

First Record of the Man-of-War Fish *Nomeus gronovii* (Gmelin, 1789) from Lebanese Waters (Levantine Eastern Mediterranean Sea)

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Abstract

The man of war fish *Nomeus gronovii* (Gmelin, 1789) is reported for the first time from Lebanese waters and represents the first documented occurrence of this species in the Mediterranean Sea. A juvenile specimen was captured by a local fisherman in February 2026 at a depth of 23 m near Ramkin Island (Palm Islands Nature Reserve, eastern Mediterranean Sea) using a trammel net. Identification was confirmed through detailed morphological and meristic analyses.

This record underscores the importance of coordinated marine biodiversity monitoring efforts and citizen science initiatives in detecting rare, non-indigenous, or previously unrecorded species. Although the introduction pathway remains uncertain, possible mechanisms include natural dispersal via surface currents or anthropogenic transport. Continued monitoring is recommended to evaluate the potential establishment and ecological implications of this species in the region.

Keywords: *Nomeus gronovii*; Non-Indigenous Species; Eastern Mediterranean Sea

Introduction

Nomeus gronovii (Gmelin, 1789) is a pelagic species widely distributed in tropical and subtropical waters [1,2] of the Atlantic, Indian, and Pacific Oceans [3]. The species is commonly known as the man of war fish due to its close ecological association with the siphonophore Portuguese man of war *Physalia physalis* (Linnaeus, 1758), with which it exhibits a commensal relationship [3]; It is the sole representative of the genus *Nomeus* Cuvier, 1816 [4].

To date, *N. gronovii* has not been recorded in the Mediterranean Sea. The present note reports the first occurrence of this species in the Mediterranean basin, based on a specimen collected from Lebanese waters, Levantine Eastern Mediterranean Sea. In addition, potential introduction pathways and ecological implications associated with this record are discussed.

Materials and methods

On 15 February 2026, a single specimen was captured by a local fisherman (@Annous, M.) using a trammel net at a depth of approximately 23 m near Ramkin Island (34°28'50.98"N, 35°46'19.19"E), Palm Islands Nature Reserve (Tripoli, north Lebanon).

Photographs and videos of the specimen were provided to one of the authors (SF) as part of an ongoing citizen science initiative. In 2022, two Marine Protected Areas (MPAs) in Lebanon-Tyre Coast Nature Reserve (TCNR) in the south and Palm Islands Nature Reserve (PINR) in the north-launched a collaborative marine biodiversity monitoring program involving fishers, divers, and marine stakeholders. This initiative aims to anticipate the arrival of Non-Indigenous Species (NIS), monitor established populations, and document ecologically significant taxa [5].

Subsequently, the specimen was retrieved from the fisherman by one of us (SF) for detailed examination, and preservation. Identification was confirmed through the analysis of photographic material and direct inspection of the specimen, based on standard ichthyological diagnostic criteria, and morphological characteristics.

The specimen was preserved in 70% ethanol and deposited under the code PINR12 for future reference and genetic analyses. Morphometric and meristic measurements were obtained directly from the specimen and supplemented by calibrated measurements derived from photographic analysis.

Results

The examined specimen (Figure 1) corresponds to a juvenile individual, with a total length (TL) of 10 cm. The body is moderately deep and laterally compressed, exhibiting a relatively robust appearance compared to typical pelagic juveniles. The general coloration is pale whitish to yellowish, overlaid with irregular dark brown blotches and rounded spots distributed along the flanks, forming a characteristic mottled pattern. The head is relatively large, with a short, blunt snout and a terminal, slightly oblique mouth. The jaws bear small, fine teeth. The eye is large and circular, occupying a substantial proportion of the head length.

The dorsal fin is distinctly divided into two portions: a short anterior section composed of four spines, followed by a long second dorsal fin with approximately 32 soft rays. The second dorsal fin is elevated anteriorly and gradually decreases in height posteriorly. The anal fin mirrors the second dorsal fin in both shape and extent, comprising approximately 17 soft rays. The pectoral fins are well developed, fan-shaped, and inserted low on the body. The pelvic fins are relatively

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Figure 1: Specimen of *Nomeus gronovii* captured from the Lebanese waters. (C) S. Fatfat.

Table 1: Meristic counts and morphometric measurements of *Nomeus gronovii* specimen from Lebanese waters. TL = total length; D1 = first dorsal fin (spines); D2 = second dorsal fin (soft rays); A = anal fin (soft rays); V = pelvic fins (rays). Values are expressed in centimeters (cm) and as percentages of TL.

Character	Value	% of TL
Total length (TL)	10 cm	100%
Head length	3.0 cm	30%
Body depth (max)	3.0 cm	30%
Predorsal length	3.0 cm	30%
Pelvic fin length	2.5 cm	25%
Caudal peduncle + caudal fin	2.5 cm	25%
First dorsal fin (D1)	IV spines	—
Second dorsal fin (D2)	32 soft rays	—
Anal fin (A)	17 soft rays	—
Pelvic fins (V)	16 rays	—

large, triangular, and composed of approximately 16 rays. The caudal fin is forked, with moderately elongated lobes and darker pigmentation towards the tips. The caudal peduncle is short and robust. The body surface appears smooth, with fine, inconspicuous scaling.

Meristic counts and morphometric measurements are summarized in (Table 1). The observed counts (D1: IV; D2: 32; A: 17; V: 16) and body proportions are consistent with the diagnostic characteristics of juvenile *Nomeus gronovii*.

Overall, the morphological and meristic features observed in the present specimen are in agreement with previous descriptions of *Nomeus gronovii* [2], particularly those reported from the Florida Current [6], the North Pacific [7], southern Japan [8], and more recent observations from the southwestern Atlantic [3].

Discussion

The presence of *Nomeus gronovii* in Lebanese waters represents the first record of this species in the Mediterranean Sea. However, the exact pathway of its introduction remains uncertain, and multiple mechanisms may be considered. The proximity of Lebanese waters (~400 km) to the Suez Canal—a major corridor for Lessepsian migration—suggests a potential route of entry, particularly given that the majority of non-indigenous fish species recorded along the Lebanese coast originate from the Indo-Pacific and have entered via the canal [9]. In addition, recent Lebanese studies have also documented an increasing number of newly recorded Non-Indigenous Species (NIS) in Lebanese waters [10,11].

Nevertheless, considering the pelagic nature of *N. gronovii* and its well-documented ecological association with the siphonophore *Physalia physalis* [3], dispersal through surface currents and rafting mechanisms also represents a plausible pathway. Although *P. physalis* has been reported in the Mediterranean Sea, its occurrence is primarily restricted to the western and central basins and remains rare in the eastern Mediterranean [12]. This suggests that rafting-mediated transport to Lebanese waters, while possible, is likely infrequent. Therefore, the introduction pathway of *N. gronovii* remains unresolved, and further investigations, including continued monitoring, are strongly recommended.

Ecologically, *N. gronovii* is known to feed on small pelagic fishes, crustaceans, and planktonic invertebrates [6,3]. Its presence may potentially influence local pelagic communities through competition with native predators and modifications in trophic dynamics [6]. However, the current ecological impact is likely negligible, given that only a single juvenile specimen has been recorded and caught. Continued monitoring is therefore essential to detect potential establishment and assess long-term ecological consequences.

This finding also highlights the importance of citizen science in marine biodiversity monitoring. The detection of this species was made possible through collaboration with local fishers, who act as key observers of environmental change. Initiatives implemented by Tyre Coast Nature Reserve and Palm Islands Nature Reserve demonstrate the effectiveness of engaging stakeholders in reporting unusual catches in the Lebanese waters [5]. Such participatory approaches significantly enhance early detection capacity and provide a cost-effective tool to anticipate the introduction of non-indigenous or range-expanding species, thereby supporting timely scientific and management responses in the Mediterranean region. This is particularly relevant in the eastern Mediterranean, where increasing maritime traffic, ongoing geopolitical pressures, and the expansion of the Suez Canal may further facilitate the introduction and spread of non-indigenous species.

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