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Collective Article B

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# New records of rare species in the Mediterranean Sea (December 2022)

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## Abstract

This Collective Article presents information on 20 taxa belonging to five (5) Phyla: Cnidaria (2), Mollusca (8), Arthropoda (4), Echinodermata (1) and Chordata (5) recorded from the Alboran Sea to the Levantine Sea. These new records were found in seven (7) different ecoregions as follows: **Alboran Sea:** new record of the rare football octopus *Ocythoe tuberculata* in the harbour of Algeciras (Spain); **Western Mediterranean Sea:** first record of the isopod *Arcturinella deltensis* in the Ligurian Sea, and the third

in the whole Mediterranean Sea; third Mediterranean site for the Muricidae *Coralliophila ahuiri* along the Italian coasts (Alghero); first and westernmost record of the goby *Corcyrogobius liechtensteini* from the Iberian Peninsula; new record of the sea slug *Glaucus atlanticus* from the coast of the Iberian Peninsula; first and easternmost record of *Holothuria (Vaneyothuria) lentiginosa lentiginosa* along the Italian coasts; **Tunisian Plateau/Gulf of Sidra:** seventh record of the oceanic squid *Thysanoteuthis rhombus* in Tunisia, and first for the Gulf of Gabes. **Ionian Sea:** second occurrence of the Atlantic tripletail *Lobotes surinamensis* in the Ionian Sea and first record from the Strait of Messina area; new record of the rare sea elephant *Pterotrachea coronata* from the Strait of Messina; **Adriatic Sea:** first record of a facies of football ascidian *Diazona violacea* in the South Adriatic Sea (Tremiti Island, Italy); two records of the sevengill shark *Heptranchias perlo* in Croatian waters after more than 70 years of absence of documented records in this area; first known occurrence of the nudibranch *Jalonus hyalinus* in Slovenian waters and also the first known occurrence of this species in the Adriatic Sea; first record of the nudibranch *Okenia elegans* in Slovenian waters; **Aegean Sea:** First record of the parasitic isopod *Nerocila milesensis* along Greek coasts (Crete island) as well as the second record worldwide; additional record of the brachyuran *Paragalene longicrura* collected from the Saronikos Gulf (Greece); first record of the siphonophore *Rhizophysa filiformis* in Greek waters as well as the second record of this species in the eastern Mediterranean basin; new record of the rare and protected angelshark *Squatina aculeata* along Turkish coasts; **Levantine Sea:** first record of the marine amphipod *Caprella andreae* in the Levantine Mediterranean shore of Israel, based on both morphological and molecular data; first occurrence of the cephalopod *Tremoctopus violaceus* along Turkish coasts, which confirms its presence in the north-eastern coasts of Turkey; record of a bloom of the thermophilic jellyfish *Pelagia noctiluca* in the north Levantine Sea.

## Introduction

The Mediterranean Sea is a semi-enclosed basin that hosts more than 7% of world's marine biodiversity, covering an area smaller than 1% of the oceans, including many endemic species, as well as species of special interest (e.g., protected and threatened) and rare species (Coll *et al.*, 2010). The relentless increase in human activity and exploitation of marine resources in the Mediterranean Sea pose a threat to marine habitats and species; indeed, this basin considered one of the most threatened seas of the world (Fraschetti *et al*., 2011). In order to implement effective conservation measures, accurate biodiversity inventories and population estimates are urgently needed (Fraschetti *et al*., 2011; Gerovasileiou *et al*., 2020). Therefore, it is extremely important to document the presence of rare, threatened and protected species, in order to provide information and fill the gaps about population status, distribution and ecology of these often-overlooked taxa (Boudouresque, 2004; Coll *et al*., 2010). Indeed, this information may enable scientists and managers to detect early signs of regional changes and habitat expansions. Although the Mediterranean Sea has been studied extensively, the knowledge of presence, distribution and ecological status of several taxa and their relative population is not complete (Fraschetti *et al*., 2011). Since a more accurate and consistent mapping of marine habitats requires improved inventories, the Collective Articles: Series B, titled "New records of rare species in the Mediterranean Sea" represents an effort to support the publication of information on the first occurrence or expansion of species in the Mediterranean Sea, as well as sightings of rare, threatened or protected species which might be of relevance, representing a platform for periodically reporting new records of such species in the Mediterranean Sea and adjacent regions.

Contributions submitted to the Collective Articles are peer-reviewed by at least one reviewer and the editor. The contributors are cited as co-authors in alphabetic order as well as at the beginning of each subchapter corresponding to their record (s). As customary for the series, new records are arranged from west to east, and classified within four main regions or subchapters: Western Mediterranean Sea, Central Mediterranean Sea, Adriatic Sea and Eastern Mediterranean Sea.

Starting from the previous Collective Articles: Series B (e.g., Santin *et al*., 2021), species are listed by ecoregions *sensu* Spalding *et al.* (2007), which are defined as "strongly cohesive areas of relatively homogeneous species composition, large enough to encompass the ecological and life history processes of its sedentary species and clearly distinct from adjacent systems" (Spalding *et al*., 2007). The sub-chapters are classified geographically following the regions and subregions defined in the Marine Strategy Framework Directive (Directive 2008/56/EC): Western Mediterranean Sea, Central Mediterranean Sea, Adriatic Sea, Eastern Mediterranean Sea and Black Sea (including the Sea of Marmara). The approximate locations of each record are shown in Figure 1, with numbers cross-referenced with Table 1 (Location Number; LN) in increasing order from west to east. A summary of each LN mapped in Figure 1 is presented in Table 1, which includes basic information for each record, such as Phylum, sub-chapter, ecoregion, approximate location, and location number (LN) as reported in the map.

The present Collective Article reports records of 20 taxa belonging to five (5) Phyla in the Mediterranean Sea, listed in three chapters according to four different regions: Western Mediterranean Sea (six records), Central Mediterranean (three records), Adriatic Sea (four records) and Eastern Mediterranean Sea (7 records) (Fig. 1).

In detail, the present article includes the first confirmed record of Liechtenstein's goby *Corcyrogobius liechtensteini* from the Iberian Peninsula, as well as its westernmost record in the Mediterranean Sea. Similarly, in the Iberian Peninsula, the unique Atlantic nudibranch *Glaucus atlanticus* was spotted on a beach, and a specimen was preserved and deposited at the Zoology Department of the University of Murcia. The football octopus *Ocythoe tubercolata* was caught in Spain in the harbour

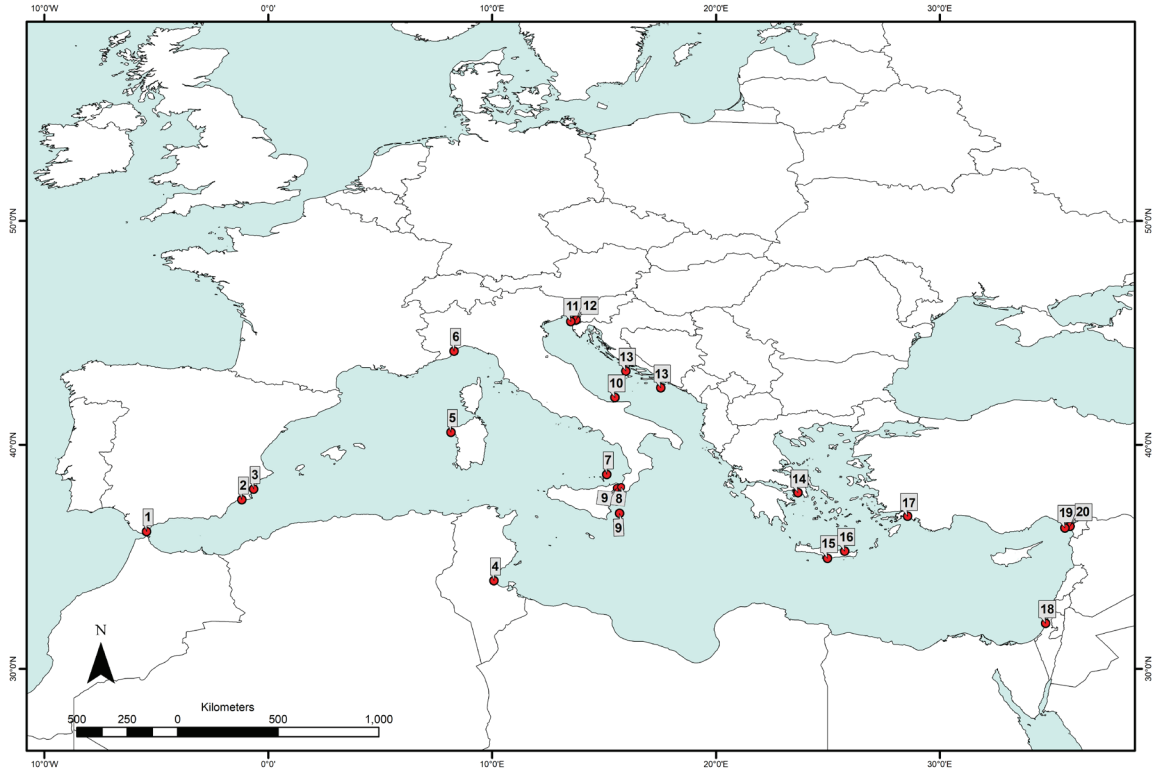


***Fig. 1:*** Approximate locations of new records of rare species in the Mediterranean Sea presented in "New Mediterranean Biodiversity Records (November, 2022)". Location numbers (LN) correspond with those in Table 1.

of Algeciras and identified through high-quality images thanks to citizen science. A re-examination of samples collected from Alghero (Sardinia, Italy), allowed to report the presence of *Coralliophila ahuiri* in the third site for the Mediterranean basin. The sea cucumber *Holothuria (Vaneyothuria) lentiginosa* was observed during an ROV exploration off Panarea island (Sicily, Italy), suggesting a recent expansion of this species in the area. Similarly, a facies of the deep-ascidian *Diazona violacea* was observed during an ROV transect off Tremiti islands (Italy); this ascidian facies represents a peculiar habitat codified as "Circalittoral rocks at seamounts summit dominated by ascidians", and a size-frequency distribution analysis allowed to estimate the age of the colonies observed. The last species recorded in Italian waters, along Ligurian coasts, is represented by *Arcturinella deltensis*, one of the two species of peculiar marine isopods belonging to the genus *Arcturinella* present in the Mediterranean Sea, and the present record is the third within this basin and the first along Italian coasts. *Okenia elegans* is a nudibranch that shows two colour morphotypes, a red morphotype was recorded from Piran (Slovenia), representing the first record from Slovenian coasts. Similarly, another nudibranch species *Jalonus hyalinus* was collected in the Slovenian part of the Gulf of Trieste, representing the first record in Slovenian waters and the first known occurrence in the Adriatic Sea. Finally, among the Adriatic region records, two individuals of the sharpnose sevengill shark *Heptranchias perlo* were caught off Croatian waters in the Central and South Adriatic Sea. This species is considered "Data Deficient" in the Mediterranean Sea, and these records are the first after 70 years for Croatian waters.

Within the Central Mediterranean Sea basin, two individuals of the Atlantic tripletail *Lobotes surinamensis* were recorded in the strait of Messina and off Syracuse coasts (Italy), representing the second occurrence within the Ionian Sea and the first from the Strait of Messina area, respectively. A further record in the Ionian Sea is represented by the rare sea elephant *Pterotrachea coronata,* filmed by SCUBA divers at 25 m depth in the Strait of Messina. Furthermore, two adults belonging to the largest oceanic squid species *Thysanotheuthis rhombus* were caught by a local fisher in the Gulf of Gabes (Tunisia, Central Mediterranean Sea), underlining the importance of close collaboration between the fishing and the scientific communities. Concerning the Eastern Mediterranean region, the rare decapod *Paragalene longicrura* was collected in Saronikos Gulf (Athens, Greece) as a trammel-net by-catch. Again, in Greek waters, the scarcely reported siphonophore *Rhyzophisa filiformis* was photographed during a survey along the north coasts of Crete Island (Greece) at a depth of 0.2- 4 m, representing the first record in Greek waters and the second within the eastern Mediterranean region. In the same area, along the south coasts of Crete Island, the parasitic isopod *Nerocila milesensis* was collected from a spearfished lionfish, representing the first record of *N. milesensis* in the Levantine Sea as well as the second worldwide record of this isopod. Along the northeastern coasts of Turkey, the epipelagic octopus *Tremoctopus violaceus* was observed and collected from Madenli harbour, while a bloom of the small jellyfish *Pelagia noctiluca* was observed in Arsuz harbour (north Levantine Sea). A further interesting

**Table 1**. Information about species records by Phylum. Sub-chapters (SC), basin (WMED – Western Mediterranean Sea, ADRIA – Adriatic Sea, and EMED – Eastern Mediterranean Sea), location, Ecoregion *sensu* Spalding *et al*. (2007), and Location Number (LN) as in Figure 1.

| Phylum | Species | SC | Basin | Location | Ecoregion | LN |
|---|---|---|---|---|---|---|
| **Cnidaria** | | | | | | |
| | *Pelagia noctiluca* (Forsskål, 1775) | 4.4 | EMED | Iskenderun Bay (Turkey) | Levantine Sea | 20 |
| | *Rhizophysa filiformis* (Forsskål, 1775) | 4.2 | EMED | Kalydon Peninsula, Crete (Greece) | Aegean Sea | 16 |
| **Mollusca** | | | | | | |
| | *Coralliophila ahuiri* T. Cossignani, 2009 | 1.4 | WMED | Capo Caccia, Alghero (Italy) | Western Mediterranean | 5 |
| | *Glaucus atlanticus* Forster, 1777 | 1.3 | WMED | Alicante (Spain) | Western Mediterranean | 3 |
| | *Janolus hyalinus* (Alder & Hancock, 1854) | 3.2 | ADRIA | Koper (Slovenia) | Adriatic Sea | 12 |
| | *Ocythoe tuberculata* Rafinesque, 1814 | 1.1 | WMED | Algeciras (Spain) | Alboran Sea | 1 |
| | *Okenia elegans* (Leuckart, 1828) | 3.1 | ADRIA | Punta Madona, Piran (Slovenia) | Adriatic Sea | 11 |
| | *Pterotrachea coronata* Forsskål, 1775 | 2.2 | CMED | Strait of Messina (Italy) | Ionian Sea | 8 |
| | *Thysanoteuthis rhombus* Troschel, 1857 | 2.1 | CMED | Gulf of Gabes (Tunisia) | Tunisian Plateau/Gulf of Sidra | 4 |
| | *Tremoctopus violaceus* Delle Chiaje, 183 | 4.5 | EMED | Iskenderun Bay (Turkey) | Levantine Sea | 19 |
| **Echinodermata** | | | | | | |
| | *Holothuria (Vaneyothuria) lentiginosa lentiginosa* von Marenzeller, 1892 | 1.5 | WMED | Panarea Island, Tyrrhenian Sea (Italy) | Western Mediterranean | 7 |
| **Arthropoda** | | | | | | |
| | *Arcturinella deltensis* Castelló, Molina, Constenla & Soler-Membrives, 2018 | 1.6 | WMED | Albisola (Italy) | Western Mediterranean | 6 |
| | *Caprella andreae* Mayer, 1890 | 4.7 | EMED | Bat Yam (Israel) | Levantine Sea | 18 |
| | *Paragalene longicrura* (Nardo, 1868) | 4.1 | EMED | Saronikos Gulf (Greece) | Aegean Sea | 14 |
| | *Nerocila milesensis* Öktener, Tuncer & Trilles, 2020 | 4.3 | EMED | Crete Island (Greece) | Aegean Sea | 15 |
| **Chordata** | | | | | | |
| **Subphylum Tunicata** | | | | | | |
| | *Diazona violacea* Savigny, 1816 | 3.4 | ADRIA | Tremiti island (Italy) | Adriatic Sea | 10 |
| **Subphylum Vertebrata** | | | | | | |
| | *Corcyrogobius liechtensteini* (Kolombatović, 1891) | 1.2 | WMED | Cape Tiñoso (Spain) | Western Mediterranean | 2 |
| | *Heptranchias perlo* (Bonnaterre, 1788) | 3.3 | ADRIA | Central Adriatic (Croatia)<br>Southern Adriatic (Croatia) | Adriatic Sea<br>Adriatic Sea | 13 |
| | *Lobotes surinamensis* (Bloch, 1790) | 2.3 | CMED | Off Syracuse coasts (Italy)<br>Strait of Messina (Italy) | Ionian Sea | 9 |
| | *Squatina aculeata* Cuvier, 1829 | 4.6 | EMED | Ekincik cove (Turkey) | Aegean Sea | 17 |

species was recorded in Turkish water, the angelshark *Squatina aculeata*, which represents a Critically Endangered species in the Mediterranean Sea according to the IUCN Red list. An individual got entangled in a gillnet at Ekincik cove (Turkey) and was immediately released to ensure the survival of this protected species. Finally, the amphipod *Caprella andreae* was collected for the first time in Israelian waters from drifted specimens of brown seaweed *Sargassum acinarium* and identified through morphological and molecular analysis.

A noteworthy aspect of the contributions listed in the present Collective Article is that at least three records resulted from collaboration or contact between scientists and citizens or fishers, which demonstrates the importance of "citizen science", especially for the distribution and monitoring of marine fauna, as well as providing effective documentation of rare species, which are often difficult to collect during regular surveys. Moreover, the methodological aspects of the records were very different, ranging from SCUBA diving, fishers' by-catch, scientific dredging/netting/trawling, *in situ* observation, and using Remotely Operated Vehicles (ROVs). Interestingly, ROVs were used in two of the sections of the article: in the first contribution the authors were able to report the presence of a rare *Holothuria* for the first time along Italian coasts, while in the second contribution a facies of a deep ascidian species was observed and the frequency-size of this population was analysed, underlining the potential of ROV exploration for the study of uncommon habitats and deep-sea communities (Chimienti *et al*., 2020).

## 1. WESTERN MEDITERRANEAN SEA

### 1.1 A new Mediterranean record of the rare football octopus Ocythoe tuberculata Rafinesque, 1814: a female specimen from Spain

Gioele CAPILLO and Francesco TIRALONGO

*Ocythoe tuberculata* Rafinesque, 1814, commonly known as "football octopus" or "tuberculate pelagic octopus", is the only known member of the family Ocythoidae Gray, 1849. This cephalopod is a pelagic species, distributed in temperate waters of the oceans, including the Mediterranean Sea (Jereb *et al*., 2014). In this species, the sexual dimorphism is pronounced, with dwarf males and larger females. This fact causes that records usually concern only female specimens, caught with different fishing gears or found stranded (Corsini & Lefkaditou, 1994; Salam & Akalin, 2012). Female has a well-developed head with a ventral mantle characterized by the presence of a reticular sculpture created by the presence of skin ridges and cartilaginous tubercles. Two cephalic pores at the base of the ventral arms are present. A peculiarity of this cephalopod are arms of different sizes and a swimbladder in the mantle cavity. Biology and ecology of this rare species are poorly known, and records are scarce (Tsagarakis *et al*., 2021).

On 31 January 2022, a female specimen of *O. tuberculata* with a mantle length of 12 cm and a weight of about 350 g was caught at night with an artificial bait of 11 cm (fish-shaped, dark pink and white in colour, model Duo, woblery spearhead 110S) at "spinning", in the harbour of Algeciras (Spain; 36.12980° N, 5.43249° W), at surface (the depth of the area was 20 m). The specimen was filmed and photographed, producing high quality images Fig. 2, Supplementary Video S1) that allowed as an unconfutable identification of the species. Subsequently, it was released alive.

This record provides new data about the presence and distribution of this rare cephalopod and highlight the importance of citizen scientists and citizen science in general for monitoring and study uncommon and non-indigenous species (Tiralongo *et al*., 2020). Indeed, citizen science allow marine scientist to have "eyes set" on a wide spatial and temporal scale, in the Mediterranean Sea and in all marine waters in general.

***Fig. 2:*** The specimen of *Ocythoe tuberculata* caught in Spain on 31 January 2022.

### 1.2 First documented record of *Corcyrogobius liechtensteini* (Kolombatović, 1891) in the Iberian Peninsula

Víctor ORENES-SALAZAR

Liechtenstein's goby *Corcyrogobius liechtensteini* (Kolombatović, 1891) is a Mediterranean endemic species, restricted to the northern basin and known from the Balearic Islands to the Aegean Sea, including France at Marseilles and French Riviera, Corsica, Sardinian Sea, Tyrrhenian Sea, Elba Island, Adriatic Sea, and Ionian Sea (reviewed in Kovačić *et al*., 2022).

This cryptobenthic species is typically found in sciaphilous zones of bedrock habitats, mainly in marine crevices, overhangs, hollows, cavities, caves, among cobbles and boulders, on coralline grounds (e.g., rhodophyte thickets and erect bryozoans), or even inside sponge cavities (Patzner, 1999; Gerovasileiou *et al*., 2015). Because of its highly cryptic habit and small size (3 cm total length), records of the species are patchy, and its real distribution range remains still unknown.

The more stringent version by Kovačić & Svensen (2017) of Bello *et al*. (2014)'s best practice protocol for first records, which includes species diagnosis, was applied. The diagnosis corresponds to the minimum combination of characters that differentiate the species from the confamiliar species in the Mediterranean (Kovačić *et al*., 2022).

In August 2021, one *C. liechtensteini* individual was observed and photographed during a SCUBA survey in a submerged cavity, at 10 m depth, in Cape Tiñoso, Spain (approximate coordinates: 37.548458° N, 1.173968° W). The specimen was found on the overhang of a small cavity, above a biogenic structure composed of calcified rhodophyte algae and massive sponges (Fig. 3).

***Fig. 3:*** Liechtenstein's goby *Corcyrogobius liechtensteini* (Kolombatović, 1891) observed in August 2021 in a submerged cavity of Cape Tiñoso, Spain.

The recorded goby was adult, approximately 2.3-2.5 cm in length. Diagnosis: Body and head reddish (Fig. 3). The background colouration brick red with about fifteen narrow, transverse, bright blue to dark blue bars on body. Head similar to body, with more irregular bars. Three continuous bluish, more or less radiating bars extend over cheek to underside of head, two bars below eye and one behind. Remarks: The third radiating bar on cheek irregular, distorted in upper part by posterior extension of anteriorly neighbouring red bar. The dark branchiostegal spots below each opercle not visible due to the head angle on the photo.

The present record is the first published record of *C. liechtensteini* from the Iberian Peninsula, and the westernmost finding of this Mediterranean endemic goby (Kovačić *et al.,* 2022). The recorded habitat matches the species ecological distribution (Kovačić *et al.,* 2022).

### 1.3 First record of *Glaucus atlanticus* Forster, 1777 (Mollusca: Nudibranchia) in the Mediterranean coast of Iberian Peninsula

Juan A. PUJOL, Raquel LÓPEZ-ESCLAPEZ and Nicolas UBERO-PASCAL

Glaucidae are pelagic nudibranchs, unique for their ability to float upside-down on the surface of the water on their own, by both the radiated position of the cerata and retaining swallowed air bubbles in the gastric cavity (Churchill *et al.*, 2014a). Although all known glaucids have a circumtropical distribution, *Glaucus atlanticus* Forster, 1777 is the unique Atlantic species (Churchill *et al*., 2014b). Glaucids feed on neustonic hydrozoans, such as *Velella velella* (Linnaeus, 1758), *Porpita porpita* (Linnaeus, 1758) and *Physalia physalis* (Linnaeus, 1758), and like other aeolids, retain their armed nematocysts inside sacs in the tips of cerata, with special preference for those of *P. physalis* (Thompson & Benett, 1970). For this reason, these last authors consider glaucids harmful to human when they reach the coasts, because an accidental contact supposes a similar sting to that caused by *P. physalis*. In fact, due to this special relationship between both species, new citations of *G. atlanticus* on the Atlantic coast are having an impact in the general media.

In summer of 2021, several glaucids were sighted at two points on the coast of Alicante (W Spain): three specimens on August 19th in Cala de las Estacas (37.9291°N, -0.7206 °W), Orihuela, and three specimens on August 21 in Playa de la Mata (38.0194°N, -0.6525°W), Torrevieja. The specimens stranded during an episode of persistent winds from the northeast, with occasional gusts of over 40 km/h. The curious morphology of the specimens caught the attention of the lifeguard services of the aforementioned municipalities, who captured and took photographs of them that were sent to us for identification. The

specimens from Playa de la Mata were preserved in 96% ethanol and are deposited in the Department of Zoology of the University of Murcia. These specimens were identified as *G. atlanticus* according to Churchill *et al*. (2014a), based on next morphological features: pearly white body with two intense blue ventral longitudinal stripes bordering the foot sole; metapodium long; three pair of lateral cerata groups, the first two pedunculated; cerata radially arranged in a single line; number of cerata per group: 14-16; 8-10; 5-6 (Fig. 4).

*G. atlanticus* was captured, illustrated with a fine drawing and described in Latin for the first time in the Mediterranean Sea by Breyn (1705), specifically on the Island of Ibiza (Spain). However, its Latin name according to the Linnaean nomenclature was given more than 70 years later by Forster in 1777 (Churchill *et al*., 2014a). Although Cervera *et al*. (2004) found a couple of bibliographical references citing *G. atlanticus* from the Balearic Islands, the fact that all the citations published from 1705 to 2017 have the same locality –the island of Ibiza–, without providing any data on new captures, makes us confirm that these works only reproduce Breyn's record. Therefore, we consider the data provided to be interesting since they constitute the first record of *G. atlanticus* for the coast of the Iberian Peninsula, and the first georeferenced record in the Mediterranean Sea for three centuries. In our opinion, the presence of *G. atlanticus* in this Sea is incidental, due to a confluence of meteorological and oceanic factors, as has been reported for other Atlantic neustonic species, such as *P. physalis*. However, given the process of tropicalization that is taking place in the Mediterranean Sea, it would not be surprising that new specimens will soon be sighted, since their prey includes common inhabitants of the Mediterranean.

***Fig. 4:*** Habitus of *G. atlanticus* collected in Playa de la Mata (Torrevieja, Alicante).

### 1.4 A third Mediterranean site for the rare *Coralliophila ahuiri*

Fabio CROCETTA

The Mediterranean Sea hosts a wide Coralliophiline (Mollusca: Gastropoda: Muricidae) diversity, with the genus *Coralliophila* H. Adams & A. Adams, 1853 being the most speciose and accounting for eight native species (https://www.societaitalianadimalacologia.it/sistematica-2/mediterranea/795-muricidae.html). However, while some of these taxa are somehow widespread in the Mediterranean Sea – e.g., *C. brevis* (Blainville, 1832) and *C. meyendorffii* (Calcara, 1835) – others are still scantily reported and little is known about their auto-ecology. Among them, *Coralliophila ahuiri* T. Cossignani, 2009 has been recently described from the Strait of Gibraltar (western Mediterranean Sea), where it was found at 120 m depth in biogenic sediments, presumably with presence of *Corallium rubrum* (Linnaeus, 1758) (reported as "detrito corallino rosso") (Cossignani, 2009). The only additional record of this species was reported a few years after its original description, with three empty shells that were found in biogenic sediments of two caves located at ~50 m and ~70 m depth in the Messina Strait area (central Mediterranean Sea) (Vazzana, 2015).

Based on a careful re-examination of some samples studied by Crocetta & Spanu (2008) while investigating the molluscan communities associated with *C. rubrum* colonies living at 100-120 m off Capo Caccia, Alghero (~40.561° N, 8.164° E), the presence of *C. ahuiri* is hereby reported in a third Mediterranean site. In fact, within the wide biota found, six empty shells were originally ascribed by Crocetta & Spanu (2008) to *Hirtomurex squamosus* (Bivona e Bernardi, 1838) (reported as *Coralliophila squamosa*), although the authors suggested that "five of them possibly recalled *Pseudomurex ruderatus* Sturany, 1896". However, the type material of *P. ruderatus* was recently illustrated by Albano *et al.* (2018), definitely confirming that *P. ruderatus* is a junior synonym of *H. squamosus*. On the other hand, those five specimens from Capo Caccia (see Fig. 5A-B) do not match *P. ruderatus* at all, whereas they perfectly fit topotypical *C. ahuiri* (see Fig. 5C) in protoconch and teleoconch shape, sculpture, and colours. In fact, they have a bright reddish protoconch, whose axis is tilted with respect to the teleoconch and that is carinated and decorated by curved axial riblets, a pinkish to whitish-greyish teleoconch with a broad shoulder, and a spiral sculpture composed by 15-17 primary cords on the last whorl (incorrectly reported in the original description of *C. ahuiri* as 10). The present amendment and record therefore shows that five specimens reported as *Hirtomurex squamosus* in Croc-

etta & Spanu (2008) were misidentified and should be assigned to *C. ahuiri*, suggests that this latter taxon may be more widespread than expected and that it may have been further misidentified in the past, and confirms the preference of this species for dark habitats with presence of *C. rubrum*. Finally, while extending investigation also to the species from the neighbouring eastern Atlantic Ocean, strong similarities were also noticed between *C. ahuiri* and *Coralliophila guancha* Smriglio, Mariottini & Engl, 2003, originally described on the basis of several specimens found at 45-50 m depth off Lanzarote, Canary Islands (Smriglio *et al.*, 2003). Whether these two taxa are sister species or simple synonyms remains an open question, to be presumably addressed through integrative approaches. For the time being, specimens from Alghero are here assigned to the taxon originally described from the Mediterranean Sea.

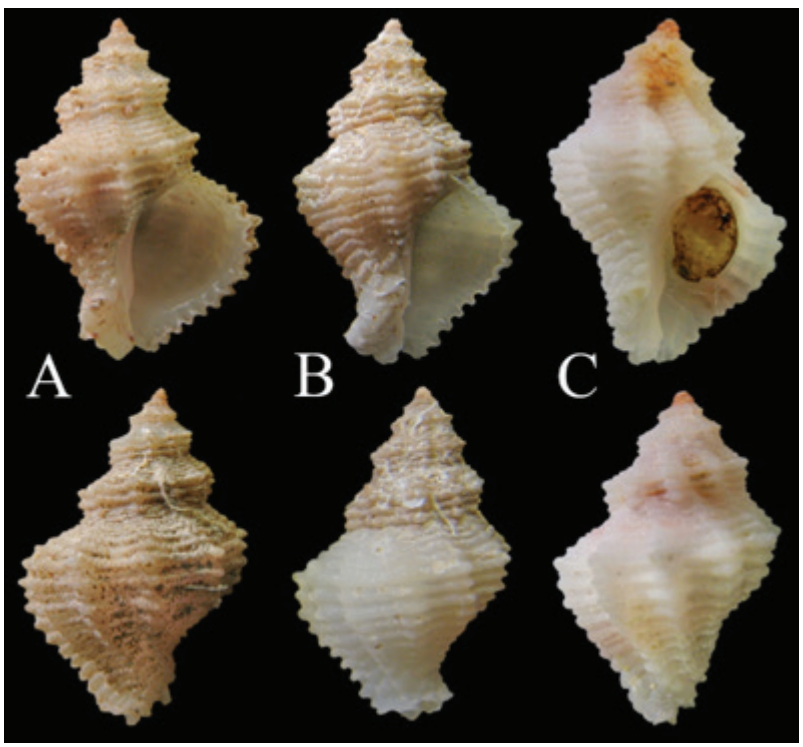


***Fig. 5:*** Frontal (first row) and dorsal (second row) views of *Coralliophila ahuiri* from the Mediterranean Sea (specimens not to scale, sizes reported as total height). A-B. Samples from Capo Caccia (Sardinia) = *H. squamosus sensu* Crocetta & Spanu (2008) (partim) (A: 14.1 mm; B: 12.7 mm). C. Topotypical specimen from the Gibraltar Strait (10 mm).

### 1.5 First record of the Atlantic Sea cucumber *Holothuria* (*Vaneyothuria*) *lentiginosa lentiginosa* in the Tyrrhenian Sea

Margherita TOMA and Antonio GIOVA

The genus *Holothuria* (Echinodermata, Holothuroidea) comprises eighteen subgenera and 170 species, of which six belong to the subgenus *Holothuria* (*Vaneyothuria*) Deichmann, 1958 (WoRMS Editorial Board, 2022).

The sea cucumber *Holothuria* (*Vaneyothuria*) *lentiginosa* von Marenzeller, 1892 is widely distributed in the Atlantic Ocean with three subspecies: i) *H.* (*V.*) *l. enodis* Miller & Pawson, 1979, reported mainly in the Western Atlantic Ocean (Madeira *et al.*, 2019), but recently observed in Cape Verde (de Entrambasaguas, 2008), ii) *H.* (*V.*) *l. brasilianensis* Tommasi & de Oliveira, 1976, present only in Brazilian waters (de Moura, 2016), and iii) *H.* (*V.*) *l. lentiginosa* Marenzeller von, 1892, recorded from the Eastern Atlantic Ocean along the African coasts, Cape Verde, Azores and Canaries (Madeira *et al*., 2019). A single individual of *H.* (*V.*) *l. lentiginosa* was collected in 2010 nearby Alboran Island (Borrero-Pérez *et al.*, 2010), which represents the first Mediterranean record of this species.

*Holothuria (V.) l. lentiginosa* inhabits different substrates, from sand and detritic bottoms, to coralligenous and rocky outcrops, over a wide depth range, from around 12 m to about 300 m depth (Madeira *et al.*, 2019).

During a ROV survey conducted in 2010 around Panarea Island (Aeolian Islands, Tyrrhenian Sea; 38.674° N, 15.126° E), a specimen of *H.* (*V.*) *l. lentiginosa* was recorded on a detritic bottom with a fine terrigenous component, at 84 m depth, in agreement with the known habitat preferences and depth range distribution of the species.

The specimen, about 38 cm long, had a cream white colouration on the lateral surface becoming brownish

towards the dorsal mid-line, and was fully covered by numerous small, dark-brown spots (Fig. 6). A lateral longitudinal row of ten well-developed conical papillae (average length: 1.5 ± 0.1 cm, up to 2 cm long) and a dorsal row of smaller conical papillae (average length: 0.8 ± 0.1 cm, up to 0.9 cm long) were present (Fig. 6-Inset). These features are in accordance with the description of *H.* (*V.*) *l. lentiginosa* by Madeira *et al*. (2019) and were used as the main visual taxonomic characters for identification of this sub-species.

The resembling and closely related species *H.* (*V.*) *l. enodis* and *Holothuria (Roweothuria) arguinensis* Koehler & Vaney, 1906 were excluded because of their different depth range, number and distribution of papillae, and colour pattern.

The present work represents the first record of *Holothuria* (*Vaneyothuria*) *lentiginosa lentiginosa* along the Italian coasts and extends the known distribution of the species in the Mediterranean eastward. Considering that mesophotic depths in the western Mediterranean basin are well-studied, it is unlikely that this species was always present in the area and remained undetected, which suggests a recent range expansion by the species.

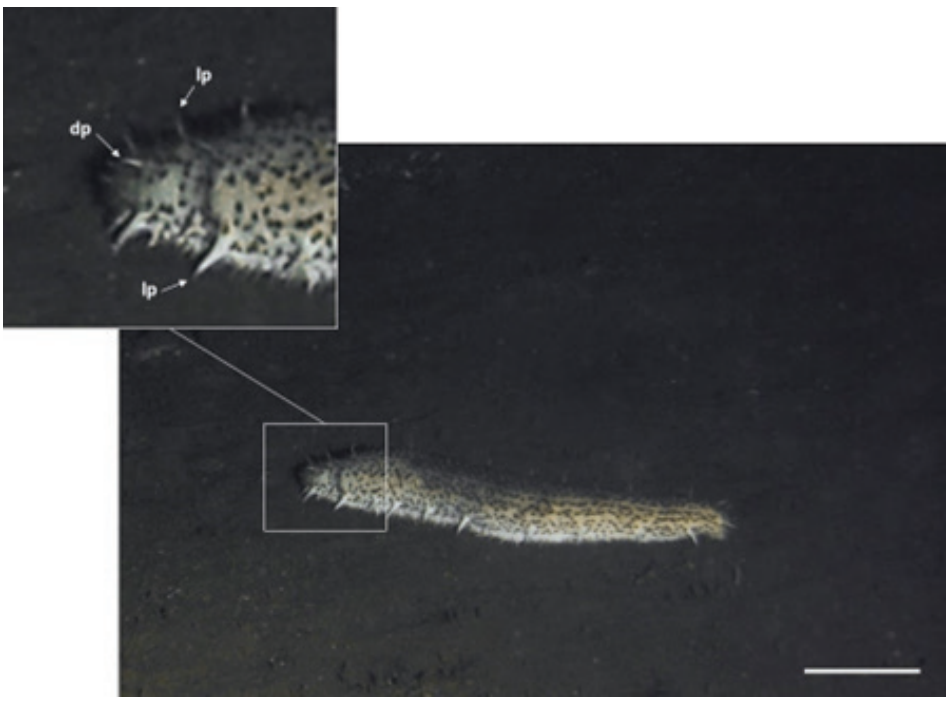


***Fig. 6:*** ROV image of *Holothuria (Vaneyothuria) lentiginosa lentiginosa* taken at 84 m depth off Panarea Island (Aeolian Islands, Tyrrhenian Sea). Inset: detail of the lateral longitudinal row of conical papillae (lp) and of the dorsal row of smaller papillae (dp). Scale bar: 10 cm.

### 1.6 The rare species *Arcturinella deltensis* Castelló, Molina, Constenla & Soler-Membrives, 2018 in the Ligurian Sea

Alessandra MORENI, Federico BETTI and Valentina GIUSSANI

The genus *Arcturinella* includes only two species of peculiar marine isopods known from the Mediterranean Sea: *Arcturinella banyulensis* Poisson & Maury, 1931, and *Arcturinella deltensis* Castelló, Molina, Constenla & Soler-Membrives, 2018, recently described from the Ebro Delta, in Spain (Castelló *et al*., 2018).

In June 2021, in the Ligurian Sea, during the annual campaign organized by ARPAL (Ligurian Regional Agency for the Environment Protection) in accordance with the Coastal Ecosystem Monitoring Programme (D. Lgs.152/06), in the locality of Albisola (Savona, 44.1838° N; 8.3039° E) at 48 m depth, five specimens of an Arcturidae isopod were collected from soft bottom. Two of them were ovigerous females (Fig. 7), while the others were non-ovigerous ones.

The specimens present all the typical features of *A. deltensis* according to Castelló *et al*., 2018, and furthermore the comparison validates the distinction with *A. banyulensis* described in Poisson *et al.* (1931): shorter lateral margins of the cephalon (partially fused with pereonite I), non-bulging eyes, a slightly convex anterior margin of pereonite IV, characteristic IV pereopods (angular, setose and fused, without dactylus and fully covered by a thin membrane), and a longer pleotelson.

So far, no male of *Arcturinella* spp. has been found during both this current and the previous campaigns (Rodríguez *et al*., 2001; Castellò *et al*., 2018). Arcturidae generally have a significant sexual dimorphism (e.g., Mediterranean *Astacilla* spp. specimens), and males are usually longer and slender than females.

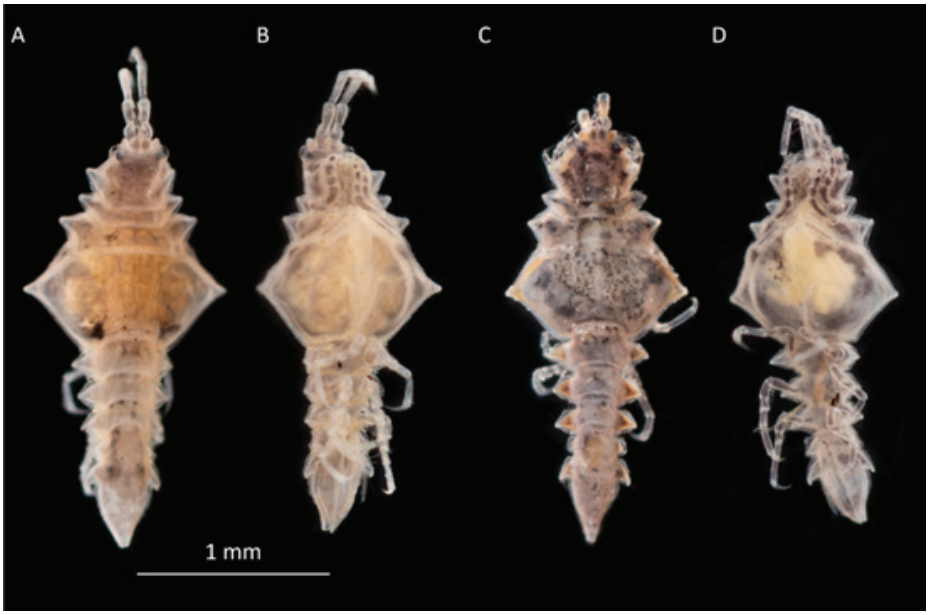


***Fig. 7:*** Two ovigerous females of the marine isopod *Arcturinella deltensis* Castelló, Molina, Constenla & Soler-Membrives, 2018, collected on soft bottoms in Albisola (Ligurian Sea). A-B: dorsal (A) and ventral (B) side of a first individual, C-D: dorsal (C) and ventral (D) side of a second individual.

*Arcturinella deltensis* appears to be confined to soft bottoms, both sandy and muddy, and this discovery represents the first record in the Ligurian Sea, and the third in the whole Mediterranean Sea, after Estepona and Ebro Delta (Castellò *et al*., 2018). The presence of this species is therefore extended in the Mediterranean basin beyond subregion 1 (Western Mediterranean) to subregion 2 (Western coasts of Italy and French Provence) according to the scheme presented in Castelló *et al*. (2020). Future observations might increase our knowledge on its real distribution, as well as on its ecological traits and requirements.

## 2. CENTRAL MEDITERRANEAN SEA

### 2.1 New record on the occurrence of the diamond squid *Thysanoteuthis rhombus* Troschel, 1857 in Tunisia (Central Mediterranean Sea)

Lamia YACOUBI and Lotfi RABAOUI

The elusive oceanic squid *Thysanoteuthis rhombus* Troschel, 1857 is one of the largest oceanic squid species known in the world. Its common name (diamond squid or diamondback squid) is due for its large rhomboidal fins which extend the entire length of the mantle. According to literature, *T. rhombus* can reach a maximum mantle length of 1 m and a total weight of 30 kg. This cosmopolitan cephalopod is distributed worldwide in tropical, subtropical, and temperate open waters including the Mediterranean Sea (Marčić *et al.*, 2009). It inhabits open oceanic waters deeper than 400 m where surface water temperature principally is greater than 20°C (Jereb & Roper, 2010). Although the diamond squid is known to occur in the Mediterranean Sea since the nineteenth century (in the Strait of Messina, Italy; Troschel, 1857), its detection in this region remains very scarce, most likely because of its oceanic lifestyle. In fact, while paralarvae and juveniles of this species occur in the epipelagic zone, subadults and adults make daily vertical migrations in the upper 600 to 800 m. It was also reported that most diamond squids migrate at night toward the surface (0 to 50 m) and descend in daytime to depths between 400 to 800 m. The distribution and migration of *T. rhombus* depend on the surface circulation of oceanic waters (Jereb & Roper, 2010).

Following its first documented record in Italy (Troschel, 1857), eight subsequent Mediterranean records of *T. rhombus* adult specimens were made in various countries and regions including Italy (Strait of Messina in 1994 and 1998; Sardinia in 2012), Spain (Minorca Island in 1981; Catalan coast in 2017), Greece (Evoikos Gulf, Aegean Sea, in 1991), Tunisia (6 records between 1987 and 2008), and Adriatic Sea (in 2009) (Fernández-Álvarez *et al.*, 2021 and references therein), in addition to the records of planktonic egg masses and juveniles throughout the Mediterranean basin. Almost all these records were reported in northern Mediterranean coasts, except for the 6 records in northern Tunisia reported between

***Fig. 8:*** *Thysanoteuthis rhombus*. Photos of the two adult diamond squids caught by a local fisher from Ghannouch, Gulf of Gabes (south-eastern Tunisia), on December 6th, 2021.

1987 and 2008 (Ezzeddine & Chemmam, 2010).

In this paper, we report the seventh record of *T. rhombus* in Tunisia, and the first in the Gulf of Gabes (south-eastern Tunisia). On December 6th, 2021, two adult diamond squids were found and caught by one local fisher in the beach of Ghannouch, Gulf of Gabes (south-eastern Tunisia; 33.93410556°N 10.08426389°E) at a depth of 0.15-0.25 m. According to the fisher, the two squids were found alive, and he caught them by his hands because of their slow movements. The two specimens measured 119 and 125 cm in total lengths (dorsal mantle lengths: 61 and 65 cm, respectively); their total weights were 13 and 15 kg, respectively (Fig. 8). Unfortunately, the local fisher did not agree to provide the two specimens of *T. rhombus* (he sold them to a local consumer), and thus it was not possible to proceed further with dissecting the squids and determining their sexes and examining their gonads.

The present record is one of the very scarce observations of *T. rhombus* in Tunisia, and the first in the Gulf of Gabes. The occurrence of the species in a very shallow area in the central area of Gabes Gulf is not usual as the species is known to occur in deep areas. One hypothesis could be that the two specimens were attracted by something to the coast where they were trapped in a very shallow zone preventing them from swimming to deeper areas. Further studies are needed to better understand the biology and ecology of *T. rhombus* in the Mediterranean Sea, in particular its migratory behaviour and distribution in Tunisia.

### 2.2 New report of the sea elephant, *Pterotrachea coronata* Forsskål, 1775, from the Strait of Messina (Central Mediterranean Sea)

Serena SAVOCA and Sergio FAMULARI

The sea elephant *Pterotrachea coronata* Forsskål, 1775, is a holoplanktonic mollusc belonging to the family Pterotracheidae. The genus *Pterotrachea* comprises four species: *P. coronata*, *P. hippocampus* Philippi, 1836, *P. keraudrenii* Gray, 1850, and *P. scutata* Gegenbaur, 1855. These species are characterized by an elongate and cylindrical body, the presence of a long, highly mobile proboscis with a buccal mass at the end, a large laterally flattened tail which supports the movement in the water column through a body flexion and the presence of a sucker (probably with mating function) on the ventral surface of the swimming fin (Seapy, 1985). *Pterotrachea coronata* is the species which reaches the maximum size (to 385 mm) inside the Pterotracheidae family, with the following taxonomic characters which can be useful for its identification: a streamlined body shape for burst swimming, an elongate proboscis tucking into the cutis ventro-lateral folds during swimming, rectangular eyes with wider retinal bases than lens, a slender visceral mass with an elongate shape and the presence of a sucker on the ventral margin in male specimens' swimming fin (Boltovskoy, 1999). It is an active predator, mainly feeding on other zooplanktonic organisms (e.g., fish larvae, copepods, ctenophores), and plays an essential role in the energy transferring toward the water column due to its diel vertical migrations (Harbison, 1989). The presence of this rarely encountered species is widely reported worldwide (Mutaf *et al.*, 2008), but, concerning the Mediterranean Sea, this represents one of the few reports from the Strait of Messina.

On 9th June 2022, a specimen of *P. coronata* was filmed by scuba divers at 25 m depth in the Strait of Messina (38.2289° N, 15.5719° E). The high-quality videos (Supplementary video S2) were used for the species

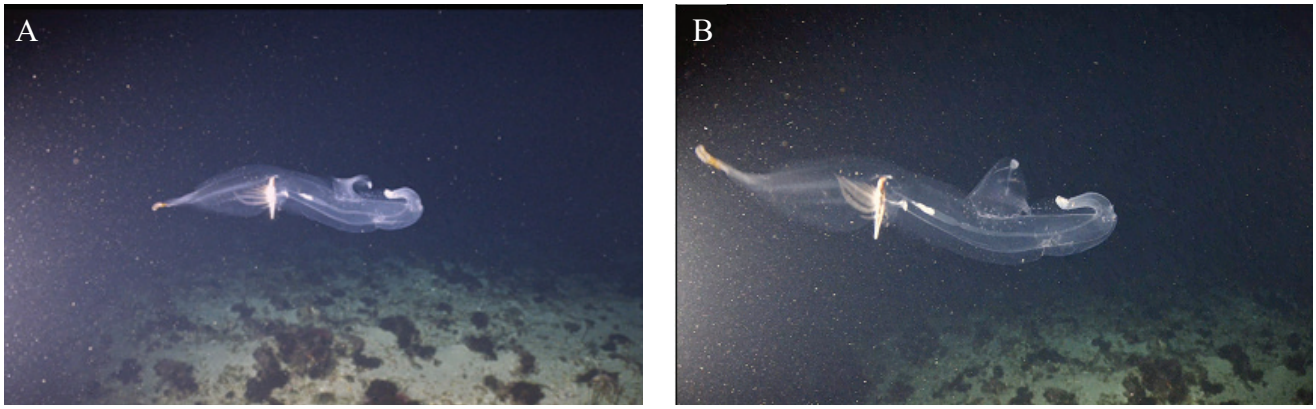


***Fig. 9:*** Specimen of *Pterotrachea coronata* filmed on 9th June 2022 by scuba divers at 25 m depth in the Strait of Messina; the presence of the sucker on the swimming fin (a - b) highlighted the specimen's male sex.

identification. As highlighted by the presence of the sucker on the swimming fin (Fig. 9 a-b), the filmed specimen was a male during its active swimming, probably due to the scuba divers' presence.

Adding new data on rare species distribution is essential to broaden the knowledge base on marine biodiversity and ecosystem functioning. Moreover, the videos performed by scuba divers and oceanographic expeditions can enhance the information about their behaviour and interactions with surrounding environment to better understand their adaptation to marine ecosystem and relation with habitat. Such information is fundamental to develop successful management policies and activities, improving the conservation of the entire marine environment.

### 2.3 New Mediterranean records of the Atlantic tripletail *Lobotes surinamensis* (Bloch, 1790) from the Ionian Sea and the Strait of Messina

Marco ALBANO and Claudio D'IGLIO

*Lobotes surinamensis* (Bloch, 1790), commonly known as Atlantic tripletail or tripletail, is the unique member of the genus *Lobotes* recorded in the Mediterranean Sea. This species is distributed worldwide in tropical and sub-tropical waters, including the Mediterranean Sea (Tiralongo *et al*., 2020). It represents a thermophilic species also found on estuaries and coastal zones, such as in open sea under floating algae or artificial objects like fish aggregating device (FADs) (Bilge *et al*., 2017; Tiralongo *et al*., 2018). *Lobotes surinamensis* is characterized by an epipelagic habitus in the juvenile stage, while the adults are more benthopelagic, feeding mainly on crustaceans and small fishes. This species can reach 1 m in length and 12 kg in weight. The compress and robust body is dark brown or blackish, while juveniles show yellowish shades; sexual dimorphism is not evident (Fagundes *et al*., 2021).

After the first record in the Mediterranean Sea by Doderlein in 1875 (Doderlein, 1875), very few specimens have occurred in this area. However, recently, tripletail was recorded more frequently in the eastern and central parts of the basin, especially from the southern Tyrrhenian Sea, where the presence of a stable population was discovered (Bilge *et al*., 2017; Tiralongo *et al*., 2018).

Here we report two adult specimens from Italian waters, recorded on 2nd and 20th September 2022. The first specimen of 45 cm in length and 1650 g in weight (Fig. 10a) was caught near a FAD about four miles far from the coasts of Syracuse (36.57376° N, 15.20264° E). The second specimen of 56 cm in length and a weight of 3020 g (Fig. 10b), was collected with a net from surface waters in the Strait of Messina area (38.17143° N,

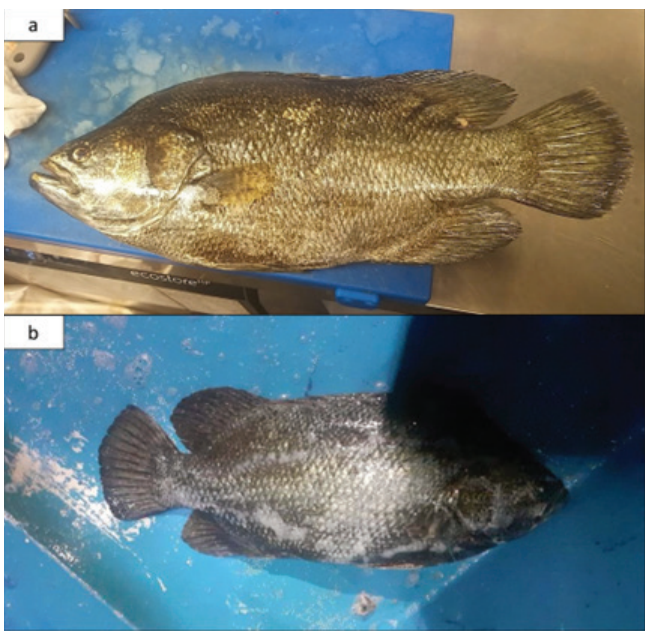


***Fig. 10:*** *Lobotes surinamensis* specimens recorded in this study. a) specimen collected on 2nd September 2022 from Syracuse; b) specimen collected on 20th September 2022 from the Strait of Messina.

15.38327° E). The specimens were retained by the fishers as by-catch and identified through the provided photographic materials.

This record represents the second occurrence from the Ionian Sea and the first from the Strait of Messina area, respectively. As reported by other authors, the presence of this species seems to be related to the autumnal use of FADs, which represent a trophic attractiveness for this species (Bilge *et al*., 2017; Tiralongo *et al*., 2018). It is interesting to note that the occurrence from the Strait of Messina area was not linked to a FAD but treated of a single isolated specimen. This contribution provides new data about the presence and distribution of this rare teleost and highlights the importance of by-catch monitoring, as well as citizen science in monitoring uncommon species.

## 3. ADRIATIC SEA

### 3.1 First record of the nudibranch *Okenia elegans* (Leuckart, 1828) in the waters of Slovenia

Manja ROGELJA and Lovrenc LIPEJ

*Okenia elegans* (Leuckart, 1828) is a species occurring in the Mediterranean Sea and in northern eastern Atlantic Ocean, where it feeds on various ascidians into which it burrows (Thompson & Brown, 1976). The species is also known from the Adriatic Sea based on six documented reports, spanning from around the beginning of the 20th century to date (review in Pola *et al.*, 2019). This species is characterized by having two main colour forms: one is characterized by a whitish body colour, whereas the other has a reddish body colour. The whitish form, which is usually the commoner one along its entire distributional range, was recorded in the Adriatic Sea only by Prkić *et al*. (2018), whereas Ciriaco & Poloniato (2016) and Zenetos *et al*. (2016) respectively figured the reddish form for the Gulf of Trieste (northern Adriatic Sea) and the Conero Promontory (central-western Adriatic Sea).

During regular inspections of the coastal area close to the Natural Monument of Punta Madona (Piran, Slovenia: 45.527680° N, 13.566348° E), an approximately 5 cm long specimen of *Okenia elegans* (Leuckart, 1828) was recorded on 4th May 2022 (Fig. 11). It was found at 7 m depth at a transition zone between a rocky and a muddy bottom. The specimen was photographed underwater, collected, and delivered alive to the Piran Aquarium for further inspection. It was determined as the red form of the nudibranch *O. elegans* due to its vivid colouration, the high and elongate body, and the external morphological characters. In particular, it was almost entirely red in colouration, on the head there were two finger-like long papillae and rhinophores, which were long, slender, and lamellate. The whole body, papillae and rhinophores were bright red and their tips were white. The mantle was

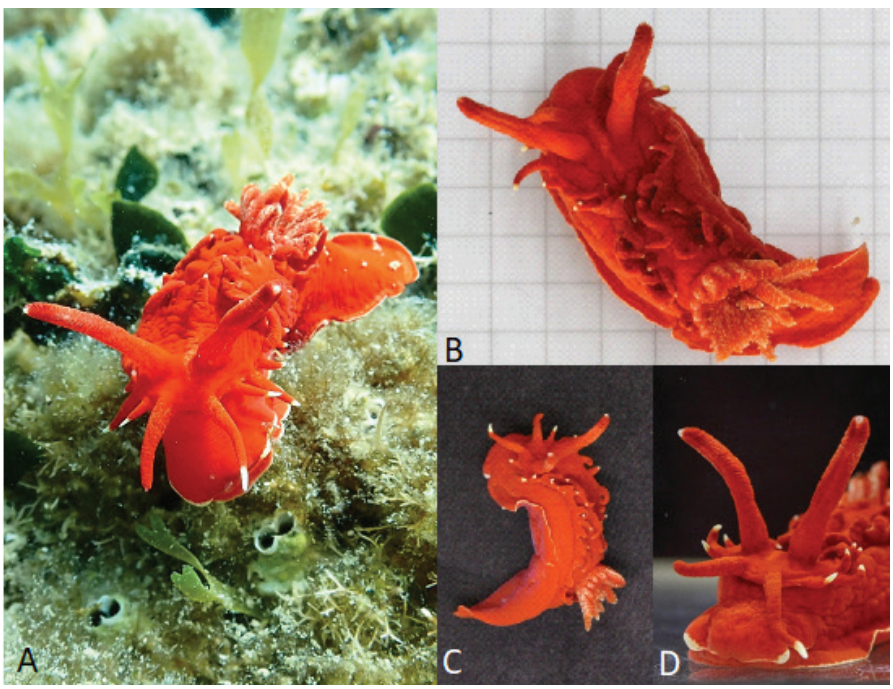


***Fig. 11:*** *Okenia elegans*. A. The specimen in its natural environment. B. Dorsal view. C. Lateral view. D. Details of the head with lamellate rhinophores.

outlined with numerous slender and elongate finger-like papillae. The gills branches were numerous and pinnate. The foot was long and slender and was bordered with a yellow band around the edge of the foot. This sighting accounts for the first record of this species in Slovenia.

### 3.2 First record of sea slug *Janolus hyalinus* (Alder & Hancock, 1854) in Slovenia and the Adriatic Sea

Leon L. ZAMUDA and Domen TRKOV

*Janolus hyalinus* (Alder & Hancock, 1854) is a rare nudibranch species with a widespread distribution along the eastern European Atlantic coast (Sweden, Norway, United Kingdom, Ireland, Netherlands, France, Portugal) and in the Mediterranean Sea (Spain, Banyuls in France, and the Bay of Naples in Italy), that was also found in Australia, where it was probably accidentally introduced by shipping (Thompson & Brown, 1984; Beesley *et al.*, 1998; GBIF Secretariat, 2022).

This taxon is up to 30 mm long, brown to yellowish in colour, and the anterior part of the foot is broad and extends posteriorly into a tapered tail. The numerous cerata are densely packed and irregularly arranged on the dorsal side of the animal. They have a rough, spiny surface, taper to a point, and extend across the front of the body. Usually there are four to five of them in a transverse row, the innermost being the largest, which decreases in size outwardly and may fall off at the slightest disturbance. The digestive gland of the cerata is dark brown and does not extend to the tip. In the middle of the head there is a pair of short, finger-shaped, oral tentacles that sit on the sides of a narrow, semicircular, veil, that overhangs the mouth. The rhinophores are non-retractile, lamellar, large, and darkly spotted. Their bases are connected by a kind of raised crest – a swollen, wrinkled sensory caruncle. The anal papilla is located dorsally at the end of the body (Schmekel & Portmann, 1982; Thompson & Brown, 1984; Beesley *et al.*, 1998; Picton & Morrow, 2016).

Exposed rock walls and man-made habitats such as buoy ropes in sheltered locations appear to be favourable habitats for the species, which is mainly found among bryozoans (*Bugula* and *Scrupocellaria* species), which are most likely its main preys. Eggs are strung into undulating and spiraling filaments, that wrap around the food (Picton & Morrow, 2016).

A specimen of *J. hyalinus* was collected in daytime (15:00) on the 28th of February 2022 in the harbour of Koper (45.564853° N, 13.743919° E, Fig. 12), in the Slovenian part of the Gulf of Trieste. The specimen was found among colonies of the *Bugula neritina* (Linnaeus, 1758) complex on the floating barrage, at a depth of 1 m. This is the first known occurrence of *J. hyalinus* in Slovenian waters and also the first known occurrence of the species in the Adriatic Sea (see Zenetos *et al.*, 2016).

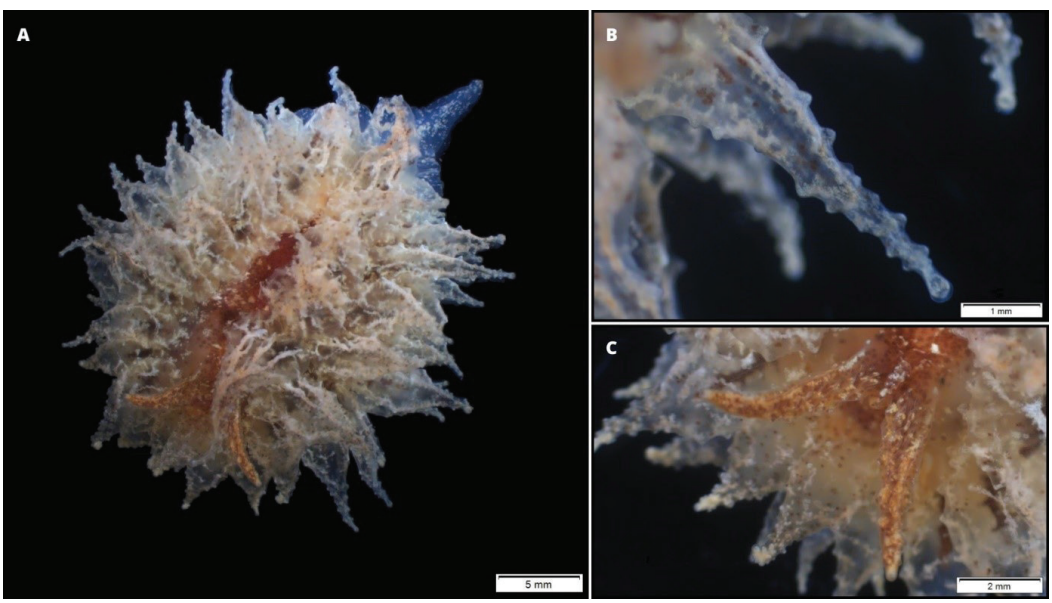


***Fig. 12***: Specimen of *Janolus hyalinus* from Slovenia (A); cerata with rough, spiny surface and taper to a point (B); non-retractile rhinophores with connected bases (C). Photo credit: Ana Fortič.

### 3.3 New records of the rare sharpnose sevengill shark *Heptranchias perlo* (Bonnaterre, 1788) in Croatian waters (Adriatic Sea)

Branko DRAGIČEVIĆ and Igor ISAJLOVIĆ

The sharpnose sevengill shark *Heptranchias perlo* (Bonnaterre, 1788) is a circumglobally distributed species inhabiting tropical and temperate seas, excluding the northeast Pacific, at depths up to 1000 m, but usually between 180 and 450 m (Froese & Pauly, 2022). It is considered a rare species in the Mediterranean Sea reported from both the eastern and western basin (Lipej *et al*., 2004; Karachle *et al*., 2020 and references therein). According to the IUCN Red List, *H. perlo* is considered as Data Deficient in the Mediterranean Sea (Soldo & Bariche, 2016). In Croatia, this species is strictly protected by national legislation.

Rare occurrences of *H. perlo* in the Adriatic Sea have been reviewed by Lipej *et al*. (2004) and those refer to historical records, the majority of which were recorded in the first half of the 20th century. Two additional historical records of *H. perlo* were recorded in 1948 in the southern Adriatic at depths from 207 to 377 m, while the most recent records of *H. perlo* in the Adriatic Sea come from Albanian and Slovenian waters (Kousteni *et al*., 2022 and references therein).

Herein we report two records of *H. perlo* caught in Croatian waters: one female individual was caught on 25th June 2020 in the central Adriatic (43.2934ºN, 15.9743ºE) between 116 and 162 m depth and reached 75 cm in total length (TL) and 1.32 kg in total weight (TW); and one male individual was caught on 3rd March 2022 in the southern Adriatic off Mljet Island (42.5447ºN, 17.5355ºE) between 200 and 267 m depth and reached 97 cm in TL and 6.8 kg in TW (Fig. 13A-B). Both specimens were caught by bottom trawl and identified by the fishery observers who were present on board at the time of capture on the basis of conspicuous morphological features such as 7 gill slits, narrow head with a sharp snout, trapezoidal and relatively small pectoral fins, dorsal fin starting behind the anal opening and origin of the anal fin under the posterior end of the base of the dorsal fin (Lipej *et al*., 2004). Both individuals were in a poor condition after capture, but were released back into the sea.

The present records of *H. perlo* constitute new confirmation of the species presence in the Adriatic Sea, especially in Croatian waters, after more than 70 years of absence of documented records. The need for continuous monitoring of the fishing activities and education of fishers is emphasized because records of *H. perlo* and other rare elasmobranchs would otherwise likely go unnoticed since fishers are usually reluctant to report the occurrences of bycaught sharks for various reasons which include fear of penalisation, unawareness of their conservation status and importance of such data, but also due to unfamiliarity with the species.


***Fig. 13:*** Individuals of *Heptranchias perlo* caught in Croatian waters on 25th June 2020 in the central Adriatic (A), and on 3rd March 2022 in the southern Adriatic (B).

### 3.4 Circalittoral rocks dominated by ascidians (*Diazona violacea*): an uncommon codified marine habitat found at Tremiti Island MPA (Adriatic Sea).

Federica MONTESANTO and Francesco MASTROTOTARO

*Diazona violacea* Savigny, 1816 also known as "football ascidian" for the characteristic globular shape of the colonies, is a colonial ascidian usually found from 10 to 364 m depth (Monniot, 1969). The zooids are embedded in a thick basal common tunic up to their abdomen and they are characterized by the presence of white lines

along the endostyle, dorsal lamina and siphons (Berrill, 1948). *D. violacea* has been recorded in the north-eastern Atlantic Ocean, Red Sea and Mediterranean Sea (Mastrototaro *et al*., 2020 and references therein), settling on rocky, soft or detritic bottoms where it can form aggregations of numerous colonies (i.e., facies). The knowledge of the distribution of this species in the Mediterranean Sea is still limited, indeed facies of *D. violacea* have been found only along Spanish and Greek coasts, and recently reported also in the north-eastern Adriatic and Tyrrhenian seas (Mastrototaro & Montesanto, 2022 and references therein; Mastrototaro *et al*., 2020).

We report a further observation of this facies (Fig. 14) in Tremiti Island MPA (South Adriatic Sea) (42.10750°N, 15.49115°E) during an ROV dive along a transect 400 m long, at a depth between 50 to 70 m depth, in May 2021. Considering a transect width of about 2.5 m based on known laser distance, the ROV transect covered an area of about 1000 m$^2$, with about 600 m$^2$ characterized by rocky bottoms with coralligenous formations and about 400 m$^2$ characterized by a detritic bottom. Each observed colony was measured in height and width, and the number of zooids was counted as an approximation of their age, assuming that the higher the number of zooids, the older the colony (Berrill, 1948). A total of 38 colonies were counted along the transect, with a mean height of 15 cm and a mean width of 21 cm, while no resting forms were observed. The colonies occurred mostly on the rocky bottom with coralligenous formations, with a density value of about 0.05 colonies m$^{-2}$, while on the detritic bottom *D. violacea* showed a density of about 0.02 colonies m$^{-2}$ (Fig. 15).

The size-frequency distribution of the population was mostly represented (23%) by colonies with 201 to 250 zooids (minimum number of zooids: 9, maximum number of zooids: 476) (Fig. 15). Each zooid can generate 3-8 zooids during late winter or early spring (Berrill, 1948), thus colonies recorded with about 200 zooids are likely no more than 4 years old, while colonies with 500 zooids are likely 3-5 years old. The facies found at Tremiti Island was characterized by a different size distribution compared to that observed off the Aeolian Archipelago (Mastrototaro *et al*., 2020): indeed, the colonies observed off Sicilian coasts mostly ranged between 1-100 zooids per colony. It is important to note that the time persistence of active colonies can vary based on environmental conditions, (Berrill, 1948) such as water temperature. Furthermore, the Aeolian Archipelago is characterized by the presence of volcanic activity that does not allow the

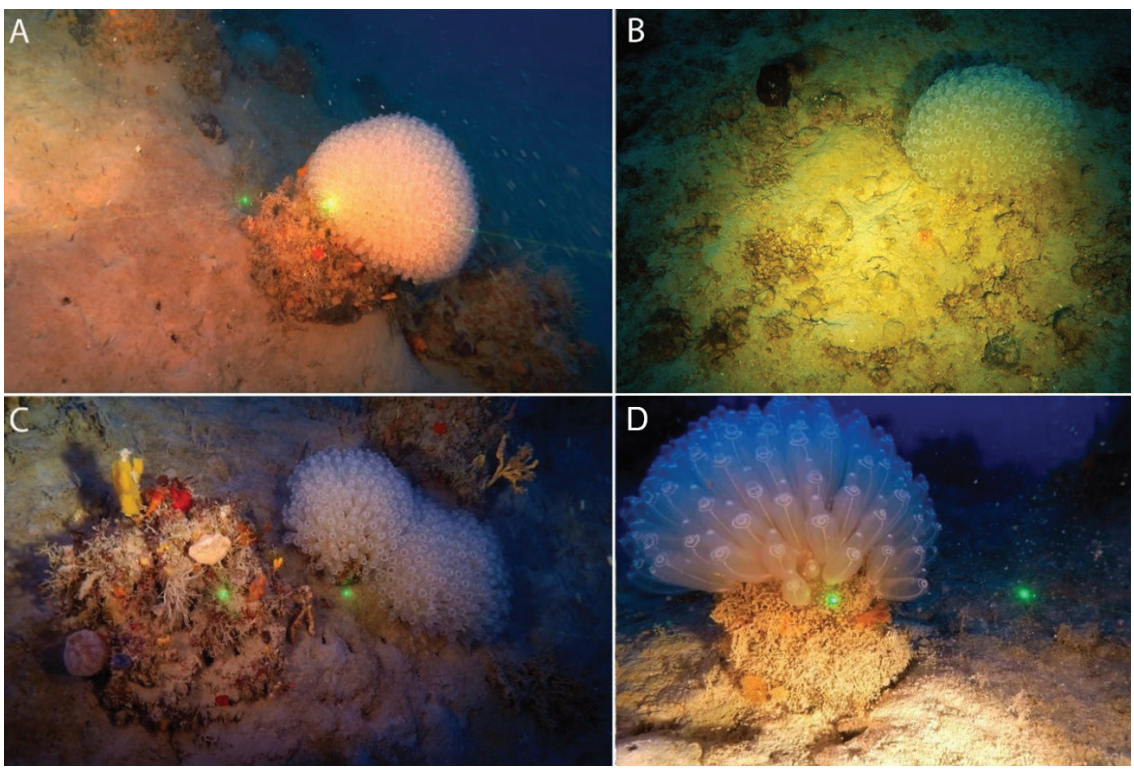


***Fig. 14*****:** *Diazona violacea*. A-C: Colonies on coralligenous formations. B: Colony on a detritic bottom. D: Colonies with zooids showing the characteristic white lines (laser distance: 18 cm).

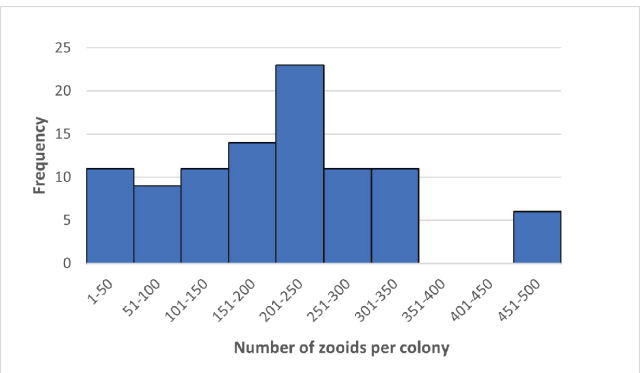


***Fig. 15:*** Frequency distribution of the number of zooids of *Diazona violacea* at Tremiti Island MPA.

development of climax benthic habitats over long time scales (Mastrototaro *et al*., 2020).

*D. violacea* facies create temporary three-dimensional habitats that increase bottom complexity, and can also represent a refuge area for numerous species (Mastrototaro *et al*., 2020), indeed they are recognized as a peculiar Mediterranean habitat codified by Templado *et al*. (2012) ("Circalittoral rocks at seamounts summit dominated by ascidians", habitat number 0302022609). The use of new technologies for marine habitat investigations with high-resolution video recording, such as ROV, increases the chances of finding peculiar species and facies (Mastrototaro *et al*., 2019, 2020), revealing their key-role in the mesophotic zone and underlining the importance of ROV exploration for the study of uncommon habitats.

## 4. EASTERN MEDITERRANEAN SEA

### 4.1 *Paragalene longicrura* (Brachyura, Progeryonidae) in the southwest Aegean Sea, Greece

Panayotis OVALIS and Maria CORSINI-FOKA

The decapod *Paragalene longicrura* (Nardo, 1868) is a rare crab that inhabits the Mediterranean Sea, as well as Madeira and the Canary Islands in the eastern Atlantic (Iveša *et al*., 2020). The accurate review and update of all available information and records of *P. longicrura* carried out by Iveša *et al.* (2020) shows that this crab is found from 5 m to 160 m of depth on diversified bottoms, prevalently on hard substrates, and reveals that no information exists on its occurrence in extended regions of the Mediterranean basin.

On 16 April 2022 a specimen of *P. longicrura* was collected off Glyfada, Athens, Saronikos Gulf (37.8625°N, 23.6618°E), as a trammel net by-catch, at 53 m of depth, on muddy sand and maërl bottom. The discarded specimen, currently stored by one of the authors (P.O.), was identified as *P. longicrura* following Iveša *et al.* (2020 and references therein). It was a male having a hexagonal carapace with five anterolateral teeth and a pair of almost parallel granulated ridges on each side, carpus of chelipeds granular with 2 teeth on inner margin, long and thin walking legs; colour of carapace and dorsal surface of chelipeds marbled reddish, walking legs uniformly reddish (Fig. 16). The carapace width (CW) was 41.3 mm and the carapace length (CL) 32.1 mm. The ratio CW/CL of 1.29 of the collected specimen fell within the range of 1.18-1.38 obtained for the specimens of both sexes listed by Iveša *et al*. (2020).

Only few scattered records of the species have been previously reported from the Eastern Mediterranean Sea. In the Aegean Sea, Greece, one specimen was recorded from Skyros Island and two specimens from Rhodes Island (Corsini-Foka & Pancucci-Papadopoulou, 2012 and references therein), while another sample was collected from the Thermaikos Gulf (Kampouris *et al*., 2018), being this last the northernmost record in the eastern basin (Kampouris *et al*., 2018). In the Levantine Sea, *P. longicrura* was recorded only twice: three specimens were collected respectively from Kastelorizo Island, Greece (Mavidis *et al*., 2008) and from Iskenderun Bay, Turkey (Gönülal *et al*., 2015). The present finding of *P. longicrura* from the Saronikos Gulf increases our knowledge on the distribution range of this brachyuran, up to date rarely detected in the Aegean Sea, to the west Aegean shores.

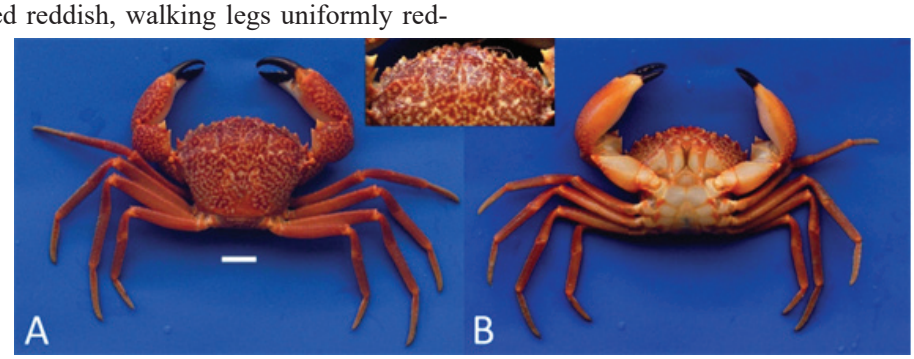


***Fig. 16:*** Male individual of the species *Paragalene longicrura* from Saronikos Gulf, Aegean Sea (A: dorsal view, B: ventral view) (Scale bar: 10 mm). The inset image shows the pair of transverse granulated ridges on the carapace.

### 4.2 First record of the siphonophore *Rhizophysa filiformis* (Forsskål, 1775) in Greek waters

Markos DIGENIS, Grigorios SKOURADAKIS and Ioannis RALLIS

*Rhizophysa filiformis* (Forsskål, 1775) is considered as a scarcely reported cosmopolitan siphonophore (Pagès & Gili, 1992). In the Mediterranean Sea, it was first reliably recorded in the southern Alboran Sea in 1991 at a depth range of 706-833 meters while no other record has been reported from the western Mediterranean Sea since then

(Mills *et al*., 1996). Only recently, *R. filiformis* was recorded for the first time in the eastern Mediterranean Sea (from Levant Sea) indicating its sparse distribution throughout the Mediterranean basin (Gokoglu & Galil, 2020).

In June 2022, an individual of *Rhizophysa filiformis* was photographed while surveying around Kalydon peninsula, north Crete, Greece (35.255034° N, 25.749925° E). The individual was approximately 2 m long and was photographed with an Olympus TG-6 camera at a depth range of 0.2-4 m periodically extending from the surface to the bottom (Fig. 17).

The recorded siphonophore presented small gastrozooids arising from the siphosome, immediately below the pneumatophore with no wing-like structures, also known as ptera, indicating that it is within *Rhizophysa* genus and distinguishing it from *Bathyphysa* species (Pugh, 2019). Gonodendra were grape-like in shape, arising directly from independent buds on the stem (Pagès & Gili, 1992; Dunn & Wagner, 2006). One to four gonodendra were located halfway between each pair of mature gastrozooids while most and most well developed gastrozooids were concentrated at the posteriormost edge of the siphosomal stem identifying the recorded individual as *R. filiformis* (Pugh, 2019). *Rhizophysa filiformis* can also be distinguished from *R. eysenhardtii* by the biserial arrangement of gastrozooid buds and the pink colouration of the tubular filiform tentilla in *R. eysenhardtii* (Pugh, 2019).

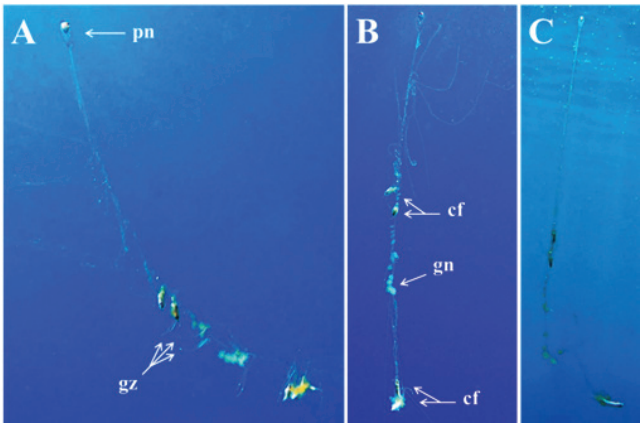


***Fig. 17:*** Lateral view of the recorded *Rhizophysa filiformis* individual (A-C). pn: pneumatophore, gz: gastrozooids, gn: gonodendron, cf: captured fish as prey. Photo credit: Markos Digenis.

Four fish of the family Atherinidae were observed to be captured as prey within the tentacles of *R. filiformis* (Fig. 17B and video in Supplementary Material S3) while it was observed that the reported individual was contracting its body when disturbed.

Through this study, the first record of *R. filiformis* in Greek waters is reported as well as the second record of the species in the eastern Mediterranean basin.

### 4.3 First record of the parasitic isopod *Nerocila milesensis* Öktener, Tuncer & Trilles, 2020 in Greek waters

Markos DIGENIS and Wanda PLAITI

*Nerocila milesensis* Öktener, Tuncer & Trilles, 2020 (family Cymothoidae) was recorded for the first time from Kaş (South Aegean Sea, Turkey) in 2019 parasitizing on the invasive lionfish *Pterois miles* (Bennett, 1828) and described as a new species by Öktener *et al*. in 2020. Since then, no other record has been reported. *Nerocila milesensis* and the congeneric cymothoid *Nerocila bivittata* (Risso, 1816) are the only two isopods reported parasitizing on the devil firefish, *Pterois miles* in the Mediterranean Sea (Antoniou *et al*., 2019; Öktener *et al*., 2020) while isopods of the genus *Excorallana* and two more isopod species have been reported parasitizing on *P. miles* worldwide (Öktener *et al*., 2020 and references therein).

In July 2021, one female individual of *N. milesensis* was collected from a lionfish spearfished at the south coast of Crete Island, Greece (34.933549°N, 24.985170°E) at 7 m depth. The parasite was approximately 1.8 cm long and 1.4 cm wide and was found attached on the left side of the fish, above its anal fin. The collected specimen was preserved in 96% alcohol and photographed with Olympus TG-6 camera (Fig. 18) and ZEISS SteREO Discovery. V12 stereoscope (Fig. 19).

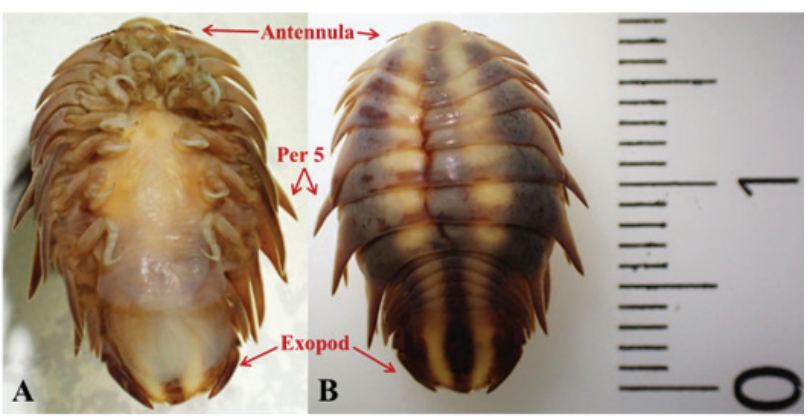


***Fig. 18:*** Ventral (A) and dorsal (B) view of *N. milesensis* specimen in scale of centimeters. Per 5: Pereonite 5. Photos credit: Markos Digenis.

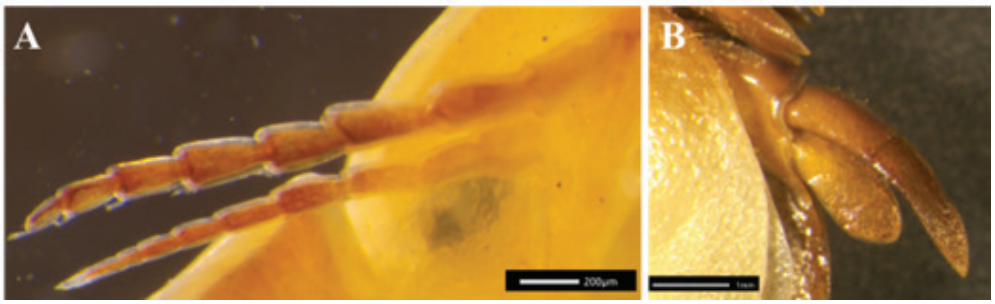


***Fig. 19:*** Antennula and antenna (A) and ventral view of uropod (B) in scale of 200 μm and 1 mm respectively. Photos credit: Markos Digenis (A) and Wanda Plaiti (B).

Morphological features of the collected specimen were in accordance with the species description by Öktener *et al*. (2020). Pereonites increased slightly and gradually from 1 to 5 with pereon being widest at pereonite 5 (Fig. 18A, B), while cephalon ratio was measured as 0.688 times longer than wide. Coxae was partly visible on dorsal view with posteroventral tips of coxae 7 extending to posterior of pleon 5, to pleotelson (Fig. 18B). Antennula was longer than antenna with articles 4-8 disposing esthetes and articles 1 and 2 (out of 8 in total) being larger (Fig. 19A). Exopod of uropod was longer than endopod with setae at its apices while endopod was not extending beyond the posterior margin of pleotelson (Fig. 19B). Pleonite 1 was the shortest and partly concealed by pereonite 7, pleonites 2-4 were subequal in length and pleonite 5 was slightly longest. Pereopod 3 disposed two setae on posterior margin of its propodus while pereopod 7 disposed three setae at the posterior margin of its carpus and two setae at the posterior margin of its merus.

As described by Öktener *et al*. (2020), *Nerocila milesensis* can be distinguished from *N. bivittata* according to some morphological features, including: i) slightly smaller length-width ratio of cephalon, ii) extended pereonites 5-7, iii) visibility of coxae, iv) number of articles at antennula and v) endopod of pleopod being slightly larger.

However, some morphological differences were observed. Mandible with 8 setae at article 3 and no setae at article 2. Propodus of pereopod 7 with one row of three setae on posterior margin and two distally protruding setae. No proper examination of maxilla, maxillula and maxilliped was feasible due to their partial destruction, probably during the parasite's detachment from its host.

The current report constitutes the first record of the parasitic isopod *N. milesensis* in Greek waters as well as the second record worldwide expanding its known distribution in the Eastern Mediterranean Sea. Further research on the morphology of both *N. milesensis* and *N. bivittata* with higher quantities of samples as well as DNA analysis will shed some more light on the differences between the two congeneric species.

### 4.4 A *Pelagia noctiluca* bloom in the eastern Mediterranean (Iskenderun Bay, Turkey)

Melih Ertan ÇINAR and Ertan DAĞLI

*Pelagia noctiluca* (Forsskål, 1775) is a thermophilic small jellyfish that is widely distributed across the Mediterranean Sea, but has not been reported from the Sea of Marmara and Black Sea yet (Çinar *et al*., 2014). This holoplanktonic jellyfish forms dense blooms in the western Mediterranean especially after late 1970s and 1980s (Axiak & Civili, 1991). A few data indicated the periodicity of blooms of *P. noctiluca* in the southern Adriatic and Aegean Seas (Daly Yahia *et al*., 2010). The population peaks of the species in the western Mediterranean were found to occur on average every 12 years between 1785 and 1985, which were assumed to be correlated with the climatic factors between May and August, including high temperature, low rainfall and high atmospheric pressure as well as anthropogenic factors such as pollution and overfishing (Axiak & Civili, 1991). When it blooms, several adverse effects have been documented on human health (powerful stings), fishing activities (clogging fishing nets), fish stocks (consuming ichthyoplankton) and pelagic environment (affecting planktonic communities) (Axiak & Civili, 1991).

In the 9$^{th}$ May of 2019, a bloom of *P. noctiluca* was observed within the Arsuz Harbour (36.3606°N-35.8171°E) located in the south-west part of Iskenderun Bay (north Levantine Sea). Large and small *P. noctiluca* individuals aggregated together in the harbour (Fig. 20A-E). Their aggregations in the harbour could be due to drift effect of wind or sea current prevailing in the area (Axiak & Civili, 1991). A few individuals were observed outside the harbour. In some places within the harbour, hundreds of small specimens (bell diameter < 2-3 cm) per m$^3$ were observed (Fig. 20C). The specimens were relatively small; the largest individual collected had a bell diameter of 7.5 cm, the smallest with a bell diameter of 2.1 cm, but the common size (bell diameter) were smaller than 4 cm. According to the fishers in the harbour several blooms of the species had occurred in the area in the past, but they could not give any date and frequency for it.

The *P. noctiluca* blooms are very rare in the Levantine Sea and firstly documented on various locations of the Syrian coast on May 2019 (May 2-12) (Mamish *et al*., 2019), which is within the same time of our obser-

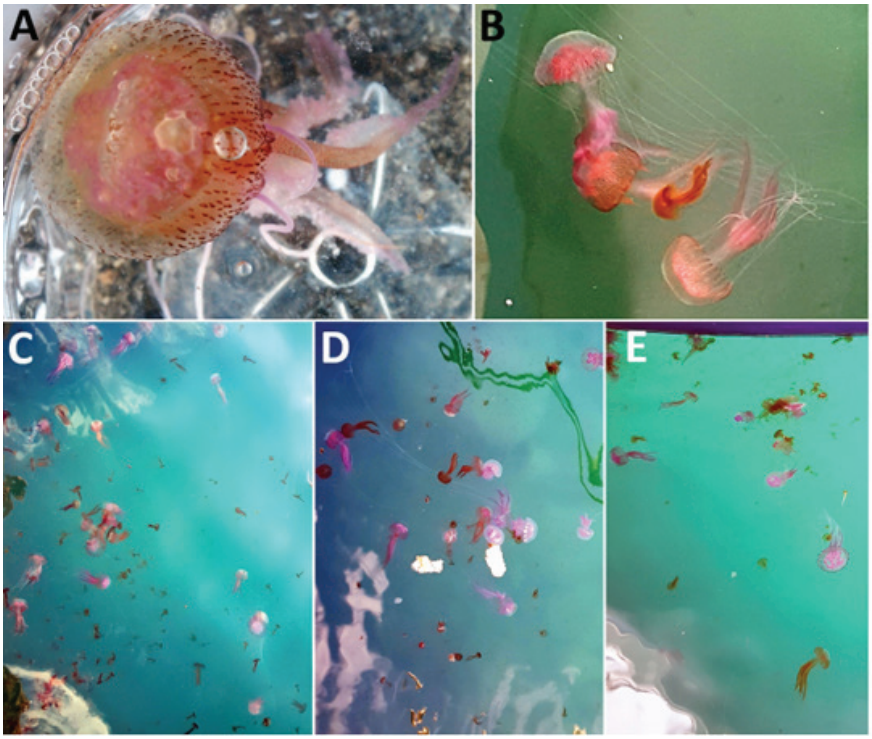


***Fig. 20:*** *Pelagia noctiluca* outbreaks in Iskenderun Bay, Turkey. A. A sampled individual, B-E. Large and small individuals of the species in Arsuz Harbour.

vation (May 9) in Iskenderun Bay. Interestingly, at the same time (May 16-20, 2019, Dr. Ali Badreddine pers. com.), a few individuals of the species were also found in Lebanon (Stern *et al*., 2019). It seems that the May 2019 bloom of the species covered relatively a large area in the northeast Levantine Sea. The maximum bell diameters of the Syrian (6 cm) and our specimens (7.5 cm) were similar.

It is difficult at this stage to find out what triggered the bloom of *P. noctiluca* on the eastern Levantine coast, as it could have been caused either by one decisive factor or the cumulative effect of many as indicated above. However, an increased trend (0.5 °C per decade) in the sea surface temperature (SST) in Iskenderun Bay (Gucel & Sakalli, 2018) might elicit the bloom of *P. noctiluca*. This phenomenon can be used as one of the indicators of the climate change in the region. Therefore, the outbreaks of the species in the region should be monitored within the framework of a long-term monitoring studies.

### 4.5 First record blanket octopus *Tremoctopus violaceus* Delle Chiaje, 1830 in the North-Eastern Mediterranean, Turkey

Deniz ERGÜDEN and Deniz AYAS

The genus *Tremoctopus* Chiaje, 1830 is represented by four valid species namely as *Tremoctopus* violaceus (Delle Chiaje, 1830), *T. gracilis* (Eydoux & Souleyet, 1852), *T. gelatus* (Thomas, 1977), and *T. robsoni* (Kirk, 1884) worldwide (Jiménez-Badillo *et al.*, 2021).

*Tremoctopus violaceus* is an epipelagic species belonging to the Tremoctopodidae family. It is found in the Atlantic Ocean including the Gulf of Mexico and the Caribbean Sea and also rarely occurs in the Mediterranean Sea (Quetglas *et al.*, 2013; Jiménez-Badillo *et al*., 2021). This species is commonly known as "blanket octopus" on account of the females' expanded dorsal web that unites the dorsal arms (Thomas, 1977). Although *T. violaceus* has been previously reported from the Levantine Sea (Salman *et al*., 2002) the species is rare and no specimens up to now have been reported from Iskenderun Bay (Turkey).

A single specimen of *T. violaceus* was first seen swimming in the Madenli Harbour (Iskenderun Bay) area close to the shore at a survey conducted on 06 September 2021 from the northeastern Mediterranean Sea coast of Turkey (Coordinates: 36.284720°N, 35.591184°E) and it was caught by a hand scoop. After the capture, the fresh specimen was identified, photographed, measured to the nearest millimetre, and weighed to the nearest gram. The specimen was identified as a female of *T. violaceus* (Fig. 21A, B). All morphological descriptions and live colours agree with the descriptions given by Thomas (1977) and Roper & Voss (1983).

In the present study, our measured Mediterranean specimen was 195 mm in mantle length, and 955 g in total weight (Table 2). The fresh octopus specimen had a lightish-purple colour on the dorsal mantle and the head, while the ventral mantle was iridescent-violet. The man-

**Table 2.** Some morphometric measurements of *Tremoctopus violaceus* compared with two different records.

| Characters (mm) | Present study | Jiménez-Badillo *et al*. (2021) | Famulari *et al*. (2022) |
|---|---|---|---|
| Total length (TL) | 705 | 640 | 354 |
| Dorsal mantle length ($ML_d$) | 195 | 135 | - |
| Ventral mantle length ($ML_v$) | 100 | 83 | - |
| Mantle width (MW) | 88 | 72 | 13 |
| Head length (HL) | 125 | 100 | 23 |
| Head witdth (HW) | 94 | 94 | - |
| Eye diameter | 22 | 25 | - |
| Funnel length | 59 | 58 | - |
| Free funnel length | 21 | 20 | - |
| Funnel width at opening | 23 | 25 | - |
| Upper beak height | 18.0 | 17.8 | - |
| Upper beak length | 19.3 | 16.1 | - |
| Lower beak height | 9.1 | 5.7 | - |
| Lower beak length | 14.2 | 14.0 | - |
| Total weight | 955 | 1020 | 433 |

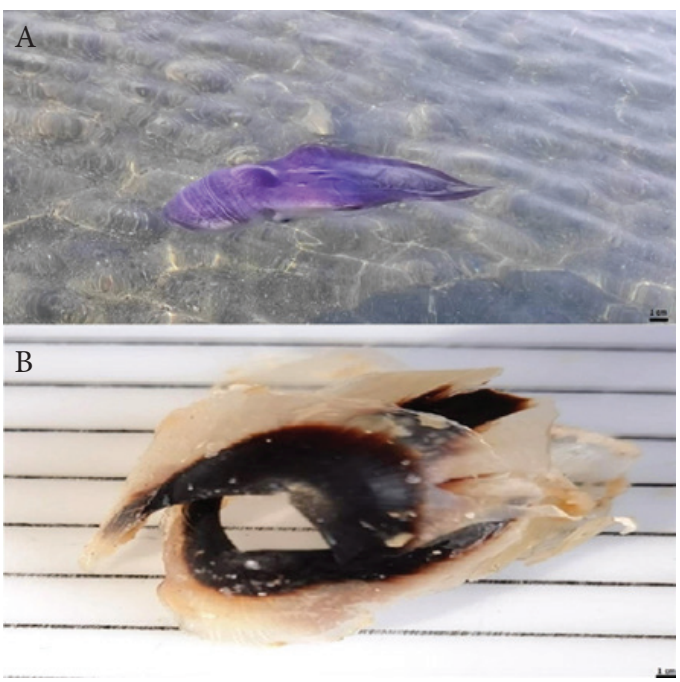


***Fig. 21:*** Photographic record (A) and view of the upper and lower beak (B) of the *Tremoctopus violaceus* specimen (195 mm, ML) at Madenli harbour (Arsuz, Iskenderun Bay). Scale bar in A,B = 1 cm.

tle was thick and muscular, heavily pigmented. The head is narrower than the mantle. The eyes were lateral. The arms were unequal in length and shape. Some morphometric measurements of *T. violaceus* from two different geographic regions are given in Table 2 together with the findings of the present study.

*T. violaceus* is characterized by an evident sexual dimorphism, in which the male, provided with a particularly complex hectocotylus, is much smaller than the female, and also they are morphologically highly different. Females reach up to two meters in total length, whereas males to about 2.4 cm.

This study reports the first occurrence of *T. violaceus* from Iskenderun Bay and confirms the presence of the species in the northeastern Mediterranean Sea coast of Turkey.

### 4.6 Recent occurrence of *Squatina aculeata* Cuvier, 1829 from the Turkish coasts

Sercan YAPICI and Ferhat YALGIN

The family Squatinidae, known as angelsharks, consists of 23 species worldwide with the sawback angelshark (*Squatina aculeata*), the smoothback angelshark (*Squatina oculata*), and the angelshark (*Squatina squatina*) occurring in the Mediterranean Sea (Giovos *et al*., 2022).

These species were assigned as Critically Endangered in the Mediterranean Sea by the IUCN Red List of Threatened Species (Lawson *et al*., 2019) because an ongoing combination of negative fishing factors (overfishing, incidental / discarded catch) arising from commercial and artisanal fisheries has caused the decline of the Mediterranean population (Giovos *et al.*, 2022).

Although angelsharks share similar morphological characters, *S. aculeata* differs from its congeners by the presence of large prominent spines along midback. Considering the species historical occurrence in the Mediterranean, *S. aculeata* is considered as a rare species in this area (Lawson *et al*., 2019; Zava *et al*., 2020 and references therein).

On 15 April 2022, one female specimen got entangled in gillnet in the Ekincik cove (36.8145°N, 28.5587°E, Fig. 22). It was measured by the officers of the Muğla Directorate of Provincial Agriculture and Forestry, who contacted the Faculty of Fisheries, Muğla Sıtkı Koçman University to confirm species identification and declare that the specimen reached 160 cm in total length and weighed ~ 30 kg. Detailed morphometric measurements were not taken to reassure the survival of the specimen as angelsharks are protected by the Turkish Fisheries Law. In conclusion, further monitoring studies are required to better describe their distribution in the area of study.

***Fig. 22:*** A female specimen of *S. aculeata* from the Ekincik cove. Photo credit: Ekrem Şahin.

### 4.7 First record of the marine amphipod *Caprella andreae* Mayer, 1890 (Crustacea: Caprellidae) in the Levantine Mediterranean shore of Israel

Razy HOFFMAN

*Caprella andreae* is a marine amphipod that mainly has cosmopolitan oceanic distribution. Lately, it was also reported from several sites in the Mediterranean Sea. This caprellid species is passively dispersed through rafting, rather than by active swimming. It attaches to floating objects, such as buoys, ropes and pieces of wood, or clings, as an epibiont, on the carapaces of sea turtles, such as *Chelonia mydas* (Linnaeus, 1758) and *Caretta caretta* (Linnaeus, 1758), or the seaweed flora growing on their scales (Cabezas *et al*., 2013).

The amphipod fauna of Israel and the southeastern Levantine Sea was intensively studied in recent decades with no previous evidence of *C. andreae* from the region (Sorbe & Galil, 2002; Sorbe *et al*., 2002). During windsurfing session, that took place in Bat Yam, located in the central Levantine Mediterranean shore of Israel on 4$^{th}$ June 2019, large branched drifted specimens of the brown seaweed, *Sargassum acinarium* (Linnaeus) Setchell, were collected ca. one kilometre offshore (32.030441°N, 34.729600°E). Several dozens of females, males (Fig. 23) and juvenile specimens of *C. andreae* were found clinging to the long thalli. Morphological study clearly indicated the convexity of the propodus of pereopods 5-7 (Fig. 23, left) which is an adaptation to strongly cling to drifting objects or tiny algae on the turtle carapace. This convexity distinguishes it from the other species of the related complex (Cabezas *et al*., 2013). Later, the morphological identification was confirmed through molecular study, of specimen's mitochondrial COI gene, that took place in Spain (Cabezas *et al*., unpublished data). It is assumed that the introduction of *C. andreae* in the Levantine Mediterranean shore of Israel took place trough *C. mydas* and/or *C. caretta*. Both turtles are found along the Levantine Mediterranean shore of Israel (Silberstein & Dmi'el 1991). To be noted, that the high number of individuals of *C. andreae* collected attached to drifted


***Fig. 23*:** *Caprella andreae*, male (left) and female (right), arrows point on typical convexity of the propodus of pereopods 5-7, scale bars 2 mm.

*Sargassum acinarium*, that forms underwater forests on Kurkar ridges (fissile dunes) of the subtidal, at depth below 8 m, might indicate establishments of the amphipod.

*C. andreae* is the second caprellid species reported lately for the first time from the Levantine Mediterranean shore of Israel. The first is the "new" exotic *Paracaprella pusilla* Mayer, 1890. Both species were first recorded during the second decade of the Millennium (Ros *et al.*, 2016). The fact that *C. andreae* was not reported previously from the Levantine Mediterranean shores of Israel might indicate recent introduction.

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**Supplementary Data**

The following supplementary information is available online for the article:
**Video 1. 1.1 Gioele Capillo and Francesco Tiralongo:** Underwater video of a female specimen of *O. tuberculata*

from the harbour of Algeciras (Spain, Western Mediterranean Sea).
**Video 2. 2.2 Serena Savoca and Sergio Famulari**: Underwater video of the record of the sea elephant, *P. coronata* from the Strait of Messina (Central Mediterranean Sea).
**Video 3. 4.2 Markos Digenis, Grigorios Skouradakis and Ioannis Rallis**: An underwater film of *R. filiformis*, as observed on the 7th of June 2022 off Kalydon Peninsula, north Crete, Greece (Eastern Mediterranean Sea).

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