

Mediterranean Marine Science

Vol 12, No 2 (2011)



New Mediterranean Biodiversity Records (December 2011)

A. ELEFThERIOU, E. ANAGNOSTOPOULOU –
VISILIA, E. ANASTASOPOULOU, A.S. ATES, N.EL I.
BACHARI, L. CAVAS, C. CEVIK, M. ULHA, F. CEVIK,
A.L. DELOS, O.B. DERICI, D. ERGUDEN, N.
FRAGOPOULU, A. GIANGRANDE, T. GOKSAN, C.
GRAVILI, M. GURLEK, A. HATTOUR, K. KAPIRIS, P.
KOURAKLIS, S. LAMOUTI, E. PRATO, L. PAPA, G.
PAPANTONIOU, I. PARLAPIANO, D. POURSANIDIS, C.
TURAN, D. YAGLIOGLU

doi: [10.12681/mms.48](https://doi.org/10.12681/mms.48)

To cite this article:

ELEFThERIOU, A., ANAGNOSTOPOULOU – VISILIA, E., ANASTASOPOULOU, E., ATES, A., BACHARI, N. I., CAVAS, L., CEVIK, C., ULHA, M., CEVIK, F., DELOS, A., DERICI, O., ERGUDEN, D., FRAGOPOULU, N., GIANGRANDE, A., GOKSAN, T., GRAVILI, C., GURLEK, M., HATTOUR, A., KAPIRIS, K., KOURAKLIS, P., LAMOUTI, S., PRATO, E., PAPA, L., PAPANTONIOU, G., PARLAPIANO, I., POURSANIDIS, D., TURAN, C., & YAGLIOGLU, D. (2011). New Mediterranean Biodiversity Records (December 2011). *Mediterranean Marine Science*, 12(2), 491–508. <https://doi.org/10.12681/mms.48>

New Mediterranean Biodiversity Records (December 2011)

A. ELEFThERIOU¹, E. ANAGNOSTOPOULOU – VISILIA², E. ANASTASOPOULOU³,
S.A. ATEŞ⁴, N. EI I. BACHARF⁵, L. CAVAS⁶, C. CEVIK⁷, M. ÇULHA⁴, F. CEVIK⁷,
A.-L. DELOS⁸, O.B. DERICI⁷, D. ERGUDEN⁹, N. FRAGOPOULU¹⁰, A. GIANGRANDE⁸,
T. GÖKSAN⁴, C. GRAVILI⁸, M. GURLEK⁹, A. HATTOUR¹¹, K. KAPIRIS¹²,
P. KOURAKLIS³, S. LAMOUTI^{5,13}, E. PRATO¹⁴, L. PAPA¹⁴, G. PAPANTONIOU¹⁵,
I. PARLAPIANO¹⁴, D. POURSANIDIS¹⁶, C. TURAN⁹ and D. YAGLIOGLU⁹

¹ Department of Biology, University of Crete, Hellas

² 51, Manousou Koundourou, 18533 Piraeus, Hellas

³ Hellenic Centre for Marine Research, Institute of Inland Waters, Aristomenus 33, Cultural Center,
P.O. 24100, Kalamata, Hellas

⁴ Çanakkale Onsekiz Mart University, Fisheries Faculty 17100 Çanakkale, Turkey

⁵ Faculty of Biological Sciences, University of Sciences and Technology Houari Boumediene,
BP32 Bab Ezzouar, Algiers, Algeria

⁶ Dokuz Eylül University, Faculty of Science, Department of Chemistry, Division of Biochemistry,
35160, Kaynaklar Campus, İzmir-Turkey

⁷ Cukurova University, Faculty of Fisheries, Balcali Campus, 01330, Adana-Turkey

⁸ Dipartimento di Scienze e Tecnologie Biologiche ed Ambientali, Università del Salento 73100
Via Provinciale Lecce-Monteroni, 73100 Lecce, Italy

⁹ Fisheries Genetics Laboratory, Faculty of Fisheries, Mustafa Kemal University, 31220 Iskenderun,
Hatay, Turkey

¹⁰ Department of Biology, University of Patras, Hellas

¹¹ Institut National des Sciences et Technologie de la Mer (INSTM), 28, rue 2 mars 1934 - 2025- Salammbô

¹² Hellenic Centre for Marine Research, Institute of Marine Biological Resources, 470 km Athens-Sounio,
Mavro Lithari P.O. Box 712, 19013, Anavissos, Hellas

¹³ National Research Center for the Development of Fisheries and Aquaculture,
11 bvd Colonel Amirouche, Bou-Ismaïl, Tipaza, Algeria

¹⁴ CNR-Institute for Coastal Marine Environment U.O.S. Taranto, Via Roma 3, 74100 Taranto, Italy

¹⁵ Department of Biology, University of Athens, Hellas

¹⁶ Department of Marine Sciences, University of the Aegean, 81100, Mytilene, Hellas

Abstract

The present work reports on recent biodiversity records of Mediterranean native species such as *Olin-dias phosphorica* in the Turkish Aegean Sea and extended distribution of eleven alien species in the Mediter-ranean. These are: *Bursatella leachi* (Mollusca, Gastropoda: Algeria); *Callinectes sapidus* (Crustacea, De-capoda: Greek Ionian Sea); *Caprella scaura* (Crustacea, Amphipoda: Mar Piccolo of Taranto); *Fistula-ria commersonii* (Fish: Saronikos Gulf, Aegean Sea); *Sphoeroides pachygaster* (Fish: South Turkey); *Mus-culista perfragilis* (Mollusca, Bivalvia: South Turkey); *Sepioteuthis lessoniana* (Mollusca, Cephalopoda: central eastern coast of Tunisia); *Flabellina rubrolineata* (Mollusca, opisthobranchia: central Aegean, Greece); *Hesionura serrata* (Polychaeta: Apulian coast); *Stephanolepis diaspros* (Fish: Saronikos Gulf, Aegean Sea); and *Parvocalanus crassirostris* (Crustacea, Copepoda: Lesvos Island, Greek Aegean Sea).

Introduction

As part of the policy of our Journal, it is intended to publish in each issue a collective article with new records of marine species in the Mediterranean and/or information on the spatial distribution of already established alien species. All contributors are co-authors in this collective article, their names appearing in alphabetical order. The new findings are presented in the order of submission. The authors responsible for each record are listed at the end of each section.

A. Olindias phosphorica (Delle Chiaje, 1841) (Hydrozoa, Olindiidae) from the Turkish Aegean Sea

By S.A. Ateş, C. Gravili, T. Göksan & M. Çulha

Olindias phosphorica (Delle Chiaje, 1841), a jellyfish with tropical-Atlantic distribution, is the only species of the genus *Olindias* in the Mediterranean Sea (BOUILLON *et al.*, 2004).

A single specimen 32 mm wide was cap-

tured by hand at a depth of 1 m in Geyikli Harbour (39° 49'60" N 26° 09'43" E) located on the Aegean Sea coast of Turkey on 24.07.2010 (Fig. 1). The specimen was preserved in 4% formaldehyde and deposited at the Fisheries Faculty of Çanakkale Onsekiz Mart University.

It is possible that the species has recently been transported to the area by current systems and/or ballast waters may have been responsible for its dispersal to other locations. In past years, it was extremely abundant along the Tunisian coast, disturbing fisheries and tourism (YAHIA *et al.* 2003). In 2009-2010, the presence of *O. phosphorica* along the Italian coast was generally sporadic and no swarms were recorded (Watch for Jellies project, Università del Salento-CoNISM, CIESM). *O. phosphorica* is a Mediterranean warm-water jellyfish species, and local warming plays an important role in facilitating the proliferation of this species throughout the entire Mediterranean Sea. Moreover, the effects of overfishing, amplified by climate warming, probably facilitated the spread of *O. phosphorica* (BOERO *et al.*, 2008).



Fig. 1: Dorsal view of *Olindias phosphorica* (Delle Chiaje, 1841) captured on the Aegean Sea coast of Turkey (size: 32 mm wide).

B. The blunthead puffer *Sphoeroides pachygaster* (Müller & Troschel, 1848) in SE Turkey

By D. Erguden, D. Yaglioglu, M. Gurlek & C. Turan

Two specimens of the blunthead puffer, *Sphoeroides pachygaster* were captured at Iskenderun Bay, northeastern Mediterranean Sea, by commercial trawler on sandy-muddy bottoms. One specimen was recorded at the Karatas coast (36° 14' 212" N, 35° 22' 600" E) at a depth of 305 m on 26.10.2010. Another specimen was found at a depth of approximately 200 m in Samandag coast (36° 01' 248" N, 35° 40' 515" E) on 28.10.2010 (Fig. 2). These specimens were preserved in 4% formalin and deposited at the Museum of the Faculty of Fisheries, Mustafa Kemal University, (MSM-PIS/2010-11).

All measurements, morphological description and colouration of the blunthead puffer agree with previous descriptions by TORTONESE (1986), GOLANI *et al.* (2002) and PSOMADAKIS *et al.* (2006). Total and standard length of the two specimens ranged from 450 to 187 mm, and 387-158 mm respectively. The colour pattern on the back and sides is grey with a bright yellowish patch at the base of the dorsal fin and extending downward to the caudal peduncle, belly whitish pale

grey, caudal fin base dark. Dorsal finrays 9-8, anal finrays 9-8, pectoral finrays 14, caudal finrays 11-10. Head length 28.0%-30.5% of total length, predorsal length 62.8%-63.1%, pre-anal length 68.8%-66.8% of total length, in first and four specimens respectively. Eye diameter 19.0%-22.8%, postorbital length 65.9%-61.4%, interorbital distance 59.7%, 70.1%, of head length, in two specimens respectively.

In the Mediterranean Sea, *S. pachygaster* was reported for the first time in 1979 from the Balearic Island, in the western Mediterranean Sea (OLIVER, 1981), and since then several records of this species have been reported in the western and central Mediterranean Sea (reviewed by PSOMADAKIS *et al.* (2006)). Recently this species was reported from the Tyrrhenian Sea (LIGAS *et al.*, 2006), the Adriatic Sea, the Italian Seas (LIGAS *et al.*, 2007), the Algerian coast and the southern Tunisian coast (HEMIDA *et al.*, 2009).

The blunthead puffer, *S. pachygaster* was recorded for the first time in the Turkish Mediterranean Sea from Saros Bay and Bozcaada Island (northern Aegean Sea, Turkey) (ERYILMAZ *et al.*, 2003). A previous record of the species, from the Turkish Mediterranean coast (AVSAR & CICEK, 1999), is considered as a misidentification of the lessepsian Tetraodontid *Lagocephalus suezensis* (BILECENOGLU *et al.*, 2002).



Fig. 2: The blunthead puffer *Sphoeroides pachygaster* caught off the Iskenderun Bay, NW Mediterranean Sea.

***C. Musculista perfragilis* (DUNKER, 1857)
(Mollusca: Bivalvia) from the Levantine
Coastline of Turkey**

By C. Cevik, L. Cavas, O.B. Derici, & F. Cevik

The recent review of the alien species recorded along the Turkish shores, (ÇINAR *et al.*, 2011) did not include *M. perfragilis* among the alien mollusca. We report here the first observation of this species from İskenderun bay (36°48'02N, 35°51'45E), where the macrobenthic assemblages have been investigated since 2009. A single specimen (Fig. 3A-B), currently deposited in the museum of Faculty of Fisheries at Çukurova University in Adana, Turkey (CSFM-BIV/10-08), was sampled from a sandy-muddy substrate in a *Caulerpa taxifolia* free station on the 30th of July 2010. The temperature, salinity, oxygen saturation and depth of the regions were determined as 26.30±0.03 °C, 38.80±0.02 ppt, 5.59±0.02 ppm, and -10m, respectively.

The shell, of 22 mm total length, was equivalve, very fragile and had a bright periostracum. Its surface was smooth and consisted of radial lines. The specimen had

dysodont teeth but their number was not counted because of their unclear appearance.

Within the same project, many juvenile specimens of *Musculista senhousia* were also observed on the *Caulerpa taxifolia* fronds in our stations (observation date: 2.07.2010, Fig. 4). Although *Musculista senhousia* was reported for the first time in a TÜBİTAK project, no detailed information about it was provided in the project report (UYSAL *et al.*, 2008). From our observations, we surmise that *Caulerpa taxifolia* beds may favour the invasion of *Musculista senhousia* in the region, since invasive *Caulerpa taxifolia* was observed in 2007 for the first time for the Turkish coast (CEVIK *et al.*, 2007). Similar observations of a *Caulerpa racemosa*-*Musculista senhousia* interaction were reported by MASTROTOTARO *et al.* (2003). Further monitoring studies are needed to establish the distribution and densities of *M. perfragilis* and of *M. senhousia* along the Turkish Levantine coastline. The region where *M. perfragilis* was observed is characterized by intense shipping (ZENETOS *et al.*, 2010b) and, therefore, its vector of arrival could have been shipping via the Suez Canal.

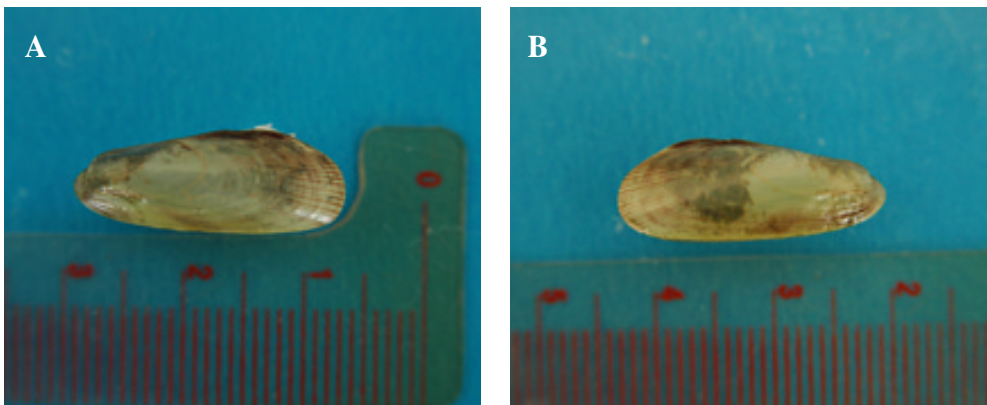


Fig. 3A-B: *Musculista perfragilis* from Iskenderun Bay, SE Turkey (Photos: Cem ÇEVİK).



Fig. 4: *Musculista senhousia* from Iskendrum Bay, SE Turkey (Total length: 0.65 mm, Photo: Cem ÇEVİK).

***D. Hesionura serrata* along the Apulian Coast (Ionian Sea)**

By A. L. Delos & A. Giangrande

In a review paper of alien marine species in the Mediterranean Sea (ZENETOS *et al.*, 2010a) *Hesionura serrata* (Hartmann-Schroeder, 1960) is considered to be a casual taxon reported only for the Western basin. At present the species, described from the Red Sea by HARTMANN-SCHRÖDER (1960) was reported for the Suez Channel by BENELIAHU (1972), and for the Western Mediterranean basin by CARDELL & MENDEZ (1996) along the coast of Barcelona. During a survey conducted in October 2010 along the coast of Apulia, two specimens belonging to this species were found, allowing its distributional pattern within the Mediterranean basin to be completed. Specimens were collected off Otranto (Ionian Sea) (40° 8' 55" 68 N; 18° 29' 12" 12 E) in shallow waters from 5 to 10 m depth, in sediments ranging from median to coarse sand.

The length of the collected specimens ranged from 4 to 5 mm, with a width of about 0.1 mm without parapodia. Specimens had about 60 setigers. Preserved animals did not

have any special coloration pattern. Prostomium was about 1/3 longer than wide, anteriorly blunt and bearing four short antennae (Fig. 5A). Two small eyes were located near the posterior margin of the prostomium. There were two distinct tentacular segments lacking chaetae, each with one pair of tentacular cirri of similar length. The second segment had a short, thickened cirri. The third segment had chaetae and ventral cirri, but lacked dorsal cirri. Subsequent segments had chaetae, short ventral cirri and lanceolate dorsal cirri. All chaetae are compound (Fig. 1B), numbering four per parapodium. All chaetae had two teeth on the tip of their shaft. Pygidium had two anal cirri.

Some features of our specimens are in accordance with the description of CARDELL & MENDEZ (1996) for the specimens collected in the Western Mediterranean, except for the shortness of antennae and tentacular cirri. *Hesionura serrata* could be confused with *Hesionura elongata* as they have very similar dorsal chaetae with bifid tip of the shaft as well, but in the latter species they are accompanied by simple chaetae, while our specimens have all the chaetae clearly compound. *Hesionura mystidoides* has the shaft of the second dorsal cheta with about

ten teeth, while in *Hesionura coineaui*, the tip of shaft of the dorsalmost chaeta is trifid.

Hesionura serrata lives in sand and sometimes in coralligenous sand from eulittoral to superior sublittoral zones (HARTMANN-SCHRÖDER, 1960), but it also has been found in sand and shells from shallow waters (BEN-ELIAHU, 1972). These data,

as well as the species distribution pattern along the coast of Barcelona (CARDELL & MENDEZ, 1996) and the present finding, suggest that it prefers shallow areas, in sandy sediments with particle size ranging from fine to coarse sand. The present finding can corroborate the hypothesis of introduction of *H. serrata* through the Suez Channel.

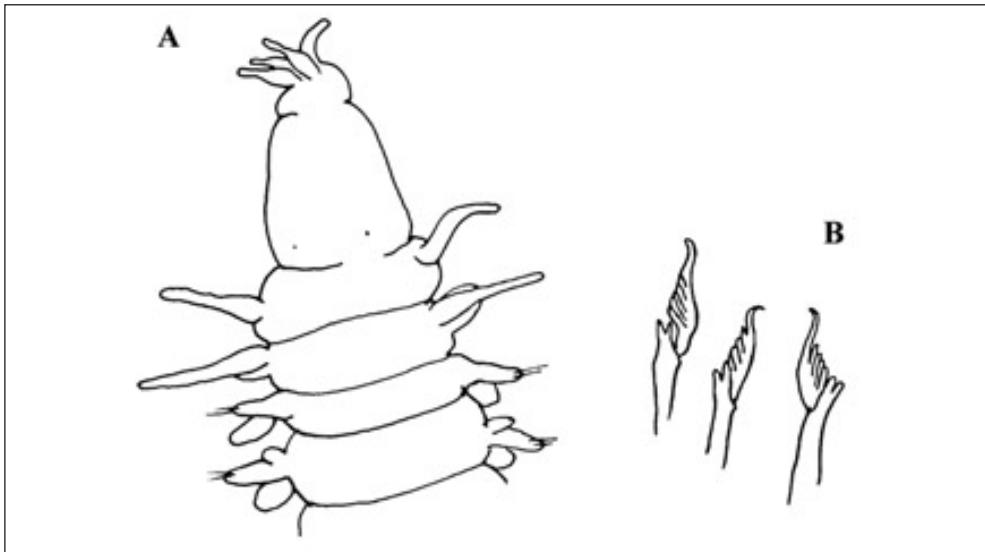


Fig. 5: *Hesionura serrata* A) anterior end dorsal view; B) chaetae from a median segment.

E. First occurrence of the bigfin reef squid *Sepioteuthis lessoniana* Lesson, 1830 in the Tunisian Sea

By A. Hattour

Sepioteuthis lessoniana Lesson, 1830 (Cephalopoda, Loliginidae) is a mollusc native of the tropical Indo-Pacific and the Red Sea. It is the most widely distributed species of the genus (ROPER *et al.*, 1984; JEREB & ROPER, 2006). Its first occurrence in the

Mediterranean Sea was reported by SALMAN in March 2002 from Iskenderun Bay (north-eastern Levantine Sea, Turkey). The second record concerned a specimen filmed off the coast of Israel in the spring of 2004 (MIENIS, 2004). The third record of this species deals with two male specimens collected in Hellenic waters (Aegean Sea), along the coasts of the island of Rhodes in 2009 (LEFKADITOU *et al.*, 2009). This species is by now well established and has become of commercial importance for inshore fish-

eries, in the Eastern Mediterranean (ZENETOS *et al.*, 2010a).

Sepioteuthis lessoniana is a demersal inshore species inhabiting a variety of habitats, generally between the depth range of 3-20 m. The bigfin reef squid reaches full maturity in Indian waters at around five months and with a length of 10 cm for males and 8 to 20 cm for females (SILAS *et al.*, 1982).

The present work reports a finding of *Sepioteuthis* in Tunisian waters, and endeavours to trace the expansion and settlement of this alien Cephalopod in the Mediterranean Sea.

One specimen of *Sepioteuthis lessoniana* was collected on 10.08.2011 by a professional fisherman using trammel-nets for shrimps, red mullet and Sparidae near Salakta (Mahdia), along the central eastern coast of Tunisia, at 8-10 m of depth (Fig. 6a, b). The species was identified using the keys in ROPER *et al.* (1984). In Tunisian water *S. lessoniana* could be sold mixed with native cuttlefish. This species is already common in the east Mediterranean basin (around

Rhodes) and has some commercial importance (EASTMED 2010).

The chronological stages of signalling this alien species in the Mediterranean Sea and its recent occurrence in Tunisian waters can be explained by its following the north pathway of the Mediterranean Asia Minor Current (AMC) as explained by MILLOT & TAUPIER-LETAGE (2005) who consider that, due to the Coriolis effect, Atlantic Water (AW) and Mid Atlantic Water (MWs)] that circulate at a basin scale tend to follow in a counter-clockwise sense, the isobaths at their own level. Thus, the squid is favoured by the prevailing currents, along the Asiatic coast northwards and then westwards toward the Aegean islands (PAPACONSTANTINO 1990). This could probably explain why this species has not previously been reported from the gulf of Gabes, the Libyan and the Egyptian coasts. It is contemplated that this neritic squid could cross the central Mediterranean and reach the Tunisian coast by following the Atlantic Water current of the North West Ionian Sea.



Fig. 6a: Dorsal view of *S. lessoniana*.



Fig. 6b: Ventral view of *S. lessoniana*.

F. Callinectes sapidus Rathbun in the Greek Ionian Sea

By K. Kapisris, E. Anastasopoulou & P. Kouraklis

The portunid blue crab *Callinectes sapidus* Rathbun, 1896, a species originating from the western Atlantic, has been introduced into the Mediterranean through transport in ballast water. Several records have been published in recent years, with regard to the species' distribution in the Adriatic (FLORIO *et al.*, 2008) and other parts of the Mediterranean Sea, such as Spain (CABAL *et al.*, 2006), and Albania (BEQIRAJ & KASHTA, 2010).

A single female specimen of the estuarine blue crab, *Callinectes sapidus* (Rathbun, 1896) (Fig. 7) was collected on 5/10/2011, from a muddy bottom, downstream of the River Pamisos, 50 m from the estuaries, in Messinia, SW Greece, at a depth of 0,3 m. The carapace length (CL) was CL = 41,37mm and the carapace width (CW) (including lateral spines) was 161,12 mm. The crab under

study can be considered as large, based on the HARDING (2003) classification which uses carapace width to classify blue crabs as small (CW < 80 mm), medium (CW 80–120 mm) and large (CW > 120 mm). The Greek specimen was smaller in comparison with others collected in France (CL = 90 mm, VINCENT, 1986), in Albania (female CL = 67–78,6 mm) (BEQIRAJ & KASHTA, 2010) or similar to that individual found in Spain (CL = 45 mm, CABAL *et al.*, 2006). The present decapod was considered to be mature, as the carapace width for mature females is between 120–170 mm (CADMAN & WEINSTEIN, 1985).

In Greece the species has been recorded from the northern Aegean and from Rhodes (ELNAIS, 2011). This specimen is the first record of the species in the Greek Ionian Sea. Further studies on the potential dispersal of this species in adjacent areas would be of interest to provide better information on population structure and dynamics of the blue crab in the whole E. Mediterranean coasts.



Fig. 7: *Callinectes sapidus* from Messinia, SW Greece.

***G. Fistularia commersonii* and *Stephanolepis diaspros* in the Saronikos Gulf, Aegean Sea**

By E. Anagnostopoulou – Visilia

One specimen of *Fistularia commersonii* Rüppell 1838 (bluespotted cornetfish) and two specimens of *Stephanolepis diaspros* Fraser-Brunner 1940 (reticulated leather-jacket) were sighted off the northern coast of Pothitos Island (N 37.45,522 E 23.52,220), Saronikos Gulf, Eastern Mediterranean. The specimens were recorded after personal underwater observations at depths of 15 m and 20 m, respectively, in September 2011 (Figs 8 and 9). These records contribute to the hypothesis that these species are at present successfully established in the area.

Both are benthopelagic species originating from the tropical and sub-tropical Indo-Pacific regions. *F. commersonii* is an active piscivorous species that is highly competitive with autochthonous teleost species

(KALOGIROU *et al.*, 2007) associated with rocky reef assemblages and sandy bottom. *S. diaspros* is associated with coastal rocky substrates covered with vegetation, feeding on small invertebrates found at depths of up to 50 m (DULCIC & PALLAORO, 2003).

The first reports on the presence of *F. commersonii* in the Mediterranean Sea were made by GOLANI (2000), whereas *S. diaspros* was first recorded in the Palestine (STEINITZ, 1927). Reports from the Aegean Sea are becoming even more frequent and demonstrate a rapid expansion in the Mediterranean Sea (KARACHLE *et al.*, 2004). In the Saronikos Gulf the scientific records are limited, although recreational fishermen report their occurrence occasionally. Several recent successive reports state the westward migration of both species within the waters of Malta (DEIDUN & GERMANA, 2011), Italy (OCCHIPINTI & GALIL, 2009) and France (BODILIS *et al.*, 2011).

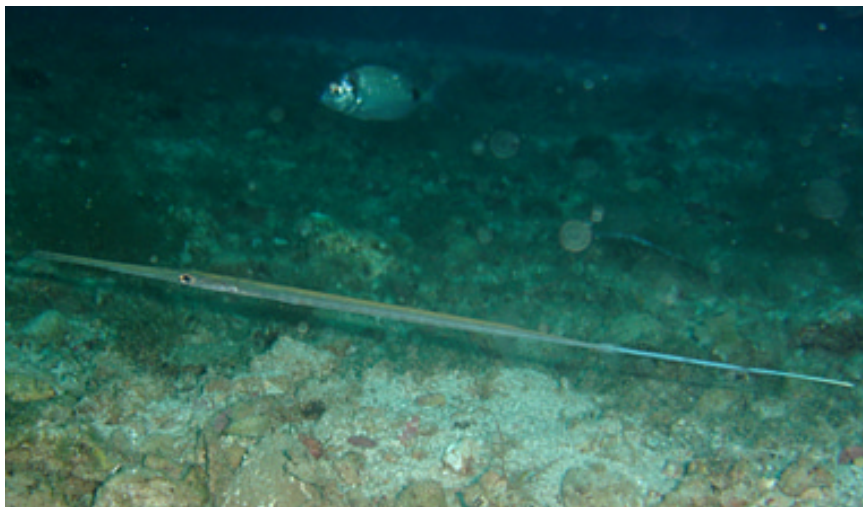


Fig. 8: *Fistularia commersonii* sighted off the northern coast of Pothitos Island, Saronikos Gulf, on 18 September 2011.



Fig. 9: *Stephanolepis diaspros* sighted off the northern coast of the Pothitos Island, Saronikos Gulf, on 10 September 2011.

***H. Caprella scaura* in the Mar Piccolo of Taranto (Ionian Sea)**

By E. Prato, L. Papa & I. Parlapiano

Caprella scaura Templeton, 1836 is a crustacean amphipod of the Caprellidae family (Suborder Caprellidaea) distributed worldwide. It was originally described from Mauritius in the Indian Ocean (Templeton 1836). The first record of *C. scaura* in the Mediterranean Sea dates back to 1994 from the lagoon of Venice in the Northern Adriatic Sea (SCONFIETTI & DANESI, 1996). Further records were from the Gulf of Amvrakikos, Greece in 2002 (KRAPP *et al.*, 2006); in Ravenna harbour, Italy in 2004 (SCONFIETTI *et al.*, 2005); in the Tyrrhenian Sea at Livorno, in 2004 (GALIL, 2008), in Eastern Sicily in 2004 (KRAPP *et al.*, 2006) and in the Iberian Peninsula in 2005 (MARTINEZ & ADARRAGA, 2008).

During a survey in Mar Piccolo of Taranto from October 2007 to September 2008,

the presence of a population of *Caprella scaura* was documented. 442 specimens were collected in the basin, most of which were found among *Chaetomorpha linum* (Müller) Kützing 1845, *Gracilaria bursa-pastoris* (S.G. Gmelin) P.C.Silva 1952, *Hypnea cornuta* (Kützing) J.Agardh 1851. Together with *C. scaura*, the amphipods *Gammarus aequicauda* (Martynov 1931), *Elasmopus rapax* (Costa, 1853) *Gammarella fucicola* (Leach 1814), *Caprella equilibra* (Say 1818) and *Phtisica marina* (Slabber 1769), the isopods *Cymodoce truncata* Leach 1814, the molluscs *Gibbula adansonii* Payraudeau 1826, *Tricolia tenuis* (Michaud 1829), were the most abundant species.

Taking into account previous investigations, *Caprella scaura* can be considered as a recent introduction, as it was not recorded in the area before (PRATO & BIAN-DOLINO, 2005). The occurrence of *C. scaura* in the Mar Piccolo of Taranto extends its known distribution in the Mediterranean Sea and in particular in an unusual habitat

such as a brackish lagoon, an elective habitat for introduced species. The species *C. scaura* seemed to be very well established. It was highly abundant, and represented by a noticeable number of ovigerous females and juveniles.

The invasion is most probably due to human introduction via ship transport either as fouling or in ballast waters, because Mar Piccolo hosts the Italian Navy base. The presence of numerous commercial mussel

farms indicates that aquaculture could also be among the likely vectors of introduction. Another plausible explanation is that this species has expanded its geographical distribution and therefore may have reached the lagoon through natural dispersion from nearby populations, either those in the Tyrrhenian Sea or those on the eastern coast of Adriatic Sea, or even from as yet unreported populations closer to the Gulf of Taranto.

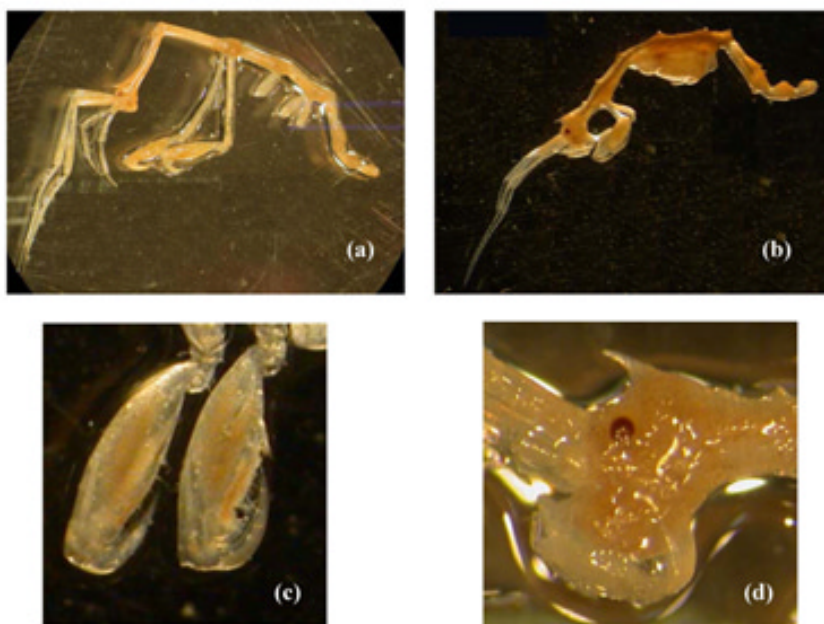


Fig. 10: *Caprella scaura* (from Mar Piccolo of Taranto, Ionian sea, Italy) (a) adult male, entire animal; (b) adult female, entire animal; (c) gnathopod 2 of adult male. (c) head of adult male.

***J. Bursatella leachii*, De Blainville, 1817 in Algeria**

By S. Lamouti & N. E.I. Bachari

Burstatella leachii De Blainville, 1817 is a circumtropical opisthobranch considered

as an established and locally invasive alien species in the Mediterranean (ZENETOS *et al.*, 2010a). It was reported in 1940 from the Palestine coast, then the species spread to the Levantine basin and later to the western Mediterranean (Sardinia and Spain) (ZENETOS *et al.*, 2004). Although its orig-

inal distribution includes both the Red Sea and the Atlantic, it is considered as one of the most widespread Lessepsian species as it is very common in the eastern Mediterranean (ZENETOS *et al.*, 2010b).

Ten individuals were observed in the region of Sidi Fredj (36° 45' 45" N; 2° 50' 20") between autumn and winter 2008 on soft bottom, covered by *Cymodocea nodosa*, *Nanozostera noltii* and *Caulera racemosa* var *cylindracea*, and neighbouring detrit-

ic infralittoral rocks, at a depth of less than one metre. In September 2011, two individuals were observed in the same area (Fig. 11). To date, the species does not seem to be invasive in the area, whereas other alien species such as *Caulerpa racemosa*, *Percnon gibessi* and *Oculina patagonica* have exhibited invasive behaviour (LAMOUTI, 2010). Future investigation could reveal the occurrence of more invaders in the area.



Fig. 11: *Burstaella leachii* observed in Sidi Fredj, September 2011 (Photo: Souad Lamouti).

***K. Parvocalanus crassirostris* in the Aegean Sea**

By G. Papantoniou & N. Fragopoulou

The copepod *Parvocalanus crassirostris* (Dahl, 1894) was found in Kalloni Gulf a productive, semi-enclosed and shallow (depth < 20 m) ecosystem of Lesvos island in the NE Aegean Sea. It is the smallest of the six described species of the genus. The length of an adult female does not exceed 0.5 mm whereas adult males are about 0.35 mm long (Fig. 12). The copepod was collected with a zooplankton net using a 90µm mesh size

from a network of six stations covering the whole gulf area and a station outside the gulf in the Aegean Sea, on a monthly basis from July 2009 to June 2010.

P. crassirostris is a eurythermal and euryhaline species as it has been reported in very diverse and extreme environments. In the Mediterranean it has been reported from the Levantine Sea (DELALO 1966; UYSAL *et al.*, 2002), and from the NW Mediterranean (RAZOULS *et al.*, 2005-2011). This is the first record for the Aegean Sea.

The occurrence of *P. crassirostris* was highly variable during the year, being pres-

ent in the gulf only during October, November and December (representing 5.59%, 14.3% and 3.7% of the total zooplankton abundance respectively). Its total abundance showed a progressively increasing trend from the open sea (S1) towards the interior part of the gulf, particularly in the stations located near the river mouths (Fig. 13). Its total mean abundance during these three

months was 9906 ind.m⁻³, ranging between 0 and 28,007 ind.m⁻³, with the highest value being recorded in the gulf in October, and the lowest at the station located in the open sea in December. Its maximum contribution was recorded at the stations outside the gulf and at the inlet in November, composing 38.3% and 32.5% of the total zooplankton abundance.

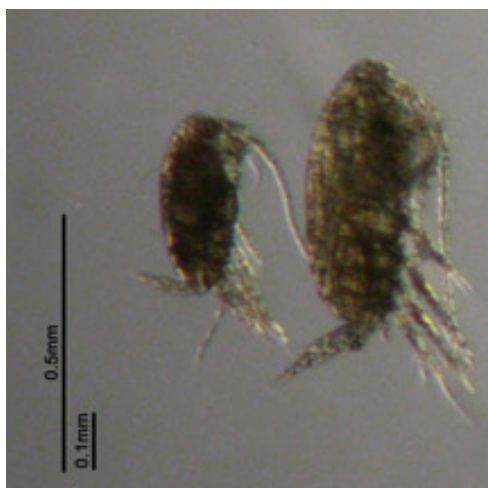


Fig. 12: From left to right: a male and a female *P. crassirostris*.

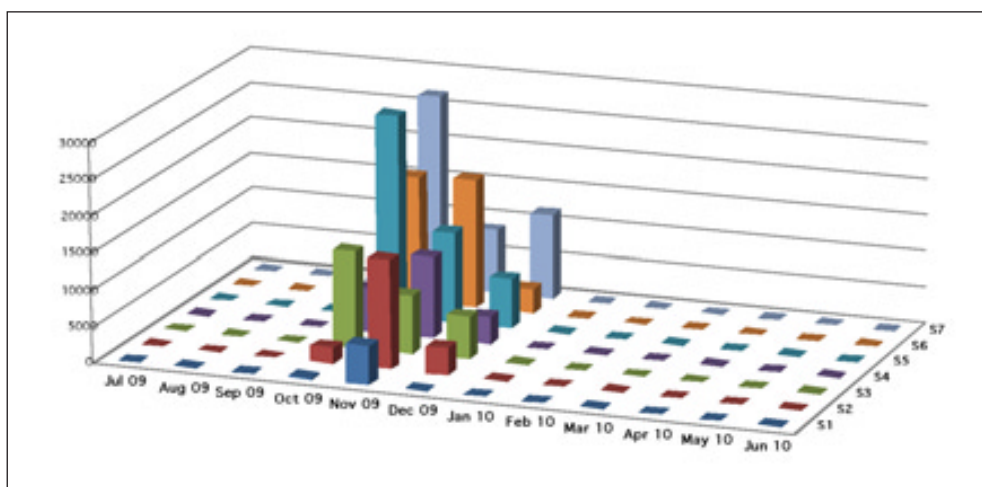


Fig. 13: Spatiotemporal distribution of *P. crassirostris* (adults and copepodites) total abundance.

***L. Flabellina rubrolineata* (Mollusca, Gastropoda) reaches Kyklades, Aegean Sea**

By D. Poursanidis

Flabellina rubrolineata (O'Donoghue, 1929) is an Indo-Pacific species that has entered the Mediterranean via the Suez Canal. Originally sighted in 1988 off Ashqelon (GAT, 1993), it was until recently considered rare in the Levantine basin.

The species has been recently estab-

lished in Turkey (YOKES & RUDMAN, 2004), Cyprus (TSIAKKIROS & ZENETOS, 2011).

A specimen of *Flabellina rubrolineata* was photographed from Syros isl, Kyklades, at a depth of 10 m by the underwater diver George Rigoutsos (Fig. 14) from a location known as Gaidouronisi (Co-ordinates: 37.424444° N, 24.970556° E).

This is the first record of the species in Greek waters.



Fig. 14: *Flabellina rubrolineata* from Gaidouronisi, Syros Island, Aegean Sea (Photo: George Rigoutsos).

Acknowledgements

The authors (Cem Cevik, Levent Cavas, Osman Baris Derici and Fatma Cevik) are grateful to the Scientific and Technical Research Council of Turkey (TÜBİTAK) for financial support of the study (Grant number 109Y284). Abdallah Hattour would like to thank the fishermen of Salakta who provided the examined specimen of *Sepioteuthis*. Souad Lamouti would like to thank

Mr Adlane Ferchouli for his help in the field.

References

- AVSAR, D. & CICEK, E., 1999. A new species record for the Central and Eastern Mediterranean: *Spherooides cutaneus* (Günther, 1870) (Pisces: Tetraodontidae). *Oebalia*, 25: 17-21.
- BEN-ELIAHU, M.N., 1972. Polychaeta Er-

- rantia of the Suez Canal. *Israel Journal of Zoology*, 21 (3-4): 189-237.
- BEQIRAJ, S. & KASHTA, L., 2010. The establishment of blue crab *Callinectes sapidus* Rathbun, 1896 in the Lagoon of Patok, Albania (south-east Adriatic Sea). *Aquatic Invasions*, 5 (2): 219-221.
- BILECENOGLU, M., TAŞKAVAK, E. & KUNT, B., 2002. Range extension of three lessepsian migrant fish (*Fistularia commersoni*, *Sphyræna lavicauda*, *Lagocephalus suezensis*) in the Mediterranean Sea. *Journal of the Marine Biological Association of the United Kingdom*, 82: 525-526.
- BODILIS, P., ARCEO, H. & FRANCOUR, P., 2011. Further evidence of the establishment of *Fistularia commersonii* (Osteichthyes: Fistulariidae) in the north-western Mediterranean Sea. *Marine Biodiversity Records*, 4 (e18): 1-4. (Published online)
- BOERO, F., FERAL, J.P., AZZURRO, E., CARDIN, V., RIEDEL *et al.*, 2008. Climate warming and related changes in Mediterranean marine biota. p.5-21. In: *Climate warming and related changes in Mediterranean marine biota. CIESM Workshop Monographs NT 35*. F. Briand (Ed), Monaco.
- BOUILLON, J., MEDEL, M.D., PAGÉS, F., GILL, J.M., BOERO, F. & GRAVILL, C., 2004. Fauna of the Mediterranean Hydrozoa. *Scientia Marina*, 68 (Suppl. 2): 1-449.
- CABAL, J., MILLÁN, J.A.P. & ARRONTE, J.C., 2006. A new record of *Callinectes sapidus* Rathbun, 1896 (Crustacea: Decapoda: Brachyura) from the Cantabrian Sea, Bay of Biscay, Spain. *Aquatic Invasions*, 1 (3): 186-187.
- CADMAN, L.R. & WEINSTEIN, M.P., 1985. Size-weight relationship of postecdysial juvenile blue crabs (*Callinectes sapidus* Rathbun) from the lower Chesapeake Bay. *Journal of Crustacean Biology*, 5 (2): 306-310.
- CARDELL, M.J. & MENDEZ, N., 1996. First record of *Hesionura serrata* (Hartmann-Schroder, 1960) (Polychaeta, Phylodocidae) in the Mediterranean Sea (littoral zone of Barcelona, NE Spain). *Scientia Marina*, 60 (2-3): 423-426.
- CEVIK, C., YOKES, B., CAVAS, L., ERKOL, L., DERICI, O.B. & VERLAQUE, M., 2007. First report of *Caulerpa taxifolia*, (Bryopsidales, Chlorophyta) on the Levantine Coast (Turkey, Eastern Mediterranean). *Estuarine, Coastal & Shelf Science*, 74 (3): 549-556.
- ÇINAR, M.E., BILECENOĞLU, M., ÖZTÜRK, B., KATAĞAN, T., YOKEŞ *et al.*, 2011. An updated review of alien species on the coasts of Turkey. *Mediterranean Marine Science*. 12 (2): 257-316.
- DEIDUN, A. & GERMANA, A., 2011. On the increasing occurrence of the bluespotted cornetfish *Fistularia commersonii* (Rüppel, 1838) in the central Mediterranean (Osteichthyes, Fistulariidae). *Biodiversity Journal*, 2 (1): 19-26.
- DELALO, E.P., 1966. The zooplankton of the eastern Mediterranean (Levantine Sea and Gulf of Sirte). Issled. Plankt. Juzhn. Mor. Okeanogr. Kom. Akad. Nauk, 7: 62-81. (in Russian)
- DULCIC, J. & PALLAORO, A., 2003. First record of the filefish, *Stephanolepis diaspros* (Monacanthidae), in the Adriatic Sea. *Cybium*, 27 (4): 321-322.
- EASTMED, 2010. Report of the Sub-Regional Technical meeting on the Lessepsian migration and its impact on Eastern Mediterranean fishery. GCP/INT/041/EC – GRE – ITA/TD-04.
- ELNAIS, 2011. Ellenic Network of Aquatic Invasive Species. <https://services.ath.hcmr.gr/> visited on 6th October 2011.

- ERYILMAZ, L., OZULUG, M. & MERIC, N., 2003. The Smooth Pufferfish, *Spherooides pachygaster* (Müller & Troschel, 1848) (Teleostei: Tetraodontidae), new to the Northern Aegean Sea. *Zoology in the Middle East*, 28: 125-126.
- FLORIO, M., BREBER, P., SCIROCCO, T., SPECCHIULLI, A., CILENTI, L. & LUMARE, L., 2008. Exotic species in Lesina and Varano lakes new guest in Lesina and Varano lakes: Gargano National Park (Italy). *Transitional Waters Bulletin*, 2 (2): 69-79.
- GALIL, B., 2008. Project PORT Surveys of Alien organisms introduced by ships. CIESM – The Mediterranean Science Commission. Preliminary results. Accessed at: www.ciesm.org/marine/programs/portal.htm
- GAT, G., 1993. *Flabellina rubrolineata* (O'Donoghue) and *Phidiana indica* (Bergh) (Nudibranchia Aeolidioidea), two new Lessepsian immigrants in the Eastern Mediterranean. *Journal of Molluscan Studies*, 59: 120.
- GOLANI, D., 2000. First record of the bluespotted cornetfish from the Mediterranean Sea. *Journal of Fish Biology*, 56: 1545-1547.
- GOLANI, D., ORSI-RELINI, L., MASSUTI, E. & QUIGNARD, J.P., 2002. *CIESM Atlas of exotic species in the Mediterranean. Vol. 1. Fishes*. F. Briand (Ed), CIESM Publications, Monaco, 256 pp.
- GOLANI, D., ORSI-RELINI, L., MASSUTI, E. & QUIGNARD, J.P., 2011. Tetraodontidae. In: *CIESM Atlas of Exotic Fishes in the Mediterranean*. <http://www.ciesm.org/atlas/appendix1.html>.
- HARDING, J.M., 2003. Predation by blue crabs, *Callinectes sapidus*, on rapa whelks, *Rapana venosa*: possible natural controls for an invasive species? *Journal of Experimental Marine Biology & Ecology*, 297 (2): 161-177.
- HARDING, J.M., 2003. Predation by blue crabs, *Callinectes sapidus*, on rapa whelks, *Rapana venosa*: possible natural controls for an invasive species? *Journal of Experimental Marine Biology & Ecology*, 297 (2): 161-177.
- HARTMANN-SCHRÖDER, G., 1960. Polychaeten aus dem Roten Meer. *Kieler Meeresforschungen*, 16 (1): 69-125.
- HEMIDA, F., BEN AMOR, M.M. & CAPAPÉ, C., 2009. First confirmed record of the blunthead puffer, *Spherooides pachygaster* (Osteichthyes: Tetraodontidae) off the Algerian coast (south-western Mediterranean). *Pan-American Journal of Aquatic Sciences*, 4 (2): 188-192.
- JEREB, P., & ROPER, C.F.E., 2006. Cephalopods of the Indian Ocean. A Review. Part I. Inshore squids (Loliginidae) collected during the International Indian Ocean Expedition. *Proceedings of the Biological Society of Washington*, 119 (1): 91-136.
- KALOGIROU, S., CORSINI, M., KONDLATOS, G. & WENNHAGE, H., 2007. Diet of the invasive piscivorous fish *Fistularia commersonii* in a recently colonized area of the eastern Mediterranean. *Biological Invasions*, 9: 887-896.
- KARACHLE, P.K., TRIANTAPHYLIDIS, C. & STERGIOU, K.I., 2004. *Fistularia commersonii* Rüppell, 1838 a lessepsian sprinter. *Acta Ichthyologica & Piscatoria*, 34 (1): 103-108.
- KRAPP, T., LANG, C., LIBERTINI, A. & MELZER, R.R., 2006. *Caprella scaura* Templeton, 1836 sensu lato (Amphipoda: Caprellidae) in the Mediterranean. *Organisms, Diversity & Evolution* 6, Electronic Supplement 3: 1-18.
- LAMOUTI, S., 2010. *Contribution au développement de cartes biocénétiques dans la région centre de la côte algérienne*,

- par la combinaison de méthodes de télédétection et d'observation in situ. Mémoire de magister, USTH, 78 pp.
- LEFKADITOU, E., CORSINI-FOKA, M., & KONDILATOS, G., 2009. Description of the first Lessepsian squid migrant, *Sepioteuthis lessoniana* (Cephalopoda: Loliginidae), in the Aegean Sea (Eastern Mediterranean). *Mediterranean Marine Science*, 10 (2): 87-97.
- LIGAS, A., SARTOR, P., SBRANA, M., SIRNA, R. & DE RANIERI, S., 2007. New Findings of *Fistularia commersonii* Rüppell, 1835 and *Spherooides pachygaster* (Müller & Troschel, 1848) in the northern Tyrrhenian Sea. *Atti della Società Toscana di Scienze Naturali Memorie, Serie B*, 114: 131-133.
- LIGAS, A., SIRNA, R. & SARTOR, P., 2006. Prima segnalazione di *Spherooides pachygaster* (Müller & Troschel, 1848) (Pisces, Tetraodontidae) nel Mar Tirreno Settentrionale. *Biologia Marina Mediterranea*, 13: 274-275.
- MARTINEZ, J. & ADARRAGA, I., 2008. First record of invasive caprellid *Caprella scaura* Templeton, 1836 sensu lato (Crustacea: Amphipoda: Caprellidae) from the Iberian Peninsula. *Aquatic Invasions*, 3 (2): 165-171.
- MASTROTOTARO, F., MATARRESE, A. & D'ONGHIA, G., 2003. Occurrence of *Musculista senhousia* (Mollusca: Bivalvia) in the Taranto seas (eastern-central Mediterranean Sea). *Journal of the Marine Biological Association of the United Kingdom*, 83: 1279-1280.
- MIENIS, H.K., 2004. New data concerning the presence of lessepsian and other Indo-Pacific migrants among the mollusks in the Mediterranean Sea with emphasis on the situation in Israel. *Turkish Journal of Aquatic Life*, 2 (2): 117-131.
- MILLOT, C., & TAUPIER-LETAGE, I., 2005. Circulation in the Mediterranean Sea. p.29-66. In: *The Handbook of Environmental Chemistry*, Volume 5K. Springer-Verlag, Berlin. (Published online)
- OCCHIPINTI-AMBROGI, A. & GALIL, B.S., 2009. The northernmost record of the blue-spotted cornetfish from the Mediterranean Sea. *Mediterranean Marine Science*, 9 (2): 125-127.
- OLIVER, P., 1981. Sobre la aparición de algunos peces raros en las islas Baleares. *Boletín del Instituto español de Oceanografía*, 6 (304): 59-64.
- PAPACONSTANTINO, C., 1990. The spreading of Lessepsian fish migrant into the Aegean Sea (Greece). *Scientia Marina*, 54 (4): 313-316.
- PRATO, E. & BIANCOLINO, F., 2005. Amphipod biodiversity of shallow water in the Taranto seas (north-western Ionian Sea). *Journal of the Marine Biological Association of the United Kingdom*, 85: 333-338.
- PSOMADAKIS, P.N., CEDDIA, P. & VACCHI, M., 2006. Additional record of *Spherooides pachygaster* (Pisces: Tetraodontidae) in the Tyrrhenian Sea and notes on the distribution of the species in the Mediterranean. *Marine Biodiversity Records*, 1 (e18): 1-5. (Published online)
- RAZOULS, C., DE BOVEE, F., KOUWENBERG, J. & DESREUMAUX, N., 2005-2011. *Diversity and geographic distribution of marine planktonic copepods*. Available at: <http://copepodes.obs-banyuls.fr>.
- ROPER, C.F.E., SWEENEY, M.J., NAUEN, C.E., 1984. *FAO Species catalogue. Vol. 3. Cephalopods of the World. An annotated and illustrated catalogue of species of interest to fisheries*. FAO Fisheries Synopsis, No. 125, 277 pp.
- SALMAN, A., 2002. New report of the loliginid squid *Sepioteuthis lessoniana* Les-

- son, 1830 in the Mediterranean. *Israel Journal of Zoology*, 48: 249-250.
- SCONFIETTI, R. & DANESI, P., 1996. Structural variations in Peracarids communities at the opposite extremes of the Malamocco basin (Lagoon of Venice). *Atti Società Italiana Ecologia*, 17: 407-410.
- SCONFIETTI, R., MANGILI, F., SAVINI, D. & OCCHIPINTI-AMBROGI, A., 2005. Diffusion of the alien species *Caprella scaura* Templeton, 1836 (Amphipoda: Caprellidae) in the Northern Adriatic Sea. *Biologia Marina Mediterranea*, 12 (1): 335-337.
- SILAS, E.G., RAO, K.S., SARVESAN, R., NAIR, K.P. & MEIYAPPAN, M.M., 1982. The exploited squid and cuttlefish resources of India: A review. *Marine Fisheries Information Service, Technical & Extension Series*. 34: 1-16.
- STEINITZ, W., 1927. Beiträge zur Kenntnis der Küstenfauna Palästinas. I. *Pubblicazioni della Stazione Zoologica di Napoli*, 8 (3-4): 311-353.
- TORTONESE, E., 1986. Tetraodontidae (including Canthigasteridae). p.1341-1347. In: *Fishes of the North-eastern Atlantic and the Mediterranean III*. P.J.P. Whithead *et al.* (Eds). Paris, Unesco.
- TSIAKKIROS, L. & ZENETOS, A., 2011. Further additions to the alien mollusc fauna along the Cypriot coast: new opisthobranchia species. *Acta Adriatica*, 52(1): 115-124.
- VINCENT, T., 1986. Les captures de *Callinectes sapidus* Rathbun 1896 en baie de Seine, entre 1975 et 1984. *Bulletin trimestriel de la Société géologique de Normandie et des Amis du Muséum du Havre*, 73 (4): 13-14.
- UYSAL, Z., KIDEYS, A.E., SHMELEVA, A.A., ZAGORODNYAYA, J.A., & GUBANOVA, D., 2002. Checklist of copepods (*Calanoida* and *Podoplea*) from the northern Levantine basin shelf waters. *Hydrobiologia*, 482: 15-21
- UYSAL, Z., LATIF, M.A., ÖZSOY, E., TUĞRUL, S., KUBILAY *et al.*, 2008. Kilikya baseni kıyısal ekosisteminde dolaşım, taşınım ve ötrofikasyon araştırmaları. The Scientific and Technical Research Council of Turkey (TÜBİTAK). Project no: 104Y277. http://uvt.ulakbim.gov.tr/uvt/index.php?cwid=9&vtadi=TPRJ&ano=99278_85128686fe5fa0d06e733c6686d12a66 retrieval date: 09.06.2011 (Turkish).
- YAHIA, M.N.D., GOY, J. & YAHIA KEFI, O.D., 2003. Distribution and ecology of Medusae and scyphomedusae (Cnidaria) in Tunis Gulf (SW Mediterranean). *Oceanologica Acta*, 26 (5-6): 645-655.
- YOKES, B. & RUDMAN, W.B., 2004. Lessepsian opisthobranchs from southwestern coast of Turkey; five new records for Mediterranean. *Rapport de la Commission Internationale Exploration de la Mer Méditerranée*, 37: 557.
- ZENETOS, A., GOFAS, S. RUSSO, G. & TEMPLADO J., 2004. *CIESM Atlas of Exotic Species in the Mediterranean Sea. Vol. 3 Molluscs*. CIESM, Monaco, 376 pp.
- ZENETOS A., GOFAS, S., VERLAQUE M., ÇINAR, M. E., GARCIA RASO, J.E., *et al.*, 2010a. Alien species in the Mediterranean Sea by 2010. A contribution to the application of Union's Marine Strategy Framework directive Part I Spatial distribution. *Mediterranean Marine Science*, 11 (2): 318-493.
- ZENETOS, A., OVALIS, P. & ÇEVİKER, D., 2010b. On some Indo-Pacific boring endolithic Bivalvia species introduced into the Mediterranean Sea with their host – spread of *Sphenia rueppelli* A.Adams, 1850. *Mediterranean Marine Science*, 11 (1): 201-207.