vrste kaže na uspešno prilagajanje in možno vzpostavitev populacije v bližnji prihodnosti. Poleg tega razpoložljivi zapisi o pojavljanju kažejo, da se vrsta seli proti zahodu sredozemskih turških voda.*

Ključne besede: lunastorepi veleoki ostriž, Pricanthidae, pojavljanje, obala Taşucu, vzhodno Sredozemsko morje

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