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New records of rarely reported species in the Mediterranean Sea (December 2025)

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Abstract

This Collective Article presents information on 19 species with records in nine countries (Croatia, Cyprus, Italy, Libya, Malta, Slovenia, Spain, Tunisia and Türkiye), spanning the whole Mediterranean Sea. The recorded species belong to six phyla: Ochrophyta (1 species), Brachiopoda (1 species), Bryozoa (1 species), Mollusca (3 species), Arthropoda (7 species), and Chordata (6 species). The brown alga *Carpomitra costata* var. *mediterranea* is reported for the first time in the eastern basin along the Turkish coast. The first detailed characterisation of the populations of the brachiopod *Gryphus vitreus* is made in Antalya Bay (eastern Mediterranean Sea), while the deep-sea bryozoan *Kinetoskias smitti* is spotted in ten localities along the Italian coast. Among molluscs, the first massive bloom of the pteropod *Creseis acicula* in Libyan water and the first record of the cephalopod *Neorossia caroli* from the northern Levant Sea are documented, while three specimens of the nudibranch *Cumanotus beaumonti* are photographed in the northern Adriatic Sea. Considering arthropods, four species (*Bathynectes maravigna*, *Euchirograpsus liguricus*, *Paragalene longicrura*, and *Typton spongicola*) are morphologically and genetically identified from the Gulfs of Naples and Salerno, the northernmost record of the crab *Ocypode cursor* in the Mediterranean Sea is presented, and the first records of two rare species, the shrimp *Gnathophyllum elegans* and the pycnogonid *Anoplodactylus massiliensis*, are reported in Cyprus and in the Strait of Sicily, respectively. Finally, among chordates, the rarely observed guitarfish *Rhinobatos rhinobatos* and the moray *Gymnothorax unicolor* are reported from Maltese waters, the mako shark *Isurus oxyrinchus* was fortuitously filmed in Croatia, the distribution of the rare blenny *Hypleurochilus bananensis* is extended westward to the Iberian Peninsula, and the bastard grunt

Pomadasys incisus and the gobiid *Zebrus pallaoroi* are firstly documented in the Italian side of the Adriatic Sea and in Tunisia, respectively.

Introduction

The Mediterranean Sea, the largest and deepest semi-enclosed basin on Earth, is a globally recognized marine biodiversity hotspot, with over 17,000 species reported, including a high proportion of endemisms (Coll *et al*., 2010). Owing to its complex geological history and diverse climatic and hydrological conditions, the basin supports both temperate and subtropical biota (Bianchi & Morri, 2000). Despite being one of the most intensively studied seas, significant gaps persist in our understanding of the geographical and bathymetrical distribution of many taxa, particularly small-sized, cryptic, or deep-water organisms that are difficult to observe (Baez *et al*., 2025 and reference therein).

Rapid environmental change further complicates this picture. The Mediterranean is warming faster than most other marine regions, driving pronounced ecological shifts, including the northward expansion of thermophilic native species and the establishment of non-indigenous taxa (Galil & Zenetos, 2002; Báez *et al*., 2019; Bianchi *et al*., 2019; Sbragaglia *et al*., 2020; Tiralongo *et al*., 2022; Torreblanca & Báez, 2025). These changes are reshaping community structures and altering species distributions, underscoring the urgent need for up-to-date biodiversity data. Verified, georeferenced records complemented by ecological information (e.g., habitat, feeding behaviour, and functional traits) are essential for understanding ecosystem evolution, assessing anthropogenic and climate-driven impacts, and supporting effective conservation and management strategies (Narayanaswamy *et al*., 2013; Levin *et al*., 2014; Garrabou *et al*., 2022).

To address existing knowledge gaps, the Collective Article Series B' "*New records of rarely reported species in the Mediterranean Sea*", published in *Mediterranean Marine Science*, provides a platform for periodically documenting new occurrences of rare or rarely encountered species across the basin. The present article reports new findings on 19 species (one Ochrophyta, one Brachiopoda, one Bryozoa, three Mollusca, seven Arthropoda, and six Chordata) recorded between 2006 and 2025 across nine Mediterranean countries, spanning depths from the shoreline to 1825 meters. The records are organized by phylum and presented in corresponding sub-chapters. The approximate locations of species occurrences are illustrated in Figure 1, while Table 1 summarizes the relevant information, including phylum, sub-chapter, basin, location, country, and map reference number.

The species reported here were documented using a variety of methods and information sources. The brachiopod *Gryphus vitreus*, the cephalopod *Neorossia caroli*, the four arthropods *Bathynectes maravigna*, *Euchirograpsus liguricus*, *Paragalene longicrura* and *Typton spongicola*, and the three chordates *Rhinobatos rhinobatos*, *Gymnothorax unicolor*, and *Pomadasys incisus* were caught by professional or scientific fishers during surveys, using various types of fishing gear such as trammel nets, bottom longlines, and bottom trawls. In some cases, specimens were released after being photographed and identified. In addition, the mako shark *Isurus oxyrinchus* was video recorded by a professional fisherman while hauling an Atlantic bluefin tuna. The tufted ghost crab *Ocypode cursor* was photographed onshore by a citizen and posted on a social network, where it was later identified by a specialist, emphasizing the importance of collaboration between scientists and non-scientists (Azzuro & Tiralongo, 2020). The deep-sea species *Kinetoskias smitti* (bryozoan) and *Anoplodactylus massiliensis* (pycnogonid) were recorded (and the second also collected) with a Remotely Operated Vehicle (ROV), a relatively new underwater equipment that is getting more and more efficient and affordable in the exploration of

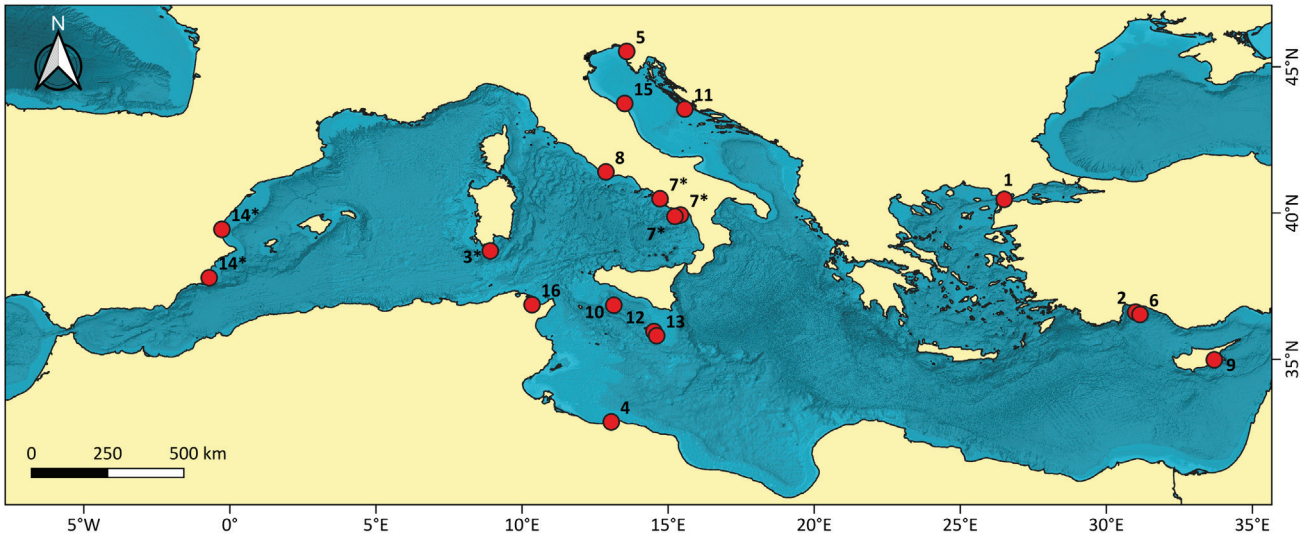

Fig. 1: Locations of species records presented in the current article. Location numbers (LN) are given in Table 1 (*: multiple records of the same species in the area).

Table 1. Information about species records by phylum. Sub-chapters (SC), basin (WMED – West Mediterranean Sea, CMED – Central Mediterranean Sea, ADRIA – Adriatic Sea, and EMED – Eastern Mediterranean Sea), location, country, and location number as in Figure 1 (LN). [* refers to multiple records of the species in the area].

Taxon	SC	Basin	Locality	Country	LN
Phylum Ochrophyta					
Carpomitra costata var. *mediterranea*	1.1	EMED	Saros Bay	Türkiye	1
Phylum Brachiopoda					
Gryphus vitreus	2.1	EMED	Gulf of Antalya	Türkiye	2
Phylum Bryozoa					
Kinetoskias smitti	3.1	WMED	Pontine Archipelago, Nora Canyon, Tavolara Canyon, Carloforte Shoal, Palmeri Cape, Vibo Marina, Pantelleria Island	Italy	3*
Phylum Mollusca					
Creseis acicula	4.1	CMED	Regatta Bay	Libya	4
Cumanotus beaumonti	4.2	ADRIA	Fiesa	Slovenia	5
Neorossia caroli	4.3	EMED	Gulf of Antalya	Türkiye	6
Phylum Arthropoda					
Bathynectes maravigna	5.1	WMED	Gulf of Naples, off Capo d'Orso	Italy	7*
Euchirograpsus liguricus	5.1	WMED	off Marina di Camerota	Italy	7*
Paragalene longicrura	5.1	WMED	off Marina di Camerota, off Punta Campanella, off Punta Caruso; off Baia di Puolo	Italy	7*
Typton spongicola	5.1	WMED	Gulf of Naples	Italy	7*
Ocypode cursor	5.2	WMED	Latina	Italy	8
Gnathophyllum elegans	5.3	EMED	Larnaka	Cyprus	9
Anoplodactylus massiliensis	5.4	CMED	Nameless Urania Bank	Italy	10
Phylum Chordata					
Isurus oxyrinchus	6.2	ADRIA	south Blitvenica Island	Croatia	12
Rhinobatos rhinobatos	6.1	CMED	unknown (Valletta Pixkerija fish market)	Malta	11
Gymnothorax unicolor	6.3	CMED	off Marsaxlokk	Malta	13
Hypleurochilus bananensis	6.4	WMED	Port of Valencia, Mar Menor coastal lagoon	Spain	14*
Pomadasys incisus	6.5	ADRIA	off Ancona harbor	Italy	15
Zebrus pallaoroi	6.6	CMED	Carthage	Tunisia	16

the deep-sea ecosystems, allowing the observation, via photographs and video-footages, of living organisms in their natural environment (Huvenne, 2022). Finally, the brown alga *Carpomitra costata* var. *mediterranea*, the two molluscs *Creseis acicula* and *Cumanotus beaumonti*, the spotted bumblebee shrimp *Gnathophyllum elegans*, and the two fish *Hypleurochilus bananensis* and *Zebrus pallaoroi* were noticed during SCUBA diving or snorkelling surveys.

For seven species, identification was based on morphological analysis of captured specimens, while eight species were identified through video and photo examination. Finally, four species were identified both morphologically and molecularly, and their genetic sequences were deposited in a public genetic sequence database under reference codes.

Two species, namely *Isurus oxyrinchus* and *Rhinobatos rhinobatos*, are classified as endangered and critically endangered, respectively, in the IUCN Red List, so the records here reported represent important sightings of these threatened species. *Gryphus vitreus* and *Kinetoskias smitti* are the typical species of two bathyal facies described in the recently updated classification of marine benthic habitats and are mentioned in the Dark Habitats Action Plan of the Barcelona Convention, highlighting their ecological relevance (Montefalcone *et al*., 2021). Moreover, the brown moray *Gymnothorax unicolor* is endemic within the Mediterranean Sea and the specimen photographed in Malta constitutes one of the rare sights of this species. Noteworthy, three records (*Carpomitra costata* var. *mediterranea*, *Creseis acicula*, *Gnathophyllum elegans*, *Gryphus vitreus*, and *Neorossia caroli*) originated from the southern and eastern coast of the basin, implementing knowledge on the composition, distribution and conservation status of species in these areas today still poorly studied (Coll *et al*., 2010)

In conclusion, these contributions enhance our understanding of Mediterranean biodiversity patterns and provide critical insights into species distribution dynamics, ecological traits and habitat preferences in an era of rapid climatic change.

1. OCHROPHYTA

1.1 Extending the known range of *Carpomitra costata* var. *mediterranea* to the Eastern Mediterranean

Emine Sukran OKUDAN and Inci TUNEY

The circalittoral zone, marking the lower limit of algal distribution (Harmelin & Pergent, 2006), harbors rich algal assemblages that provide habitat and shelter for numerous invertebrate and vertebrate species. Understanding these communities is essential for assessing biodiversity and informing conservation measures (Danovaro *et al.*, 2020). Among the characteristic elements of circalittoral algal communities is the brown alga *Carpomitra* Kützing, 1843, represented by four species and a variety (Guiry & Guiry, 2024). *Carpomitra costata* var. *mediterranea* has been previously recorded from Spain, France, Italy, and Tunisia (Guiry & Guiry, 2024). In addition, the species has been recorded in the Adriatic Sea, under the synonym *Sporochnus dichotomus* (Guiry & Guiry, 2024). Specimens were collected by SCUBA diving at 40-45 m depth in Saros Bay (Türkiye, North Aegean Sea, 40.46472°N, 26.50873°E) in May 2024. The collected specimens closely match the morphological description of *C. costata* var. *mediterranea*, exhibiting medium brown thalli up to 25-30 cm in length, arising from a rhizoidal holdfast, and showing subdichotomous to lateral branching. Fronds displayed slightly compressed branches with a faint midrib and irregular collars, consistent with diagnostic features reported in the literature (Wynne, 1988) (Fig. 2). Although poorly studied regarding its distribution, some research has investigated its biochemical properties and bioactivities (Susano *et al.*, 2021). This taxon typically grows epilithically on rocky substrates and biogenic detritic bottoms associated with coralligenous assemblages, at depths of 25-70 m (DORIS, 2024).

This study represents the first record of *C. costata* var. *mediterranea* along the Eastern Mediterranean coasts. To date, it has not been included in any conservation listings. Documenting its previously unreported presence in the Eastern Mediterranean is therefore critical for biodiversity records and may inform future conservation considerations.

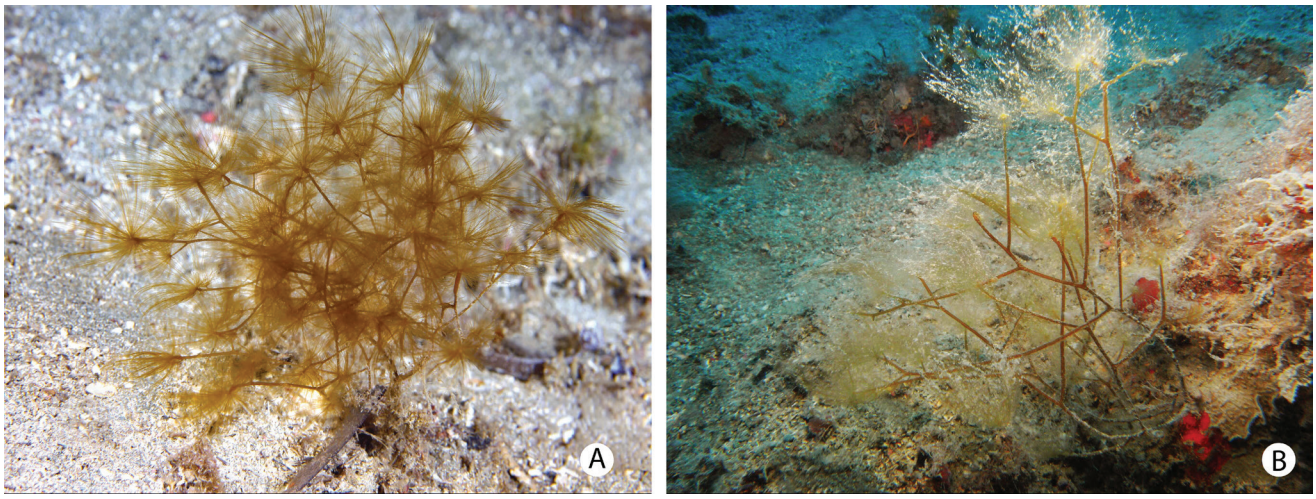

Fig. 2: General view of *Carpomitra costata* var. *mediterranea* attached on a seagrass leaf (A) and on a hard substratum (B). Photo credit: A: Mesut Eryılmaz; B: Emine S. Okudan.

2. BRACHIOPODA

2.1 Spatio-temporal distribution of *Gryphus vitreus* (Born, 1773) (Brachiopoda) in the Bathyal Zone of Antalya Bay (Eastern Mediterranean)

Mehmet Cengiz DEVAL

Gryphus vitreus (Born, 1773), a brachiopod species originally native to the Atlantic Ocean that migrated into the Mediterranean Sea towards the end of the Pliocene (Falconetti, 1980), has been proposed as a Vulnerable Marine Ecosystem (VME) indicator species based on Mediterranean survey data and in accordance with FAO criteria (OCEANA, 2016). *Gryphus vitreus* and other Mediterranean brachiopods have been well studied in the western and, to a lesser extent, central Mediterranean (e.g., Emig, 1985; Cartes *et al*., 2009; Toma *et al*., 2022), while research in the eastern basin remains limited to presence records.

Gryphus vitreus was collected during two scientific surveys conducted on the continental slope of Antalya Bay (Eastern Mediterranean; GSA 24) using the R/V *Akdeniz Su*. The first survey was carried out between July 2010 and June 2011, sampling eight depth layers ranging from 200 to 900 m. Approximately a decade later, the second survey was conducted from November 2019 to January 2021 across six depth layers between 200 and 700 m. A standard otter trawl, equipped with a 44 mm mesh polyethylene codend and a 24 mm mesh polyamide codend-cover was used in 121 successful hauls, totalling 157.8 hours of trawling. Abundance indices (D, ind. km^{-2}) were calculated based on the swept area determined from the trawl wingspread (17.5 m) and haul tracks.

In the first survey, a total of 6,035 individuals of *G. vitreus* were collected in 58.6% of the hauls (51 hauls) across the 300-800 m depth strata. The abundance of *G. vitreus* ranged from 10 to 8,432 ind. km^{-2}, with a mean of 640 ± 1,232 ind. km^{-2}. Approximately 44% of the total population was concentrated at a depth of 400 m, followed by the 600 m and 500 m strata, which accounted for 28% and 22%, respectively (Table 2, Fig. 3A). In the second survey, only 404 individuals of *G. vitreus* were sampled, and the average abundance decreased by 78.7%,

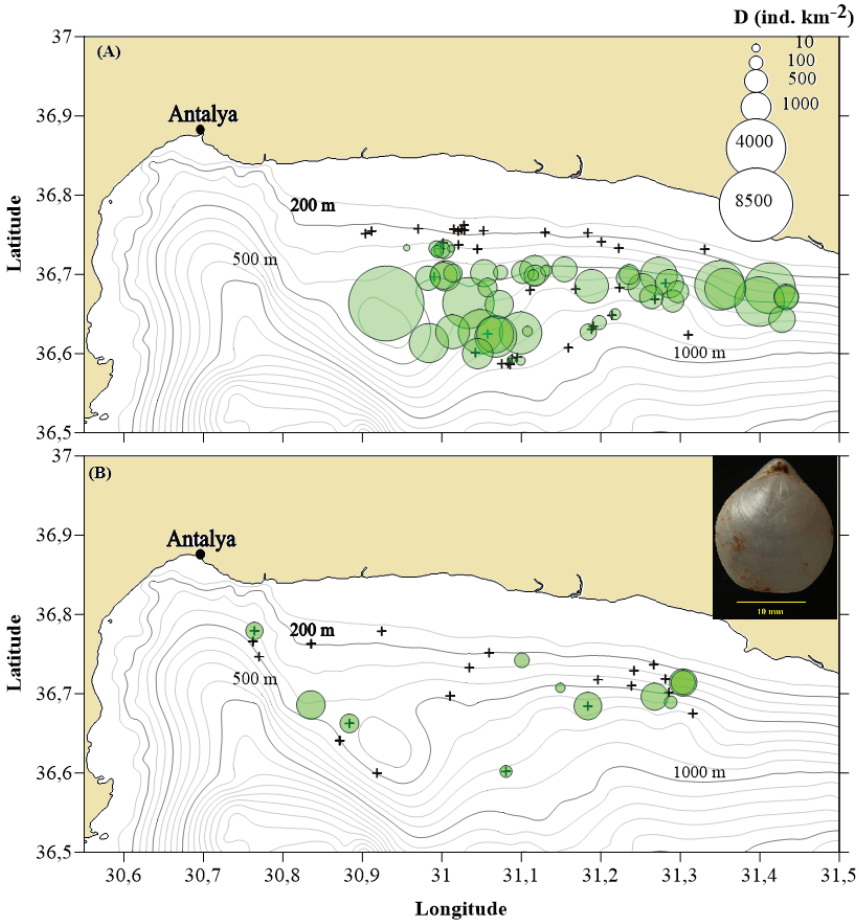

Fig. 3: Spatial distribution of the abundance (ind. km^{-2}) of *Gryphus vitreus* (inset photo, scale: 10 mm) on the bathyal grounds of Antalya Bay (Eastern Mediterranean) during the first (A) and second (B) surveys conducted between 2009 and 2021 (+: empty hauls).

Table 2. Mean abundance (D, ind. km^{-2}) and standard deviation (SD) of *Gryphus vitreus* by survey and depth stratum in Antalya Bay (Hn: total number of hauls; Ho: number of hauls in which the species occurred).

	First survey		Second survey		
Depth strata (m)	**Ho/Hn**	**D**	**Oh/Hn**	**D**	**% decreasing**
200	0/12	0	0/4	0	
300	6/12	60 ±98	1/6	11 ±27	82.7
400	14/15	1612 ±2186	4/14	103 ±243	93.6
500	12/14	870 ±1152	3/4	492 ±421	43.4
600	11/14	1109 ±941	3/5	234±337	78.9
700	5/11	190 ±347	0/1	0	
800	3/7	51 ±75			
900	0/1	0			
	51/87	**640 ±1232**	**11/34**	**136 ±276**	**78.7**

from 640 to 136 ind. km^{-2} (Table 2, Fig. 3B). A particularly sharp decline was observed at the 400 m stratum, where only 6.4% of the population abundance recorded 10 years earlier remained. One-way ANOVA indicated that the abundance of *G. vitreus* did not vary seasonally ($F = 1.448$, $P = 0.232$), but it different significantly among depth strata ($F = 2.586$, $P = 0.016$) and between surveys ($F = 5.540$, $P = 0.020$).

3. BRYOZOA

3.1 The "moving shadow": first Italian sightings of the deep-sea bryozoan *Kinetoskias smitti* Daniellsen, 1868

Margherita TOMA and Marzia BO

Studying the deep sea and its fauna is challenging, but the task is even more complicated if the target species is a thin, whitish bryozoan of which only the shadow is visible in a muddy seascape. The genus *Kinetoskias* (Gymnolaemata, Bugulidae) includes eleven species worldwide (www.bryozoan.net, accessed 5 May 2025), among which *Kinetoskias smitti* Daniellsen, 1868 has been reported in the Atlantic Ocean and Mediterranean Sea (Rosso & Di Martino, 2023). It is a <15 cm high umbrella-like stalked bryozoan with dichotomically divided branches inhabiting bathyal and abyssal muds. Due to its hardly visible appearance, *K. smitti* has not frequently been sighted in the Mediterranean basin: it was first reported in the Alboran Sea (Harmelin & d'Hondt, 1993) and, more recently, on Balearic seamounts, forming patchy aggregations on untrawled muds (Mastrototaro *et al*., 2017). The bathymetric range of this species is extensive (possibly from 65-5223 m depth) on the outer side of the Gibraltar Strait but shallower and restricted between 480 and 615 m in the Mediterranean Sea (Harmelin & d'Hondt, 1993; Denisenko *et al.*, 2014; Mastrototaro *et al*., 2017).

The analysis of an extensive ROV dataset collected in over 15 years in 655 sites along the Italian coast, from 40 m to 1825 m, allowed to spot *K. smitti* specimens in ten localities (Table 3). The species was noted between 145 and 561 m mainly on muddy substrates, creating dense patches (up to 3.14 specimens/m^2), sometimes associated with an unidentified bryozoan of the family Candidae, giant Foraminifera, colonies of keratoisidids or close to cold-water coral (CWC) reefs (Fig. 4). Moreover, some *Kinetoskias* colonies were observed to host small epibionts (such as serpulids) on both the branches and the stalk. A bathyal facies with bryozoans, whose typical species is *Kinetoskias* sp., has recently been added to the

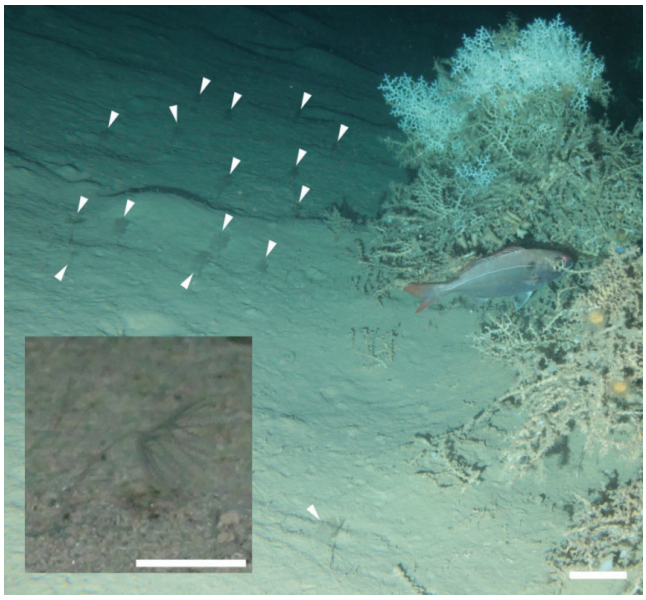

Fig. 4: ROV image of *Kinetoskias smitti* in one explored site (Nora Canyon, North-central Tyrrhenian Sea, 430 m). Numerous specimens (white arrows) near a reef created by the white coral *Madrepora oculata* Linnaeus, 1758. *Pagellus bogaraveo* (Brünnich, 1768) swims nearby. Scale bar: 10 cm. Inset: close-up of a colony, with thin branches originating from the basal peduncle. Scale bar: 5 cm. Photo credit: ISPRA.

Table 3. Presence of *Kinetoskias smitti* along the Italian coast. Name of the localities, year, geographic coordinates, depth ranges and relative abundance (1, rare, scattered specimens; 2, common, aggregated specimens; or 3, abundant, densely aggregated specimens) where the species was observed. Noteworthy the persistent presence of the target species in Nora Canyon Sites A and B over a ten-year span.

Area	Locality	Year	Latitude	Longitude	Depth range (m)	Rel. Abundance
North-central Tyrrhenian Sea	Pontine Archipelago (S Latium)	2014	40.83127	13.12782	235-307	1
North-central Tyrrhenian Sea	Tavolara Canyon (NE Sardinia)	2013	40.91250	9.91500	175-200	1
North-central Tyrrhenian Sea	Palmeri Cape (SE Sardinia)	2013	39.77990	9.82250	350-355	3
North-central Tyrrhenian Sea	Nora Canyon Site A (S Sardinia)	2013	38.70830	8.90930	383-387	1
	Nora Canyon Site A (S Sardinia)	2023	38.70830	8.90930	363-400	2
North-central Tyrrhenian Sea	Nora Canyon Site B (S Sardinia)	2013	38.70310	8.91170	420-453	3
	Nora Canyon Site B (S Sardinia)	2023	38.70310	8.91170	397-450	1
North-central Tyrrhenian Sea	Nora Canyon Site C (S Sardinia)	2023	38.71508	8.97047	395-494	1
North-central Tyrrhenian Sea	Nora Canyon Site D (S Sardinia)	2023	38.70406	8.97278	521-561	1
North-central Tyrrhenian Sea	Carloforte Shoal Site A (SW Sardinia)	2013	39.16840	8.10200	145-155	3
	Carloforte Shoal Site B (SW Sardinia)	2013	39.23080	8.00330	185-190	3
South Tyrrhenian Sea	Vibo Marina (W Calabria)	2009	38.80992	16.13113	230-235	1
Sicily Channel	Pantelleria Island (SW Sicily)	2010	36.41867	12.35555	240	1

updated classification of marine benthic habitats (code ME6.51B) and mentioned in the Dark Habitats Action Plan. Nevertheless, no form of protection targeting this facies is currently in place in the Mediterranean Sea, and information on the biology and ecology of this species is almost non-existent (Montefalcone *et al*., 2021).

The various sightings reported in this study enlarge the bathymetric range of *K. smitti* in the basin and represent the first record of the species along the Italian coast. This may indicate a larger distribution of this Atlantic bryozoan in the western Mediterranean basin, overlooked mainly because of its ghosted aspect.

4. MOLLUSCA

4.1 First record of the circumglobal planktonic snail *Creseis acicula* (Pteropoda, Creseidae) in Libyan waters

Jamila RIZGALLA

Pteropods play an important role in marine food webs (Lalli & Gilmer, 1989). They also serve as indicators of environmental changes due to their sensitivity to oceanic acidification which is directly linked to climate change (Tunçer *et al*., 2021). The pteropod *Creseis acicula* (Rang, 1828) is a circumglobal (50°N-45°S), pelagic snail (Ballesteros *et al*., 2025). It is identified by its long, smooth, straight needle-shaped shell, measuring between 5 to 33 mm, with two swimming wings on either side of the head with visible mouth and lips (Lalli & Gilmer, 1989). *Creseis acicula* can form massive blooms in coastal waters (Dai *et al*., 2020). In the Mediterranean Sea, *C. acicula* blooms have been reported in Italy, France, Spain, and Türkiye (Tunçer *et al*., 2021). The dynamics leading to these blooms are diverse (Dai *et al*., 2020; Tunçer *et al*., 2021) and can be caused by seasonal mechanisms (Dai *et al*., 2020), or unusual events triggered by specific factors (Tunçer *et al*., 2021), often correlated with environmental conditions such as sea water temperatures, salinity, and prey abundance (Dai *et al.*, 2020). These blooms can have negative economic consequences (Dai *et al*., 2020), and allergic reactions in swimmers, with cases reported from Japan, Italy, China, and Türkiye (Tunçer *et al*., 2021). Patients may experience needle-like stings that typically resolve within a couple of days (Nishimura, 1965).

On June 11, 2021, during snorkelling surveys in Regatta Bay (32.85407°N, 13.05442°E), with the aim to assess sea slug biodiversity in Libyan waters, a swarm of *C. acicula* was found, near the shore at a depth of 20-30 cm (Fig. 5A-BC, 6A-D). Specimens were collected and fixed in 96% ethanol.

While high water temperature (32°C) is believed to be a significant factor causing blooms (Tunçer *et al*., 2021), blooms at 21.6-22.1°C have been reported by Burgi & Devos (1962), coinciding with the bloom in Regatta Bay (22.3°C in June 2021). Temperature tolerance and the presence of significant anthropogenic activity in Regatta Bay may have contributed to the *C. acicula* bloom. This marks the first record of *C. acicula* and its bloom in Libyan waters.

Fig. 5: (A) A needle-like swarm of *C. acicula* floating in the water. (B) An individual *C. acicula* photographed *in situ* (white circle). (C) *Creseis acicula* specimens fixed in 96% ethanol showing various characteristics such as the needle-like straight, translucent, thin and long tapering shell.
Photo credit: Jamila Rizgalla.

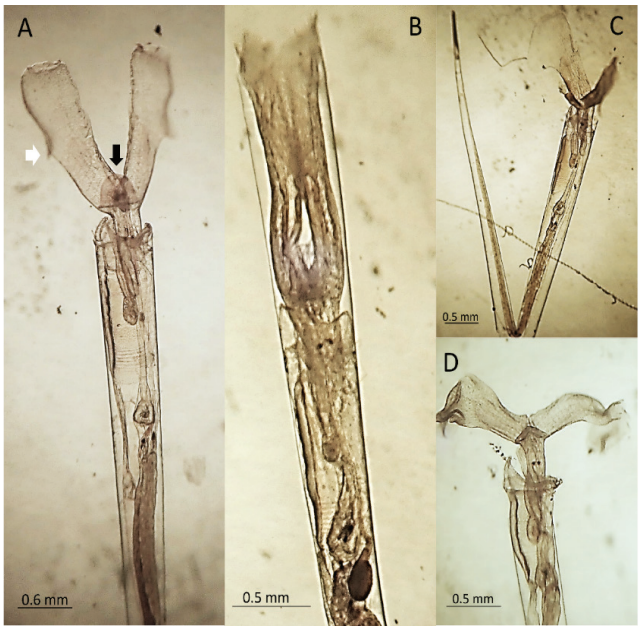

Fig. 6: (A) When extended the swimming wings are large, translucent (white arow) and located on either side of the lips (black arrow). (B) A fully retracted animal is seen in its shell with folded swimming wings and visible internal organs. (C) A damaged *C. acicula* live specimen, showing the pointed, needle-like translucent shell. (D) A fully extended animal with its swimming wings, at either side of the head.
Photo credit: Jamila Rizgalla.

4.2 New data on the occurrence of *Cumanotus beaumonti* (Eliot, 1906) in the northern Adriatic Sea

Borut MAVRIČ and Lovrenc LIPEJ

Cumanotus beaumonti (Eliot, 1906) is an aeolid nudibranch (Mollusca, Gastropoda, Cumanotidae) first described from Jennycliff Bay in Plymouth Sound, Devon, England. Although the species is known from a wide distributional range that includes the Northeastern Atlantic and the Mediterranean Sea, it is generally considered as a very rare nudibranch (Almón Pazos *et al.*, 2013). The species, however, is easily recognizable due to the numerous long and slender cerata which are a little bit shorter than the body, the small oral tentacles, the erect rhinophora that are placed close together, shorter than cerata, and smooth, the cnidosacs that are visible at the end of cerata, and the body that is translucent with white and golden yellow specklings.

After the discovery of the two specimens in the Natural Monument Cape Madona (Piran, Slovenia), which was the first record of this species in the Mediterranean Sea (Turk, 2005), some new data on this less known species arose during the regular monitoring of heterobranch mollusks in the Slovenian part of the Adriatic Sea. In March 2008, a specimen was found feeding on hydrozoan *Corymorpha nutans* in front of the Marine Biology station in Piran on a sedimentary bottom (Zenetos *et al*., 2016), while in winter 2025 two specimens were photographed on *C. nutans* (Fig. 7) on two different occasions in a muddy habitat in front of Fiesa (Table 4). This agrees with the feeding behaviour of the species, that is known to feed on anthoathecate hydroid *C. nutans* (Picton, 1991; Turk, 2005), but also on *Ectopleura larynx* (Almón Pazos *et al.*, 2013).

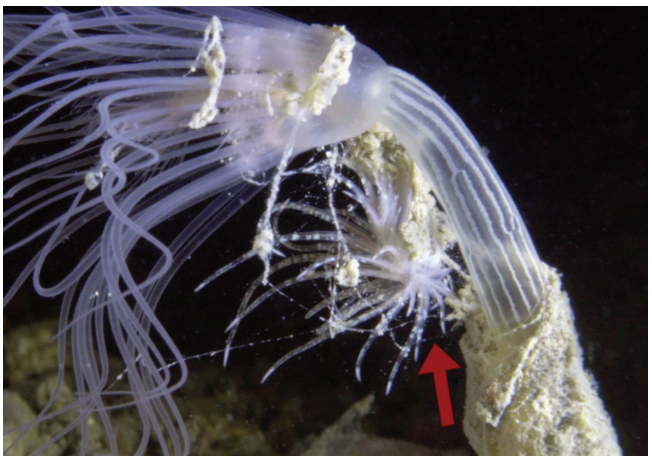

Fig. 7: *Cumanotus beaumonti* (indicated by a red arrow) on *Corymorpha nutans* at Fiesa (Slovenia, Northern Adriatic Sea). Photo credit: Ciril Mlinar.

It is possible that *C. beaumonti* is much more common in the studied area and in other parts of the Adriatic sea and elswhere, but it is overlooked because it is present during winter time, when conditions are harsh and unfavorable for underwater activities. It is also possible that it could be overlooked due to its cryptic habits like burrowing into the sediment (Almón Pazos *et al*., 2013) and its appearance matching the crown of tentacles of *C. nutans* (Turk, 2005). As a matter of fact, the last two specimens recorded in 2025 were not noticed underwater, but later when editing the photographies taken of *C. nutans.*

Table 4. Records of *Cumanotus beaumonti* in Slovenia.

Date	Locus	Number of individuals	Coordinates (Latitude and Longitude)		Source
2.04.2005	Cape Piran	2	45.53116°N	13.564042°E	Turk (2005)
14.03.2008	Marine Biology Station (Piran)	1	45.517540°N	13.567880°E	Zenetos *et al.* (2016)
23.01.2025	Fiesa	2	45.525770°N	13.581430°E	this work
9.02.2025	Fiesa	1	45.525770°N	13.581430°E	this work

4.3 The first record of *Neorossia caroli* (Joubin, 1902) from the northern Levant Sea (the northeastern Mediterranean Sea)

Alp SALMAN, Aydın ÜNLÜOĞLU and İsmail DAL

The bobtail squids (family Sepiolidae) are small cephalopods that may reach a mantle length of up to 8 cm (Reid & Jereb, 2005). They have a stout, globular appearance due to their short mantle, relatively big head, and large and rounded fins. Members of this family can inhabit environments ranging from coastal habitats to bathypelagic zones across a broad spectrum of temperatures, from tropical waters to subpolar seas (Reid & Jereb, 2005). Among the family members, *Neorossia caroli* (Joubin, 1902) is the most bathyal species occurring down to 1744 m, while it most commonly inhabits between 400 and 700 m (Reid & Jereb, 2005).

Neorossia caroli is distributed in the eastern Atlantic Ocean from southwestern Iceland and Ireland southward to the Gulf of Guinea, the Namibian coast of southern Africa, and the Mediterranean Sea (Reid & Jereb, 2005),

primarily common in the western Mediterranean, the Strait of Sicily, the Ionian, and the Aegean Sea (Quetglas *et al*., 2019). In the Adriatic Sea, the species has been collected only from the slope extended to the southern part of this area (Krstulović-Sifner *et al*., 2007). The first records of *N. caroli* in the Levant Sea (southeastern Mediterranean) were published by Goren *et al.* (2008), reporting three specimens collected off Haifa (1997, 2004) and Hadera (2005), located at the coast of Israel, between 1400 m and 1500 m depth. However, as confirmed by a recent checklist, it was unknown in the northern part of the Levant Se, off the southern Turkish shores, until now (Salman *et al*., 2023).

A female *N. caroli* specimen with a 43 mm mantle length (ML) was caught during a scientific trawl survey in the Gulf of Antalya (780 m at 36.600° N and 31.060° E) on 07 September 2023. The sample (Fig. 8) was fixed in a 10% formalin solution on board and deposited in the scientific collection of Ege University Fisheries Faculty, coded as ESFM-CEP/2023-001.

The current findings extend the confirmed range of *N. caroli* along the Turkish continental slope (northern Levant Sea), indicating the wide distribution of *N. caroli* in the Levantine basin. Additional scientific research in the deep sea is essential for a more comprehensive understanding of species distribution, particularly patchily distributed species such as bathyal sepiolids.

Fig. 8: Dorsal view of *Neorossia caroli*. Photo credit: Alp Salman.

5. ARTHROPODA

5.1 New records of four rare native decapods from the central Tyrrhenian Sea

Valentina TANDUO and Fabio CROCETTA

Decapods (Arthropoda: Malacostraca: Decapoda) constitute a variegate order of mainly benthic or benthopelagic organisms that account for ~400 species in the Mediterranean Sea. They include several widely-known and common species, but also a limited proportion of rare taxa about which information is still rather scanty nowadays (d'Udekem d'Acoz, 1999; Falciai & Minervini, 2023). During recent (2017–2024) research activities in the Gulf of Naples and in the wider Campania region (Tyrrhenian Sea, central-western Mediterranean Sea), a total of ~200 decapod taxa were recorded, among which four species (one shrimp and three crabs) often regarded as generally or locally rare to absent. Their morphological identification was easy as all, except one, belong to monotypic genera in the Mediterranean Sea, and thus we followed the diagnostic characters reported in the guide of Falciai & Minervini (2023) and/or in the articles cited subsequently (Bruce, 2009; Innocenti *et al.*, 2013; Iveša *et al.*, 2020). Nonetheless, they were also subjected to an integrative taxonomic approach by amplifying a partial sequence of ~500 base pairs (bp) of the 16S rRNA gene from one specimen per species, following the methods of Tanduo *et al.* (2021). Measures of their carapaces were taken with a Vernier calliper (0.01 mm accuracy) as length (CL) in the shrimp (from the base of the rostrum to the posterior margin of the carapace) and as width (CW) in the crabs (at the widest point, including spines). The specimens were either stored in 99.9% ethanol with the codes with the acronym SZN-B- in the collection of the Laboratory of Benthos-Napoli (Stazione Zoologica Anton Dohrn, Naples, Italy) and in 70% ethanol in the private collection of the last author (F.C., Naples, Italy). Highly decaying exuviae were sometimes not preserved. Their sequences were deposited in GenBank with the accession numbers listed below. The four species were:

(i) the sponge shrimp *Typton spongicola* O.G. Costa, 1844 (Palaemonoidea: Palaemonidae). Material examined: 1 ♀ (6.88 mm), SZN-B-3373CR159A, Gulf

of Naples (continental shelf) (40.7045º N, 14.2218º E), trawling, muddy bottom, 100–300 m, 25.V.2021, *legit* F. Crocetta and V. Tanduo (GenBank: PV138950) (Fig. 9 A);

(ii) the deep-sea swimming crab *Bathynectes maravigna* (Prestandrea, 1839) (Portunoidea: Polybiidae). Material examined: 1 ♀ (65.63 mm), SZN-B-1035CR68A, Gulf of Naples (continental slope) (40.5758º N, 13.9665º E), trawling, muddy bottom, 600 m, 20.VII.2020, *legit* F. Crocetta and V. Tanduo (GenBank: PV138951) (Fig. 9 B); 1 ♀ (44.01 mm), SZN-B-3508CR68B, Gulf of Naples (continental slope) (40.5758º N, 13.9665º E), trawling, muddy bottom, 400–600 m, 25.V.2022, *legit* F. Crocetta and V. Tanduo; 1 ♀ (69.76 mm), SZN-B-3509CR68B, Gulf of Naples (continental slope), trawling, muddy bottom, 400–600 m, 23.V.2022, *legit* F. Crocetta and V. Tanduo; 1 ♀ (82.49 mm), F.C. collection, off Capo d'Orso (40.5762º N, 14.6657º E), trawling, muddy bottom, 450–600 m, V.2023, *legit* P. Fasciglione; 1 ♂ (73.58 mm), SZN-B-4080CR68E, Gulf of Naples (continental slope) (40.5758º N, 13.9665º E), trawling, muddy bottom, 400–600 m, 07.V.2024, *legit* S. D'Aniello;

(iii) the long-legged crab *Paragalene longicrura* (Nardo, 1869) (Goneplacoidea: Progeryonidae). Material examined: 1 ♂ exuvia (16.71 mm), F.C. collection, off Punta Campanella, Massa Lubrense (40.5688º N, 14.3247º E), scuba diving, rocky bottom, 18 m, 30.VI.2021, *legit* F. Russo; 1 decaying exuvia (9.64 mm), F.C. collection, off Punta Campanella, Massa Lubrense (40.5688º N, 14.3247º E), scuba diving, rocky bottom, 20 m, 04.X.2021, *legit* F. Russo; 1 ♂ (43.64 mm), SZN-B-3868CR216A, off Punta Caruso, Lacco Ameno (39.9933º N, 15.3848º E), trammel-netting, rocky bottom, 30–40 m, VII.2023, *legit* F. Crocetta, V. Tanduo, and R. Virgili; 1 decaying exuvia, not preserved, off Baia di Puolo, Massa Lubrense (40.6279º N, 14.3410º E), scuba diving, rocky bottom, 20 m, 05.X.2023, *legit* F. Russo; 1 ♂ (39.62 mm), SZN-B-4077CR216B, off Marina di Camerota (40.5762º N, 14.6657º E), trammel-netting, rocky bottom, 50 m, 30.IV.2024, *legit* A. Colletti, F. Crocetta, L. Licciardi, and S. Musumeci (GenBank: PV138955) (Fig. 9 C);

(iv) the Ligurian grapsoid crab *Euchirograpsus liguricus* H. Milne Edwards, 1853 (Grapsoidea: Plagusiidae). Material examined: 1 ♂ (26.70 mm), SZN-B-4078CR236A, off Marina di Camerota (39.9933º N, 15.3848º E), trammel-netting, rocky bottom, 50 m, 30.IV.2024, *legit* A. Colletti, F. Crocetta, L. Licciardi, and S. Musumeci (GenBank: PV138956) (Fig. 9 D).

The BLASTn queries of the sequences obtained from *T. spongicola* (524 bp) and *B. maravigna* (455 bp) yielded similarities within the 2–3% range of conspecificity (respectively 98.64% and 99.56%) with the 16S sequences already deposited and ascribed to these species (KJ155630 and FM208770). However, high similarity values for the latter species were also obtained with the sequence KT365526 (99.34%), assigned to *Bathynectes longispina* from the western Atlantic, and with the sequence PP118351 (98.01%), assigned to *Bathynectes piperitus* from the south-eastern Atlantic. On the contrary, no molecular data were available for the two remaining species. The BLASTn query of the sequence obtained from *E. liguricus* (553 bp) yielded the highest similarity values (97.42%) with the sequences FN539010 and AJ250648, both assigned to the congeneric species *Euchirograpsus americanus* from the western Atlantic, whereas the BLASTn query of the sequence obtained from *P. longicrura* (545 bp) yielded similarities of 85-87.50% with several Brachyura, including the confamiliar *Rhadinoplax microphthalmus* (Goneplacoidea: Progeryonidae). All this would exclude contaminations and somehow confirms the morphological identifications, at least until the taxonomy of some genera will be further investigated with integrative approaches and/or new and unambiguous molecular markers will be detected.

The new records reported here immediately raised questions about the origin of these species. The studied area has a long-lasting tradition of research, and several scientists investigated its fauna in past and modern times (Moncharmont, 1981 and references therein). All this would suggest that the knowledge of its resident biota should be near to complete, at least with regards to its megafauna. However, the case of *B. maravigna* is emblematic, as in the last review of the decapod biota of the area this crab was considered as locally absent in the Gulf of Naples (Moncharmont, 1981). The specimens reported here, originating from a wider area encompassing the Gulfs of Naples and Salerno, not only filled a gap in the known distribution of the species, but also confuted both statements listed above. Indeed, although the species is known to live starting from 60 m depth (d'Udekem d'Acoz, 1999), our samples were all trawled in deeper waters (400–600 m), and *B. maravigna* was also noticed to be quite rare with respect to the other decapod species found in syntopy with it and of which we came across hundreds specimens (e.g., *Aristaeomorpha foliacea*, *Aristeus antennatus*, *Parapenaeus longirostris*, *Pasiphaea multidentata*, *Pasiphaea sivado*, *Plesionika edwardsii*, *Plesionika martia*, *Polycheles typhlops*, *Iridonida speciosa*, *Paromola cuvieri*, *Geryon longipes*, etc.). Thus, the absence of past records may be simply due to the paucity of studies investigating the local deep-sea decapod biota with respect to those studying the shallow-water habitats, with *B. maravigna* that may have passed unnoticed over the centuries. On the contrary, a different situation pertains to the three remaining species, which were already recorded from Campania. *Typton spongicola* was originally described from the Gulf of Naples in 1844, but it is currently known from the Mediterranean Sea by ~10 records, with the last one from Campania dating back at least to 1911 (Moncharmont, 1981; d'Udekem d'Acoz, 1999; Bruce, 2009). A similar situation holds true for *E. liguricus*, only known from the Mediterranean Sea by ~20 records mostly based on single specimens, with the last ones from Campania dating back at least to 1924 (Moncharmont, 1981; d'Udekem d'Acoz, 1999; Innocenti *et al.*, 2013). The alleged rarity of these species in the Mediterranean Sea is also confirmed here, as both species were only found in single specimens despite our extensive sampling efforts, and it is presumably connected to their cryptic habits. Lastly, *P. longicrura* deserves a more

accurate discussion. The species has been always considered rare all over its distribution range until Iveša *et al.* (2020) summarized all *P. longicrura* specimens known worldwide. The authors noticed that most of them originated from the collections of Stazione Zoologica Anton Dohrn and were taken in the Gulf of Naples. Although this material was always sold to European institutions with no collecting dates, they were likely collected at the beginning of the XX century, if not earlier, which may suggest that the species was not that uncommon at that time. The new findings reported here from four different sampling areas, some of which located about 150 kilometres apart, suggest that even in recent times the species is not at all that rare, at least in our study area.

The present note contributes to a better knowledge of the native decapod fauna of the central Tyrrhenian Sea and of the Mediterranean Sea as a whole by adding new faunal data on four different rare species, some of which were confirmed as still living in the region after a century, or even more, of putative disappearance. It furthermore provides for the first time a pedigreed sequence of *T. spongicola* from its topotypical area and sequences for two species (*P. longicrura* and *E. liguricus*) whose data were still missing in molecular databases. However, at the same time, it also highlights the strong need to implement studies on at least two of the genera treated here (*Bathynectes* and *Euchirograpsus*) as to definitely settle the taxonomy of their species and to define appropriate species boundaries within the molecular markers commonly used worldwide, or to eventually detect new and unambiguous ones. Last but not least, it confirms the Gulf of Naples and the whole Campania as a hotspot of marine biodiversity, still deserving appropriate studies but also the implementation of specific conservation measures.

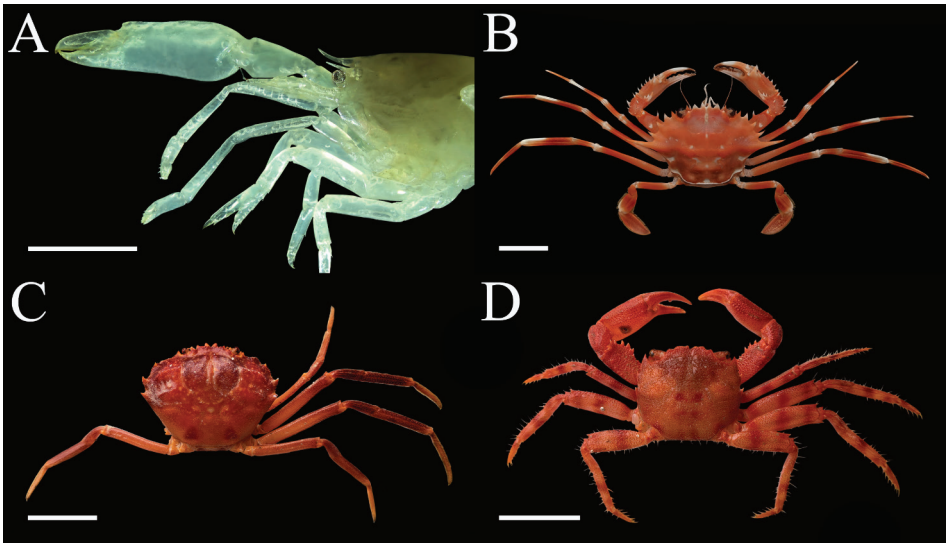

Fig. 9: Rare native decapods from the central Tyrrhenian Sea (central-western Mediterranean Sea). Sampling data, accurate carapace measurements, and GenBank accession numbers for their sequences are reported in the material examined. A. *Typton spongicola* (SZN-B-3373CR159A). B. *Bathynectes maravigna* (SZN-B-1035CR68A). C. *Paragalene longicrura* (SZN-B-4077CR216B). D. *Euchirograpsus liguricus* (SZN-B-4078CR236A). Scale bars: A: 0.5 cm; B-D: 2 cm.
Photo credit: Valentina Tanduo and Fabio Crocetta.

5.2 Further north! The thermophilic *Ocypode cursor* (Linnaeus, 1758) reaches Latium

Francesco TIRALONGO and Fabio RUSSO

The tufted ghost crab *Ocypode cursor* (Linnaeus, 1758) is the sole species within the family Ocypodidae Rafinesque, 1815 inhabiting the Mediterranean Sea. It is distinguished by an overall pale to light yellow coloration, a subquadrangular carapace with a narrow front, asymmetrical chelipeds, elongated pereiopods, and the presence of a tuft of bristles at the end of the eyestalks. This tuft of bristles serves as a distinctive characteristic, facilitating the easy differentiation of this species from the majority of its congeneric counterparts (Deidun *et al*., 2017). *Ocypode cursor* inhabits the intertidal zone of sandy beaches and, until recently, exhibited a fragmented distribution, being found in the Atlantic and predominantly in the eastern and central Mediterranean (Tiralongo *et al*., 2020). In this latter part of the basin, the presence of this semi-terrestrial crab became apparent in 1987 when two specimens were initially discovered on Lampedusa Island (Deidun *et al*., 2017). Since then, and particularly in the last decade, the tufted ghost crab has extensively colonized the region, with documented sightings in Tunisia, Algeria, Malta, and various Italian locations (Karaa *et al*., 2019; Di Martino & Stancanelli, 2020; Digenis *et al*., 2024; Báez *et al*., 2025). On 13 November 2023, a member of the Facebook group "Fauna Marina Mediterranea" shared an image of an unfamiliar crab (Fig. 10) near a burrow in the sand discovered at Capo Portiere beach on 6 November 2023, near Latina (41.40571° N; 12.87128° E), Latium coast (central Tyrrhenian Sea). The crab was

at a distance of about 10 meters from the sea, close to the concrete dock of the pier. The member identified the specimen as belonging to *Ocypode cursor* and asked in the group if the species has ever been observed so far north in Italy. Further investigations by the same member of the Facebook group on 19 November 2023 in the same area did not yield additional specimens. Despite the limited nature of this sighting involving a single specimen, it represents the northernmost record of *Ocypode cursor* in the Mediterranean Sea and in its entire distributional range. This finding aligns with the two previous records documented in the Tyrrhenian Sea (Calabria and Campania), which were also based on a single specimen each (Digenis *et al*., 2024). Given *Ocypode cursor*'s status as one of the most successful thermophilic species in recent years, and in light of increasing sea surface temperature, the potential for its establishment in the Tyrrhenian Sea remains high.

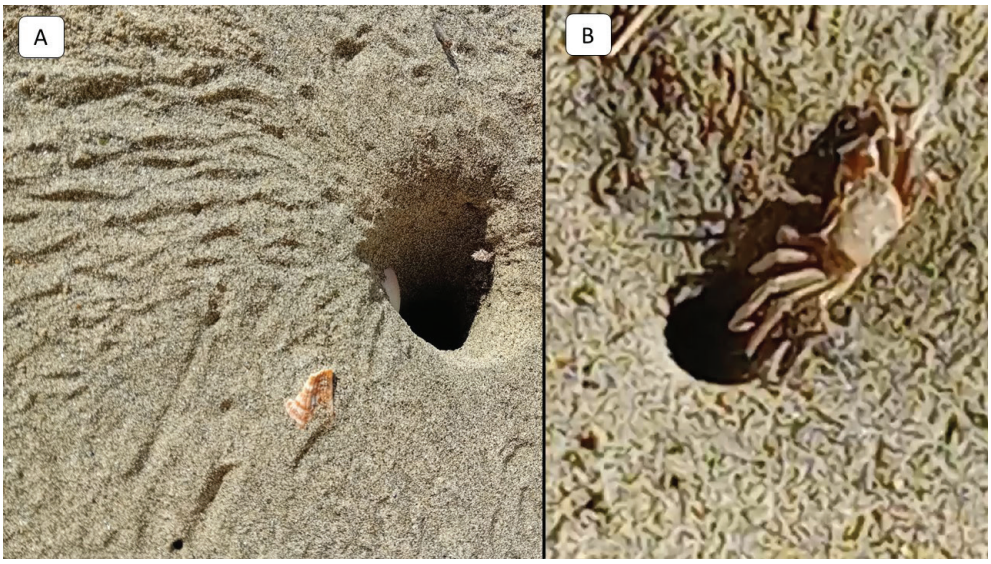

Fig. 10: *Ocypode cursor* from Capo Portiere (Latina). A. The photo showing the burrow and typical traces of the crab at Capo Portiere beach (13 November 2023); B and the crab *Ocypode cursor*. Photo credit: Piero Carlotta.

5.3 First record of the rare spotted bumblebee shrimp, *Gnathophyllum elegans* (Risso, 1816) (Decapoda: Palaemonidae) in Cyprus

Demetris KOLOKOTRONIS and Andromachi GKOULIA

Gnathophyllum elegans (Risso, 1816) is a rare observed, cryptic and nocturnal caridean decapod of the family Palaemonidae. The species is distributed throughout the entire Mediterranean Sea, including the Adriatic, Aegean, Alboran, and Ionian Seas, as well as the Levantine Basin, and extends into adjacent eastern Atlantic regions such as the Azores, Canary Islands, Madeira, and the Moroccan Atlantic coast (as cited in Meyer *et al*., 2014). Sightings in the Levantine Basin remain rare despite its wide distribution. Only four specimens, all adult females, were recorded in Israel between 1950 and 1962 (Lewinsohn & Holthuis, 1964), and to the best of our knowledge, the species has not been reported from Cyprus before.

Morphologically, *G. elegans* is a very characteristic species and hard to misidentify, with a purple and brown base coloration, covered in vivid yellow spots, features that distinguish it from all other shrimp species in the eastern Atlantic-Mediterranean region (Manunza *et al*., 2020). Although the pattern's distribution and intensity vary ontogenetically, this coloring is mostly maintained throughout the developmental phases (Manunza *et al*., 2020). Also, its small size and cryptic lifestyle make it difficult to spot in the field, possibly contributing to its underreporting despite a potentially wider distribution.

Fig. 11: Adult specimen on rocky substrate with turf algae, from the CTO beach breakwater in Larnaka, Cyprus. Photo credit: Demetris Kolokotronis.

On 13 July 2025, during night-time, a single adult specimen of *G. elegans* was observed and photographed at the Cyprus Tourism Organization (CTO) beach breakwater structure in Larnaka (34.977083° N, 33.699833° E) at a depth of approximately 0.5 m (Fig. 11). The habitat was a submerged artificial reef-like ecosystem, consisting of rows of big boulders of rocks on shallow sandy bot-

tom, forming the breakwater structure, with wide range of marine life attached. The shrimp's behavior and habitat use were consistent with the known nocturnal and cryptic nature of the species (Akyol & Ulaş, 2015; Manunza *et al*., 2020). Its total body length was estimated at 20 mm in total length and its coloration matched previous descriptions of adult stages (Manunza *et al*., 2020).

Up to now, only a limited number of verified records exist from the eastern Mediterranean, with this observation constituting the first confirmed record of an adult *G. elegans* in Cypriot waters.

5.4 First record of *Anoplodactylus massiliensis* Bouvier, 1916 in the Strait of Sicily

Tommaso DELLI CARRI and Loris GALLI

On March 4, 2025, in the course of a deep-sea research campaign with a Remotely Operated Vehicle (ROV), an adult male specimen of *Anoplodactylus massiliensis* Bouvier, 1916 (Pycnogonida: Phoxichilidiidae) was collected in the Nameless Urania Bank, Strait of Sicily (36.84691°N, 13.14180°E) on a steep basalt slope at a depth of 514 m. This species clearly stands out from the other of the same genus for the large size, the slender trunk with wide spaces between the lateral tubercles, the pointed conical ocular tubercle aimed in advanced position, the vertical abdomen, the very long legs with a dorsal-distal prominence on each propodus (Fig. 12). Since its description, only 19 specimens of this species are known from the Atlantic coasts of North Africa and the Western Mediterranean Sea (Stock, 1967, 1970; Arnaud, 1987; Chimenz Gusso & Lattanzi, 2003; Bamber *et al.*, 2024). Having been collected to date between 100 and 445 meters deep, *A. massiliensis* is considered a deep-sea species mainly associated with muddy bottoms (Arnaud, 1987; Chimenz Gusso & Lattanzi, 2003). This finding represents the easternmost and deepest record of the species and the first in the central Mediterranean. In the sampling area the basaltic seabed was covered by thanatocoenosis of white corals, in particular *Madrepora oculata* Linnaeus, 1758, overgrown by live colonies of *M. oculata*, *Corallium rubrum* (Linnaeus, 1758), *Muriceides* sp., as well as *Desmophyllum dianthus* (Esper, 1794) and other solitary scleractinians, encrusting sponges and bryozoans. A thin layer of bathyal mud had also deposited on the substrate.

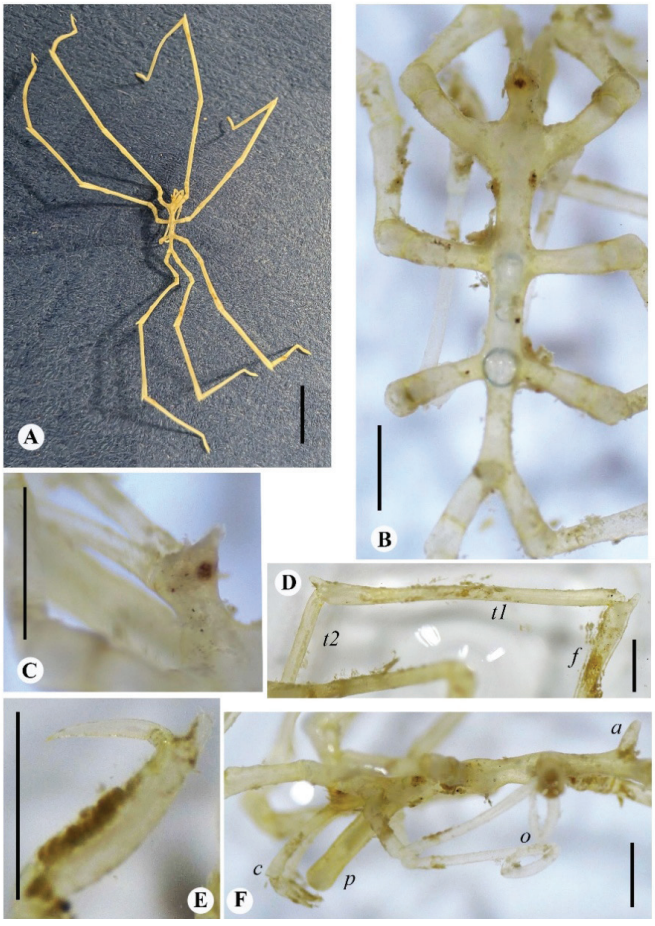

Fig. 12: *Anoplodactylus massiliensis* Bouvier, 1916: adult male from the Strait of Sicily. A) Whole specimen. B) Trunk: dorsal view. C) Ocular tubercle. D) Leg III: detail of tibia 1 (*f* = femur, *t* = tibia). E) Detail of propodus and claw. F) Side view: *c* = chelifores, *p* = proboscis, *o* = ovigers, *a* = abdomen. Scale bars: A) 5 mm, B-F) 1 mm. Photo credit: Tommaso Delli Carri and Loris Galli..

6. CHORDATA

6.1 Last reported specimen of the common guitarfish *Rhinobatos rhinobatos* (Linnaeus, 1758) in Maltese waters

Charlie MATTHEWS

The common guitarfish *Rhinobatos rhinobatos* (Linnaeus, 1758) is a medium sized (max. TL 162 cm) guitarfish, found in the eastern Atlantic, including the Mediterranean Sea (Ebert & Dando, 2020). It is a demersal species, inhabiting inshore areas and continental shelves with a preference for sandy or muddy substrates to a depth of 180 m (Bradai & Soldo, 2016). The species is listed as Endangered in the Mediterranean Sea by the IUCN Red List of Species and is considered extinct across much of its former range (Bradai & Soldo, 2016). Nevertheless, several strongholds for the species persist, such as the Gulf of Gabès (Tunisia), Iskenderun Bay (Türkiye), the Aegean Sea, Cyprus and Murcia (Spain) (Bradai & Soldo, 2016; Giovos *et al*., 2018; Ebert & Dando, 2020). In Maltese waters, *R. rhinobatos* and *Glaucostegus cemiculus* (Geoffroy Saint-Hilaire, 1817) (both known locally as '*rebekkin*') are officially listed but considered extremely rare with no recent records on either species since at least 2003 (Borg *et al*., 2023). This study reports the most recent, and to date the last record of *R. rhinobatos* in Maltese waters. On7 May 2015, a female specimen (TL 112 cm) was landed at the now-defunct Valletta Pixkerija fish market (35.89686°N, 14.51661°E) and was recorded as part of an ongoing long-term elasmobranch fisheries verification study (Fig. 13). Identification was based on key diagnostic traits including a shorter, rounded rostrum, wide disc, scapular separation, distinct medial thorns, and a prominent 'V' or 'X' interorbital marking, differentiating from *G. cemiculus* which has a longer rostrum, narrower proportions, and no such interorbital markings (Ebert & Dando, 2020). While the exact capture location and method could not be verified, 92% of the professional Maltese fishing fleet consists of small artisanal vessels such as the *Luzzu* or *Kajjik* which typically operate in or near coastal areas, supporting the high likelihood the specimen was caught within Maltese waters (Department of Fisheries and Aquaculture, 2023). The specimen was seized by local fisheries authorities upon identification and eventually donated to researchers and dissected on 27 May 2021, where 4 yolked oocytes were discovered, indicating sexual maturity (Fig. 14). This aligns with the species' reproductive traits, such as litter size (4-10), aplacental viviparity and size at maturity (Bradai & Soldo, 2016; Ebert & Dando, 2020). In the following 10 years, no further specimens have been reported, despite ongoing fishing and monitoring efforts, raising concerns on the status of the species in Maltese waters.

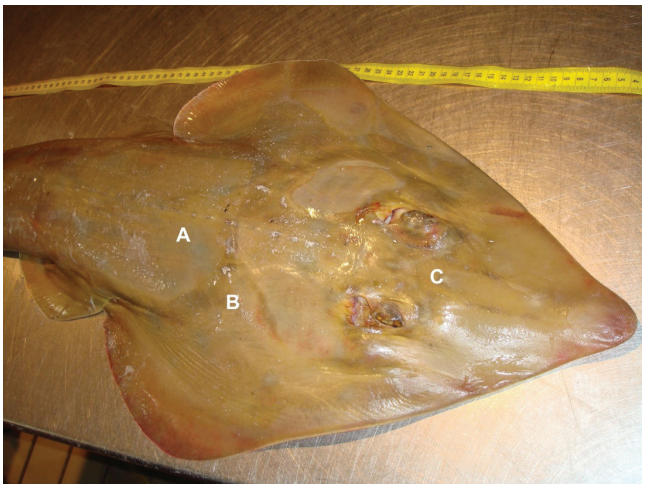

Fig. 13: Female *Rhinobatos rhinobatos* individual about to have morphometric measurements taken prior to confiscation in Valletta Pixkerija fish market on 7 May 2015. TL = 112 cm. A) distinct medial thorns, B) scapular separation, C) prominent 'V' or 'X' interorbital markings, identifying the specimen as *R. rhinobatos* according to Ebert & Dando (2020).
Photo credit: Pamela Mason.

Fig. 14: *Rhinobatos rhinobatos* dissection on 27 May 2021. Numbers 1-4 highlight yolked oocytes.
Photo credit: Charlie Matthews.

6.2 New record of the critically endangered shortfin mako *Isurus oxyrinchus* in the Adriatic Sea

Alen SOLDO

The shortfin mako *Isurus oxyrinchus* Rafinesque, 1810 is a cosmopolitan coastal and oceanic shark, with males reaching up to 3 m in length and females growing up to 4.45 m (Ebert *et al.*, 2021). In the Adriatic Sea, it is considered rare and critically endangered (Soldo & Lipej, 2022), as is also the case in the Mediterranean Sea (Walls & Soldo, 2016). Historical records of the species from the Adriatic date back to the 19th century; however, since 1972 no sightings have been reported for several decades (Soldo & Jardas, 2002). In recent years, smaller, likely juvenile, specimens have occasionally been reported in the southern Adriatic by the media. Within the Mediterranean waters, the shortfin mako is protected under several regulations, while in Croatian waters it holds the highest level of protection, being classified as a Strictly Protected Species.

On 23 August 2025, approximately 5 NM south of Blitvenica Island in the Croatian Adriatic (43.55368°N, 15.57220°E), a professional fisherman encountered a school of Atlantic bluefin tuna (*Thunnus thynnus* Linnaeus, 1758), with an estimated average weight of 25-30 kg. While hauling in one tuna, a shark suddenly appeared from below and bit the fish in half with a single strike. As the water around the vessel quickly filled with blood, tuna remains, and discarded sardine bait, the shark displayed aggressive behavior, repeatedly bumping the boat and even biting the trolling motor propeller. The encounter lasted approximately 25 minutes, during which the fisherman recorded several videos that later enabled species identification.

The shark in the footage displayed a brilliant blue coloration, an elongated snout, a sharply pointed and erect first dorsal fin, and a dorsal fin origin positioned posterior to the free rear tip of the pectoral fin, all diagnostic traits of the shortfin mako (Ebert *et al*., 2021). Based on visual comparison with the vessel's size, the fisherman estimated the individual to be nearly 4 m in length. Considering this size, and the absence of claspers on its ventral side, examined from images in the video recordings, the specimen is presumed to be a mature female. In addition, a large scar encircled the head, oriented perpendicularly to the origin of the pectoral fins, resembled a wound potentially caused by entanglement in a fishing net (Fig. 15). Taking into account historical records of mako sizes in the Adriatic Sea (Soldo & Jardas, 2002), this individual appears to be among the largest documented to date, particularly significant given that only smaller individuals have been reported in recent years.

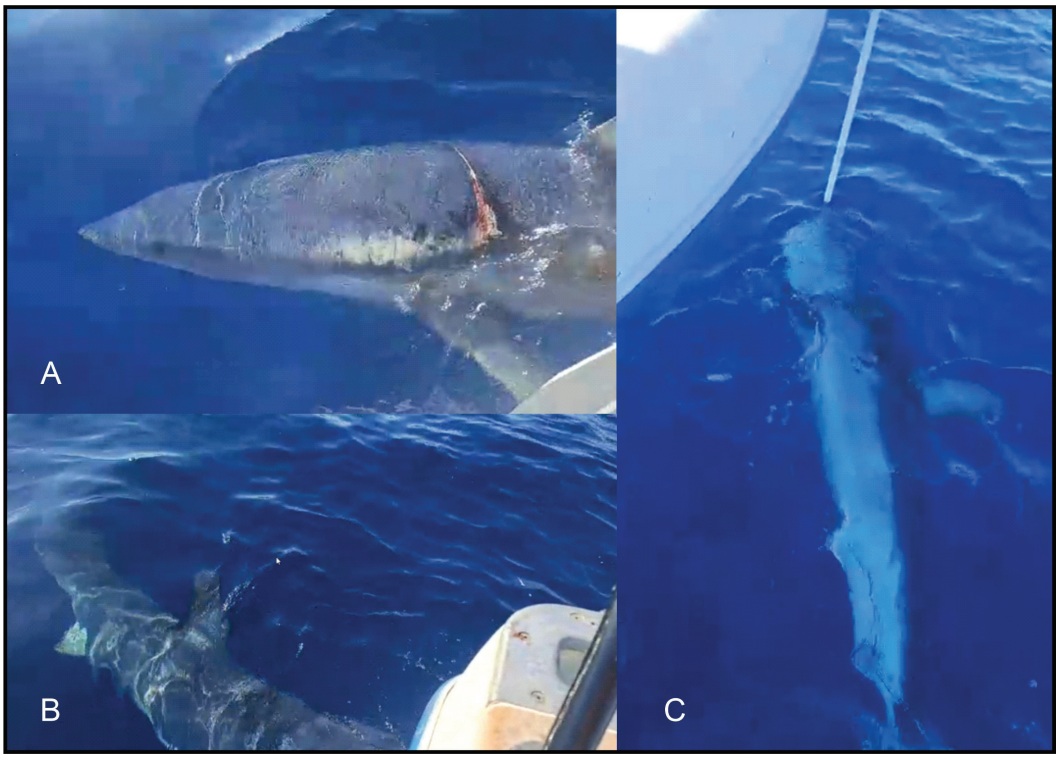

Fig. 15: An individual Shortfin mako *Isurus oxyrinchus*: A) with a fresh scar around the head of the shark; B) bumping the boat; C) biting the trolling motor propeller. Images extracted from the video provided by Anton Roca.

6.3 New record of *Gymnothorax unicolor* (Delaroche, 1809) in Maltese waters

Daryl AGIUS and Luca PISANI

The brown moray, *Gymnothorax unicolor* (Delaroche, 1809), is a rare native muraenid species within the Mediterranean Sea, with occurrences documented only sporadically, predominantly from the Western basin (Báez *et al*., 2025). Whilst the presence of the species has been confirmed in Malta (Borg *et al*., 2023), records of *G. unicolor* are rare and have only been documented in local literature on marine fauna. Apart from this species, two other muraenid species have been reported in Malta; the indigenous Mediterranean moray *Muraena helena* Linnaeus, 1758 and the fangtooth moray *Enchelycore anatina* (Lowe, 1838) which is a range-expanding species from the Atlantic Ocean. The latter was first recorded in Maltese waters back in 2023 (Deidun *et al.*, 2015). In the Mediterranean Sea, *G. unicolor* is the only native species of that genus *Gymnothorax*, whilst a single record of the Lessepsian species *Gymnothorax reticularis* Bloch, 1795 has also been recorded in Israeli waters in 2013 (Stern & Goren, 2013).

A photo of *G. unicolor* (Fig. 16) was sent to us by a fisher on 18 December 2024. The specimen was caught using bottom long lines off the coast of Marsaxlokk (35.800490ºN, 14.560905ºE) at a depth of around 25 m on rocky substrate. As the organism was still alive, the fisher released the specimen back into the wild, after photographing it. The organism in question had a brown colour, which was darker at the head and possessed yellow fin edges. Identification of the species was done by noting key characteristics from the photo sent to us.

Fig. 16: Photograph showing the specimen of *Gymnothorax unicolor* caught in Maltese waters. Photo credit: Mr. Carabott.

The morphological features noted were the presence of a short snout, jaws were not arched, the anterior nostril was tubular, the posterior nostril opened up into a single pore and the teeth of the specimen were not visible when the mouth was closed (Bauchot & Hureau, 1986). This record represents one of the few confirmed sightings in Malta, particularly in recent years, although it is believed that the species is encountered more frequently but often goes unreported.

6.4 Extending the distribution area of the rare cryptobenthic blenny *Hypleurochilus bananensis* (Poll, 1959) in the Iberian Peninsula

Javier MURCIA and Víctor ORENES-SALAZAR

The genus *Hypleurochilus* Gill, 1861 comprises 11 species of Western or Eastern Atlantic origin. *Hypleurochilus bananensis* (Poll, 1959) is the only representative of the genus in the Mediterranean Sea, where it is one of the rarest Blenniidae species, with few records across the basin. Observations have been reported from various Mediterranean locations, including Israel, Tunisia, Algeria, Italy, and Spain (Tsagarakis *et al*., 2021). Because of its rarity, information on the biology and ecology of this species is limited (Tiralongo *et al*., 2016). Only recently, Tiralongo *et al*. (2016) have provided some data on aspects such as taxonomy, habitat preferences and sexual dimorphism.

Here, we report the presence of *H. bananensis* in two different localities distributed along the Spanish Mediterranean of the Iberian Peninsula (Fig. 17). In November 2017, the species was first documented under floating pontoons within the port area of Valencia (approximate coordinates: 39.439°N, 0.3122°W). Specimens of about 10 cm in total length were seen inhabiting small holes and interstices in the artificial surface. More recently, the fish was observed and photographed in June 2024, under a dock on soft bottom at 0.5 m depth at the Mar Menor coastal lagoon (approximate coordinates: 37.695°N, 0.8385°W). We found several pairs exhibiting courtship behavior, with males showing territoriality by occupying different holes and cavities in each dock pillar. In both localities, the species was found in low light conditions, on man-made habitat and within areas with high anthropogenic impact.

To confirm the species identity, the diagnosis based on the photographs (Fig. 17) is provided: brown-yellowish body color with five uneven vertical dark bands that reach the lower portion of the dorsal fin, while the rest of the fin matches the body color. The head may display a faint bluish hue (Fig. 17 C, D). Body stout. The upper lip is thick and pronounced. The supraorbital cirri are branched, originating from a common base, with the central branch being the most developed and surrounded by several shorter, thinner ones. Therefore, cirri not all short

and with branches of similar size. However, the main cirrus also not with secondary branches present along all its length. Between the first two rays of the dorsal fin there is a large, well-marked yellow or turquoise spot, as seen in many species of the genus *Parablennius*. Irregular white spots are present along preopercle.

Due to its rarity, *H. bananensis* is poorly studied and little is known about its biology. The present records contribute to expand knowledge on the distribution range of this rare cryptobenthic fish in the western Mediterranean, extending its presence by 350 km from the only recorded point of presence on the Iberian Peninsula (La Ràpita, Tarragona) and represents the westernmost record of this species in the Mediterranean (Tiralongo, 2024). The observed habitat aligns with the species' known ecological preferences (Tiralongo, 2024).

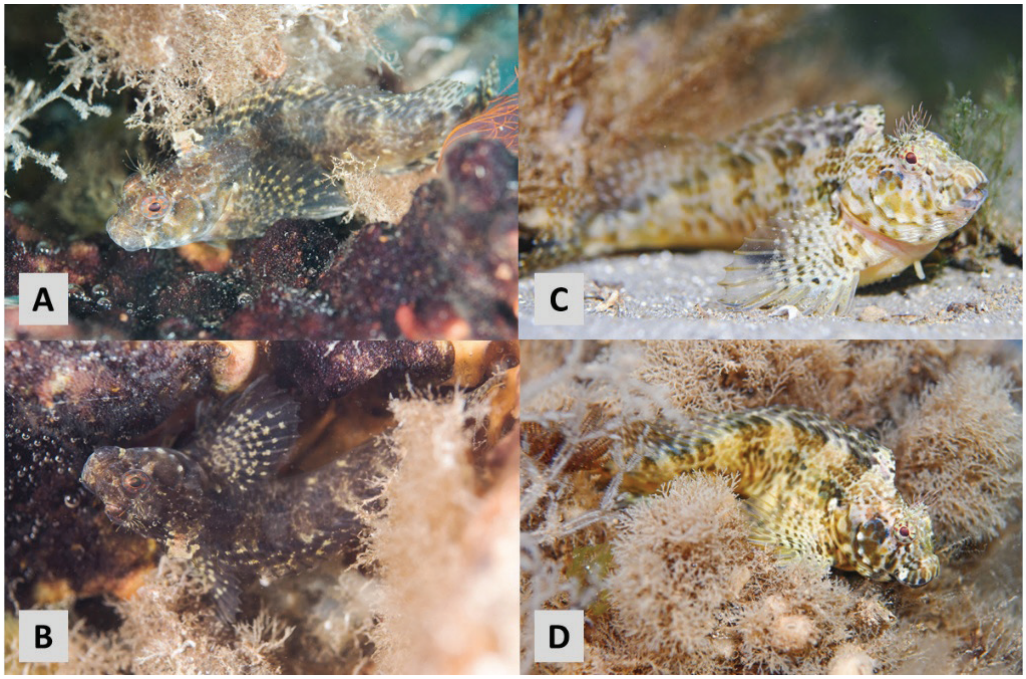

Fig. 17: Cryptobenthic blenny *Hypleurochilus bananensis* observed in November 2017 within the port area of Valencia (A, B) and in June 2024 under a dock on soft bottom in the Mar Menor coastal lagoon (C, D), off the Mediterranean coast of the Iberian Peninsula. Photo credit: Javier Murcia Requena.

6.5 First record of the bastard grunt, *Pomadasys incisus* (Bowdich, 1825) (Haemulidae) in Italian Adriatic waters

Fabio GRATI and Ernesto AZZURRO

The bastard grunt, *Pomadasys incisus* (Bowdich, 1825), is a small subtropical species of the family Haemulidae (grunts), native to the eastern Atlantic and the Mediterranean Sea. In recent decades, it has been increasingly reported across the Mediterranean (Tiralongo *et al*., 2019), including Italy, where it was first recorded in 1991 from the Ligurian Sea and subsequently from the Tyrrhenian and Ionian Seas (Bilecenoglu *et al*., 2013; Matiddi *et al*., 2016; Tiralongo *et al*., 2019). To the best of our knowledge, *P. incisus* has been reported only once in the Adriatic Sea, from the shallow coastal waters of the Pelješac Peninsula in southern Croatia (Karachle *et al*., 2016), and it has never been recorded in Italian Adriatic waters (Doumpas *et al*., 2020).

Fig. 18: Specimen of *Pomadasys incisus* caught out of Ancona (Central Adriatic Sea, Italy). Photo credit: Fabrizio Papa.

On 5 July 2025, a single specimen of the *P. incisus* was caught by a recreational fisher using rod and line in coastal waters at a depth of 25 m off Ancona harbor (Latitude 43.7433°N; Longitude 13.5144°E). The specimen was immediately photographed by the fisher (Fig. 18), who promptly informed one of the authors (FG). Unfortunately, the fish was released back into the sea and was not retained for further examination. The fisher estimated the specimen's weight at approximately 150 grams. The bastard grunt is easily distinguishable from other haemulids occurring in the Mediterranean Sea by its characteristic shape, color pattern and by the distinctive black spot located at the upper angle of the opercle (Bilecenoglu *et al*., 2013; Tiralongo *et al*., 2019).

Given that the only previous record of *P. incisus* in the Adriatic comes from the southern Croatian coast along the eastern shores, and considering the marked oceanographic, trophic, and ecological differences between the eastern and western (Italian) Adriatic shores, together with distinct fish distribution patterns (Lipej *et al*., 2022), this first documented occurrence of *P. incisus* in Italian Adriatic waters, carries notable biogeographical relevance and contributes to our knowledge of the species' distribution.

6.6 First confirmed record of *Zebrus pallaoroi* Kovačić, Šanda & Vukić, 2021 for Tunisia and Africa

Julien P. RENOULT and Randa MEJRI

Zebrus pallaoroi Kovačić, Šanda, & Vukić, 2021 is a recently described goby species, resulting from the split with the only other species in the genus: *Zebrus zebrus* (Risso, 1827). These two species are very similar, and identification is currently only possible through morphological analysis of preserved specimens (Kovačić *et al*., 2024). Consequently, the geographical distribution of both species remains to be established. Currently, *Z. pallaoroi* has only been confirmed from the southern Adriatic, northern Ionian, northern and western Aegean, and from the Western Mediterranean (France and Monaco; Kovačić *et al*., 2024). All other data for the genus are currently attributed to *Z. zebrus*, whose recognized distribution extends thus from the Black Sea and the Bosphorus Strait in the east to the eastern Atlantic (Portugal and France), as well as along the North African Mediterranean coasts (Tunisia, Libya; Mejri *et al*., 2007).

On April 17, 2024, a specimen of *Z. pallaoroi* was collected by snorkelling in Carthage, Tunisia (36.86374°N, 10.34250°E), at a depth of 50 cm, under a stone on a fine sand beach. The specimen was collected with a hand-net, photographed in a portable aquarium (Fig. 19), and then fixed in formaldehyde 4%. It is kept at the Center for Functional and Evolutionary Ecology in Montpellier, France, with code JR140424-01. The specimen (female; 25 + 6 mm) exhibits the following characteristics: anterior nostril length in posterior nostril length: 0.70; presence of a short anterior transverse ridge that connects left and right ventrolateral head ridges; length of the ventral spine in anterior membrane depth at the midline: 0.71; eye diameter in snout length: 1.12; suborbital sensory papillae row *c5i* longer than the distance between row *c5i* and row *d*; four dark lateral bands in front of the vertical of the second dorsal fin. For each of these six characters, which are the only ones currently considered diagnostic for the identification of the two *Zebrus* species (Kovačić *et al*., 2024), the measured values are characteristic of *Z. pallaoroi*. The present finding thus represents the first confirmed record of *Z. pallaoroi* for Tunisia. Pending confirmed identification of *Z. zebrus*, we recommend and consider that only *Z. pallaoroi* is present on the coasts of North Africa.

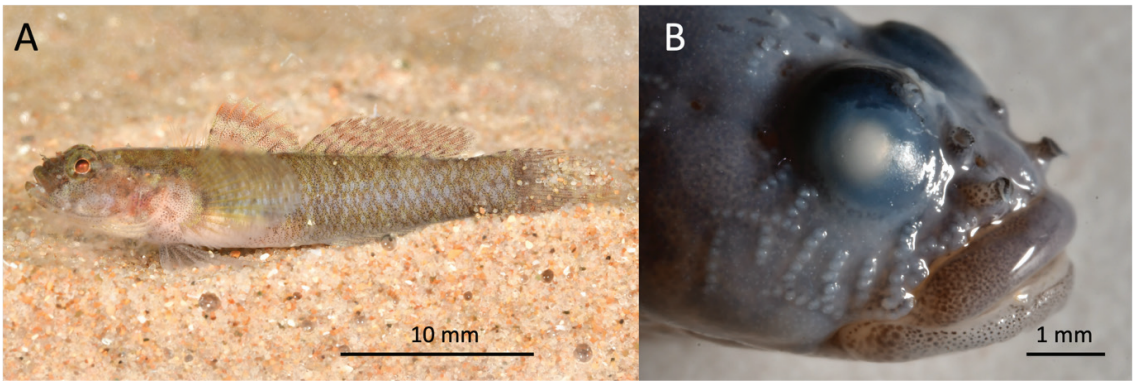

Fig. 19: Individual photographed in 2024 in Carthage representing the first confirmed record of *Zebrus pallaoroi* for Tunisia. A. Live specimen photographed in an aquarium immediately after capture. B. Close-up of the head showing the sensory papillae. Photo credit: Julien P. Renoult.

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the very early hours of the morning, and to the Maltese Department of Fisheries and Aquaculture for donating the specimen for analysis. Jamila Rizgalla states the report on *Creseis acicula* was conducted as part a survey in the framework of Project Snowball, which aims to assess marine biodiversity in Libyan waters. Alp Salman, Aydın Ünlüoğlu and İsmail Dal declare *Neorossia caroli* specimen was sampled during the TAGEM/TBAD/Ü/18/A7/P9/1293 "Monitoring of Demersal Fishery Resources on the Mediterranean Coast of Turkey". The authors would sincerely thank the Republic of Türkiye Ministry of Agriculture and Forestry TAGEM (General Directorate of Agricultural Research and Policies) and FAO (Food and Agriculture Organisation of the United Nations) for funding the project. They are also grateful to the Mediterranean Fisheries Research, Production and Training Institute staff and the crew of R/V Araştırma 1 for their efforts in the field studies. Emine Sukran Okudan and Inci Tuney declare their study was supported by the Turkish Marine Environment Protection Association (TURMEPA) and Garanti BBVA. Valentina Tanduo and Fabio Crocetta are grateful to the projects ADViSE (PG/2018/0494374), ISSPA - PO FEAMP Campania 2014-2020 (DRD n. 35 of 15th March 2018), Biodiversa+ FORESCUE (Biodiversa 2021-134), and NBFC (PNRR, Project CN00000033), which allowed samplings, and to the colleagues (Alberto Colletti, Salvatore D'Aniello, Paolo Fasciglione, Luca Licciardi, Simone Musumeci, Fabio Russo) and the professional fishermen (Aniello Forte from Marina di Camerota; the Maglione family: Fabrizio, Francesco, Giuseppe, Salvatore, and Vincenzo from Naples, Giovanni Padre fishing vessel; Domenico Schiano from Ischia), who provided material and/or offered support during the sampling activities. Their article is part of the Ph.D. project "DARING" (Tackling diversity through DNA barcoding and integrative taxonomy: Decapod Assemblages Revealed IN the Gulf of Naples) of Valentina Tanduo. Francesco Tiralongo and Fabio Russo express their gratitude to Piero Carlotta (Latina) for permitting the publication of his photo and providing the geolocation details of the discovery.

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