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New Mediterranean Biodiversity Records (December 2012)

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Abstract

This paper presents records extending or confirming the distribution of Mediterranean species. Three alien algae are included, namely *Codium taylorii* reported for the first time from the Aegean and Turkey (Izmir Gulf), *Caulerpa racemosa* var. *cylindracea* (Karpathos and Chalki Isl., Aegean Sea) and *Ganonema farinosum* (Karpathos Isl., Aegean Sea). As far as animals are concerned, *Litarachna divergens* (Acari: Hydrachnidia) was recorded (Side, Eastern Mediterranean) and represents a new amendment at genus level for Turkish fauna. Other invertebrates include alien species such as the crabs *Dyspanopeus sayi* (Lago Fusaro, SW Italy), *Percnon gibbesi* (Larnaca, Cyprus; Karpathos and Chalki Isl., Aegean Sea) and *Callinectes sapidus* (Voda estuary, NW Greece), the nudibranch *Aplysia dactylomela* (Boka Kotorska Bay, Montenegro), the gastropod *Conomurex persicus* (Karpathos and Chalki Isl., Aegean Sea) and the bryozoan *Electra tenella* (Livorno harbour and Messina Straits area). The alien fish *Siganus luridus*, *Siganus rivulatus*, *Fistularia commersonii*, *Sphyraena chrysotaenia* and *Sargocentron rubrum* are also reported from the islands of Karpathos and Chalki, and *Pteragogus pelycus* from Heraklion Bay, Crete. In addition, new localities for four rare Mediterranean inhabitants are given: the cephalopod *Thysanoteuthis rhombus* (NW Sardinia) and the fish: *Lampris guttatus* (Calabria, S Italy), *Petromyzon marinus* (Gokova Bay) and *Remora australis* (Saronikos Gulf), while the opisthobranch gastropod *Cerberilla bernadettae* is reported for the first time from the E Mediterranean (Cyprus). Finally, three species of the Aegean ascidiofauna are recorded for the first time: *Lissoclinum perforatum, Ciona roulei* and *Ecteinascidia turbinata*. Furthermore, it was established that *Phallusia nigra* has extended its distributional range to the north of the Aegean Sea.

Introduction

As part of its policy, Mediterranean Marine Science publishes twice a year a collective article with new records of marine species in the Mediterranean Sea and/or information on the spatial distribution of already known species of particular interest. The contributors are co-authors in this collective article, their names appearing in alphabetical order. Reports of plant and animal species are presented in each section according to the order of submission. The contributing authors are cited at the beginning of each record.

1. Plants

1.1. First record of the alien green alga *Codium taylorii* P.C. Silva in the Aegean Sea and Turkey

By E. Taşkin and Ö. Aydogan

Nine taxa of *Codium* (Bryopsidophyceae, Chlorophyta) have been reported to occur in the Mediterranean (Gallardo *et al.*, 1993). Recently, two alien species, *Codium parvulum* (Bory ex Audouin) P.C. Silva and *Codium arabicum* Kützing, were reported for the first time in the Mediterranean Sea from Israel (Israel *et al.*, 2010; Hoffman *et al.,* 2011). In Turkish waters, eight *Codium* taxa have previously been recorded (Taşkin *et al.*, 2008): *C. adhaerens* C. Agardh, *C. bursa* (L.) C. Agardh, *C. coralloides* (Kützing) P.C. Silva, *C. decorticatum* (Woodward) M. Howe, *C. effusum* (Rafinesque) Delle Chiaje; *C fragile* (Suringar) Hariot subsp. *fragile*, *C. tomentosum* Stackhouse and *C. vermilara* (Olivi) Delle Chiaje. This report adds the alien *Codium taylorii* P.C. Silva to the Turkish flora and that of the Aegean Sea.

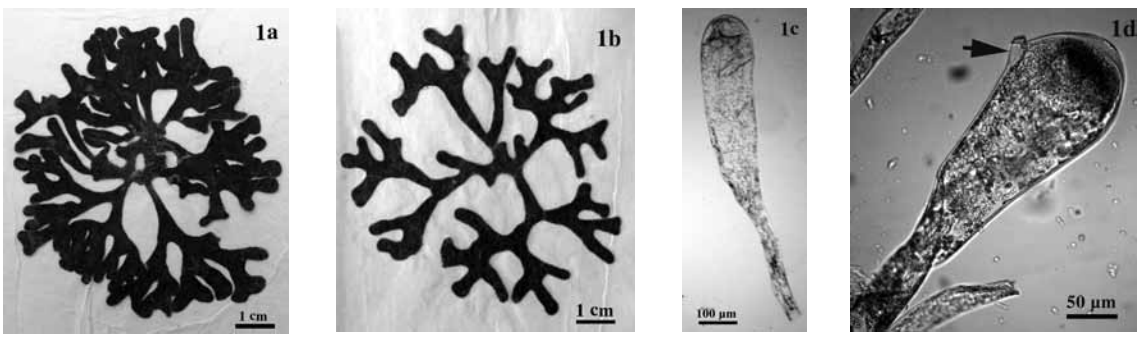
Sampling was conducted by snorkelling in the midlittoral zone of the Izmir Gulf (38º22'40″N; 26º53'07″E) on the Aegean coast of Turkey in October 2011 and December 2011. The locality was generally sandy and partly stony. Voucher material was deposited at the Department of Biology, Celal Bayar University of Manisa, Turkey. Taxonomy and nomenclature have been checked against Guiry & Guiry (2012).

Two different thalli of this species (cervicorn terminal ramification and more richly branching) were collected. They are very similar to Brazilian specimens (Oliveira-Carvalho *et al*., 2010). A comparison of the morpho-anatomical details of *C. taylorii* by various authors is presented in Table 1. Description of the material is given below:

Thallus erect, dark green in colour, terete, spongy, up to 8 cm high; branches are by and large completely compressed, 3-8 mm wide; branching irregular or regular dichotomous and branches resulting in a cervicorn form (Figs 1a and 1b); Medullary filaments 20 to 40 µm in diameter. Utricles individual, cylindrical to clavate (60) 110-220 (310) µm in diameter and (500) 600-1400 (1520) µm long (Fig. 1c). Apices subtruncate or slightly rounded. Utricular wall in apices 10-30 µm. Hairs or hair scars abundant and often club like or capitate, 60-110 µm long and borne at below the apex of the utricle (Fig. 1d). Gametangia ovoid to fusiform, 1-2 per utricle, pedicellate,

Table 1. Comparison of the morpho-anatomical details of *Codium taylorii* based on literature and the present study.

		Author				
***Codium taylorii* morpho-anatomical characters**		**Aleem (1993)**	**Van den heede & Coppejans (1996)**	**Cormaci *et al.* (2004)**	**Oliveira-Carvalho *et al.* (2010)**	**This study**
Habit		Erect, to 10cm	Erect, to 7 cm	Erect, to 15 cm	Erect, to 10 cm	Erect, to 8 cm
Branching		dichotomous, cervicorn	dichotomous, cervicorn	dichotomous	dichotomous, cervicorn	dichotomous, cervicorn
Diameter of medullary filaments (µm)		---	23-31 (54)	---	15-40	20-40
Insertion hairs of utricle apex		abundant	(30) 55-75 (110)	---	50-100	60-110
Utricle	morphology	Cylindrical, clavate	Subylindrical, pedicellate clavate	Cylindrical, slightly clavate	Cylindrical, clavate, pyriform	Cylindrical, clavate
	length (µm)	550-1450	(795) 980-1350 (1625)	650-1150	590-1380	(500) 600-1400 (1520)
	diameter (µm)	55-380	(60) 175-250 (385)	110-260	80-377	(60) 110-220 (310)
	apex	Slightly rounded, subtruncate,	Subtruncate, slightly rounded	Rounded, runcate	Rounded, subtruncate	Subtruncate, slightly rounded
Gametangium	morphology	---	Fusiform	Ovoid, fusiform	Ovoid, fusiform	Ovoid, fusiform
	diameter, length (µm)	---	55-80x245-355	---	50-110x180-310	60-80x200-250



Figs 1a-d: *Codium taylorii*: (a) general view of thallus (December 2011);(b) habit with cervicorn terminal ramification (October 2011); (c) utricle; (d) utricle with hair scar (arrow).

80 µm in diameter, 200 µm long. Gametangia were only observed in more richly branching specimens in December 2011.

The species was reported for the first time in the Mediterranean Sea from Israel by Silva (1960) followed by Gallardo *et al*. (1993). It was also recorded from Alexandria (Egypt) by Aleem (1993), while until now it was not known to occur in the Aegean Sea (Zenetos *et al.*, 2009). Cormaci *et al.* (2004) assumed that it was probably introduced into the Mediterranean Sea by fouling, ballast water, anchors and fishing tools. Most probable vectors responsible for the introduction in Izmir Gulf include spreading from the population established in the Eastern Mediterranean, ship fouling or ballast waters.

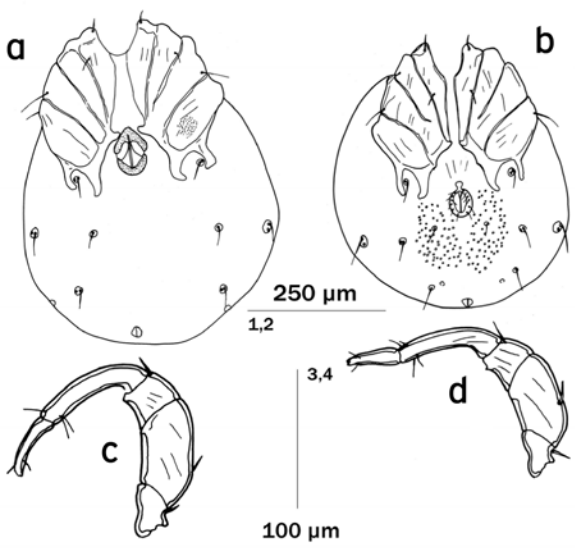
2. Animals

2.1. The marine mite genus *Litarachna* (Acari: Hydrachnidia): first record for the Turkish fauna

By Y.Ö. Boyaci and F. Durucan

The water mite family Pontarachnidae is the only Hydrachnidia family occurring in the marine environment, and is represented by 3 genera, namely, *Pontarachna* Philippi, 1840, *Litarachna* Walter, 1925 and *Paralitarachna* Cook, 1958 (Smit, 2012).

Two specimens (one male and one female) of *Litarachna divergens* Walter, 1925 were collected from the Mediterranean coast of Turkey in Side (Antalya) (36°45'56 N; 31°23'27 E) by hand netting among coralline algae and submerged macroalgae on shallow sublittoral rocks at a depth of < 2 m. This is the first record of the genus *Litarachna* from Turkey.



Figs 2 a-d*: *Litarachna divergens Walter: (a) idiosoma, ventral view, female; (b) idiosoma, ventral view, male; (c) Pedipalp, female; (d) pedipalp, male.

Based on the description by Schaub (1889) using material from Trieste, Walter (1925) established *Litarachna divergens* as a new species. The general morphology and palps of our specimens agree with Schaub's description. The characteristics of the specimens are given below (measurements in µm):

Female - Soft bodied, dorsum without sclerits. Suture lines of second and third coxal plates and of third and fourth coxal plates incomplete. Eyes in pair. Coxae directed posteriorly, first coxal plate fused, fourth coxae widely separated. Idiosoma L/W 586/464. Genital field L/W 86/65 (Fig. 2a). Palp total L 330 (Fig. 2c). PI – PV length (and as % of total L): 43 (13), 87 (26.3), 35 (10.6), 109 (33), 56 (16.9). PIV/PV ratio 1.94. PIV and PV very slender (Fig. 2c).

Male - Idiosoma L/W 486/429. Genital field L/W 64/42. Many small setae around genital field (Fig. 2b). Palp total L 303 (Fig. 2d). PI-PV length (and % of total L): 36 (12), 76 (25), 33 (11), 100 (33), 58 (19). PIV/PV ratio 1.74.

2.2. *Dyspanopeus sayi* (Brachyura: Xanthoidea: Panopeidae) in Lago Fusaro (SW Italy)

By F. Crocetta, P. Sordino and F. Toscano

Dyspanopeus sayi (Smith, 1869) is a euryhaline species, a native of the NW Atlantic coast, from Nova Scotia to Florida Keys. It is one of the most common crab species living in ports and estuaries, being able to thrive in polluted environments.

Since 1960, the species has begun to colonize new areas, unintentionally introduced by human vectors along the European Atlantic shores of Britain, France and The Netherlands (see Micu *et al.*, 2010; Schubart *et al.*, 2012 for references). Since 1978-1979, *D. sayi* has spread to the Mediterranean Sea along the Adriatic shores, where it is now established (Froglia and Speranza, 1993; Mizzan, 1995; Florio *et al.*, 2008). While very recent sightings from the Black Sea (Micu *et al.*, 2010) and the western Mediterranean Sea (Ebro River mouth: Schubart *et al.*, 2012) point to a relentless spreading towards both basins, records from intermediate locations are lacking.

During a field survey in Lago Fusaro (Campania, southern Italy), a brackish lagoon north of Naples, carried out from March to September 2011 on a weekly basis, the occurrence of *D. sayi* was recorded in serpulid reefs and *Mytilaster lineatus* beds (including ovigerous females and juveniles), with sporadic specimens walking on the predominantly muddy bottom. *D. sayi* was the most abundant crab species along the lagoon shores, accounting for hundreds of sighted specimens. Voucher specimens are preserved in the private collection of the first author (Naples, Italy) (Fig. 3).

Fig. 3: *Dyspanopeus sayi* from Lago Fusaro (Campania, S Italy).

Whereas the impact of *D. sayi* on the local benthic communities has not yet been assessed, the species is a well known carnivorous durophagous crab, being able to crush bivalves up to 8 mm (in length/ width) due to its powerful master chela (see Micu *et al.*, 2010 for references). In Lago Fusaro, *D. sayi* has been observed mainly feeding on adult sized bivalves (*Mytilaster lineatus*, *Cerastoderma glaucum* (complex), *Polititapes aureus* and *Abra segmentum*), but we can not confirm a direct predation on such bivalves or cases of necrophagy. In addition, we report the first field observation of feeding on the solitary ascidian *Styela plicata*.

The occurrence of *D. sayi* in Lago Fusaro underlines the importance of the lagoon systems as hot-spots for the introduction and spreading of alien species (Cosentino *et al.*, 2010; Crocetta, 2012). In this coastal lagoon, the presence of a commercial mussel farm as well as an established population of the alien clam *Ruditapes philippinarum* clearly points to aquaculture as the likely vector of introduction, as in previous Adriatic records.

This record fills a gap in the Mediterranean distribution of *D. sayi*, and raises questions regarding a possibly overlooked presence in other brackish environments located along the SW Italian coast, as well as in the Gulf of Taranto (Ionian Sea).

2.3. Occurrence of diamondback squid (*Thysanoteuthis rhombus*) in NW Sardinia

By D. Meloni, F. Piras, S. Lamon, F. Fois, A. Mureddu and R. Mazzette

The diamondback squid (*Thysanoteuthis rhombus* Troschel, 1857) is a rare epipelagic inhabitant of tropical and partially subtropical waters (water temperature >20-21°C, usually 23-26°C) including the Mediterranean Sea (Giordano *et al*., 1998; Marčić *et al*., 2009). It was first described by Troschel in 1857 from the Strait of Messina, Mediterranean Sea. Following this finding, other captures of adults were reported from the same area (Jereb and Ragonese, 1994; Giordano *et al*., 1998), as well as near Minorca Island (Morales, 1981), in the Evvoikos Gulf, Aegean Sea, Greece (Vardala-Theodorou *et al*., 1991), off the coast of Tunisia (Ezzeddine-Najai, 1996), and the Adriatic Sea (Marčić *et al*., 2009; Bello, 2009).

An adult male specimen of *Thysanoteuthis rhombus* was found on the beach of Bosa, Sardinia, Italy (NW Mediterranean Sea, 40°18’ N / 8°30’ E) in June 2012 (Fig. 4a).

The specimen measured 1240 mm in total length (dorsal mantle length: 640 mm) and 15 kg in total weight. The body was markedly tapered in the back with rhomboidal fins extended along the entire length of the reddish brown mantle. The cartilage of the siphon presented two incisions, one longitudinal and one shorter transverse median. The arms did not appear to be very robust in relation to the considerable dimension of the animal. The apex of the two tentacles presented very small suckers with four rows of greater stalked suckers. The gladius was horny with the typical “point of lance” shape, transparent and with longitudinal ribs. Gender was determined by examining the gonads in the mantle cavity (Fig. 4b). The testes had an elongated oval shape, suggesting that

Fig. 4a: The male specimen of *Thysanoteuthis rhombus* recovered on the beach of Bosa, NW Mediterranean Sea, Sardinia (Italy).

Fig. 4b: Sex determination by examining the gonads in the mantle cavity of the specimen of *Thysanoteuthis rhombus*.

the diamond back squid specimen was mature.

This is the first record of diamondback squid (*Thysanoteuthis rhombus*) in the NW coast of Sardinia (Italy); two specimens have been reported from SE Sardinia (Maggiani in Marčić *et al.,* 2009).

2.4. Documentation on the establishment of *Percnon gibbesi* (H. Milne Edwards, 1853) (Crustacea: Decapoda: Brachyura) in Cyprus (Eastern Mediterranean)

By G. Konstantinou and K. Kapiris

A total of 133 alien species have been recorded from Cyprus up to December 2010 (30 fish, 44 molluscs, 19 polychaetes, 15 phytobenthic species, 12 crustaceans and 13 species from other taxa). Of these, 109 are Lessepsian immigrants (105 of Indo-Pacific origin, 4 cosmopolitan or circumtropical) (EASTMED, 2010).

Percnon gibbesi (H. Milne Edwards, 1853) is the most invasive decapod species to enter the Mediterranean from the Atlantic, with a rapid expansion across that Sea, and a remarkable ability to establish large populations in anthropogenically impacted areas (e.g. ports) as well as in natural habitats. Regarding Cyprus, although *P. gibbesi* does not appear in the EASTMED (2010) report and in Katsanevakis *et al*. (2009), two observations, in Dhekelia (Larnaca) and Limassol, were cited in Katsanevakis *et al.* (2011a), dating back to 2006 and 2007, respectively. We herein record the species from a new location on the south coast of Cyprus, and provide data on the material collected.

Three male and three female specimens of the sally lightfoot crab (Figs. 5 a-d) were collected on 5/8/2012 in the sea area between Zygi and Alaminos, close to Larnaca (0.5-1 m) by underwater observation using snorkelling gear (33°23’27’’-34°44’39’’, 33°20’38’’-34°43’44’’). The bottom consisted of submerged boulders covered by a thin layer of microalgal felt, rock ledges and, partially, sand. The sampling habitat in the above studied area was similar to that reported from elsewhere in the Mediterranean (Pipitone *et al*., 2001; Cannicci *et al*., 2004; Deudero *et al*., 2005).

Gender, body measurements and weight of the collected specimens are presented in Table 2. Among the females caught, two were berried, in accordance with other records on the brooding season in the Mediterranean (Sciberras and Schembri, 2007). On the other hand, the occurrence of ovigerous females supports that *P. gibbesi* is established in Cyprus.

Table 2. Morphometric measurements of both genders of *P. gibbesi* caught in Cyprus.

Sex	Carapace length (CL, mm)	Carapace width (CW, mm)	Left propodus length (PL, mm)	Left propodus height (PH, mm)	Body weight (W, gr)
Males	28	27	12	7	4
	29	28	17	10	6,5
	25	23	11	8	3
Females	28	27	7	4	6
	25	25	7	4	5
	24	23	6	3	4

Fig. 5a, b: *Percnon gibbesi* males found in Larnaca, Cyprus (photo by G. Konstantinou).

Fig. 5c, d: *Percnon gibbesi* females found in Larnaca, Cyprus (photo by G. Konstantinou).

2.5. First record of the blue crab *Callinectes sapidus* Rathbun in NW Greece

By C. Perdikaris, E. Konstantinidis, A. Ergolavou, E. Gouva and I. Paschos

The blue crab (*Callinectes sapidus* Rathbun, 1896) is one of the most invasive aquatic species in the Mediterranean Sea (Zenetos *et al*., 2010). The first record in Hellenic waters dates back to 1947-1948 (Serbetis, 1959), but Nehring (2011) suggested that the species was present as early as 1935 in the Gulf of Thessaloniki. Recent records in the Adriatic-Ionian Sea refer to Croatia (Onofri *et al*., 2008; Dulčić *et al*., 2011), Italy (Florio *et al*., 2008), Albania (Beqiraj and Kashta, 2010) and Greece (Eleftheriou *et al*., 2011). The last record was based on a female specimen collected close to the mouth of the River Pamisos in SW Greece and therefore, documentation on the presence of the species is lacking for a large part of the Eastern Ionian Sea, ranging from northern Albania to southern Greece.

One large male (TW: 390.41 g; CL: 82.13 mm; CW: 198.99 mm) *C. sapidus* (Fig. 6a) and one large, clawless ovigerous female (TW: 210.35 g; CL: 68.68 mm; CW: 166.32 mm) (Fig. 6b) were caught on April 5, 2012 with gillnets (mesh size: 32 mm, 1.2 m deep and 150 m long) placed overnight at the entrance of Voda estuary, close to the mouth of Kalamas River, NW Greece (39°34'38.15''N, 20°9'17.24'') at 1.0 m depth. The total weight of the egg mass (Fig. 6c) was 42.74 g (about 20.3% of TW), consisting of numerous egg-strands (Fig. 6d). Egg number was calculated using the gravimetric method, at 1.96 x 10^6, was comparable to that of various USA stocks (Millikin and Williams, 1984; Hines *et al*., 2003). Due to brown coloration (Fig. 6c), egg age was at least 8 days post-extrusion (Millikin and Williams, 1984).

Therefore, establishment success and invasiveness can be attributed primarily to (a) the enormous reproductive potential (Hines *et al*., 2003); (b) the ability to move from juvenile (shallow vegetated estuaries) to adult (deep unvegetated estuaries) habitats during the course of development, and the recruitment process at a spatial scale of 10^4 m to 10^5 m (Gillanders *et al*., 2003); and (c) the effective competition for space and resources, assisted by its large size, the armoured exoskeleton, hardiness and polytrophic feeding habits (Millikin and Williams, 1984).

Overall, this work documents the establishment of *C. sapidus* in NW Greece. It is also suspected that the species is present in the Amvrakikos Gulf and the adjacent coastal areas, since it is frequently sold by fishmongers in the towns of Arta and Lefkada (authors' pers. observ.).

2.6. Alien megabiota in the shallow coastal waters of Karpathos and Chalki islands (SE Aegean Sea, Greece)

By S. Katsanevakis

By December 2010, following an uncontested increase during the last decades, the number of recorded alien marine species in Greek waters was estimated at 237, of which 93 have been reported from the Dodekanisos island complex (Zenetos *et al*., 2011). With the exception of the Saronikos Gulf and Rhodes Island, which are systematically monitored for alien species, information on the occupancy and spatial distribution of alien marine species in the Aegean Sea is scattered. A rapid assessment survey was conducted in Karpathos and Chalki islands (Dodekanisos, Aegean Sea, Greece) in July 2012. These two islands are underrepresented in the Hellenic Network on Aquatic Invasive Species (ELNAIS, 2012), although they belong to the highly invaded Dodekanisos area.

The shallow seabed of three sites (two in Karpathos and one in Chalki; Table 3) was surveyed for the presence of alien megabiota by snorkelling during standardized one-hour transects along the coastline, at depths ranging from 0 to 10 m.

Nine alien marine species were recorded: the coarse sea grape *Caulerpa racemosa* var. *cylindracea* (macroalga), the slimy liagora *Ganonema farinosum* (macroalga), the sally lightfoot crab *Percnon gibbesi*, the Persian conch *Conomurex persicus* (gastropod), and five fish species, namely, the dusky spinefoot *Siganus luridus*, the marbled spinefoot *Siganus rivulatus*, the bluespotted cornetfish *Fistularia commersonii*, the yellowstripe barracuda *Sphyraena chrysotaenia*, and the redcoat *Sargocentron rubrum* (Table 3).

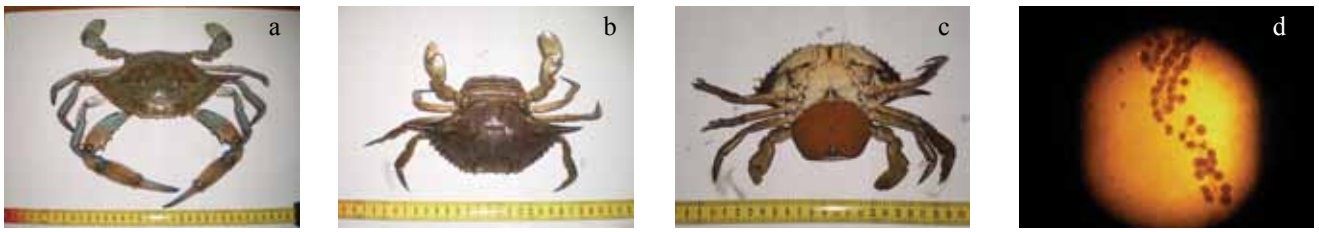


Fig. 6: Male (a) and female (b) *Callinectes sapidus* from NW Greece; extruded egg mass of the female specimen (c) and typical egg-strand (d).

Table 3. Locations of the eight alien species recorded in Karpathos and Chalki Islands. All sites were surveyed during July 2012. Numbers in parentheses indicate the number of observed individuals (or patches for algae); *: > 10 observed individuals; **: > 100 observed individuals (very invasive, dominant in related assemblages).

Site	Geographic coordinates (WGS84)		Species
	Latitude, N	Longitude, E	
Diafani (Karpathos)	35.757	27.2104	*Ganonema farinosum***, *Percnon gibbesi**, *Siganus luridus**, *Siganus rivulatus**, *Conomurex persicus* (8), *Sphyraena chrysotaenia**
Apella (Karpathos)	35.577	27.190	*Siganus luridus**, *Siganus rivulatus**, *Ganonema farinosum**, *Percnon gibbesi**, *Conomurex persicus* (5), *Sargocentron rubrum* (2), *Fistularia commersonii* (2), *Caulerpa racemosa* var. *cylindracea* (1)
Potamos (Chalki)	36.221	27.603	*Siganus luridus***, *Siganus rivulatus**, *Ganonema farinosum***, *Percnon gibbesi* (9), *Conomurex persicus* (3), *Fistularia commersonii* (6), *Sphyraena chrysotaenia**

S. luridus and *S. rivulatus* were the dominant herbivore fish at all 3 sites. They are considered as high-impact invasive species in the eastern Mediterranean Sea outcompeting native herbivores, and altering the community structure and the native food web of the rocky infralittoral zone (Katsanevakis, 2011, and references therein). By overgrazing lush and diverse brown algal forests, they create and maintain barrens (rocky areas almost devoid of erect algae). Such extensive barrens were observed in all three study sites. In many locations (especially in artificial hard substrata such as docks), *G. farinosum* was the dominant species and seemed to be positively affected by overgrazing.

F. commersonii and *P. gibbesi* have been reported recently from Ammopi, a site off the east coast of Karpathos (Nicolaidou *et al*., 2012). *C. racemosa* has been reported previously at 6 sites of Karpathos Island (Catra and Giardina, 2009; Tsiamis *et al*., 2010). The remaining six species are reported herein for the first time from Karpathos and Chalki islands.

2.7. The opah *Lampris guttatus* (Actinopterygii, Lampriformes, Lampridae) in the Calabrian coasts (Southern Italy)

By E. Sperone, V. Circosta, E. Brunelli and S. Tripepi

The opah *Lampris guttatus* (Brünnich, 1788) is a rare species with worldwide oceanic distribution in tropical to temperate waters including the Mediterranean, where documented records exist from Italy (Ligurian Sea and Tyrrhenian Sea), Spain, the Balearic islands, Adriatic Sea, Greece (Aegean Sea), Algeria, French Mediterranean coast of Provence, and Corsica (see Francour *et al.,* 2010 and references therein). Nevertheless, studies on its occurrence, biology and ecology in the Mediterranean are very scarce (Dulčić *et al*., 2005).

Lampris guttatus was found in two sites off the Calabrian coastline, a strategic site for monitoring biological exchanges between the W and E Mediterranean (Nicolaidou *et al*., 2012; Sperone *et al*., 2012): one specimen in the Tyrrhenian Sea (Amantea: 39° 08'N/16° 04'E; April 2009; code: LL1), and another in the Ionian Sea (Soverato: 38° 41'N/16° 33'E; June 2012; code: LL2). Both reports come from catches by rod fishing at a distance from the shore of up to about 800 m. It was not possible to obtain additional biological data.

This record from Amantea (Fig. 7a) confirms the record of Andaloro and Di Natale (1979) for the Tyrrhenian coast of Calabria, while that from Soverato (Fig. 7b) represents the first record of the species in the Ionian Sea (Fig 7b). Furthermore, the record months fit well with the general trend observed in the Mediterranean (Dulčić *et al*., 2005; Psomadakis *et al*., 2006; Francour *et al*., 2010), whereas the capture of one individual at each site confirms the belief that the species is solitary (Palmer, 1986; Dulčić *et al*., 2005). Francour *et al.* (2010) remarked that sightings of *Lampris guttatus* have clearly increased in the last years, especially after 2008, due to the current warming of the Mediterranean Sea, which is acting as

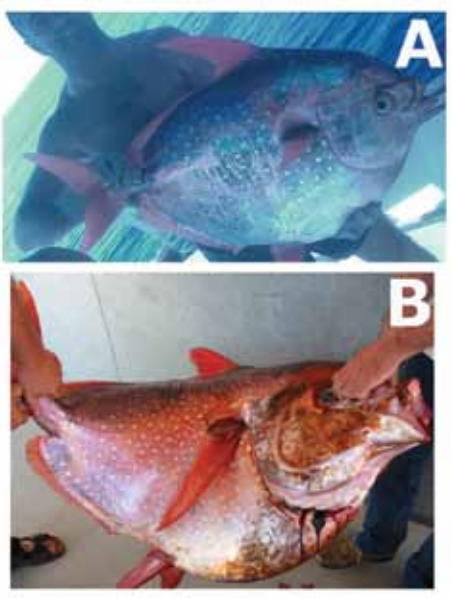


Fig. 7: Specimens of *Lampris guttatus* from Calabria: Tyrrhenian Sea (a) and Ionian Sea (b).

a catchment basin for southern or thermophilic species (Çinar *et al*., 2011; Lefkaditou *et al*., 2011). Opah cannot thermoregulate itself (Polovina *et al.*, 2008) and its spread process appears to be favoured by the present increase in sea temperature. The current records on the Mediterranean opah could be attributed to a previous entry via the Gibraltar Strait, as a consequence of a northward spread of the species in the Atlantic. On the basis of our recent records, we could also assume that this diffusion is actually favouring colonization towards the Eastern Mediterranean, probably through the Strait of Messina.

2.8. The alien sea hare *Aplysia dactylomela* Rang, 1828 (Opistobranchia) in the Boka Kotorska Bay (Montenegro, Adriatic Sea)

By Z. Kljajić and V. Mačić

This note reports, for the first time, the presence of the sea hare *Aplysia dactylomela,* Rang 1828 on the coast of Montenegro (SE Adriatic Sea). *A. dactylomela* was registered twice near the entrance of Boka Kotorska Bay (Herceg Novi inlet N 42° 26' 37.53'' E 18° 30' 27.10'') in November 2011 and January 2012. On both occasions the individuals were photographed on sandy-muddy bottom in a *Cymodocea nodosa* meadow at a depth of 2-3 m. Their length was 15 and 17 cm, approximately (Fig. 8).

The species has a wide distribution in the tropical and warm temperate waters. It is common in the tropical Indian and Pacific Oceans and it is also quite well represented in the Caribbean and the Atlantic islands located along the west coast of Africa. Its first record for the Mediterranean Sea was from Lampedusa island (Italy) in 2002 (Trainito, 2003), followed by records in Sicily and southern Italy, Greece, Cyprus, Turkey, Croatia, Malta and Israel (see in Schembri, 2008; Pasternak & Galil, 2010 and references therein). Although the origin and vector of transportation are not clear (Rudman, 2005), it appears that *A. dactylomela* started to spread in the Mediterranean Sea from its central area.

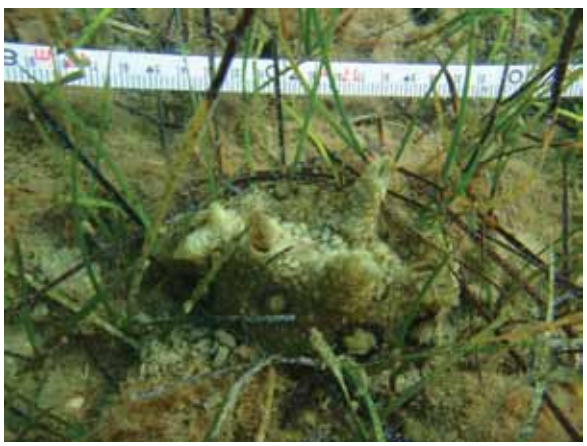


Fig. 8: *Aplysia dactylomela* in the Bay of Boka Kotorska (Montenegro, SE Adriatic)

Considering the long duration of the species' veliger stage (Emore, 2002), as well as the occurrence of northward currents along the SE Adriatic coast (Marini et al., 2010), the spread of *A. dactylomela* in the Adriatic Sea appears to be inevitable, as is true for many other alien species (Katsanevakis et al., 2011b). Nevertheless, *A. dactylomela* has already been recorded (2006) from Croatia, further north in the Adriatic Sea than the present record (Turk, 2006; Despalatović *et al*., 2008). The reason for this could be simply attributed to a smaller research effort in the SE Adriatic, but we would also like to mention the potential effect of the local current regime. Marini *et al*. (2010) described the South-Eastern Shelf Coastal current (SESC) as directed northward and dominated by river runoff. Together with the rivers along the coast of Albania, river Bojana (on the border between Montenegro and Albania) discharges huge quantities of fresh water affecting approximately one hundred kilometres of the coast northward. Thus, the occurrence of a low salinity and temperature surface layer could have inhibited veliger settlement in the SE part of the Adriatic in the past. In accordance with the above, the invading alga *Caulerpa racemosa var. cylindracea* was firstly registered in the central Adriatic in 2000 (Žuljević *et al*., 2003), while in the southern Adriatic (Montenegro) in 2004 (Mačić, 2005). In addition, for several alien species Katsanevakis *et al.* (2011b) found a general pattern of declining occupancy from the northern Ionian Albanian coast towards the SE Adriatic. Affinity and chances of alien establishment in the Southern Adriatic will increase if sea temperature continues to increase and already established species in the central Mediterranean are in expansion.

2.9. New occurrence records of the sea lamprey in the Southern Aegean Sea

By H. Filiz, G. Bilge and M. Erdem

In May 2010, an adult female *Petromyzon marinus* [741 mm total length (TL), Fig. 9a] was caught with a gill-net by an artisanal fisherman in the Gokova Bay (Southern Aegean Sea). The capture point was near the entrance of Kadinazmagi Creek (37° 02' 55" N and 28° 19' 04" E). Descriptive values of body proportions, colour pattern, size and oral disc teeth structure (Fig. 9b), were identical with those of *P. marinus*. This specimen was deposited in the fish collections of the Hydrobiology Department, Faculty of Fisheries, Mugla Sitki Kocman University with catalogue code: MUSUM/PIS/2010-02.

Regarding the western Mediterranean, the sea lamprey occurs along the coast of France, Corsica, Sicily, Malta, Morocco, Algeria, Tunisia, and Italy (Economidis *et al*., 1999). Also, it has been reported from the Adriatic Sea

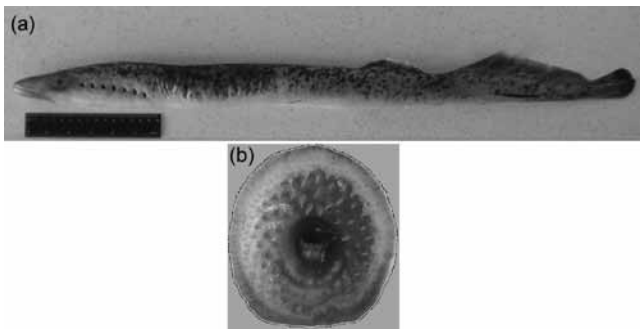


Fig. 9: *Petromyzon marinus* specimen was caught in the Gokova Bay (a) and its oral disc (b).

(Holcik *et al*., 2004). Until now, four doubtful (Aksiray, 1987; Apostolidis, 1883, 1907; Economidis, 1991) and two confirmed records (Economidis *et al*., 1999; Cevik *et al*., 2010) originate from the Eastern Mediterranean.

Adult sea lampreys can be found as ectoparasites on sharks (*Carcharhinus plumbeus*, *C. obscurus*, *Cetorhinus maximus*, *Prionace glauca* and *Somniosus microcephalus*), and on large fish (*Thunnus thynnus* and relatives, and *Xiphias gladius*), or even on some marine mammals. No lampreys were observed, caught or fished in Gokova Bay to-date. However, considering that Boncuk Bay, which is close to the sampling area, is a well known nursery ground for sandbar sharks, a plausible explanation could be its transfer by the sandbar shark (*C. plumbeus*).

2.10. On the occurrence of the whalesucker *Remora australis* (Bennett, 1840) in the Saronikos Gulf

By P. Bekas

The whalesucker *Remora australis* (Order: Perciformes, Family: Echenaidae), is widely distributed in warm seas but is very rare in the Mediterranean basin (Golani *et al.*, 2002). According to Whitehead *et al*. (1986) it is considered as the rarest member of the family. The only records of this species in the Mediterranean are from Trieste (Perugia, 1881, as *Echeneis scutata*), Rhodes (Tortonese, 1946), Israel (Ben Tuvia, 1971) and the Tyrrhenian Sea (Tortonese, 1973).

A small individual, identified according to the criteria of Whitehead *et al.* (1986), (Fig. 10) was captured on 07.10.2012 by a trawler in the Saronikos Gulf at 37 50 127 N, 23 38 157 E, about 3 nm NE of Aigina island. It measured 74.55 mm in total length (TL), 65.38 mm in standard length (SL), 32.85 mm in disc length (DL), and 19.90 mm in head length (HL). All measurements were taken using an electronic calliper. It had 27 disc laminae (Fig. 10b), 23 anal finrays , 34 dorsal finrays, and 22 pectoral finrays. The individual weighted 2.80 g. The gender, due to small size, was impossible to identify. The occurrence in a coastal environment, such as the Saronikos Gulf, of a species that generally inhabits open seas is remarkable.

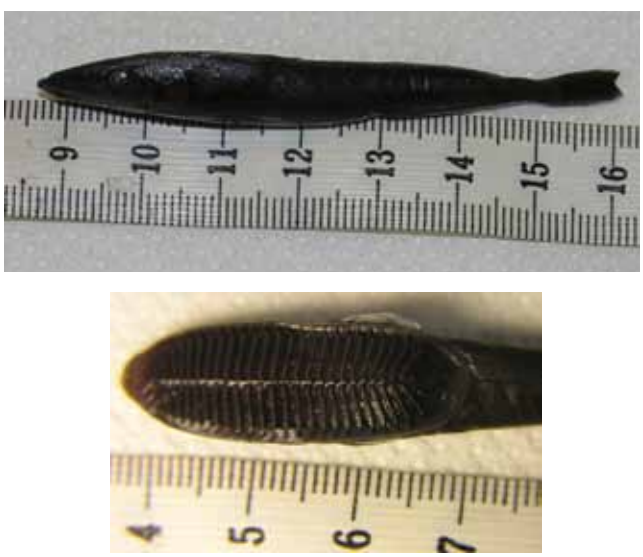


Fig. 10: *Remora australis:* a) whole animal, b) details of the disc.

2.11. *Cerberilla bernadettae* (Gastropoda: Opisthobranchia) Tardy 1965, a new species for the East Mediterranean Sea

By D. Poursanidis and L. Tsiakkiros

Cyprus is a Eurasian island in the Eastern Mediterranean and the third largest island in the Mediterranean Sea. The marine malacofauna of this area consists of 645 species (Tsiakkiros and Zenetos, 2011). 13 species of the genus *Cerberilla* exist worldwide, while only 1 occurs in the Mediterranean Sea. *Cerberilla* species are mainly soft bottom inhabitants, where they burrow and hide themselves in the soft bottom during the day.

A single specimen of *Cerberilla bernadettae* Tardy 1965 (Fig. 11) was captured and photographed during a SCUBA diving activity for underwater photography on 19 August 2011 at Ais Giorgis Alamanou area (X=

***Fig. 11*:** In situ photo of *Cerberilla bernadettae* as it tries to borrow in soft bottom, lateral view.

33.226879 , Y= 34.719412) at a depth of 4 m. The specimen was found on sandy bottom.

This is the first time *Cerberilla bernadettae* is reported from the Eastern Mediterranean Sea. In the western Mediterranean, the species has been recorded from continental France (Montaoudouin and Sauriau, 2000), Sardinia (Cattaneo-Vietti *et al*., 1993), Tunisia (Rudman, 2003) and Corsica (Daniel *et al*., 2010). *Cerberilla bernadettae* is a sand borrowing species and sea anemone specific feeder. *Cerberilla bernadettae* is found in soft bottom substrate from the depth of 10 meters and deeper (Tardy, 1965). As a soft bottom inhabitant, it is not well known to recreational divers. Recreational divers can offer useful information to the scientific community, under certain circumstances (marine environmental projects for specific areas of zoology, local diving clubs with environmental orientation, collaboration of diving clubs with universities and research institutes). Nevertheless, divers prefer hard bottom sites for the beauty of the seascapes, fish schools, corals, etc, and rarely visit sandy sites. This may contribute to the paucity of information on opisthobranch fauna living on soft bottom, sand borrowers in particular.

2.12. *Pteragogus pelycus* (Randall, 1981) in the Cretan Sea

By A. Sterioti

Two specimens of *Pteragogus pelycus* (sideburn wrasse) (Randall, 1981) were caught in late summer (23 August 2005) and in autumn (27 September 2011) during bottom trawl survey cruises over the Cretan shelf (NE Mediterranean Sea) in the eastern part of Heraklion Bay (along a transect perpendicular to the coastline of 25°09-11' to 35°18). They were fished on board the R/V Philia, using a typical Greek commercial bottom trawl in order to collect live organisms for the Cretaquarium. Both hauls were made during daylight hours. The trawls were towed at depths of between 15-33 m on a sandy, sandy-muddy bottom covered with *Posidonia* beds. The mean size of the individuals was 7.5 cm in total length and 6.0 g in weight.

In both cases, the sideburn wrasses were transferred alive with other coastal species such as: *Xyrichthys novacula*, *Siganus luridus*, *Stephanolepis diaspros*, *Serranus cabrilla*, *Bothus podas*, *Lithognathus mormyrus*, *Sparus annularis*, *Pagrus pagrus*, *Spicara smaris* and *Synodus saurus* to the Cretaquarium facilities (HCMR, Gournes, Heraklion, Crete), under oxygenation conditions with pure oxygen support. They were placed in quarantine tanks for deparasitization and preventive treatments before being transferred to the Cretaquarium's show tanks.

In the first case, the sideburn wrasse survived for more than 4 years and in the second one the specimen

Fig. 12: *Pteragogus pelycus* kept at the Cretaquarium (photo Cretaquarium, HCMR).

(Fig. 12) is still alive (October 2012). This is the first record of *P. pelycus* in the Cretan Sea, an area gradually visited by lessepsian immigrants.

2.13. New ascidian records (Chordata: Tunicata) for the Aegean Sea (Eastern Mediterranean)

By D. Koutsogiannopoulos, A. Zenetos and A.A. Ramos-Esplá

Available information on the ascidiofauna of the Aegean Sea is relatively restricted compared to other parts of the Mediterranean (Ligurian, Tyrrhenian, Balearic, Adriatic Seas). Nevertheless, Koukouras *et al.* (1995) compiled the dispersed bibliography on Aegean ascidians, adding new records, and sixty-seven species were listed. At a later date, Morri *et al.* (1999) and Kondilatos *et al.* (2010) added *Polyclinum aurantium* and *Phallusia nigra*, respectively, to the ascidian inventory. From 2008 to 2012, scuba diving observations in shallow depths (0-2 m) on rocky bottoms in the Northern Aegean (Chalkidiki), Messiniakos Gulf, Paros Island and Argolikos Gulf have contributed to this inventory bringing the total number to seventy-two species, including three new records: *Lissoclinum perforatum*, *Ciona roulei* and *Ecteinascidia turbinata*. Another interesting observation reported herein concerns the non-indigenous ascidian *Phallusia nigra* that has extended its distributional range to the northern sector of the Aegean Sea.

Lissoclinum perforatum
(Giard, 1872) (Fig. 13a)
Restricted synonymy: *Diplosoma pseudoleptoclinum* Von Drasche, 1883;
Lissoclinum argyllense Millar, 1950

L. perforatum, is distributed in the Atlantic, from temperate (Norway) to warm waters (Tropical Western Atlantic, Mediterranean Sea). It was observed at Avia beach (36°57'49.95"N - 22° 8'27.05"E) in the Messiniakos Gulf, Peloponnese, on 17 July 2008, at a depth of about 0.5 m. The seascape consisted of large rocks and a pebble-sandy bottom. The temperature was between 24°C and 26°C; water transparency was good to medium (up to 20 m). *L. perforatum* is a rather common species, usually found on rocky sub-vertical surfaces and crevices.

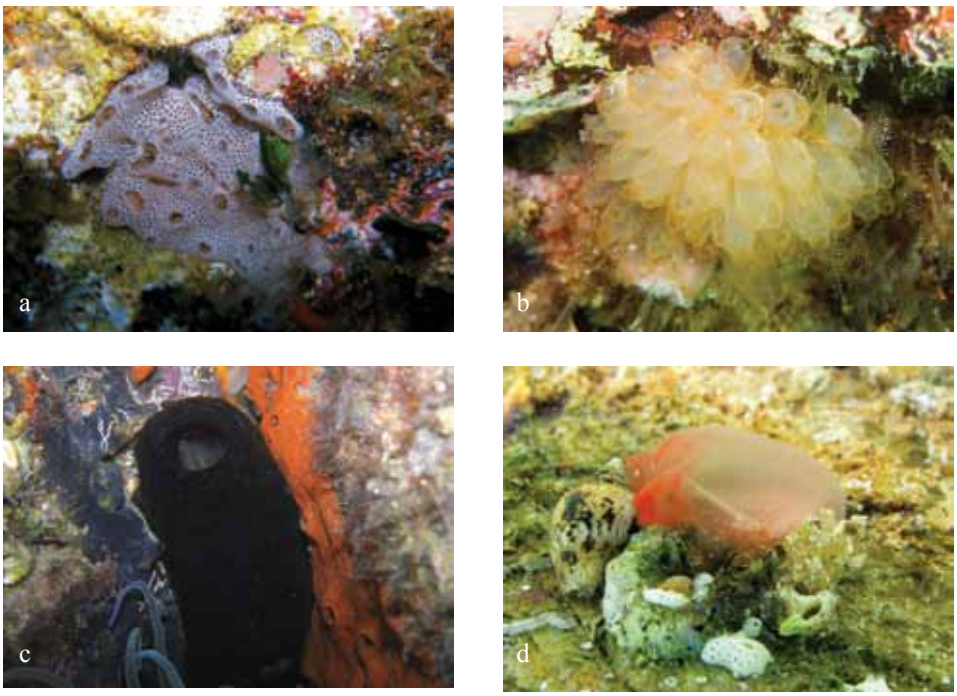


Fig. 13: (a) *Lissoclinum perforatum*; (b) *Ecteinascidia turbinata*; (c) *Phallusia nigra*; (d) *Ciona roulei* (photos by D. Koutsogiannopoulos).

Ciona roulei Lahille, 1887 (Fig. 13d)

C. roulei is an endemic Mediterranean Sea ascidian. It was observed at Kolimbithres beach (37° 7'37.73"N - 25°12'47.55"E), Paros Island, on 18 August 2012, at a depth of about 0.5 m. Kolimbithres is a small protected bay with a sandy bottom and some rocks in the northern sector. The temperature was between 23ºC and 25ºC; water transparency wasup to 25 m. *C. roulei* is a rather common species on photophilic rock with a large number of *Anemonia viridis*.

Ecteinascidia turbinata Herman, 1880 (Fig. 13b)
Restricted synonymy: *Ecteinascidia moorei* Herdman, 1891

E. turbinata is an amphi-atlantic species present in warm waters. The species was found at Saladi beach (37°26'36.48"N - 23° 7'30.32"E) in the Argolikos Gulf, Peloponnese, in 2011 (02.07.2011) and 2012 (29.07.2012). In both cases, the depth was between 1 and 1.5 m. The habitat was rocky surrounded by sandy bottom with dispered large round rocks and small patches of *Posidonia*. Water transparency was medium to poor (up to 10 m), while temperature ranged between 20ºC and 23ºC. In July 2011, a large number zooid colonies were found, consisting of about 20-30 zooids/colony, with some as large as 100 zooids/colony; the density was about 0.1 colonies/m^2. In July 2012, the density was very low (0.025 colonies/ m^2), and the colonies presented very few zooids (< 10). The colonies were located on photophilic rocky substrata together with *Pinctata radiata*.

Phallusia nigra Savigny, 1816 (Fig. 13c)
Restricted synonymies: *Ascidia atra* Lesueur, 1923; *Ascidia somalensis* Sluiter, 1905

P. nigra is a pantropical species that has colonized the eastern part of the Levantine basin (Izquierdo *et al*., 2009), reaching the south-eastern part of Rhodes (Kondilatos *et al*., 2010). It was found only once at Peristera Island (40°13'39.27'' N - 23°45'55.94'' E) in Chalkidiki (North Aegean) on 27 August 2008, in very shallow waters (0.5 m). The observation area was located in a closed bay, on a bottom covered with pebbles, sand and *Posidonia* mats. The temperature was between 22ºC and 24ºC; water transparency was medium (up to 15 m). The species appears to be very rare; only one specimen was observed in a rock crevice during a 20-day diving period organised around the island. The present record represents the northernmost citation for this species in the Mediterranean Sea.

2.14 New findings of the bryozoan *Electra tenella* (Hincks) in the Mediterranean: are we seeing the spreading of an alien species?

By A. Rosso

Electra tenella (Hincks, 1880), a species originally described from Florida on a single specimen encrusting algae, was subsequently recorded from western Atlantic tropical waters as south as Brazil living on algae, barnacles and shells. It has been also found as pseudoplanc-

ton on washed wood and plastic debris (Winston, 1982). From outside this area *E. tenella* has been reported from Japan and New Zealand harbours (Gordon and Mawatari, 1992, and references therein) as well as temporarily in the Mumbay harbour in India (Gaonkar *et al*., 2010).

In the Mediterranean Sea, *E. tenella* was first reported by Rosso (1994) in two sites along the E coast of Sicily. Some colonies encrusted experimental plastic tanks, located in *Cymodocea nodosa*/*Caulerpa prolifera* carpets in 5 m depth (spring-summer 1990). Additional colonies were collected a bit northward, at the mouth of the S. Leonardo River (autumn 1990) on washed drifted plastics. It was suggested that *E. tenella* was an alien species in the Mediterranean Sea, presumably transported through shipping and possibly established, at least in some areas along the SE Sicily. Since then, the species has been listed in a series of reports and papers about alien species from Italian waters and the Mediterranean as a whole but never found again in other localities.

New findings are here reported from two Italian localities: the harbour of Livorno (43°33'40"N; 10°17'51"E) along the coasts of Tuscany, N Tyrrhenian Sea, and the Capo Rasocolmo beach (38°18'04"N; 15°32'26"E) near Messina, NE Sicily. In the first locality (July 2011), a very wide multilayered colony was collected encrusting a dismissed nautical propeller left in a sea-side part of the Livorno harbour. The species cohabited with oysters, serpulids and some other bryozoans, among which *Schizoporella errata* (Waters). In the second case (February 2012), pieces apparently belonging to more than a single colony were discovered encrusting a fruit plastic box drifted on the beach.

SEM images of both *E. tenella* specimens (Fig. 14) displayed widely variable features but falling within the known species variability (Rosso, 1994). *E. tenella* is an unilaminar encrusting anascan bryozoan with a lightly mineralised skeleton and a very simple morphology. Autozooids are in close contact with each other, and characterised by the presence of a proximal gymnocyst showing one or two erect strong pointed processes, and an extremely thin, beaded cryptocyst, becoming nearly absent along the distal portion. Spines are commonly present on large areas of the colonies, their number ranging from 1-2 to 10-15. Variability relates to autozooid shape/size and length/width ratio (causing elongated-to-stout and oval-to-rectangular-shapes) and to the number and dimensions of the peri-opesiular spines. The NE Sicily specimens showed numerous strong spines whereas those from Tuscany had less numerous tiny spines. Both morphologies have been previously observed on single colonies from SE Sicily (Rosso, 1994).

The new findings confirm what could be expected, namely that *E. tenella* is probably spreading in the Mediterranean. Particularly, the present two localities are far from the previously known ones and pertain to different basins: the Tyrrhenian Sea (Western Mediterranean) opposed to the Ionian Sea (Central Mediterranean).

Interestingly, Livorno is one of the most important harbours in Italy, frequented by cruise and cargo ships, as well as by pleasure boats. The other record is from a coastal area located NW to the Messina Strait, one of the most travelled sea-water route in the Mediterranean. Consequently, these findings support the idea that the species arrived, and probably spread, in the Mediterranean through shipping activities (Rosso, 1994). The hypothesis that *E. tenella* is transported by ships, or at least that shipping is involved in its transport, has been also demonstrated by its findings inside sea-chests of vessels visiting ports in New Zealand (Coutts and Dodgshun, 2007) where *E. tenella* has been documented as an alien species since the '90s (Gordon and Mawatari, 1992).

Furthermore, once arrived and established, the species widens local distribution through its ability in colonizing drifted plastics, a behaviour recorded by Winston

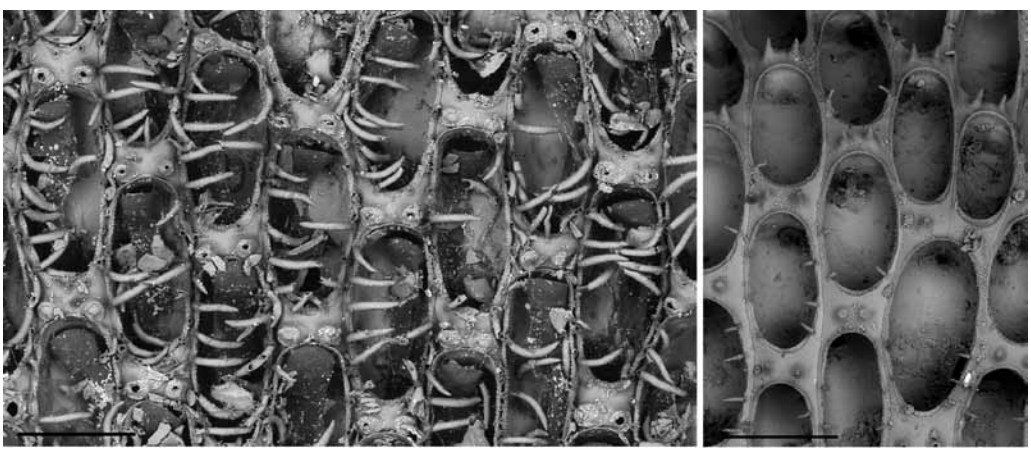


Fig. 14: *Electra tenella* (Hincks) from the Mediterranean Sea. Left: spiny aspect of some zooids from a drifted plastic box collected on the Rasocolmo beach (NE Sicily) on February 2012; Right: some zooids with only few, small spines from the Livorno harbour collected on July 2011.

(1982) and Thiel and Gutow (2005). Winston (1982) remarked the absence of *E. tenella* from floating natural substrata, and the opposite ability to exploit the particular niche offered by anthropogenic floating material. For its ability to colonize several kinds of anthropogenic floating object, it could be expected that *E. tenella* is potentially expanded (or could become expanded) in wide sectors of the Mediterranean Sea, other than those from which it is known at present. Nevertheless, bearing in mind Winston (1982) results, and particularly the poor presence of *E. tenella* in coastal natural environments, even in regions where it was abundant on drifted plastics, the species could be considered not particularly dangerous or invasive.

Acknowledgements

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References

Aksiray, F., 1987. *Marine fishes of Turkey*. İstanbul, İstanbul University Press, 811 pp.

Aleem, A.A., 1993. *The marine algae of Alexandria, Egypt.* Egypt, University of Alexandria Publications, 138 pp. (privately published).

Andaloro, F. & Di Natale, A., 1979. Ritrovamento di un esemplare di *Lampris guttatus* (Brünnish, 1788) (Pisces, Lampridae) nelle acque del basso Tirreno. *Memorie di Biologia Marina e di Oceanografia*, 9 (4): 111-113.

Apostolidis, N.C., 1883. *La pêche en Grèce*. *Faune Ichthyologique de Grèce*. Athènes, Typographie de Perris Freres, 87 pp.

Apostolidis, N.C., 1907. *La pêche en Grèce: ichthyologie, migrations engins et manieres de peche, produits*. Athènes, Hestia, 68 pp.

Bello, G., 2009. On the presence of *Thysanoteuthis rhombus* (Cephalopoda: Thysanoteuthidae) in the Adriatic Sea. *Marine Biodiversity Records*, 2: 1-2. doi: 10.1017/S1755267209990819.

Ben-Tuvia, A., 1971. Revised list of the Mediterranean fishes of Israel. *Israel Journal of Zoology*, 20: 1-39.

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.

Cannicci, S., Balamenti, F., Milazzo, M., Gomei, M., Baccarella, A. *et al.,* 2004. Unveiling the secrets of a successful invader: preliminary data on the biology and the ecology of the crab *Percnon gibbesi* (H. Milne Edwards, 1853). *Procès-verbaux des Réunions Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée*, 37: 326.

Catra, M. & Giardina, S., 2009. A survey of the marine macroalgae of Karpathos Island (the Aegean Sea, Greece). *Plant Biosystems*, 143 (3): 509-515.

Cattaneo-Vietti, R., Chemello, R. & Trainito, E., 1993. An account on the Opisthobranchs of North Eastern Sardinia with a record of *Cerberilla bernadettae* Tardy 1965 (Nudibranchia; Aeolidiina). *Lavori della Società Italiana di Malacologia*, 24: 61-68.

Çevik, C., Ergüden, D. & Tekelioglu, N., 2010. Confirmation of the presence of the sea lamprey *Petromyzon marinus* Linnaeus, 1758 in the Levantine Sea (Petromyzoniformes: Petromyzonidae). *Zoology in the Middle East*, 49:107-108.

Çinar, M.E., Bilecenoğlu, M., Öztürk, B., Katağan, T., Yokeş, M.B. *et al.,* 2011. An updated review of alien species on the coasts of Turkey. *Mediterranean Marine Science*, 12 (2): 257-315.

Cormaci, M., Furnari, G., Giaccone, G. & Serio, D., 2004. Alien macrophytes in the Mediterranean Sea: a review. *Recent Research Developments in Environmental Biology,* 1: 153-202.

Cosentino, A., Giacobbe, S. & Potoschi, A., 2010. The CSI of the Faro Lake (Messina): a natural observatory for the incoming of marine alien species. *Biologia Marina Mediterranea,* 16 (1): 132-133.

Coutts, A.D.M. & Dodgshun, T.J., 2007. The nature and extent of organisms in vessel sea-chests: A protected mechanism for marine bioinvasions. *Marine Pollution Bulletin*, 54 (7): 875-886.

Crocetta, F., 2012. Marine alien Mollusca in Italy: a critical review and state of the knowledge. *Journal of the Marine Biological Association of the UK*, 92 (6): 1357-1365.

Daniel, A., Sittler, A.-P., Muller, Y. & Buron, D., 2010. *Cerberilla bernadettae Tardy, 1965*. DORIS, 31/12/2010. http://doris.ffessm.fr/fiche2.asp?fiche_numero=1995) (Accessed on 25 October 2012).

de Montaudouin, X. & Sauriau, P-G., 2000. Contribution to a sypnosis of marine species richness in the Pertuis Charentais Sea with new insights in soft-bottom macrofauna of the Marennes-Oléron Bay. *Cahiers de Biologie Marine*, 41 (2), 181-222.

Despalatović, M., Grubelić, I., Nikolić, V., Dragičević, B., Dulčić, J. *et al.,* 2008. Allochthonous warm water species in the benthic communities and ichthyofauna of the eastern part of the Adriatic Sea. *CIESM Workshop Monographs,* 35: 51-57.

Deudero, S., Frau, A., Cedra, M. & Hampel, H., 2005. Distribution and densities of the decapod crab *Percnon gibbesi,* an invasive Grapsidae, in western Mediterranean waters. *Marine Ecology Progress Series,* 285: 151-156.

Dulčić, J., Jardas, I. & Pallaoro, A., 2005. New record of *Lampris guttatus* (Lampridae) in the Adriatic waters with review of Adriatic records. *Cybium*, 29 (2): 195-197.

Dulčić, J., Tutman, P., Matić-Skoko, S. & Glamuzina, B., 2011.

Six years from first record to population establishment: the case of the blue crab, *Callinectes sapidus* Rathbun, 1896 (Brachyura, Portunidae) in the Neretva river delta (south-eastern Adriatic Sea, Croatia). *Crustaceana*, 84 (10): 1211-1220.

EastMed, 2010. *Report of the Sub-Regional Technical meeting on the Lessepsian migration and its impact on Eastern Mediterranean fishery*. Scientific and Institutional Cooperation to Support Responsible Fisheries in the Eastern Mediterranean. GCP/INT/041/EC – GRE – ITA/TD-04. Athens, 138 pp.

Economidis, P.S., 1991. *Check list of freshwater fishes of Greece: recent status of threats and protection*. Athens, Hellenic Society for the Protection of Nature, 47 pp.

Economidis, P.S., Kallianiotis, A. & Psaltopoulou, H., 1999. Two records of sea lamprey from the North Aegean Sea. *Journal of Fish Biology*, 55 (5): 1114-1118.

ELNAIS, 2012. *Ellenic Network of Aquatic Invasive Species*. https://services. ath.hcmr.gr. (Accessed on 25 August 2012).

Eleftheriou, A., Anagnostopoulou-Visilia, E., Anastasopoulou, E., Ateş, S.A., Bachari, N. El I. *et al*., 2011. New Mediterranean Biodiversity Records (December 2011). *Mediterranean Marine Science*, 12 (2): 491-508.

Emore, M., 2002. "*Aplysia dactylomela*" (On-line). Animal Diversity Web. http://animaldiversity.ummz.umich.edu/site/accounts/information/Aplysia_dactylomela.html. (Accessed on 21 August 2012).

Ezzeddine-Najai, S., 1996. On the presence of a new species of cephalopod *Thysanoteuthis rhombus* Troschel, 1857 on the north and south coasts of Tunisia. p. 64 In: *IV International Symposium on Cephalopods - Present and Past.* F. Oloriz & F.J. Rodrigues-Tovar (Ed). Granada, Spain, Department of Paleontology, University of Granada.

Florio, M., Breber, P., Scirocco, T., Specchiulli, A., Cilenti, L. *et al.,* 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.

Francour, P., Cottalorda, J.-M., Aubert, M., Bava, S., Colombey, M. *et al.,* 2010. Recent occurrences of opah, *Lampris guttatus* (Actinopterygii, Lampriformes, Lampridae), in the Western Mediterranean Sea. *Acta Ichthyologica et Piscatoria*, 40 (1): 91-98.

Froglia, C. & Speranza, S., 1993. First record of *Dyspanopeus sayi* (Smith, 1869) in the Mediterranean Sea (Crustacea: Decapoda: Xanthidae). *Quaderni dell' Istituto Ricerche Pesca Marittima*, 5 (2): 163-166.

Gallardo, T., Gómez Garreta, A., Ribera, M.A., Cormaci, M., Furnari, G. *et al.,* 1993. Check-list of Mediterranean Seaweeds, II. Chlorophyceae Wille *s.l. Botanica Marina,* 36 (5): 399-422.

Gaonkar, C.A., Sawant, S.S., Anil, A.C., Krishnamurthy, V. & Harkantra, S.N., 2010. Changes in the occurrence of hard substratum fauna: A case study from Mumbay harbour, India. *Indian Journal of Marine Sciences*, 39 (1): 74-84.

Gillanders, B.M., Able, K.W., Brown, J.A., Eggleston, D.B. & Sheridan, P.F., 2003. Evidence of connectivity between juvenile and adult habitats for mobile marine faunas: an important component of nurseries. *Marine Ecology Progress Series*, 247: 281-295.

Giordano, D., Perdichizzi, F. & Greco, S., 1998. About a couple of *Thysanoteuthis rhombus* (Cephalopoda, Thysanoteuthidae) found in the Strait of Messina (Sicily). *Rapports et Procès-Verbaux des Réunions de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée*, 35: 436-437.

Golani, D., Orsi-Relini, L., Massutí, E. & Quignard, J.P., 2002. *CIESM Atlas of exotic fishes in the Mediterranean. Vol 1. Fishes.* Monaco, CIESM Publishers, 256 pp.

Gordon, D.P. & Mawatari, S.F., 1992. Atlas of Marine-fouling Bryozoa of New Zealand Ports and Harbours. *Miscellaneous Publications - New Zealand Oceanographic Institute*, 107: 1-52.

Guiry, M.D. & Guiry, G.M., 2012. *AlgaeBase. World-wide electronic publication.* National University of Ireland, Galway. http://www.algaebase.org. (Accessed on 10 July 2012).

Hines, A.H., Jivoff, P.R., Bushmann, P.J., van Montfrans, J., Reed, S.A. *et al.,* 2003. Evidence for sperm limitation in the blue crab, *Callinectes sapidus*. *Bulletin of Marine Science*, 72 (2): 287-310.

Hoffman, R., Shemesh, E., Ramot, M., Dubinsky, Z., Pinchasov-Grinblat, Y. & Iluz, D., 2011. First record of the Indo-Pacific seaweed *Codium arabicum* Kütz. (Bryopsidales, Chlorophyta) in the Mediterranean Sea. *Botanica Marina,* 54 (5): 487-495.

Holčík, J., Delić, A., Kučinić, M., Bukvić, V. & Vater, M., 2004. Distribution and morphology of the sea lamprey from the Balkan Coasts of the Adriatic Sea. *Journal of Fish Biology*, 64 (2): 514-527.

Israel, A., Einav, R., Silva, P.C., Paz, G., Chacana, M.E. & Douek, J., 2010. First report of the seaweed *Codium parvulum* (Chlorophyta) in Mediterranean waters: recent blooms on the northern shores of Israel. *Phycologia,* 49 (2): 107-112.

Izquierdo-Muñoz, A., Díaz-Valdés, M. & Ramos-Esplá, A.A., 2009. Recent non-indigenous ascidians in the Mediterranean Sea. *Aquatic Invasi*ons, 4 (1): 59-64.

Jereb, P. & Ragonese, S., 1994. Su due grandi esemplari di *Thysanoteuthis rhombus* (Cephalopoda, Thysanoteuthidae), catturati a Mazara dei Vallo (Canale di Sicilia, Mediterraneo Centrale). *Biologia Marina Mediterranea*, 1: 289-290.

Katsanevakis, S., 2011. Rapid assessment of the marine alien megabiota in the shallow coastal waters of the Greek islands, Paros and Antiparos, Aegean Sea. *Aquatic Invasions*, 6 (Suppl.1): 133-137.

Katsanevakis, S., Poursanidis, D., Yokes, M.B., Marčić, V., Beqiraj, S., *et al.,* 2011a. Twelve years after the first report of the crab *Percnon gibbesi* (H. Milne Edwards, 1853) in the Mediterranean: current distribution and invasion rates. *Journal of Biological Research-Thessaloniki,* 16: 224-236.

Katsanevakis, S., Tsiamis, K., Ioannou, G., Michailidis, N. & Zenetos, A., 2009. Inventory of alien marine species of Cyprus (2009). *Mediterranean Marine Science,* 10 (2): 109-133.

Katsanevakis, S., Zenetos, A., Mačić, V., Beqiraj, S., Poursanidis, D. & Kashta, L., 2011b. Invading the Adriatic: spatial patterns of marine alien species across the Ionian - Adriatic boundary. *Aquatic Biology,* 13: 107-118.

Kondilatos, G., Corsini-Foka, M. & Pancucci-Papadopoulou, M.A., 2010. Occurence of the first non-indigenous ascidian *Phallusia nigra* Savigny, 1816 (Tunicata: Ascidiacea) in Greek waters. *Aquatic Invasions*, 5 (2): 181-184.

Koukouras, A., Voultsiadou, E., Kevrekidis, T. & Vafidis, D.,

1995. Ascidian fauna of the Aegean Sea. With a check list of the Eastern Mediterranean and Black Sea species. *Annales de l'Institute Oceanographique, Paris,* 71 (1): 19-34.

Lefkaditou, E., Peristeraki, P., Chartosia, N. & Salman, A., 2011. Recent findings of *Ommastrephes bartramii* (Cephalopoda: Ommastrephidae) in the eastern Mediterranean and the implication on its range expansion. *Mediterranean Marine Science*, 12 (2): 413-428.

Mačić, V., 2005. Alga *Caulerpa racemosa* i na crnogorskom primorju. *Hydrores Information*, *Anno XXI*, 26: 42-44.

Marčić, Z., Ćaleta, M., Buj, I., Mrakovčić, M., Mustafić, M. *et al.,* 2009. First record of *Thysanoteuthis rhombus* (Cephalopoda: Thysanoteuthidae) in the Adriatic Sea. *Marine Biodiversity Records,* 2: 1-3.

Marini, M., Grilli, F., Guarnieri, A., Jones, B.H., Klajic, Z. *et al.,* 2010. Is the southeastern Adriatic Sea coastal strip a eutrophic area? *Estuarine, Coastal & Shelf Science,* 88 (3): 395-406.

Micu, D., Niță V. & Todorova, V., 2010. First record of Say's mud crab *Dyspanopeus sayi* (Brachyura: Xanthoidea: Panopeidae) from the Black Sea. *Marine Biodiversity Records*, 3: 1-6.

Millikin, M.R. & Williams, A.B., 1984. Synopsis of biological data on the blue crab Callinectes sapidus Rathbun. *NOAA Technical report NMFS 1, FAO Fisheries Synopsis 138*, 39 pp.

Mizzan, L., 1995. Notes on presence and diffusion of *Dyspanopeus sayi* in the Venetian Lagoon. *Bollettino del Museo Civico di Storia Naturale di Venezia*, 44: 121-129.

Morales, E., 1981. Presencia de *Thysanoteuthis rhombus* Troschel, en el puerto de Mahon (Menorca). *Investigacion Pesquera*, 45 (1): 17-20.

Morri, C., Bianchi, C.N., Cocito, S., Peirano, A., De Biase, A.M. *et al.,* 1999. Biodivesity of marine sessile epifauna at an Aegean island subject to hydrothermal activity: Milos, eastern Mediterranean Sea. *Marine Biology*, 135: 729-739.

Nehring, S., 2011. Invasion history and success of the American Blue crab *Callinectes sapidus* in European and adjacent waters. p. 607-624. In: *In the wrong place - alien marine crustaceans: distribution, biology and impacts*. B.S. Galil, *et al*. (Eds). Invading Nature-Springer Series in Invasion Ecology. Vol. 6. Netherlands, Springer.

Nicolaidou, A., Alongi, G., Aydogan, O., Catra, M., Cavas, L. *et al*., 2012. New mediterranean biodiversity records (June 2012). *Mediterranean Marine Science,* 13 (1): 162-174.

Oliveira-Carvalho, M.F., Pereira, S.M.B. & Pedroche, F.F., 2010. Taxonomy and distribution of the green algal genus *Codium* (Bryopsidales, Chlorophyta) in Brazil. *Nova Hedwigia,* 91(1-2): 87-109.

Onofri, V., Dulčić, J., Conides, A., Matić-Skoko, S. & Glamuzina, B., 2008. The occurrence of the blue crab, *Callinectes sapidus* Rathbun, 1896 (Decapoda, Brachyura, Portunidae) in the eastern Adriatic (Croatian coast). *Crustaceana,* 81 (4): 403-409.

Palmer, G., 1986. Lampriddidae. p. 725-726. In: *Fishes of the north-eastern Atlantic and the Mediterranean. Vol. 2.* Whitehead, P.J.P. *et al.* (Eds). Paris, UNESCO.

Pasternak, G. & Galil, B.S., 2010. Occurrence of the alien sea hare *Aplysia dactylomela* Rang, 1828 (Opisthobranchia, Aplysiidae) in Israel. *Aquatic Invasions*, 5 (4): 437-440.

Perugia, A. 1881. *Elenco dei pesci dell Adriatico*. Milano, Hoepli, 60 pp.

Pipitone, C., Badalamenti, F. & Sparrow, A., 2001. Contribution to the knowledge of *Percnon gibbesi* (Decapoda, Grapsidae), an exotic species spreading rapidly in Sicilian waters. *Crustaceana,* 74 (10): 1009-1017.

Polovina, J.J., Hawn, D. & Abecassis, M., 2008. Vertical movement and habitat of opah (*Lampris guttatus*) in the central North Pacific recorded with pop-up archival tags. *Marine Biology*, 153 (3): 257-267.

Psomadakis, P.N., Scacco, U. & Vacchi, M., 2006. Recent findings of some uncommon fishes from the central Tyrrhenian Sea. *Cybium,* 30 (4): 297-304.

Rosso, A., 1994. Segnalazione di *Electra tenella* (HINCKS) (Bryozoa) lungo il versante sud-orientale della Sicilia. *Bollettino dell' Accademia Gioenia di Scienze Naturali in Catania*, 27 (346): 241-251.

Rudman, W.B., 2003. Cerberilla bernadettae *Tardy, 1965*. **Sea** Slug Forum. Australian Museum, Sydney. Available from http://www.seaslugforum.net/find/cerbbern.

Rudman, W.B., 2005. Comment on *Aplysia dactylomela from Cyprus by Samantha Cooke.* Sea Slug Forum. Australian Museum, Sydney. Available from http://www.seaslugforum.net/find/15021.

Schaub, R. von, 1889. Űber marine Hydrachniden nebst einiger bemerkungen über *Midea* (BRUZ). Sitzungsber, Akademie Wien, Bd. 98.

Schembri, P.J., 2008. Occurrence of the alien sea hare *Aplysia dactylomela* Range, 1828 (Opisthobranchia, Aplysiidae) in Malta. *Mediterranean Marine Science,* 9 (2): 111-114.

Schubart, C.D., Guerao, G. & Abelló, P., 2012. First record and evidence of an established population of the North American mud crab *Dyspanopeus sayi* (Brachyura: Heterotremata: Panopeidae) in the western Mediterranean. *Scientia Marina*, 76 (1): 79-85.

Sciberras, M. & Schembri, P.J., 2007. Observations on the alien crab *Percnon gibbesi* (Decapoda, Brachyura, Grapsidae) from the Maltese Islands. *Rapports et Procès-verbaux des Réunions Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée,* 38: 594.

Serbetis, C., 1959. Un nouveau crustacé comestible en mer Egeé *Callinectes sapidus* Rath. (Decapod brach.). *General Fisheries Council for the Mediterranean* (*GFMC*), *Proceedings and Technical Papers*, 5: 505-507.

Silva, P.C., 1960. *Codium* (Chlorophyta) of the tropical western Atlantic. *Nova Hedwigia,* 1 (3-4): 497-536.

Smit, H., 2012. *Pontarachnidae*. World Register of Marine Species. http://www. marine-species.org/aphia. php?p=taxdetails&id=227527. (Accessed on 2012-04-13).

Sperone, E., Parise, G., Leone, A., Milazzo, C., Circosta, V. *et al.,* 2012. Spatiotemporal patterns of distribution of large predatory sharks in Calabria (central Mediterranean, southern Italy). *Acta Adriatica*, 53 (1): 13-24.

Tardy, J., 1965. Description et biologie de *Cerberilla bernadetti*, espèce nouvelle de Gastéropode Nudibranche de la côte atlantique française: discussion sur la position systématique du genre. *Bulletin de l'Institut Océanographique de Monaco*, 1349: 1-22.

Taşkın, E., Öztürk, M., Kurt, O. & Öztürk, M., 2008. The check- list of the marine flora of Turkey. Manisa, Turkey, 87 pp.

Thiel, M. & Gutow, L., 2005. The ecology of rafting in the Marine environment. II. The rafting organisms and community. *Oceanography & Marine Biology: an Annual Re-*

view, 43: 279-418.

Tortonese, E., 1946. On some fishes from the Eastern Mediterranean (Island of Rhodes). *Annals & Magazine of Natural History*, 13: 710-715.

Tortonese, E., 1973. Les poissons de la famille Echeneididae (Remoras) de la mer Ligure et de la mer Tyrrhénienne. *Revue des Travaux de l'Institut des Peches Maritimes,* 37 (2): 197-202.

Trainito, E., 2003. *Mediterranean harlequins: a field guide to Mediterranean sea slugs*. Olbia, Taphros Editions, 60 pp.

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.

Tsiamis, K., Montesanto, B., Panayotidis, P., Katsaros, C. & Verlaque, M., 2010. Updated records and range expansion of alien marine macrophytes in Greece (2009). *Mediterranean Marine Science*, 11 (1): 61-79.

Turk, T., 2006. *Aplysia dactylomela from Croatia*. Sea Slug Forum. Australian Museum, Sydney. http://www.seaslug-forum.net/find/17598.

Van Den Heede, C. & Coppejans, E., 1996. The genus *Codium* (Chlorophyta, Codiales) from Kenya, Tanzania (Zanzibar) and the Seychelles. Nova Hedwigia 62: 389-417.

Vardala-Theodorou, E., Giamas, P. & Dimitropoulos, A., 1991. A short notice on the occurrence of a pair of *Thysanoteuthis rhombus* Troschel, 1857 in southern Euboic Gulf. *Bollettino Malacologico*, 27: 25-34.

Walter, C., 1925. Marine Hygrobatidae. Revision der Wassermilben-genera *Pontarachna* Philippi und *Nautarachna* Moniez. *Internationale Revue der Gesamten Hydrobiologie und Hydrographie*, 14 (1-2): 1-54.

Whitehead, P.J.P., Bauchot, M.L., Hureau, J.-C., Nielsen, J. & Tortonese, E., 1986. *Fishes of the North-Eastern Atlantic and the Mediterranean*. U.K., UNESCO, 1473 pp.

Winston, J.E., 1982. Drift plastic - an expanding niche for a marine invertebrate? *Marine Pollution Bulletin*, 13 (10): 348-351.

Zenetos, A., Gofas, S., Verlaque, M., Cinar, M.E., Garcia Raso, N. *et al.,* 2010. Alien species in the Mediterranean Sea by 2010. A contribution to the application of European Union's Marine Strategy Framework Directive (MSFD). Part I. Spatial distribution. *Mediterranean Marine Science*, 11 (2): 381-493.

Zenetos, A., Katsanevakis, S., Poursanidis, D., Crocetta, F., Damalas, D., *et al.,* 2011. Marine alien species in Greek Seas: additions and amendments by 2010. *Mediterranean Marine Science*, 12 (1): 95-120.

Zenetos, A., Pancucci-Papadopoulou, M.A., Zogaris, S., Papastergiadou, E., Vardakas, L. *et al.,* 2009. Aquatic alien species in Greece: tracking sources,patterns and effects on the ecosystem. *Journal of Biological Research-Thessaloniki,* 12: 135-172.

Žuljević, A., Antolić, B. & Onofri, V., 2003. First record of *Caulerpa racemosa* (Caulerpales: Chlorophyta) in the Adriatic Sea. *Journal of the Marine Biological Association of the UK*, 83 (4): 711-712.