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New Mediterranean Biodiversity Records (December 2017)

- STAMOULI C. Hellenic Center of Marine Research, 46.7 km Athens Sounio ave., P.O. Box 712, 19013 Anavyssos Attiki
- AKEL E. H. KH. Fishery Biology Lab, National Institute of Oceanography and Fisheries Kait-Bey, Alexandria
- AZZURRO E.
BAKIU R.
BAS A. A.
BITAR G.
BOYACI Y.Ö.
CAKALLI M.
CORSINI-FOKA M.
CROCETTA F.
DRAGIČEVIĆ B.
DULČIĆ J.
DURUCAN F.
ZRELLI R. EL
ERGUDEN D.
FILIZ H.
GIARDINA F.
GIOVOS I.
GÖNÜLAL O.
HEMIDA F.
KASSAR A.
KONDYLATOS G.
MACALI A.
MANCINI E.
OVALIS P.
PALADINI DE MENDOZA F.
PAVIČIĆ M.
RABAoui L.
RIZKALLA S.I.
TIRALONGO F.
TURAN C.
VRDOLJAK D.
YAPICI S.
ZENETOS A.

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New Mediterranean Biodiversity Records (December 2017)

C. STAMOULI¹, E. H. KH. AKEL², E. AZZURRO³, R. BAKIU⁴, A. A. BAS⁵, G. BITAR⁶, Y.Ö. BOYACI⁷, M. CAKALLI⁴, M. CORSINI-FOKA⁸, F. CROCCETTA⁹, B. DRAGIČEVIĆ¹⁰, J. DULČIĆ¹⁰, F. DURUCAN¹¹, R. EL ZRELLI¹², D. ERGUDEN¹³, H. FILIZ¹⁴, F. GIARDINA¹⁵, I. GIOVOS¹⁶, O. GÖNÜLAL¹⁷, F. HEMIDA¹⁸, A. KASSAR^{18,19}, G. KONDYLATOS⁸, A. MACALI²⁰, E. MANCINI²¹, P. OVALIS²², F. PALADINI DE MENDOZA²¹, M. PAVIČIĆ¹⁰, L. RABAOU²³, S.I. RIZKALLA², F. TIRALONGO^{24,25}, C. TURAN¹³, D. VRDOLJAK¹⁰, S. YAPICI¹⁴ and A. ZENETOS¹

¹Hellenic Center of Marine Research, 46.7 km Athens Sounio ave., P.O. Box 712, 19013 Anavyssos Attiki, Greece

²Fishery Biology Lab, National Institute of Oceanography and Fisheries Kait-Bey, Alexandria, Egypt

³Institute for Environmental Protection and Research, ISPRA, 57123 Livorno Italy

⁴Department of Aquaculture and Fisheries, Faculty of Agriculture and Environment, Agricultural University of Tirana, Koder-Kamez, Albania

⁵Marine Mammals Research Association, Antalya, 07070, Turkey

⁶Department of Natural Sciences, Faculty of Sciences, Lebanese University, Hadath, Lebanon

⁷Süleyman Demirel University, Eğirdir Fisheries Faculty, Isparta, Turkey

⁸Hellenic Centre for Marine Research, Hydrobiological Station of Rhodes. Cos Street, 85100 Rhodes, Greece

⁹Stazione Zoologica Anton Dohrn - Benthos Ecology Center, Villa Dohrn - Punta San Pietro 1, I-80077 - Ischia Porto (Napoli), Italy

¹⁰Institute of Oceanography and Fisheries, Šetalište Ivana Meštrovića 63, 21000 Split, Croatia

¹¹Işıklar Caddesi No 16,17 TR-07100 Antalya, Turkey

¹²Géosciences Environnement Toulouse (GET), Université de Toulouse, UMR 5563 CNRS/UPS/IRD/CNES, 14 Avenue Edouard Belin, 31400 Toulouse, France

¹³Molecular Ecology and Fisheries Genetic Laboratory, Department of Marine Sciences, Marine Science and Technology Faculty, Iskenderun Technical University, Iskenderun, Hatay, Turkey

¹⁴Muğla Sıtkı Koçman University, Faculty of Fisheries, 48000, Kötekli, Muğla, Turkey

¹⁵Marine Protected Area of Pelagie Island, 92010 Lampedusa, Italy

¹⁶iSea, Environmental Organisation for the Preservation of the Aquatic Ecosystems, Ochi Av. 11, 55438, Agios Paulos, Thessaloniki, Greece

¹⁷Istanbul University, Gökçeada Marine Research Department, Kaleköy Çanakkale, Turkey

¹⁸Ecole Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral, Campus universitaire, B.P. 19 Bois des Cars, 16320 Dely Ibrahim, Algiers, Algeria

¹⁹Université Djilali Bounaama de Khemis Miliana, Route de Theniet El Had, 44225 Khemis Miliana, Ain Defla, Algeria

²⁰University of Tuscia, Department of Biological and Ecological Sciences DEB, Viterbo, Italy

²¹University of Tuscia, Laboratory of Experimental Oceanology and Marine Ecology, Civitavecchia, Italy

²²Agisilaou 37-39, Tzitzifis, Kallithea, 176 74, Athens, Greece

²³Research Unit of Integrative Biology and Evolutionary and Functional Ecology of Aquatic Systems, Faculty of Science of Tunis, University of Tunis El Manar, University Campus, 2092 Tunis, Tunisia

²⁴University of Catania, Department of Biological, Geological and Environmental Science, Catania, Italy

²⁵Ente Fauna Marina Mediterranea, Avola, Italy

Abstract

The “New Mediterranean Biodiversity Records” series includes new records of marine species found in the Mediterranean basin and/or information on the spatial distribution of already established species of particular interest. The current article presents information on 21 marine taxa classified per country according to their geographic position in the Mediterranean, from west to east. The new records per ecoregion are as follows: **Algeria**: the first record of the fish *Etrumeus golanii* is reported along the Algerian coast. **Tunisia**: the alien jellyfish *Phyllorhiza punctata* is reported for the first time in the Gulf of Gabès. **Italy**: the first record of *Signanus rivulatus* in the Strait of Sicily and a new record of *Katsuwonus pelamis* from the central Tyrrhenian Sea are reported. The establishment of the isopod of the genus *Mesanthura* in the northern Tyrrhenian with some notes on its ecology are also included. **Croatia**: signs of establishment of the Lessepsian *Signanus luridus* and the occurrence of the alien mollusc *Rapana venosa* are reported. **Albania**: the first record of the elasmobranch *Alopias superciliosus* and a recent sighting of the rare monk seal *Monachus monachus* in Albanian waters are given. **Greece**: signs of the establishment of the fish *Parupeneus forsskali* and of the ascidian *Hermania momus* in Hellenic Aegean waters are reported. **Turkey**: a new record of the fish *P. forsskali* and of the halacarid mites *Acaromantis monnioti* and *Simognathus adriaticus* are given, while the first case of *Remora australis* in association with delphinids and the occurrence of the sea star *Coscinasterias tenuispina* are reported. Also, the establishment of the two alien species *Isognomon legumen* and *Viriola* sp. [cf. *corrugata*] are presented. **Egypt**: the fish *Bathygobius cyclopterus* is reported for the first time in Mediterranean Sea waters. Also, a new record of *Pagellus bogaraveo* and a first record of *Seriola fasciata* in Egyptian Mediterranean waters are reported. **Lebanon**: the first record of *Dondice banyulensis* is presented.

Introduction

Biodiversity is probably a form of biological insurance that ecosystems adopt to face environmental fluctuations (Naem & Li, 1997), and also an indicator for measuring ecosystem health. Natural and anthropogenic events shaped the biodiversity of the Mediterranean Sea (Bianchi & Morri, 2000) composing a biodiversity hot spot of global interest. Over the last years, scientific efforts to collect detailed biodiversity data have been intensified with exotic species attracting vivid interest.

In the context of the above, Mediterranean Marine Science, through a series of collective articles focusing on new Mediterranean biodiversity records, aims at a constant update and renewal of Mediterranean basin biodiversity. This work presents new records per country according to their geographic position in the Mediterranean, from west to east. The location of the new records is depicted on a map (Fig.1). Altogether, new records are provided for 21 taxa (Table 1), belonging to five Phyla, namely Chordata (twelve records), Arthropoda (three



Fig. 1: Locations of records of new species in the Mediterranean Sea presented in “New Mediterranean Biodiversity Records”. Details are presented in Table 1.

Table 1. Species included in “New Mediterranean Biodiversity Records (December 2017)”. SS = species status (A, alien; N, native), SC = subchapter, LN = location number as in Figure 1.

Taxon	SS	SC	Country	Location	LN
Phylum Chordata					
<i>Etrumeus golanii</i>	A	1.1	Algeria	Near Cherchell	1
<i>Katsuwonus pelamis</i>	N	3.1	Italy	Central Tyrrhenian Sea	3
<i>Siganus rivulatus</i>	A	3.2	Italy	Lampedusa harbour	4
<i>Siganus luridus</i>	A	4.1	Croatia	Molunat Bay	6
<i>Alopias superciliosus</i>	N	5.1	Albania	Dhermi (Vlorë)	8
<i>Parupeneus forsskali</i>	A	6.1	Greece	SE Rodos Isl	10
<i>Parupeneus forsskali</i>	A	7.1	Turkey	Muğla province	12
<i>Bathygobius cyclopterus</i>	A	8.1	Egypt	East of Suez Canal	18
<i>Pagellus bogaraveo</i>	N	8.2	Egypt	East of Suez Canal	19
<i>Seriola fasciata</i>	N	8.3	Egypt	off Alexandria	20
<i>Monachus monachus</i>	N	5.2	Albania	Albanian coasts	9
<i>Remora australis</i>	N	7.2	Turkey	Antalya Bay	13
<i>Herdmania momus</i>	A	6.1	Greece	SE Rhodes island	11
Phylum Arthropoda					
<i>Mesanthura</i> spp.	A	3.3	Italy	Northern Tyrrhenian	5
<i>Acaromantis monnioti</i>	N	7.3	Turkey	Yakamoz Beach	14
<i>Simognathus adriaticus</i>	N	7.4	Turkey	Yakamoz Beach	15
Phylum Mollusca					
<i>Isogomon legumen</i>	A	7.5	Turkey	Dalyan, Iztuzu	16
<i>Viriola</i> sp. [cf. <i>corrugata</i>]	A	7.5	Turkey	Dalyan, Iztuzu	16
<i>Dondice banyulensis</i>	N	9.1	Lebanon	Tabarja	21
<i>Rapana venosa</i>	A	4.2	Croatia	Istrian coast	7
Phylum Cnidaria					
<i>Phyllorhiza punctata</i>	A	2.1	Tunisia	Gulf of Gabès	2
Phylum Echinodermata					
<i>Coscinasterias tenuispina</i>	N	7.6	Turkey	Mersin Bay	17

records), Mollusca (four records), Cnidaria (one record) and Echinodermata (one record). The reports include a first record in the Mediterranean Sea, new distribution points for thirteen species and the establishment of one

alien species in Mediterranean areas. Furthermore, behaviour patterns of *Remora australis* are discussed and evidence of the presence of monk seal *Monachus monachus* at different Ionian Sea sites is provided.

1. ALGERIA

1.1 First record of the round herring *Etrumeus golanii* DiBattista, Randall & Bowen, 2012 along the Algerian coast

Kassar A. and Hemida F.

Etrumeus golanii DiBattista, Randall & Bowen, 2012 can be distinguished from other Mediterranean Clupeiformes by its smooth belly and the location of the pelvic fins, originating behind the dorsal fin. This is the first record of the round herring *E. golanii* in the Western Mediterranean (Algeria). The last record to date is the nearest to our area and was from the Central Mediterranean, Gulf of Gabes (Tunisia) (Boussellaa *et al.*, 2016). This Lessepsian immigrant is a welcomed migrant as it has a positive economic importance (Golani *et al.*, 2002).

In February 2017, a specimen of *E. golanii* was caught by a fisherman inshore using a pelagic gill net over a muddy bottom of 30 m depth near Cherchell in Algeria at 36.622208° N, 2.232494° E. The fisherman reported that other specimens were caught in the same area. Morphometric and meristic parameters were measured. The specimen has been photographed unfrozen and then preserved in 70% ethanol and deposited in the Fishery lab fish collection at Ecole Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral in Algiers, with catalogue number HAL.17.001.

The specimen was caught together with round sardinella *Sardinella aurita* Valenciennes, 1847 catch. It measured 228 mm, total length (TL), and weighed 93.5 g (Fig.2). Morphometric measurements and meristic counts are given in Table 2. The morphological characteristics of the specimen are concordant with the description of DiBattista *et al.* (2012).

E. golanii has a global importance and is well established in the Eastern Mediterranean where some stable stocks exist and are commercially exploited (Kasapidis *et al.*, 2007; Osman *et al.*, 2013).



Fig. 2: *Etrumeus golanii* from Cherchell, Algeria (HAL.17.001). Scale bar: 10 mm.

Table 2: Morphometric measurements (in mm) and meristic counts of *Etrumeus golanii*.

Total Length	228
Fork Length	208
Standard Length	189
Body depth	40.2
Head length	42
Eye diameter	13.4
Dorsal fin base length	26.4
Anal fin base length	8.6
Predorsal length	84
Pelvic fin length	13.9
Meristic counts:	
Dorsal finrays	19
Anal finrays	9
Pectoral finrays	17
Pelvic finrays	8

2. TUNISIA

2.1 First record of the alien white-spotted jellyfish *Phyllorhiza punctata* von Lendenfeld, 1884 (Cnidaria: Scyphozoa) in the Gulf of Gabès (South-eastern Tunisia)

Rabaoui L. and El Zrelli R.

The Australian spotted jellyfish *Phyllorhiza punctata* is one of the Mediterranean introduced species originating from the tropical western Pacific. The occurrence of this species in the Mediterranean Sea was first recorded in 1965 (Zenetos *et al.*, 2005). Since then, *P. punctata*

was observed several times in both western and eastern Mediterranean countries including Israel, Greece, Italy (Sardinia), Tunisia (Bizerte Lagoon), and Malta (Deidun *et al.*, 2017 and other references cited therein). In Tunisia, the first and only record of *P. punctata* was made in 2012

in the Lagoon of Bizerte, located in the western Mediterranean Basin (Gueroun *et al.*, 2015). The latter authors reported the existence of a well-established and reproducing population along the northern Tunisian coast.

In this paper, we present the second record of the species in Tunisia and the first in the Gulf of Gabès (south-eastern Tunisia, eastern Mediterranean Basin).

On August 3rd 2017, several individuals of *P. punctata* (Fig. 3) were observed during a snorkelling trip carried out in El Hicha, in the central area of the Gulf of Gabès (34.149522° N, 10.040956° E). We counted 18 white-spotted jellyfish along a 300m long transect, parallel to the coastline. The size of most of the individuals observed (anteroposterior length excluding tentacles) ranged between 5 and 25 cm. These jellyfish were observed separately over *Posidonia oceanica* and *Cymodocea nodosa* seagrass meadows, at 1.5-5 m depth, and there were no aggregating groups in this area.

The observation of *P. punctata* for the first time in the Gulf of Gabès incited us to prepare a quick questionnaire that was administered to local fishermen in order to gather more information on the distribution areas of this species. After showing a collected specimen and some photos of the species, 14 out of 20 interviewed fishermen reported that they have observed the species various times mainly in the central area of the Gulf of Gabès, between El Hicha and Zarrat. According to fishermen, *P. punctata* seems to have a preference for coastal areas with low hydrodynamics. Some of the interviewed fishermen also reported that the species was first observed in the Gulf of Gabès in 2012 (which coincides with the year of the first record of the species in Tunisia, in the Lagoon of Bizerte; Gueroun *et al.*, 2015) and that its abundance shows a proliferation mainly in the period between late spring and early autumn. During the proliferation time, fishermen reported that they can catch up to 200-300 specimens of *P. punctata* in their nets during one fishing trip. Fishermen also mentioned that the species can be observed at depths ranging from 1 to 30m, with the highest occurrence rate at 20m depth.

Considering the observations of *P. punctata* in relatively high densities in Tunisia (North: Bizerte Lagoon) and other Mediterranean countries (Malta, Italy, Greece and Israel), the additional record given herein confirms that the Australian spotted jellyfish is well established in the eastern Basin of the Mediterranean Sea. The species seems to find favourable conditions to settle and reproduce in this region. While the introduction of the species in the Gulf of Mexico (USA) was reported to cause several million dollars of fishery losses, no negative im-

pacts have been reported so far in Tunisia or in any other Mediterranean country. However, considering the observations given herein, it is highly possible that the species may become invasive in the future, in particular because reproducing populations were reported to occur in Israel and North Tunisia (Gueroun *et al.*, 2015; Deidun *et al.*, 2017 and references cited therein). A similar case was previously reported for the blue swimming crab *Portunus segnis*, which became very abundant and invasive just a few years after its first record in the Gulf of Gabès, causing serious problems for local fishermen (Crocetta *et al.*, 2015). It is worth noting that during our snorkelling survey, *P. segnis* were observed attacking individuals of *P. punctata*, most likely for feeding purposes (Fig. 3e), leading us to deduce that both species have already found their positions in the trophic chain of the coastal ecosystem of the Gulf of Gabès. Further studies on the biology and ecology of *P. punctata* in the Gulf of Gabès, as well as on the impact of its installation on local habitats need to be conducted in the future.

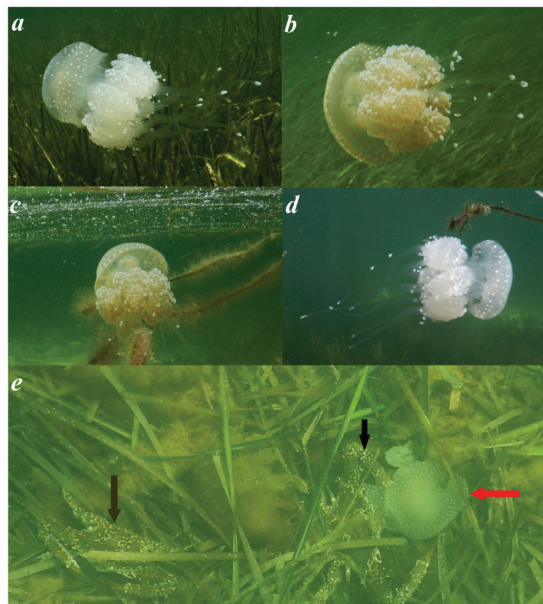


Fig. 3: Photographs of four *Phyllorhiza punctata* individuals (a, b, c & d) encountered in El Hicha (Gulf of Gabès, south-eastern Tunisia). e: photograph of blue swimming crabs, *Portunus segnis* (black arrows), capturing an Australian spotted jellyfish, *Phyllorhiza punctata* (red arrow).

3. ITALY

3.1 New record of the skipjack tuna, *Katsuwonus pelamis* (Linnaeus, 1758) in the Mediterranean Sea

Macali A. and Tiralongo F.

The skipjack tuna, *Katsuwonus pelamis* (Linnaeus, 1758), is a medium-sized epipelagic fish of the family Scombridae that exhibit a strong tendency to school on the surface. Schools are often associated with other tuna species or with birds, drifting objects, sharks and whales. It grows very rapidly and reaches a maximum reported fork length (FL) of 111 cm and a maximum weight of 34.5 kg; however, common fork length ranges between 50 and 80 cm. The body is fusiform and quite elongated. Between the pelvic fins, there are two flaps (interpelvic process). The dorsal surface of the body is dark (dark blue), while the flanks (silvery bluish) and ventral surface (silvery white) are light, with 4 to 6 longitudinal dark bars.

It is uncommon in the Mediterranean Sea and widely distributed in tropical and warm temperate waters of all oceans (Collette & Nauen, 1983), where it can constitute up to 60% of the commercial tuna catch. In the Mediterranean Sea, the species has been recorded occasionally, especially in the western part, where it appears to spawn (Alemany *et al.*, 2010). Although recorded, there are no recent observations of the species in Italian waters; thus, it is considered rare (Costa 1991) and little is known about its biology and migration in the Mediterranean Sea (Di Natale *et al.*, 2009).

On 7th July 2017, a single specimen of *K. pelamis* (Fig. 4) was caught 12 miles off the coast of Ventotene



Fig. 4: The specimen of *Katsuwonus pelamis* caught off Ventotene Island (central Tyrrhenian Sea).

Island (40.60733° N, 13.33036° E), central Tyrrhenian Sea, using trolling baited with artificial fish (rapala type). The specimen measured 64.5cm TL (total length) and weighed 5.7Kg. The stomach content analysis did not reveal the presence of prey items. In the same area, an aggregation of albacore, *Thunnus alalunga* (Bonnaterre, 1788) was observed, and a specimen was caught using the same fishing gear. It is probable that our specimen of *K. pelamis* schooled with them.

In conclusion, our record adds additional information about the presence and distribution of *K. pelamis* in the Mediterranean Sea where, on the basis of the few records reported, the species appears to be uncommon. In the central and eastern part of the Basin in particular, no data documenting large catches of the species were found.

3.2 First record of *Siganus rivulatus* in the Pelagie Islands, Strait of Sicily

Azzurro E. and Giardina F.

The marbled spinefoot *Siganus rivulatus* Forsskål & Niebuhr, 1775 is one of the first and most invasive fish that entered the Mediterranean through the Suez Canal. It was recorded firstly off Israel, in the twenties and it reached the Libyan and Tunisian coasts in the seventies, with no signs of further expansion until the last decades. Recently, the species was found in the southern Adriatic (Dulčić & Pallaoro, 2004) and one specimen was reported from Sicilian waters (Insacco & Zava, 2016). Here we report the first record of this species from the Pelagie Islands, Sicily strait, Italy.

On the morning of July 5th 2017, an individual measuring 15 cm TL (estimated) was caught by a local recreational fisherman using hooks and line at the eastern entrance of Lampedusa harbour (35.49617° N, 12.60358° E) at 4m depth, on the outer jetties. The individual was photographed and released alive by the same fisherman.

Information provided by the fisherman was verified personally and *in loco* by the same authors. Species identification was supported by Figure 5 and based on the specimen body shape and colour pattern, which showed

the typical yellow-gold stripes of *S. rivulatus*, on the lower half of body.

This finding represents further evidence on the recent expansion of rabbitfishes at their invasion front (for *Siganus luridus* see Azzurro *et al.*, 2017) and indicates the possible establishment of a new population of *S. rivulatus* in the Sicily Strait.



Fig. 5: *Siganus rivulatus* captured in Lampedusa and photographed alive by a local recreational fisherman.

3.3 On the establishment of *Mesanthura* (Isopoda: Anthuridae) in the northern Tyrrhenian Sea and notes on its ecology

Tiralongo F., Paladini De Mendoza F. and Mancini E.

The isopod genus *Mesanthura*, belonging to the superfamily Anthuroidea, currently comprises 46 described species (Poore & Schotte, 2009). Anthuroidean isopods inhabit a great variety of marine benthic habitats, from deep-sea soft bottoms to shallow waters with vegetation (Negoescu & Wägele, 1984). In recent years, several studies (Lorenti *et al.*, 2009 and references therein; Ferrario *et al.*, 2017) refer to the presence of a species belonging to the genus *Mesanthura* (therein named *Mesanthura* sp.) in several Italian harbours and marinas located in the northern Sardinian Sea, Ligurian Sea, Taranto (northern Ionian Sea) and Salerno (southern Tyrrhenian Sea). These latter studies represent the first records of the genus *Mesanthura* from Italian waters and the western Mediterranean too. As regards the eastern part of the basin, there is an earlier record of the genus by Samaan *et al.* (1989), in Egypt.

In this study, we have recorded for the first time several specimens of this genus along the coast of Civitavecchia (northern Tyrrhenian Sea), near the harbour area (42.08436° N, 11.79900° E). Based on morphological and colour-pattern analysis, we can confirm that the species is the same as that found in recent years by Lorenti *et al.* (2009) in Italian seas.

Sampling was performed seasonally, from autumn 2015 to summer 2016, on *Posidonia oceanica* meadows, at a depth of 7 m. Forty rhizomes of *Posidonia oceanica* were collected by hand during SCUBA dive and preserved in 80% alcohol. Shoots and leaves were subsequently examined at the laboratory and all the associated invertebrates were sorted and identified to the lowest possible taxonomic level. All the specimens of *Mesanthura* were examined and measured from the rostrum to the apex of telson, using an ocular micrometer to the nearest 0.01mm. Data were box-plotted to visualize seasonal variability in size.

During the four sampling days, on the basis of morphological and colour-pattern analysis (Fig. 6), a total of 21 specimens were identified as belonging to the genus *Mesanthura*: 4 on October 25th 2015, 8 on March 11th 2016, 4 on May 22nd 2016 and 5 on August 31st 2016. The most abundant associated species were Polychaeta (*Nereis rava*, *Polyophthalmus pictus*, *Megalomma* sp., *Syllis* spp.), Amphipoda (*Microdeutopus chelifera*, *Leptocheirus guttatus*, *Gammaropsis maculata*, *Ampithoe heleri*) and Tanaidacea (*Chondrochelia savignyi*).

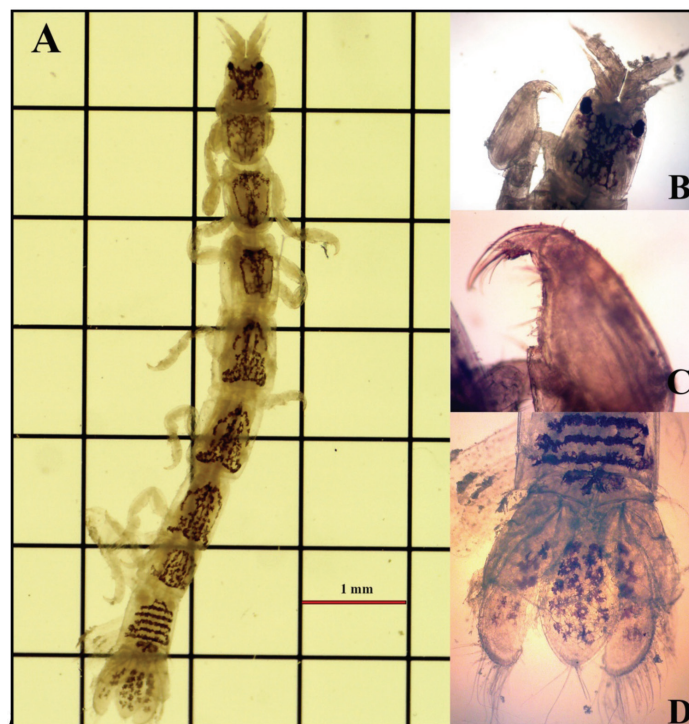


Fig. 6: A specimen of *Mesanthura* sp. sampled in Civitavecchia during this study. Whole animal in dorsal view (A) with particulars of head and pereopod 1 (B), pereopod 1 (C) and telson and uropods (D).

The fact that our specimens were found in the vicinity of the harbour of Civitevecchia and the lack of previous records in the area support the hypothesis of their recent introduction (probably through ballast waters or hull fouling of international shipping) and exotic origin too. The presence of an ovigerous female in spring and of small (juveniles) specimens in the summer sample suggests that the peak of the breeding season falls in spring. Indeed, the size of specimens increased from summer to spring (Fig. 7). The year-around presence of the species in the Tyrrhenian Sea demonstrates the establishment of the species in the area, where it found a suitable habitat among the shoots and leaves of *Posidonia oceanica* meadows. This micro-

habitat was shared with other small invertebrates, especially polychaetes, amphipods and tanaidaceans.

Our work represents an additional record of *Mesanthura* from the western part of the Mediterranean Sea. Further studies on the quay wall of the harbour of Civitevecchia could show the presence of the species in this habitat too, as in the case of other Italian harbours. Indeed, artificial substrates of harbour and marina quay walls are ideal habitats for many alien invertebrates (Dailianis *et al.*, 2016). However, due to its small size, this species can only be detected by targeted studies. Further studies may demonstrate the presence of this alien species, mostly in or near other harbours of the Mediterranean Sea.

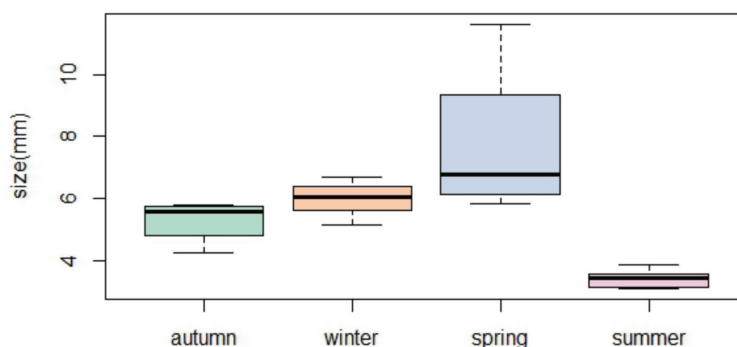


Fig. 7: Boxplots showing distribution of total body length of the 21 specimens of *Mesanthura* sp.

4. CROATIA

4.1 Lessepsian migrant *Siganus luridus* (Pisces: Siganidae) in the eastern Adriatic Sea: a sign of an established population?

Dulčić J. and Dragičević B.

Since the opening of the Suez Canal in 1869, there has been an influx of Red Sea and Indo-Pacific organisms into the Mediterranean Sea, a phenomenon known as lessepsian migration. During the past decades, 14 lessepsian fish species have been recorded in the Adriatic Sea (Dulčić & Dragičević, 2011). Among them, the dusky rabbitfish *Siganus luridus* (Rüppell, 1829) was recorded for the first time in the northern Adriatic Sea in 2010 in the Gulf of Trieste (see reference in Dulčić & Dragičević, 2011). The second record is from the southern Adriatic (Mljet channel) in the same year (see reference in Dulčić & Dragičević, 2011). Juveniles were observed for the first time in Molunat Bay (southern Adriatic, Croatian coast) on 15 December 2011 (Dulčić *et al.*, 2013). Three years later, in 2014, a specimen of *Siganus luridus* was caught in Bigova (cape Trašte) (southern Adriatic Sea, Montenegrin coast) (Đurović *et al.*, 2014). This was the first record of this species for the Montenegrin coast, and the fourth for the eastern Adriatic Sea.

On December 8th 2016, three specimens of *S. luridus* (Fig. 8) were captured off Molunat Bay (southern Adri-



Fig. 8: Specimens of *Siganus luridus* caught on December 8th 2016, off Molunat Bay (southern Adriatic, Croatian coast) (Photo: B. Dragičević).

atic) (42.45588° N, 18.41720° E). All specimens were caught by local fishermen operating with beach seine on seagrass bottom. The first specimen measured 7.5cm total length (TL) and weighed 7.5g; the second specimen measured 8.9cm TL and weighed 14g; the third specimen measured 9.7cm TL and weighed 16g.

This capture provides an indication of population increase of this species in the southern part of the Eastern Adriatic. Besides captured specimens, fisherman also indicated other occurrences of this species in previous catches. Almost simultaneously, in December 2016, large schools of *S. luridus* were observed in the southern Adriatic (video by Teo Maksimović at <https://vimeo.com/194574917>). These findings indicate that this species has established its population in the southern part

of the eastern Adriatic and already occurs in greater numbers. Recently, this species was reported for the first time from the Calabrian Ionian Sea and further signs of geographic expansion have been acknowledged from the Ionian coast of Apulia (Lipej *et al.*, 2017).

Rabbitfishes (*S. luridus* and *S. rivulatus*) have triggered dramatic changes in community structure and in native food webs and are competing with native herbivorous fishes such as salema, *Sarpa salpa* (Sparidae), along the Levantine coast (Bariche *et al.*, 2004). Due to signs of an established population of this species in the eastern Adriatic Sea (especially in the southern part), similar effects may be also expected in the near future in the Adriatic environment. Thus, its impact certainly deserves full attention.

4.2 On the occurrence of the alien mollusc *Rapana venosa* in the Croatian part of the Adriatic Sea

Pavičić M. and Vrdoljak D.

The Asian whelk *Rapana venosa* (Valenciennes 1846) is native to the temperate Western Pacific Ocean, from the Sea of Japan, Yellow Sea, Bohai Sea, and East China Sea to Taiwan in the south (Mann & Harding 2003). It colonized the Black Sea in the early 1940s (Kaneva-Abadžieva, 1958). Its first record in the Italian part of the Adriatic Sea, where it is now established, dates back to 1973 (Ghisotti, 1974). Since then, it has spread to Slovenia (De Min & Vio, 1997) and Albania (Ruci *et al.*, 2014), but has never been reported along the Croatian coastline.

Herein we present the first record of this species for Croatia. During regular fisheries monitoring activities performed by the staff of the Institute of Oceanography and Fisheries (Split, Croatia), a fisherman reported the occurrence of this species in the area of the western Istrian coast in the past decade. In May 2004, seven adult living specimens of *Rapana venosa* (Fig. 9) were caught in the north-western part of Istria (45.516567° N, 13.458583° E). The fisherman kept 3 shells of the mentioned species. Shell length measured 15.2; 18.5; 15.8cm; shell height measured 7.7; 9.7; 7.3cm; aperture height measured 12.7; 14.5; 13.2cm and aperture width measured 7.3; 8.2; 7.5cm, respectively. All specimens were caught using trammel nets at a depth of 22m. There were no other



Fig. 9: Shell of the *R. venosa* (Photo: D. Vrdoljak).

reports of *R. venosa* in the area afterwards, which implies that the species is either a non-permanent inhabitant in the area or has been overlooked.

5. ALBANIA

5.1 First record of the Bigeye Thresher *Alopias superciliosus* in Albanian waters

Giovos I. and Cakalli M.

The Bigeye Thresher *Alopias superciliosus* (Lowe, 1841) is a highly migratory species found globally in all tropical and temperate seas. In the Mediterranean Sea, the species is considered rare. However, it is suspected

to occur throughout the basin. Recently, an increasing number of Bigeye Thresher records have been reported primarily from the eastern Mediterranean, suggesting that the species might not be as rare or scarce in the re-

gion (Kabasakal *et al.*, 2011; Corsini-Foka *et al.*, 2015; Farrag, 2017; Kleitou *et al.*, 2017). In the Ionian Sea, the only record of the Bigeye Thresher dates back to 1981 (Kabasakal *et al.*, 2011), while until recently the species was considered absent from the Adriatic Sea.

In fact, the first record of *A. superciliosus* in the Adriatic Sea was reported by Madiraca & Davidov (2015) based on the capture of an individual at Mamula Island, Montenegro, in 2012. The authors speculated that the species probably occurs in the area; however, it is regularly confused with *A. vulpinus*. The same might apply for all areas with limited or no records since the misreporting of congeneric species that share common names is a frequent problem (Kleitou *et al.*, 2017). Hereby, we present the first record of the Bigeye Thresher in Albanian waters and the second record of the species in the Ionian Sea, thus providing evidence suggesting that *A. superciliosus* might not be as rare as it is supposed to be in this basin.

On February 22nd 2016, a female *A. superciliosus* was landed in Dhermi (Vlorë), South Albania. The individual was captured between Vlorë and Himara by a professional fisherman using pelagic longline, at a distance of 2.6 nautical miles from the coast (near Dhermi, 40.107575° N, 19.579266° E), at a depth of 160 m

(Fig. 10). Total Length (TL) and weight (W) were 308 cm and 122 kg respectively, and the tail was 168 cm long.



Fig. 10: *Alopias superciliosus* specimen captured between Vlorë and Himara (Albania, Ionian Sea).

5.2 Recent sightings of the Mediterranean monk seal (*Monachus monachus*) in the Albanian Ionian Sea

Bakiu R. and Cakalli M.

In the past, the Mediterranean monk seal *Monachus monachus* (Hermann, 1779) (family *Phocidae*) has often been considered as the rarest world-wide pinnipeds, only surviving at some Mediterranean and eastern Atlantic localities. However, very recent sightings from Israel and Lebanon indicate a potential better status for the species (Scheinin *et al.*, 2011; Mytilineou *et al.*, 2016).

The global population of *Monachus monachus* is estimated to be 600–700 individuals, of which 300–400 live in Greece, followed by Cyprus and Turkey (Karamanlidis & Dendrinis, 2015). Güçlüsoy *et al.* (2004) reported that the number of *M. monachus* living along the Turkish coasts was approximately 104, based on sightings between 1994 and 1998. Additionally, the authors reported records of 17 pups and 22 dead seals between 1994 and 2002 (Güçlüsoy *et al.*, 2004). Gerovasileiou *et al.* (2017) reported 7 sightings from four different fish farms along the Turkish Aegean Sea coasts, where few individuals were reported close to three fish farms in the Bay of Güllük (Bodrum, SE Aegean Sea), whilst a single specimen was reported from one fish farm in the Bay of Gerence (Izmir, NE Aegean Sea).

During the last 5 years, the Mediterranean monk seal has been observed by divers and fishermen in the southern part of Albania: around Sazan Island, near Karaburun Peninsula and Himare (Gjipe Bay) (Bino *et al.*, 2006). It is

important to note that Karaburun Peninsula and Sazan Island were declared a Marine Protected Area (MPA) by the government in 2010; this is the only MPA in Albania. Considering the fact that there has never been a study or a project on this species, the assessment of both possible habitats is important to control its illegal hunting and damage to the habitats and caves, where the species shelters and reproduces. Together with the directorate of Regional Administration of Protected Areas in Vlore (RAPAV), we have held meetings and, with the financial support of the Rufford Foundation on 5 July 2016, we began monitoring the Mediterranean monk seal by installing monitoring cameras, which took photos for a time period of 11 months. These camera traps were placed at different locations based on the suggestions of the fishermen and the local residents.

This short paper provides photographic evidence of monk seal presence at different Ionian Sea sites along the coast of Albania (Fig. 11). Given that we did not obtain photos of the monk seal from all the sites where the monitoring cameras were installed, we carried out two surveys in collaboration with RAPAV members (before and after the observation of a monk seal by a group of tourists and divers near Karaburun Peninsula on 5 May 2017). From July 2016 to May 2017, few sightings ($n=3$) were reported from the different sites (Table 3; Fig. 12). In particular, few individuals were reported from the Al-



Fig. 11: All the investigated sites and the sites where the presence of monk seals was recorded.

Table 3. Details about the recorded observations of the Mediterranean monk seal in the Albanian Ionian Sea.

Date	n	Location	Lat. E.	Long. N	Proof	Observer	Notes
25 May 2017	1	Gjiçe Bay	40.126°	19.666°	Photo	Fisherman	Swimming in the morning (Fig. 12a)
05 May 2017	1	Karaburun peninsula	40.428°	19.289°	Video	Tourist/Skipper	Swimming in the morning (Fig. 12b)
12 November 2016	1	Karaburun peninsula	40.352°	19.411°	Visual	Farm staff	Attacking a sea cage

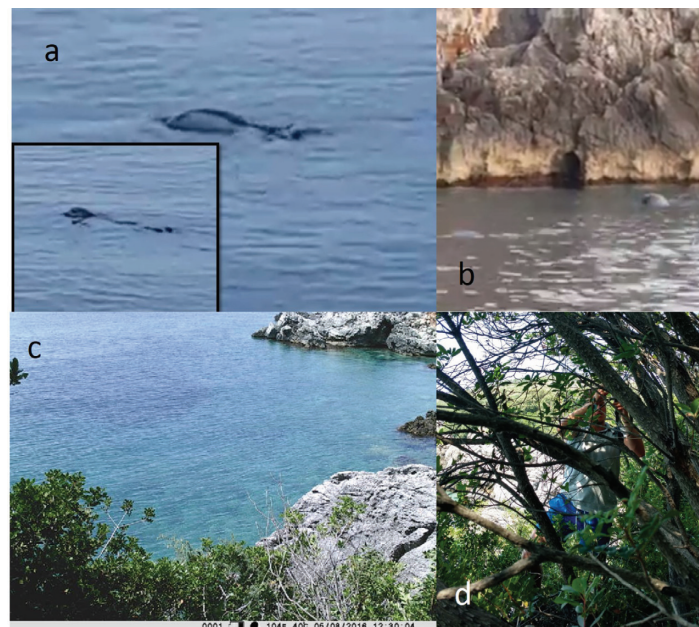


Fig. 12: Recent sightings of *Monachus monachus* in the Albanian Ionian Sea. a) Swimming off Himare, Gjiçe Bay – 25 May 2017; b) Swimming near Karaburun peninsula, Vlorë Bay – 05 May 2017; c) Installed camera trap near Pirates Cave, Himare; d) photo taken during the installation of camera traps. (Photo: a) provided by a fisherman, b) provided by a tourist).

banian coast. Nevertheless, these are the most recent observations, whilst a single specimen was reported close to a fish farm in the Bay of Vlora (near Karaburun Peninsula). Alb-Adriatic marine aquaculture staff members in Karaburun Peninsula reported that they saw a monk seal near the cages on November 12th 2016, but they had no photos or videos.

Based on our observations, we suggest that more

seals may be present in the investigated area. Further observations are necessary to determine whether the established populations are locally present, because Mediterranean monk seals are a natural heritage and should be monitored continuously. Soon, RAPAV will implement a similar project for improving the monitoring of the marine protected areas using our methodology and the University will collaborate with them technically.

6. GREECE

6.1 Two aliens new to the Hellenic Aegean waters: *Parupeneus forsskali* (Perciformes, Mullidae) and *Herdmania momus* (Tunicata)

Kondylatos G. and Corsini-Foka M.

The mullid *Parupeneus forsskali* and the ascidian *Herdmania momus* were recently detected for the first time along the coast of Rodos Island, south-eastern Aegean Sea, Greece.

The most common goatfish in the shallow sandy bottoms of the Red Sea, *Parupeneus forsskali* (Fourmanoir & Guézé, 1976), is a Lessepsian migrant already established along the coasts of the Levantine Sea.

Two specimens of *P. forsskali* (TL= 108.6 mm, SL= 86.1 mm, Weight= 12.1 g and TL= 93.5 mm, SL= 75.1 mm, Weight= 8.2 g) were collected on November 3rd 2017 by a professional bottom seine vessel operating at depths 5-30 m, off Lardos beach (36.073822° N, 28.017093° E), south-eastern Rodos. The substrate was mostly fine sand with sparse *Cymodocea nodosa* (Ucria) Ascherson, 1870 meadows interrupted by hard substrata. Other species in the same catch included the native *Boops boops* (Linnaeus, 1758) and *Spicara smaris* (Linnaeus, 1758), and the aliens *Lagocephalus sceleratus* (Gmelin, 1789), *Pterois miles* (Bennett, 1828) and *Upeneus pori* Ben-Tuvia & Golani, 1989.

Description and coloration of specimens agreed with Fischer & Bianchi (1984) (Fig. 13). Dorsal fin: VIII (the first spine very small), 9; anal fin I, 7, pectoral fin 16. In particular, both specimens were characterized by a) a dark stripe, running from the tip of its snout, through the eye, and along the lateral line, ending beneath the rear of the second dorsal fin and b) a black spot on the upper side of the caudal peduncle.

The findings represent the first record of *P. forsskali* in the Hellenic Aegean waters. Local fishermen support the presence of numerous individuals of the species in 2017, around the fishing grounds of the island. The presence of this new species in the coastal fishery of the island documented herein, testify that *P. forsskali* is established in the south-eastern Aegean waters.

The ascidian *Herdmania momus* (Savigny, 1816), native to the Red Sea, is well-established in the south-eastern Mediterranean basin, up to the northwest Levantine coasts, at Kas Isl., Turkey (Çinar *et al.*, 2006) and Kastellorizo Isl., Greece (Gerovasileiou & Issaris, 2014)



Fig. 13: *Parupeneus forsskali*. Total length 108.6 mm, from Rodos, Greece. Black bar: 10 mm.

and reported also from the waters of Malta Isl., in the central Mediterranean (Evans *et al.*, 2013).

Over 100 individuals of *H. momus* were observed underwater on September 28th 2017, at Zefiros, Rodos Isl. (36.428173° N, 28.234085° E), at 0.5 m of depth, on rocky bottom (Fig. 14).

The record of this alien ascidian is the first for the Aegean Sea and indicates that the species is established in the area.



Fig. 14: *Herdmania momus* from Rodos, Greece.

7. TURKEY

7.1 First detection of *Parupeneus forsskali* in the Aegean Sea by visual census

Yapıcı S. and Filiz H.

Parupeneus forsskali (Fourmanoir & Guézé, 1976) is native to the Red Sea and the Gulf of Aden up to Socotra. It prefers sandy habitats among rocks and coral reefs to a depth of 30 m (Sonin *et al.*, 2013). In the Mediterranean Sea, the Red Sea goatfish, *P. forsskali*, was firstly recorded in 2000 and 2004 from the south-eastern coast of Turkey (Çınar *et al.* 2006) and more recently from Israel, Cyprus, Lebanon, the southern coasts of Turkey up to Antalya (Gökoğlu & Teker, 2016 and references therein), Egypt (Mehanna *et al.*, 2016) and Syria (Ali *et al.*, 2016). This study provides the first observation of the species along the Turkish Aegean coasts.

On September 7th 2016, a single specimen of *P. forsskali* was observed with native (*Chromis chromis*, *Symphodus mediterraneus*) and non-native fishes (*Siganus rivulatus*) by an underwater diver, off Turunç, Muğla province (36.4617° N, 28.1539° E) at a depth of 10 m (Fig. 15). The specimen was described using high quality photos. The external morphology of the specimen is in accordance with earlier descriptions in the Mediterranean (Çınar *et al.*, 2006; Sonin *et al.*, 2013). It can

be easily identified by the stout conical teeth in the upper jaw, typical dark longitudinal stripe from the snout, through the eye, to below the end of the second dorsal fin base and a dark spot on the upper caudal peduncle (Sonin *et al.*, 2013). Sonin *et al.* (2013) emphasized a possible misidentification between *P. forsskali* and *M. surmuletus* because young specimens of the *M. surmuletus* often bear a dark longitudinal band that might resemble that of *P. forsskali*. Therefore, its actual status may differ from that known up to now, due to overlooking or misidentification. On the other hand, man-made changes in components of marine ecosystems (e.g. currents, sea surface temperature) in recent years provide more suitable conditions to invaders that appear to be able to colonize the new environment more easily.

Consequently, the frequent occurrence of *P. forsskali* reported in recent studies, including the present one, may suggest its accelerating expansion in the Mediterranean and may indicate a possible settlement throughout the Aegean Sea. In conclusion, the status of *P. forsskali* in the Aegean Sea should be monitored.

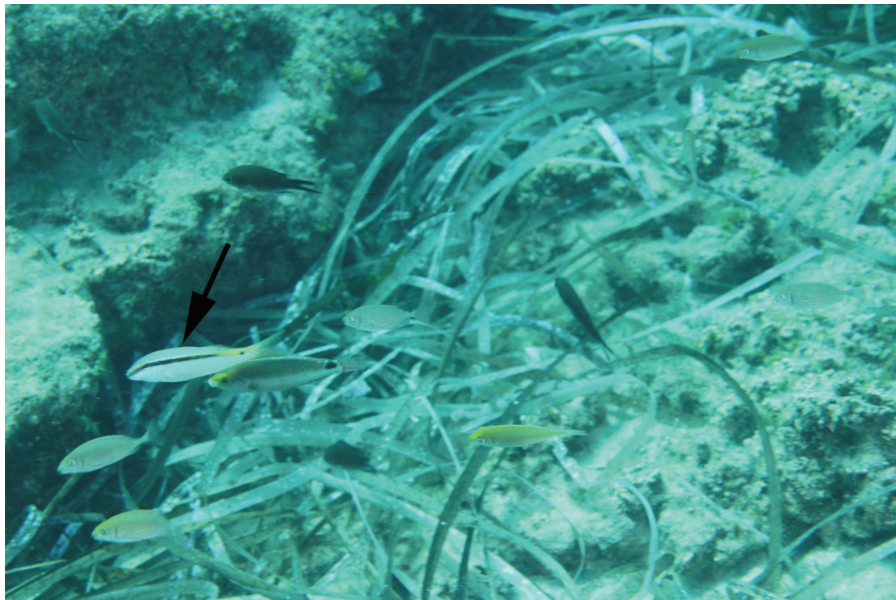


Fig. 15: Underwater observation of *P. forsskali* from the Aegean Sea (indicated by arrow).

7.2 First case of whalesucker, *Remora australis*, in association with delphinids in Antalya Bay, Turkey

Bas A. A. and Gönülal O.

Remora australis (Bennett, 1840), is a pelagic species, with a worldwide distribution. Although the species was recorded in the Mediterranean Sea, the cases carry some doubts due to the lack of photographic evidence. The current study confirms the distribution range of the specimen, with its photographic evidence.

R. australis were recorded on 4 different occasions within Antalya Bay (Fig. 16). While 3 specimens were observed attached to striped dolphins, *Stenella coeruleoalba* (Meyen, 1833) on the 2nd of May 2016, a bottlenose dolphin, *Tursiops truncatus* (Montagu, 1821), was photographed with the specimen on 21st July 2016 (Fig. 17).

Previously, the specimen was reported from the Turkish Aegean coast (Mater and Meriç, 1996) and from Iskenderun Bay (Türkmen *et al.*, 2008). However, both records involve uncertainties with no photographic proof or morphological data of the specimen. Later, Thessalou-Legaki *et al.* (2012) reported a specimen from Saronikos Gulf and mentioned its presence in Trieste (as *Echeneis scutata*), Rodos Island, Israel and the Tyrrhenian Sea.

Silva-Jr & Sazima (2008) noted that misidentification between *E. naucrates* and *R. australis* is concerning, and any record without vouchers is almost impossible to correct. Thus, the current finding provides the very first photographic confirmation of *R. australis* in Turkish waters.



Fig. 16: *Remora australis* locations

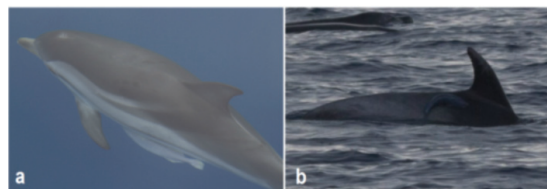


Fig. 17: (a) *R. australis* in association with bottlenose dolphin, (b) striped dolphin

7.3 First record of the genus *Acaromantis* Trouessart & Neumann, 1893 (Acari: Halacaridae) from Turkey

Durucan F. and Boyacı Y.Ö.

Acaromantis Trouessart & Neumann, 1893 is psammbiont, inhabiting tidal and shallow subtidal habitats. The genus is represented by eleven species worldwide. AD and PD plates are large, OC plates reduced to minute sclerites, the idiosomal measurements between 230-400 μm long with often foveated plates. Gnathosoma globular, palps short and two-segmented. Telofermura with ventrolateral and medial carinae. Shape of leg I different from that of the following legs. Tibia I long, its base narrow, cylindrical, then rapidly expanding; tibia I ending with wide, smooth spine (Bartsch, 2006; 2009).

This is the second record of the species *Acaromantis monnioti* (Morselli, 1970) since its original description from Italy (Livorno) by Morselli, 1970. Four specimens (two females, and two males) of *A. monnioti* were collected from sandy habitats, at a depth of 2-3 m (September 2015 and April 2017), Yakamoz Beach (Antalya, Turkey) (36.8463° N, 30.7992° E). Length of females was 265 μm and of males 275 μm . The collected specimens were cleared in lactic acid and mounted in glycerine jelly. The specimens are kept in the first author's personal collection (FD-HAL/15-19). The characteristics given for the species

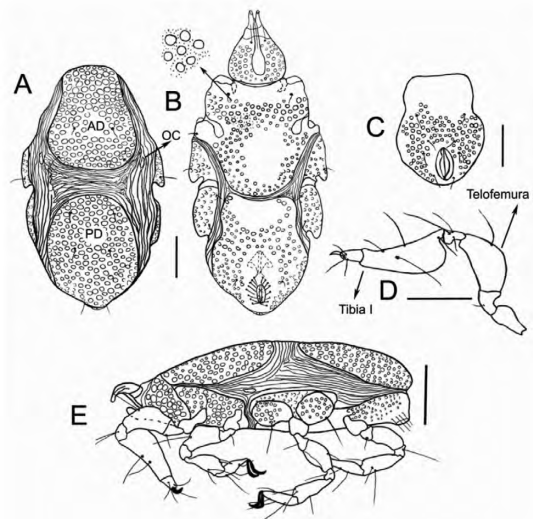


Fig. 18: *Acaromantis monnioti* (Morselli, 1970), A-Idiosoma, dorsal aspect, male; B-Idiosoma, ventral aspect, male; C-Genitoanal plate, female; D-Leg I, lateral aspect, male; E-Idiosoma, lateral aspect, male. Scale bars: 50 μm .

by Morselli (1970) are in agreement with our specimens (Fig. 18). *Acaromantis monnioti* Morselli, 1970 resembles *Acaromantis squilla* Trouessart & Neumann, 1893. How-

ever, *A. monnioti* is distinguished from *A. squilla* by not having ventral lamellae on telofemur-I and tibia-I of *A. squilla* more conical than *A. monnioti* (Morselli, 1970).

7.4 First record of the genus *Simognathus* Trouessart, 1889 (Acari: Halacaridae) from Turkey

Durucan F.

Simognathus Trouessart, 1889 is cosmopolitan in intertidal and subtidal habitats. Currently, this genus includes 44 species around the globe (WoRMS Editorial Board, 2017). The species are heavily armoured by large plates and 3-segmented palps, tarsus I with a heavy medial claw and seta-like lateral claws. Tibia I clavate, with narrow base and wide, truncate end. Tibia I with large ventral spine, basally wide. Tarsi II-IV with large paired claws (Pepato, 2004; Bartsch, 2006).

The two specimens (1 male and 1 protonymph) of *Simognathus adriaticus* (Fig. 19) described here were extracted from sublittoral sandy habitats in Yakamoz Beach, Antalya (36.8463° N, 30.7992° E) in April 2017. The mites were cleared in lactic acid and mounted in Hoyers medium. In Croatia (Rovigno) *Simognathus adriaticus* was found among various macroalgae and other substrates (Viets, 1940).

All idiosomal plates separated by membranous cuticle. Sclerotized body light-brownish pigmented. Palp length of male, P-1-3;12/37/25. Measurements in µm are summarized in Table 4. The characteristics given for the

species by Viets (1940) are in agreement with our specimens (Fig.19). This is the first record of this genus from Turkey.

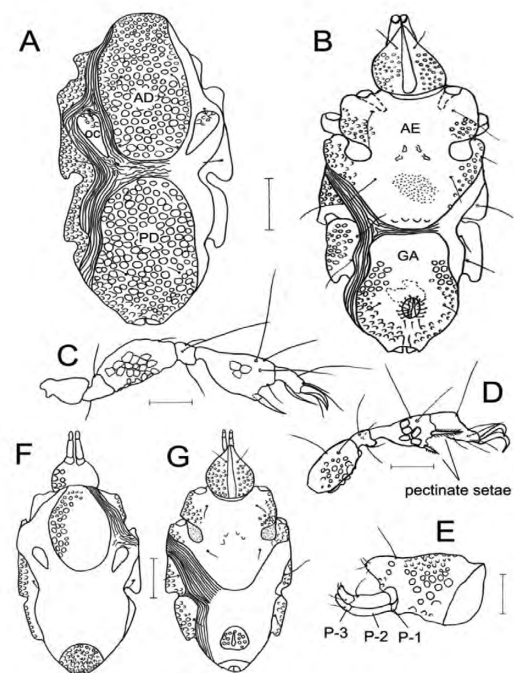


Fig. 19: *Simognathus adriaticus* Viets, 1940, A-Idiosoma, dorsal, male; B-Idiosoma, ventral, male; C-Leg I, lateral, male; D-Leg II, lateral, male; E-Gnathosoma, lateral, male. F-Idiosoma, dorsal, protonymph; G-Idiosoma, ventral, protonymph; AD, anterior dorsal plate, OC, ocular plate; PD, posterior dorsal plate; AE, anterior epimeral plate, GA, genitoanal plate, P-1 to P-3, first to third palpal segments, Scale bars: 50 µm.

Table. 4 Measurements of *Simognathus adriaticus* (Viets, 1940).

	Male		Protonymph	
	Length	Width	Length	Width
Idiosoma	338	160	245	142
Gnathosoma	77	65	67	55
AD	157	77	110	70
PD	150	85	40	50
OC	50	17	35	17
AE	150	150	112	137
GA	138	93	-	-
GO	25	17	-	-

7.5 The ascent of Lessepsian Mollusca continues: on the establishment of two newcomers in the eastern Mediterranean

Ovalis P. and Zenetos A.

During a diving trip in Dalyan, Iztuzu (36.788313° N, 28.619328° E), Southern Turkey, two hitherto unreported molluscs for the area were discovered, namely the pod tree oyster *Isognomon legumen* (Gmelin, 1791) and the left-handed snail *Viriola* sp. [cf. *corrugata* (Hinds, 1843)]. Both are Indo-Pacific species, which have been recently reported in the Mediterranean.

Isognomon legumen (Fig. 20). Fourteen live specimens were found on 6.8.2017 under stones at 6 m depth at the dive site. The specimens measured 18.55 – 60.25 mm in height (AVR 37.69±10.62SD) and 17.7-23.51 mm in width (AVG 20.44 ±1.85SD).

The first Mediterranean record (2015) was from Israel based on an empty shell (Mienis *et al.*, 2016).

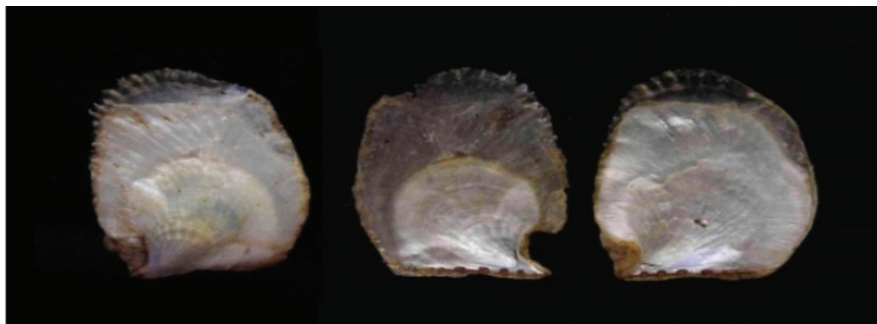
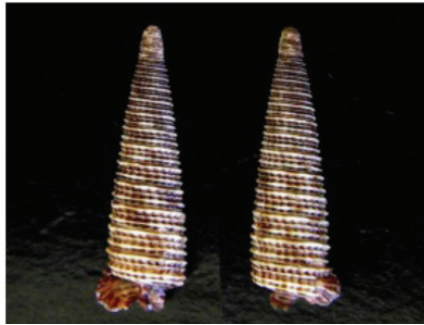


Fig. 20: *Viriola* sp. [cf. *corrugata*] 14.99 mm (up) and *Isognomon legumen* 32.18x19.78 mm (down) from Dalyan, Iztuzu (Turkey).

The species was subsequently reported in the Aegean Sea from Karpathos in 2016 by Micali *et al.* (2017), and from Astypalaia in 2016 by Angelidis in Lipej *et al.* (2017) [misidentified as *Malleus regula* (Forsskål in Niebuhr, 1775) - see Crocetta *et al.* (2017)]. Records of *Isognomon legumen* from two different Greek sites, in addition to the Israeli finding, combined with the Turkish findings (both adult and juvenile specimens), clearly point to its establishment in the Eastern Mediterranean.

Viriola sp. [cf. *corrugata*] (Fig. 20). The microgastropod *Viriola* sp. was tentatively ascribed to a possible taxon following Crocetta *et al.* (2017). Empty shells of the species were found in Karpathos in 2016 by Micali *et al.* (2017), although its presence in Greece was speculated since the single record was based on 7 shells (Crocetta *et al.*, 2017). Here we report on the finding of more than 10 live specimens and

6 empty shells from Dalyan, Iztuzu. They were collected on 5.8.2017 under stones at 6 m depth. The specimens measured 10.8-17.62 mm in height (AVR 14.35±1.90SD) and 2.16-3.38 mm in width (AVG 2.78 ±0.29SD).

Both taxa are Indo-Pacific species, occurring in the Red Sea, and it is assumed that they arrived via the Suez Canal unaided (Lessepsian immigrants). Absence of earlier/other records of the newcomers may be attributed either to a very recent introduction or to possible misidentification (the case of *I. legumen* as *M. regula*). In particular, *Viriola* sp. was only detected after the Suez Canal enlargement (Zenetos, 2017), although failure to detect/report it previously may be a result of overlooking because of its small size.

Whatever the reason might be, both species appear to have been established along the Turkish coasts (South Turkey) and spread rapidly in the eastern Mediterranean.

7.6 The occurrence of the blue spiny starfish *Coscinasterias tenuispina* (Lamarck, 1816) in Mersin Bay (Turkey)

Erguden D. and Turan C.

The family Asteroiidae is represented by three genera and four species in the Mediterranean: *Coscinasterias tenuispina* (Lamarck, 1816), *Marthasterias glacialis* (Linnaeus, 1758), *Sclerasterias neglecta* (Perrier, 1891) and *Sclerasterias richardi* (Perrier, 1882).

The blue spiny starfish *Coscinasterias tenuispina* is native to the Atlantic Ocean and the Mediterranean Sea. In the Mediterranean Sea, *C. tenuispina* is widely

distributed in the Aegean Sea from Rodos to Izmir Bay (Özaydin *et al.*, 1995; Koukouras *et al.*, 2007) and in the western Mediterranean Sea (Özgür Özbek, 2013). This study confirms the occurrence of *C. tenuispina* in Mersin Bay, north-eastern Mediterranean part of Turkey.

During scuba diving surveys, one specimen of *C. tenuispina* was found in a sandy rocky habitat, at 18 m depth on the coast of Mersin, Turkey (36.462327° N, 34.323589°



Fig. 21: General view of *Coscinasterias tenuispina* on the coast of Mersin.

E) on May 22nd 2016; water temperature was 25°C. The specimen was photographed under the sea (Fig. 21).

Coscinasterias tenuispina is a shallow water demersal species (8-50 m) inhabiting a variety of habitats, usually rocky substrates, has two (or three) madreporites (Tortonese, 1965). *C. tenuispina* has 6 to 12 arms (usually 7), often of varying lengths, and grows to 20 cm in diameter. It is reddish, brownish or brownish yellow with dark spots, variously blotched with brown, and is rough textured with short spines.

The reproductive cycle of *C. tenuispina* is annual with a long release of gametes, which starts in the winter and extends to the end of spring. It feeds on epifauna organisms, especially mussels. It features suction cups on ambulacra feet, which have strong adhesion power (Machado *et al.*, 2008). Therefore, this species is able to live in environments with strong hydrodynamics (waves and currents).

Coscinasterias tenuispina has probably established a population in this area. The present record of *C. tenuispina* in Mersin Bay demonstrates the range expansion of the species to the north-eastern part of the Mediterranean coast of Turkey.

8. EGYPT

8.1 A first record of *Bathygobius cyclopterus* (Cuvier & Valenciennes 1837) in the Mediterranean Sea

Akel E.H. KH.

The circumtropical gobiid genus *Bathygobius* Bleeker 1878 is defined and redescribed, with the first dorsal fin pattern and postorbital blotches shown to be additional characters of diagnostic value. Goren (1978) in his comparative study of *Bathygobius*, of the Red Sea and western Indian Ocean mentioned the existence of three different species in the Red Sea: *Bathygobius fuscus* (Ruppell 1828), *B. cyclopterus* (Cuvier & Valenciennes 1837) and *B. fishelsoni* n. sp. In the Indo-West Pacific region, at least a dozen species are probably eligible for inclusion in this genus (Miller & Stefanni, 2001). Allen & Erdmann (2012) described *B. cyclopterus* as follows: upper five pectoral rays with free tips and sixth ray partly free; rounded caudal fin; longitudinal scale series 37-38; predorsal scales 18-20, reaching or nearly reaching interorbital space; ctenoid body scales, becoming cycloid on abdomen; presence of fleshy double flap from edge of cheek into notch at posterior end of upper lip; depressed head; body width greater than body depth; body depth 4.3-5.5 in SL. Matsunuma, *et al.* (2011) from the east coast of Malay Peninsula, Malaysia, recorded the *B. cyclopterus* equation as:

D VI+I, 8-9; AI, 8; P 19-23; LR 36-40; PDS 12-20.

One specimen of *Bathygobius cyclopterus* (Cuvier & Valenciennes, 1837) (Fig. 22a,b) with total length 8 cm and total weight 7 g, was captured by experimental bottom trawling (stretched mesh size: 15 mm; duration time: four hours; location: east of Suez Canal main stream in

the Mediterranean, off Port Said). This operation was conducted by the author at a depth of 25 m on 10/8/2017 (31.29916° N, 32.37262° E). The specimen was exam-



Fig. 22: *Bathygobius cyclopterus* collected from Port Said, Egypt on 10/8/2017.

ined and identified according to Goren (1978) who recorded this species in the Red Sea. The specimen was preserved in 5% formalin and deposited in the Fishery Biology Lab – Alexandria.

Description: Body elongated and posteriorly compressed. Head strongly depressed. Mouth terminal. Maxilla extends to below front of eye. Cycloid scales on nape other scales are ctenoid. Pectoral fins rounded, with uppermost five rays free, silk like. Pelvic fin is rounded and reaches to midway between anus and pelvic base. Caudal fin is rounded. Belly with some dark spots. Cheek and operculum without scales. Tongue is bi-lobed; teeth on both jaws are enlarged. Fraenum (base of pelvic fin) well-developed with tri-lobed hind margin. Remark: It

is well known for this species that body width is greater than body depth but the specimen found was involved in spawning activity so, its belly was swollen and so it became enlarged. Colour: Grey to brownish body. Morphometric and meristic characters: twenty one morphometric characters and four meristic counts were measured and are given in Table 5. Ten second dorsal fin rays were found, which is in agreement with Rainboth (1996) who mentioned that this figure ranged between 10 and 12 for the genus *Bathygobius* in the Cambodian Mekong. As a new Lessepsian migrant species in the Mediterranean Sea, it is noted that species diversity (monitoring, updating, arrival and spread) is required to investigate its impact on the local ichthyofauna.

Table 5. Morphometric and meristic characters of *Bathygobius cyclopterus* obtained from a bottom trawler on 10/8/2017 off Port Said, Egypt (St.L. Standard length, H.L. head length).

Morphometric and meristic characters		Present study, Egypt, Port Said, 2017
Morphometric characters		
Wet weight (g)		7 g
Total length (cm)		8 cm
Standard length		6.5 cm
Pre 1st dorsal fin length	(inSt.L.)	43.1 %
1 st dorsal fin length	(inSt.L.)	16.9 %
Pre 2 nd dorsal fin length	(inSt.L.)	53.9 %
2 nd dorsal fin length	(inSt.L.)	26.2 %
Pre pectoral length	(inSt.L.)	29.2 %
Pectoral length	(inSt.L.)	20.0 %
Pre Pelvic fin length	(inSt.L.)	32.3 %
Pelvic fin length	(inSt.L.)	15.4 %
Pre anal fin length	(inSt.L.)	64.6 %
Anal fin length	(inSt.L.)	16.9 %
Body depth	(inSt.L.)	26.2 %
Body width	(inSt.L.)	15.4 %
Caudal peduncle length	(inSt.L.)	13.9 %
Caudal peduncle depth	(inSt.L.)	30.8 %
Head length	(inSt.L.)	24.6 %
Pre Orbital length	(in H.L.)	50.0 %
Post Orbital length	(in H.L.)	25.0 %
Eye diameter	(in H.L.)	18.8 %
Inter Orbital length	(in H.L.)	37.5 %
Meristic counts		
1 st dorsal fin spines		VII
2 nd dorsal fin rays		10
Pectoral fin rays		20
Anal fin rays		I + 8

8.2 A new record of the Blackspot seabream *Pagellus bogaraveo* (Brünnich, 1768) in the south-eastern Mediterranean Sea

Akel E. H. KH.

The Blackspot seabream *Pagellus bogaraveo* (Brünnich, 1768) is distributed in the eastern Atlantic, from Scandinavia to Senegal and Angola (Tortonese, 1975). In the Mediterranean, it has been recorded in Algeria, Tunisia, France, Croatia, Albania, Italy, Sicily, Greece, Malta, Turkey, Cyprus and Israel (Froese & Pauly, 2017).

It is found in waters over various types of bottom (rocks, sand, and mud).

In this study, one specimen of *Pagellus bogaraveo* (Fig. 23) with total length 10 cm and total weight 10 g, was obtained by experimental bottom trawling (stretched mesh size: 15 mm; duration: four hours; location: east of



Fig. 23: *Pagellus bogaraveo* (Brünnich, 1768) caught off Port Said on 10/8/2017. (Photo: Akel).

Suez Canal main stream in the Mediterranean, off Port Said). This operation was carried out by the author at a depth of 25 m on 10/8/2017 (31.29916° N, 32.37262° E).

The specimen was examined and identified according to Carpenter & De Angelis (2016). The specimen was preserved in 5% formalin.

This finding extends the geographical distribution of the species in south-eastern Mediterranean waters.

Diagnosis: body oblong, upper profile of head curved; eye diameter greater than snout length; mouth low nearly horizontal; both jaws with pointed teeth anteriorly and anal fin forked. Colour: silvery grey, large black blotch at origin of lateral line; inside of mouth orange red and body fins light yellow. Morphometric and meristic characters (Table 6): twenty one morphometric characters and four meristic counts were investigated and compared, and found in agreement with the corresponding ones given in FishBase (Froese & Pauly, 2017). As a new species in Egyptian Mediterranean waters, it is noted that species diversity monitoring and updating is important with respect to assessing its impacts on the local ichthyofauna.

Table 6: Morphometric and meristic characters of *Pagellus bogaraveo* caught with a bottom trawler on 10/8/2017 off Port Said. (TL: Total length, HL: Head length).

Morphometric and meristic characters	Present study, Egypt, Port Said, 2017	FishBase
Morphometric characters		
Wet weight (g)	10 g	--
Total length (cm)	10 cm	25 cm
Fork length (in T.L.)	89.0 %	90.4 %
Standard length (in T.L.)	79.0 %	84.7 %
Pre dorsal fin length (in T.L.)	30.0 %	26.7 %
Dorsal fin length (in T.L.)	43.0 %	----
Pre pectoral length (in T.L.)	24.0 %	25.4 %
Pectoral length (in T.L.)	23.0 %	---
Pre ventral fin length (in T.L.)	27.0 %	28.4 %
Ventral fin length (in T.L.)	9.0 %	---
Pre anal fin length (in T.L.)	50 %	55.1 %
Anal fin length (in T.L.)	18.0 %	---
Body depth (in T.L.)	28.0 %	28.2 %
Body width (in T.L.)	10.0 %	---
Caudal peduncle length (in T.L.)	14.0 %	---
Caudal peduncle depth (in T.L.)	7.0 %	---
Head length (in T.L.)	21.0 %	23.2 %
Pre Orbital length (in H.L.)	22.1 %	20.3 %
Post Orbital length (in H.L.)	71.4 %	---
Eye diameter (in H.L.)	33.3 %	36.0 %
Inter Orbital length (in H.L.)	28.6 %	---
Jaw length (in H.L.)	38.9 %	----
Meristic counts		
Dorsal fin spines and rays	XII + 12	XII-XIII, 11- 13
Pectoral fin rays	12	----
Ventral fin rays	I + 6	----
Anal fin rays	III +11	III, 11-12

8.3 First record of the Atlantic Lesser Amberjack *Seriola fasciata* (Bloch, 1793) (Teleostei: Family: Carangidae) in Egyptian Mediterranean waters (off Alexandria)

Akel E. H. KH. and Rizkalla S. I.

The Lesser amberjack fish *Seriola fasciata* (Bloch, 1793) is distributed in the north-eastern Atlantic (north-west Spain, Azores, Madeira Island); west Atlantic (Cuba, Caribbean Seas; north America (Canada) and Mediterranean Sea (Turkey, Italy, Greece, Malta, Algeria, Tunisia, Israel and Syrian (Froese & Pauly, 2017). Sonin *et al.* (2009) reported two young specimens of this species at Haifa (Israel). Jawad *et al.* (2015) described one specimen found on the Syrian coast.

On 12.7.2017, a total of fifteen specimens of *S. fasciata* (Bloch, 1793) (Fig.24), 12 and 17 cm long - average length 14.13 cm and average weight 31.6 g - were caught by a bottom trawler operating off Alexandria (31.34883° N, 29.67333° E) at 60 m depth. A specimen with total length 16 cm and weighing 49 g was morphologically identified according to Golani *et al.* (2002) and Andaloro



Fig. 24: *Seriola fasciata* caught off Alexandria, on 12/7/2017 (Photo: Akel).

et al. (2005). The rest of the specimens were preserved in 5% formalin.

Table 7 presents a comparison of the morphometric and meristic counts of the current study of *S. fasciata* and

Table 7. Morphometric and Meristic characters of the present study (Egypt) compared with values recorded in other localities for *Seriola fasciata*. (TL: Total length, HL: Head length).

Morphometric and meristic characters	Present study, Egypt, (2017)	Andaloro <i>et al.</i> , 2005 Italy	Jawad <i>et al.</i> , 2015 Syria	Froese and Pauly, 2017
Morphometric characters				
Wet weight (g)	49 g	--	--	--
Total length (cm)	16 cm	21.5 cm	16.9 cm	--
Fork length (in T.L.)	87.5 %	90.8 %	87.0 %	88.9 %
Standard length (in T.L.)	77.5 %	86.0 %	83.4 %	85.5 %
Pre 1 st dorsal fin length (in T.L.)	33.1 %	23.3 %	33.1 %	28.4 %
1 st dorsal fin length (in T.L.)	10.6 %	8.8 %	8.3 %	--
2 nd dorsal fin length (in T.L.)	36.2 %	37.6 %	36.7 %	--
Pre second dorsal fin length (in T.L.)	41.3 %	--	42.0 %	--
Height of 2 nd dorsal fin lobe (in T.L.)	10.0 %	15.3%	--	--
Pre pectoral length (in T.L.)	26.3 %	--	--	26.6 %
Pectoral length (in T.L.)	10.6 %	13.0 %	--	--
Pre ventral fin length (in T.L.)	26.9 %	--	--	26.6 %
Ventral fin length (in T.L.)	13.8 %	19.5 %	--	--
Pre anal fin length (in T.L.)	53.8 %	46.5 %	--	55.2 %
Anal fin length (in T.L.)	21.9 %	24.2 %	24.3 %	--
Body depth (in T.L.)	25.6 %	34.9 %	34.3 %	26.6 %
Body width (in T.L.)	10.6 %	--	--	--
Caudal peduncle length (in T.L.)	13.8 %	9.3 %	--	--
Caudal peduncle depth (in T.L.)	5.00 %	--	--	--
Height of anal fin lobe (in T.L.)	8.80 %	--	7.6 %	--
Head length (in T.L.)	23.8 %	24.5 %	24.37 %	21.3 %
Pre Orbital length (in H.L.)	31.6 %	47.41 %	48.8 %	26.8 %
Post Orbital length (in H.L.)	60.5 %	--	--	--
Eye diameter (in H.L.)	23.7 %	20.9 %	26.2 %	24.4 %
Inter Orbital length (in H.L.)	22.1 %	41.8 %	--	--
Upper jaw length (in H.L.)	44.7 %	--	--	--
Lower jaw length (in H.L.)	31.6 %	--	--	--
Meristic counts				
	Present study, Egypt, (2017)	Golani <i>et al.</i> , 2002, Medit. Sea	Andaloro <i>et al.</i> , 2005, Italy	Sonin <i>et al.</i> , 2009, Israel
First dorsal fin spines	VIII	VIII	VIII	VIII
Second dorsal fin rays	I + 24	I, 28- 30	I, 28- 31	I, 28 - 33
Pectoral fin rays	I + 19	I + 19	I + 19	I + 19
Ventral fin rays	I + 5	I + 5	I + 5	I + 5
Anal fin rays	II, I, 19	II, I, 17	II,I,18- 20	II, I,17- 20

those given by other studies. By comparing the twenty six morphometric characters given in the table, it is clear that all meristic counts are the same. In the Mediterranean, adults of this species are unreported, since the largest specimen recorded was a juvenile measuring 36.5 cm TL from the Strait of Sicily (Andaloro *et al.*, 2005). This

study indicates a recent establishment and geographic expansion of the species in Egyptian Mediterranean waters, in the south-eastern part of the Levant, in addition to Syria and Israel. It is noted that all the collected specimens were immature. This study contributes base line data for future studies of this commercial species in the area.

9. LEBANON

9.1 *Dondice banyulensis* Portmann & Sandmeier, 1960 in Lebanon

Crocetta F. and Bitar G.



Fig. 25: *Dondice banyulensis* from Tabarja (Lebanon).

Dondice banyulensis Portmann & Sandmeier, 1960 (Mollusca: Gastropoda) is a common and large nudibranch (up to 70 mm in length) characterized by a white median line down the body and another along each side beneath the cerata. It holds lamellate rhinophores, with lamellae completely encircling the rhinophores (Cattaneo-Vietti *et al.*, 1990). It is native to eastern Atlantic coastal waters and the Mediterranean Sea, from where it has been reported up to Turkey (Cattaneo-Vietti *et al.*, 1990; Cervera *et al.*, 2004; Öztürk *et al.*, 2014). In fact, to the best of our knowledge, records from the easternmost Mediterranean Sea are lacking (e.g. Israel: Barash & Danin, 1992; Cyprus: Öztürk *et al.*, 2004; Lebanon: Crocetta *et al.*, 2013).

However, the easternmost Mediterranean countries generally suffer of study biases and, therefore, the absence of *D. banyulensis* in the area may easily be an artefact due to the absence of field studies. Within the framework of the CEDRE project (French-Lebanese cooperation programme 1999-2002), a review of “opisthobranchs” from Lebanon was previously published based on both published and unpublished data (Crocetta *et al.*, 2013). On a better screening of the material and photos collected, with the aim to publish a general review of Lebanese marine biota (G. Bitar, in preparation), an overlooked photo depicting a sea slug was found.

The specimen was crawling on a biogenic substrate in Tabarja (34.031944° N, 35.623889° E), at 18 m depth, on the 11th of July 2003 (Fig. 25) and was identified as *D. banyulensis* due to its unmistakable morphology and colour pattern. Therefore, the finding reported here constitutes not only the first record of this species from Lebanon, but presumably also from the entire easternmost Mediterranean Sea. The overlooked presence of a conspicuous and generally common sea slug in the area, suggests that further work is needed to increase our knowledge of local biota.

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References

- Alemany, F., Quintanilla, L., Velez-Belchi, P., García, A. Cortés, D. *et al.*, 2010. Characterization of the spawning habitat of Atlantic bluefin tuna and related species in the Balearic Sea (western Mediterranean). *Progress in Oceanography*, 86, 21-38.
- Ali, M., Diatta, Y., Alkusaury, H., Saad, A., Capapé, C., 2016. First record of Red Sea goatfish *Parupeneus forsskali* (Osteichthyes: Mullidae) from the Syrian coast (Eastern Mediterranean). *Journal of Ichthyology*, 56 (4), 616-619.
- Allen, G. R., Erdmann, M. V., 2012. *Reef fishes of the East Indies* (Vol. 1). Perth: Tropical Reef Research. University of Hawai'i Press, Volumes I-III, 1292 pp.
- Andaloro, F., Falautano, M., Sinopoli, M., Passarelli, F.M., Pipitone, C. *et al.*, 2005. The lesser amberjack *Seriola fasciata* (Bloch, 1793) (Perciformes: Carangidae) in the Mediterranean: a recent colonist? *Cybium*, 29 (2), 141-145.
- Azzurro, E., Franzitta, G., Milazzo, M., Bariche, M., Fanelli, E., 2017. Abundance patterns at the invasion front: the case of *Siganus luridus* in Linosa (Strait of Sicily, Central Mediterranean Sea). *Marine and Freshwater Research*, 68 (4), 697-702.
- Barash, A., Danin, Z., 1992. *Fauna Palaestina - Mollusca I - Annotated list of Mediterranean molluscs of Israel and Sinai*. The Israel Academy of Sciences and Humanities, Jerusalem, 405 pp.
- Bariche, M., Letourneur, Y., Harmelin-Vivien, M., 2004. Temporal fluctuations and settlement pattern of native and Lessepsian herbivorous fishes on the Lebanese coast (eastern Mediterranean). *Environmental Biology of Fishes*, 70, 81-90.
- Bartsch, I., 2006. Halacaroida (Acari): a guide to marine genera. *Organisms Diversity Evolution* 6 (Electr. Suppl. 6), 1-104.
- Bartsch, I., 2009. Checklist of marine and freshwater halacarid mite genera and species (Halacaridae:Acari) with notes on synonyms, habitats, distribution, and descriptions of the taxa. *Zootaxa*, 1998, 1-170.
- Bianchi, C.N., Morri, C., 2000. Marine Biodiversity of the Mediterranean Sea: Situation, Problems and Prospects for Future Research. *Marine Pollution Bulletin*, 40 (5), 367-376.
- Bino, T., Tzoto, H., Bego, F., 2006. *Shpendet Dhe Gjitaret E Shqiperise*, Dajti 2000, 288 pp.
- Boussellaa, W., Boudaya, L., Derbel, H., Neifar, L., 2016. A new record of the Lessepsian fish *Etrumeus golanii* (Teleostei: Clupeidae) in the Gulf of Gabes, Tunisia, with notes on its parasites. *Cahiers de Biologie Marine*, 57, 389-395.
- Carpenter, K.E., De Angelis, N., 2016. *The living Marine Resources of the eastern central Atlantic. Vol. 4, Bony fishes part 2 (Perciformes to Tetraodontiformes) and Sea turtles*. FAO, Rome, 782 pp.
- Cattaneo-Vietti, R., Chemello, R., Giannuzzi-Savelli, R., 1990. *Atlas of Mediterranean nudibranchs*. La Conchiglia, Rome, 264 pp.
- Cervera, J.L., Calado, G., Gavaia, C., Malaquias, M.A.E., Templado, J. *et al.*, 2004. An annotated and updated checklist of the opisthobranchs (Mollusca: Gastropoda) from Spain and Portugal (including islands and archipelagos). *Boletín de l'Instituto Español de Oceanografía*, 20, 1-122.
- Çınar, M. E., Bilecenoglu, M., Öztürk, B., Can, A., 2006. New records of alien species on the Levantine coast of Turkey. *Aquatic Invasions*, 1, 84-90.
- Collette, B.B., Nauen, C.E., 1983. *FAO species catalogue, Vol. 2: Scombrids of the world*. FAO Fisheries Synopsis, 125, 137 pp.
- Corsini-Foka, M., Kondylatos, G., Louizidou, P., 2015. On some rarely caught fish in the southeastern Aegean Sea (Greece, Eastern Mediterranean). *Frontiers in Marine Science*, doi: 10.3389/conf.FMARS.2015.03.00068
- Costa, F., 1991. *Atlante dei pesci dei mari italiani*. Mursia, Milano, 429 pp.
- Crocetta, F., Agius, D., Balistreri, P., Bariche, M., Bayhan, Y.K. *et al.*, 2015. New Mediterranean biodiversity records (October, 2015). *Mediterranean Marine Science*, 16, 82-702.
- Crocetta, F., Gofas, S., Salas, C., Tringali, L.P., Zenetos, A., 2017. Local ecological knowledge versus published literature: a review of non-indigenous Mollusca in Greek marine waters. *Aquatic Invasions*, 12 (4), 415-434.
- Crocetta, F., Zibrowius, H., Bitar, G., Templado, J., Oliverio, M., 2013. Biogeographical homogeneity in the eastern Mediterranean Sea - I: the opisthobranchs (Mollusca: Gastropoda) from Lebanon. *Mediterranean Marine Science*, 14 (2), 403-408.
- Dailianis, T., Akyol, O., Babali, N., Bariche, M., Crocetta, F. *et al.*, 2016. New Mediterranean biodiversity records (July, 2016). *Mediterranean Marine Science*, 17, 608-626.
- De Min, R., Vio, E., 1998. Molluschi e soticinell'alto Adriatico. *Annales*, 13, 43-54.
- Deidun, A., Sciberras, J., Sciberras, A., Gauci, A., Balistreri, P. *et al.*, 2017. The first record of the white-spotted Australian jellyfish *Phyllorhiza punctata* von Lendenfeld, 1884 from Maltese waters (western Mediterranean) and from the Ionian coast of Italy. *BioInvasions Records*, 6 (2), 119-124.
- Di Natale, A., Srour, A., Hattour, A., Keskin, Ç., Idrissi, M. *et al.*, 2009. *Regional study on small tunas in the Mediterranean including the Black Sea*. Studies and Reviews, 85, FAO, Rome, 132 pp.
- DiBattista, J.D., Randall, J.E., Bowen, B.W., 2012. Review of the round herrings of the genus *Etrumeus* (Clupeidae: Dussumieriinae) of Africa, with descriptions of two new species. *Cybium*, 36 (3), 447-460.
- Dulčić, J., Antolović, N., Kožul, V., Dragičević, B., Lipej, L., 2013. First records of juveniles of two Lessepsian migrants, *Fistularia commersonii* Rüppell, 1838 and *Siganus luridus* (Rüppell, 1829), in the Adriatic Sea. *Journal of Applied Ichthyology*, 29, 661-662.
- Dulčić, J., Dragičević, B., 2011. *Nove ribe Jadranskog i Sredozemnog mora*. Institut za oceanografiju i ribarstvo, Split, Državni zavod za zaštitu prirode, Zagreb, 160 pp.
- Dulčić, J., Pallaoro, A., 2004. First record of the marbled spine-

- foot *Siganus rivulatus* (Pisces: Siganidae) in the Adriatic Sea. *Journal of the Marine Biological Association of the United Kingdom*, 84, 1087-1088.
- Durović, M., Pešić, A., Joksimović, A., Dulčić, J., 2014. Additional record of a Lessepsian migrant-the dusky spinefoot, *Siganus luridus* (Rüppell, 1829) in the Eastern Adriatic (Montenegro coast). *Annales Series Historia Naturalis*, 24 (2), 87-90.
- Evans, J., Borg, J.A., Schembri, P.J., 2013. First record of *Herdmania momus* (Asciacea: Pyuridae) from the central Mediterranean Sea. *Marine Biodiversity Records*, 6, e134, 4 pp.
- Farrag, M.M., 2017. New record of the bigeye thresher shark, *Alopias superciliosus* Lowe, 1841 (Family: Alopiidae) from the eastern Mediterranean Sea, Egypt. *International Journal of Fisheries and Aquatic Studies*, 5 (2), 316-318.
- Ferrario, J., Caronni, S., Occhipinti-Ambrogi, A., Marchini A., 2017. Role of commercial harbours and recreational marinas in the spread of non-indigenous fouling species. *Bio-fouling*, 33, 651-660.
- Fischer, W., Bianchi, G. (Eds), 1984. *Western Indian Ocean; (Fishing Area 51)*. Prepared and printed with the support of the Danish International Development Agency (DANIDA). FAO species identification sheets for fishery purposes. FAO, Rome Vol. 1-6.
- Froese, R., Pauly D., 2017. *FishBase*. www.fishbase.org.
- Gerovasileiou, V., Akel, E.H.Kh., Akyol, O., Alongi, G., Azevedo, F. et al., 2017. New Mediterranean Biodiversity Records (July 2017). *Mediterranean Marine Science*, 18(2), 355-384.
- Gerovasileiou, V., Issaris, Y., 2014. First record of the Indo-Pacific ascidian *Herdmania momus* (Savigny, 1816) in Greek waters. p. 687-688. In: *New Mediterranean Biodiversity Records (October, 2014)*, Katsanevakis, S., Acar, Ü., Ammar, I., Balci, B. A., Bekas, P. et al., *Mediterranean Marine Science*, 15 (3), 675-695.
- Ghisotti, F., 1974. *Rapana venosa* (Valenciennes), nuova ospite Adriatica?, *Conchiglia*, 10 (5-6), 125-126.
- Gököglü, M., Teker, S., 2016. First record of Forskål's goatfish *Parupeneus forsskali* (Perciformes: Mullidae) in the Gulf of Antalya. p. 620. In: *New Mediterranean Biodiversity Records (July 2016)*, Dailianis et al., *Mediterranean Marine Science*, 17 (2), 608-626.
- Golani, D., Orsi-Relini, L., Massuti, E., Quingard, J.P., 2002. *CIESM Atlas of exotic species in the Mediterranean. Vol. I. Fishes*. CIESM Publishers, Monaco, 256 pp.
- Goren, M., 1978. Comparative study of *Bathygobius fuscus* (Rüppell) and related species of the Red Sea, including *B. fishelsoni* n. sp. (Pisces Gobiidae). *Senckenbergiana biologica*, 58 (5/6), 267- 273.
- Güçlüsoy, H., Kırac, C.O., Veryeri, N.O., Savaş, Y., 2004. Status of the Mediterranean monk seal, *Monachus monachus* (Hermann, 1779) in the coastal waters of Turkey. *Ege Journal of Fisheries and Aquatic Sciences*, 21, 201-210.
- Gueroun, S.K.M., Kéfi-Daly Yahia, O., Deidun, A., Fuentes, V., Piraino, S. et al., 2015. First record and potential trophic impact of *Phyllorhiza punctata* (Cnidaria: Scyphozoa) along the north Tunisian coast (South Western Mediterranean Sea). *Italian Journal of Zoology*, 82 (1), 95-100.
- Imanto, P.T., Melianawati, R., Suastika, M., 2006. Spawning performance and embryonic development of red emperor snapper (*Lutjanus sebae*). *Indonesian Aquaculture Journal*, 1 (1), 39-44.
- Insacco, G., Zava, B., 2016. First record of the Marbled spine-foot *Siganus rivulatus* Forsskål & Niebuhr, 1775 (Osteichthyes, Siganidae) in Italy. p. 236-237. In: *New Mediterranean Biodiversity Records (March 2016)*, Karachle et al., *Mediterranean Marine Science*, 17 (1), 230-252.
- Jawad, L., Ibrahim, A., Hassan, M., 2015. First record of the lesser amberjack *Seriola fasciata* (Teleostei: Carangidae) in Syrian coasts. *Cahiers de Biologie Marine*, 56, 81-84.
- Kabasakal, H., Dalyan, C., Yurtsever, A., 2011. Additional records of the bigeye thresher shark *Alopias superciliosus* (Lowe, 1839) (Chondrichthyes: Lamniformes: Alopiidae) from Turkish waters. *Annales: Series Historia Naturalis*, 21, 143- 148.
- Kaneva-Abadjieva, V., 1958. A new harmful snail along our Black Sea coast. *Priroda*, 3, 89-91.
- Karamanlidis, A., Dendrinis, P., 2015. *Monachus monachus*. The IUCN Red List of Threatened Species 2015 at: <http://dx.doi.org/10.2305/IUCN>.
- Kasapidis, P., Peristeraki, P., Tserpes, G., Magoulas, A., 2007. A new record of the Lessepsian invasive fish *Etrumeus teres* (Osteichthyes: Clupeidae) in the Mediterranean Sea (Aegean, Greece). *Aquatic Invasions*, 2 (2), 152-154.
- Kleitou, P., Antoniou, C., Giovos, I., Kletou, D., 2017. Participation of researchers on-board underpins reliable assessment of longline bycatch. The example of the shark *Alopias superciliosus* Lowe, 1841 from Cyprus (Eastern Mediterranean). *International Journal of Fisheries and Aquatic Studies*, 5 (3), 375-378.
- Koukouras, A., Sinis, A.I., Bobori, D., Kazantzidis, S., Kitsos, M.S., 2007. The echinoderm (Deuterostomia) fauna of the Aegean Sea, and comparison with those of the neighbouring seas. *Journal of Biological Research*, 7, 67-92.
- Lipej, L., Acevedo, E., Akel, E.H., Anastasopoulou, A., Angelidis, A. et al., 2017. New Mediterranean Biodiversity Records (March 2017). *Mediterranean Marine Science*, 18 (1), 179-201.
- Lorenti, M., Dappiano, M., Gambi, M.C., 2009. Occurrence and ecology of *Mesanthura* (Crustacea: Isopoda: Anthuridea) in two Italian harbours. *Marine Biodiversity Records*, 2, e48.
- Machado, A.B.M., Drummond, G.M., Paglia, A.P., 2008. Aquatic invertebrates: the situation of threat of aquatic invertebrates in Brazil. In: *Red Book of endangered Brazilian fauna*. Machado, A.B.M., Drummond, G.M., Paglia, A.P. (Eds). Brasilia (DF): MMA; Belo Horizonte (MG): Biodiversitas Foundation, 2008, Biodiversity, 19 pp.
- Madiraca, F., Davidov, B., 2015. The first record of the bigeye thresher shark, *Alopias superciliosus* (Elasmobranchii: Lamniformes: Alopiidae) in the Adriatic Sea. p. 472-488. In: *New Mediterranean biodiversity records (July 2015)*, Tsiamis et al., *Mediterranean Marine Science*, 16 (2).
- Mann, R., Harding, J.M., 2003. Salinity tolerance of larval *Rapana venosa*: implications for dispersal and establishment of an invading predatory gastropod on the North American Atlantic coast. *The Biological Bulletin*, 204(1), 96-103.
- Mater, S., Meriç, N., 1996. Deniz balıkları. p. 129-172. In: *Türkiye Omurgalılar Tür Listesi*. Kence, A., Bilgin, C.C., (Eds). Nurol Matbaacilik publisher, Ankara.
- Matsunuma, M., Motomura, H., Matsuura, K., Shazili, N.A.M., Ambak, M.A., (Eds) 2011. *Fishes of Terengganu East coast of Malay Peninsula*. Malaysia. National Museum of Nature and Science, Universiti Malaysia Terengganu,

- Terengganu, and Kagoshima University Museum, Kagoshima 251pp.
- Mehanna, S.F., Mahmoud, U.M., Hassanien, E.M., 2016. First occurrence of the Red Sea goatfish, *Parupeneus forsskali* (Fourmanoir & Guézé, 1976) in the coastal waters of Egyptian Mediterranean Sea. *International Journal of Fisheries and Aquaculture*, 8 (9), 94-97.
- Micali, P., Siragusa, F., Agamennone, F., Germanà, A., Sbrana, C., 2017. Karpathos Island (Greece) and its Indo-Pacific alien species. Part 1. *Bollettino Malacologico* 53, 40-49.
- Mienis, H.K., Rittner, O., Shefer, S., Feldstein, T., Yahel, R., 2016. First record of the Indo-pacific *Isognomon legumen* from the Mediterranean coast of Israel (Mollusca, Bivalvia, Isognomidae). *Triton*, 33, 9-11.
- Miller, P.J., Stefanni, S., 2001. The Eastern Pacific species of *Bathygobius* (Perciformes: Gobiidae). *Revista de biologia tropical*, 49 (1), 141-156.
- Morselli, I., 1970. Ricerche sugli Alacaridi delle coste livornesi. II. *Acaromantis monnioti*, una nuova specie raccoltasui fondi sabbiosi delle Secche della 206 Meloria (Livorno). *Pubblcazioni della Stazione Zoologica di Napoli*, 38, 109-119.
- Mytilineou, Ch., Akel, E.H.Kh., Babali, N., Balistreri, P., Bariche, M. et al., 2016. New Mediterranean Biodiversity Records (November 2016). *Mediterranean Marine Science*, 17 (3), 794-821.
- Naeem, S., Li, S., 1997. Biodiversity enhances ecosystem reliability. *Nature*, 390, 507-509.
- Negoescu, I., Wägele, J.W., 1984. World list of Anthuridean Isopods (Crustacea, Isopoda, Anthuridea). *Travaux du Muse'um d'Histoire Naturelle 'Grigore Antipa'*, 25, 99-145.
- Nikolsky, G. V., 1963. *The Ecology of Fishes*. Academy press, London and New York., 352 pp.
- Osman, A.G.M., Farrag, M.M.S., Akel, E.S.H.K., Moustafa, M.A., 2013. Feeding behavior of lessepsian fish *Etrumeus teres* (Dekay, 1842) from the Mediterranean Waters, Egypt. *The Egyptian Journal of Aquatic Research*, 39 (4), 275-282.
- Özaydin, O., Katagan, T., Ünsal, S., 1995. The Echinoderms of the Turkish seas. *Israel journal of Zoology*, 41, 57-68.
- Özgür Özbek, E., 2013. *Macrobenthic echinoderm fauna of the littoral zone of the Gulf of Antalya and some ecological factors affecting their seasonal distribution*. Ph.D. Thesis. Akdeniz University, Institute of Science, Department of Fisheries, Turkey, 431 pp.
- Öztürk, B., Buzzurro, G., Avni Benli, H., 2004. Marine molluscs from Cyprus: new data and checklist. *Bollettino Malacologico*, 39 (5-8), 49-78.
- Öztürk, B., Doğan, A., Bitlis-Bakir, B., Salman, A., 2014. Marine molluscs of the Turkish coasts: an updated checklist. *Turkish Journal of Zoology*, 38, 832-879.
- Pepato, A., Tiago, C.G., 2004. The genera *Acaromantis* and *Simognathus* (Simognathinae, Halacaridae) on the north coast of Sao Paulo State, Brazil. *Zootaxa*, 615, 1-16.
- Poore, G.C.B., Schotte, M., 2009. *Mesanthura* Barnard, 1914. In: *World Marine, Freshwater and Terrestrial Isopod Crustaceans database*, Boyko, C.B, Bruce, N.L., Hadfield, K.A., Merrin, K.L., Ota, Y. et al. (Eds) (2008). Accessed through: WoRMS: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=205305> on 2017-06-10.
- Rainboth, W.J., 1996. *Fishes of the Cambodian Mekong*. FAO Species Identification Field Guide for Fishery Purposes, Rome, 310 pp.
- Ruci, S., Kasemi, D., Beqiraj, S., 2014. State of Macrozoobenthic Community in the Adriatic Rocky Shores of Albania in Spring Season. *Albanian Journal of Agricultural Sciences*, 13 (3), 42.
- Samaan, A.A., Ghobashy, A.F., Aboul Ezz, S.M., 1989. The benthic fauna of Lake Burollus. Community composition and distribution of the total fauna. *Bulletin of the National Institute of Oceanography and Fisheries (Egypt)*, 15, 217-224.
- Scheinin, A.P., Goffman, O., Elasar, M., Perelberg, A., Kerem, D.H., 2011. Mediterranean monk seal (*Monachus monachus*) resighted along the Israeli coastline after more than half a century. *Aquatic Mammals*, 37, 241-242.
- Silva-Jr, J. M., Sazima, I., 2008. Whalesuckers on spinner dolphins: an underwater view. *Marine Biodiversity Records*, 1, e22.
- Sonin, O., Salameh P., Golani D., 2009. First record of the lesser amberjack, *Seriola fasciata* (Actinopterygii: Perciformes: Carangidae), in the Levant. *Acta Ichthyologica et Piscatoria*, 39 (1), 71-73.
- Sonin, O., Salameh, P., Edelist, D., Golani, D., 2013. First record of the Red Sea goatfish, *Parupeneus forsskali* (Perciformes: Mullidae) from the Mediterranean coast of Israel. *Marine Biodiversity Records*, 6, e105.
- Thessalou-Legaki, M., Aydogan, O., Bekas, P., Bilge, G., Boyaci, Y.O. et al., 2012. New Mediterranean biodiversity records (December 2012). *Mediterranean Marine Science*, 13 (2), 312-327.
- Tortonese, E. (Ed), 1965. *Fauna d'Italia; Echinodermata*. Edizioni Calderini, Bologna, 422 pp.
- Tortonese, E., (Ed) 1975. *Fauna d'Italia, Osteichthyes, Pesci ossei, Vol XI.*, Edizioni Calderini, Bologna, 636 pp.
- Türkmen, M., Türkmen, A., Tepe, Y., Ateş, A., Gökkuş, K., 2008. Determination of metal contaminations in sea foods from Marmara, Aegean and Mediterranean seas: Twelve fish species. *Food Chemistry*, 108 (2), 794-800.
- Viets, K., 1940. Meeresmilben aus der Adria (Halacaridae und Hydrachnellae, Acari). *Archiv für Naturgeschichte*, (Neue Folge) 9, 1-135.
- WoRMS Editorial Board 2017. *World Register of Marine Species*. <http://www.marinespecies.org> (Accessed 23 August 2017).
- Zenetos, A., 2017. Progress in Mediterranean bioinvasions two years after the Suez Canal enlargement. *Acta Adriatica*, 58 (2), 347-358.
- Zenetos, A., Çinar, M.E., Pancucci-Papadopoulou, M.A., Harmelin, J.G., Furnari, G. et al., 2005. *Annotated list of marine alien species in the Mediterranean with records of the worst invasive species*. *Mediterranean Marine Science*, 6 (2), 63-11.