Mediterranean Marine Science

Vol 17, No 2 (2016)

Annotated checklist of marine Algerian Crustacean Decapods

S. GRIMES, A. BAKALEM, J.C. DAUVIN

doi: 10.12681/mms.1420

Research Article

Mediterranean Marine Science
Indexed in WoS (Web of Science, ISI Thomson) and SCOPUS
The journal is available on line at http://www.medit-mar-sc.net
DOI: http://dx.doi.org/10.12681/mms.1420

Annotated checklist of marine Algerian Crustacean Decapods

S. GRIMES[1], A. BAKALEM[2] and J.C. DAUVIN[3,4,5]

[1] Ecole Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral (ENSSMAL), BP 19, Campus universitaire de Dely Brahim, Bois des Cars, Algiers, Algeria
[2] Ecole Nationale Supérieure Agronomique (ENSA), Avenue Hassan Badi, 16200 El Harrach, Algiers, Algeria
[3] Normandie Université, France
[4] UNICAEN, Laboratoire Morphodynamique Continentale et Côtière, UMR 6143 M2C, 24 rue des Tilleuls, F-14000 Caen, France
[5] CNRS, UMR 6143 M2C, 24 rue des Tilleuls, F-14000 Caen, France

Corresponding author: jean-claude.dauvin@unicaen.fr

Handling Editor: Kostas Kapiris

Received: 3 June 2015; Accepted: 19 November 2015; Published on line: 4 April 2016

Abstract

Sampling surveys (1976-2013) of soft-bottom communities and some hard bottom communities along the Algerian coast (1,180 km) have allowed the collection of 114 species of crustacean decapods of which of 37 were reported for the first time for the Algerian decapods fauna; for these species additional comments concerning their ecological and geographical patterns are given. The inventory of all benthic and pelagic decapods recorded along the Algerian coast reaches 253 species. Three families on a total of 57 families were highly diversified: Paguridae (17 species), Polybiidae (16 species) and Processidae (13 species). The presence of the 253 recorded species along the Algerian coast has been compared with eight other areas from the Mediterranean Sea. The decapods fauna of the Algerian coast is among the most richest of the Mediterranean Sea and comparable of that of West Italy.

Keywords: Decapods, new records, Algerian coast, Mediterranean Sea.

Introduction

The estimation of marine species richness (alpha diversity) living in an area remains a hard task which had began in the 19th century in European countries and continues to date. Within the establishment of marine laboratories along the coast, some of these 'Marine Stations' had enterprise to accumulate all the records of marine species around their implantation and published regularly their inventory such as for the northern marine stations along the English Channel such as Plymouth (Marine Biological Association, 1957; http://www.mba.ac.uk/pmf/) and Roscoff (Bourdon, 1965; www.sb-roscoff.fr).

Recent programmes of researches on marine biology had been focused in the framework of the Census of Marine Life. They had established the count of marine species for the worldwide Ocean (Alexander *et al*., 2011; Boeuf, 2011), the European seas (Costello & Wilson, 2011) or at a regional scale such as the Mediterranean Sea (Fredj, 1974; Coll *et al*., 2010). For this sub-tropical sea, Coll *et al.* (2010) listed 16,848 marine species, including 10,902 invertebrates present in the Mediterranean Sea. Dauvin *et al.* (2013) reported the presence of 1,642 species (i.e. ~15% of the Mediterranean invertebrate's species) from the soft-bottom communities of the shallow waters (0-136 m) along the 1,180 km of the Algeria coast. For the Mediterranean Sea and also for the Algerian coast, among the macro-invertebrates the polychaetes and the crustaceans appeared the most diversified, and among the crustaceans the amphipods had been the more diversified and the more studied group with ~ 300 species recorded along the Algerian coast (Dauvin *et al*., 2013). Among the crustacean, the decapods were the second most diversified group but very few works were dedicated to the taxonomy and to the distribution of this group for the Algerian coast.

Previous works dedicated only on decapods were rare for the Algerian coast. The first inventory was provided by Lucas (1846) corresponding to a scientific exploration of the Algerian coast between 1840 and 1842. Others concerned the Decapoda Reptantia (Forest, 1957), some decapods of the Algerian coast (Sollaud, 1957), and the decapods from the western part of the Algerian coast in the western part of Oran (Délye, 1957); all these records concerned the 1950's. Moreover, Seridji (1971, 1989) gave important information's on the Algerian decapods larvae along the Algerian coasts.

Original studies on the marine soft-bottom macrobenthic habitats were conducted from the 1970s to 1995 in the thesis works of Bakalem (1979, 2008) and Grimes (2010). They concerned the whole Algerian coast, from the Morocco border to the Tunisian border (1,180 km), and took into account sediment coming from 10 bays and 13 harbours. More recent (2010 – 2013) supplementary local works concerned four new areas including hard and soft-bottom around western small islands and areas near Tipaza

(unpublished data). Therefore, a total of 27 areas had been prospected during the 1976-2013 period.

The main objectives of this study were:

1) to give the list of the decapod species recorded during the Bakalem and Grimes work's mainly on soft-bottom communities along whole Algerian coast; for each species, data on the number of collected individuals, the sediment type and the depth at which they were found are given;

2) to give some additional comments concerning the ecological and geographical patterns of the new records for the Algerian decapods species;

3) to furnish a global inventory of the marine crustacean decapods for the Algerian coast taking into account all the available previous data on this group;

4) and to compare the checklist of the decapod fauna of Algeria with inventories and checklists compiled from other areas in the Mediterranean Sea.

General characteristics of the Algerian coastal sampling zone

The geographical limits of the sampling were 35°6'N-2°9'00"W near the Moroccan border and 36°54'00"N-8°26'30"E near the Tunisian border (Fig. 1). The Algerian coastline presents a variety of habitats, from the dominant rocky shores, sometimes with high cliffs, to sandy beaches and dunes in most of the large bays. The Algerian continental shelf is mainly narrow except when it borders rocky shores; it is more extensive in zones with sandy beaches and dunes. The terrestrial input from the oueds ("river" in Arabic) facilitates sedimentation in the bays; moreover sedimentation can also have a biogenic origin, as in Bou Ismail Bay (Grimes, 2010). The distribution of soft-bottom sediments shows an increasing inshore silt gradient, characterized by a succession of fine sand, muddy sand, sandy mud and pure mud (Bakalem, 2008). Coarse sand and gravel are located in the marine extension of the rocky shores, especially the offshore capes that border the bays (Grimes *et al*., 2010). So the study represents all the soft-bottom habitats of the south of the Mediterranean Sea including some stations on *Posidonia oceanica* bed and corraligenous.

Material and Methods

Bakalem and Grimes samples were made with the Van Veen grab or the Smith McIntyre grabs (0.1- 0.125 m²; sieving mesh 1 mm²), except Chenoua-Kouali hand sampling by autonomous diver; the localisations and characteristics of sampling stations of the Chenoua-Kouali aera are given in the Table 1. All the sampling was done from 1976 to 2013 mainly during the summer (see Bakalem & Romano, 1988; Bakalem & Dauvin, 1995; Bakalem, 2008; Grimes *et al.*, 2009, 2010; Grimes, 2010; Dauvin *et al*., 2013; Bakalem *et al*., 2014) for the sampling design and main characteristics of the sampling stations sampling during the Bakalem and Grimes PhDs. The sampling depths ranged between 0 and 136 m. The taxonomy was validated using the WoRMS Editorial Board, 2015 (World Register of Marine Species. Available from http://www.marinespecies.org at VLIZ. Accessed 2015-10-9).

Results and Discussion

The annotated list of crustacean decapods found along the Algerian coast is given in the Table 3. For each species are given general information's about the material examined, the location, the depth ranges and the type of substratum, then some indications of their ecology and their general distribution in the Mediterranean Sea and other parts of the world ocean. Comments on ecology

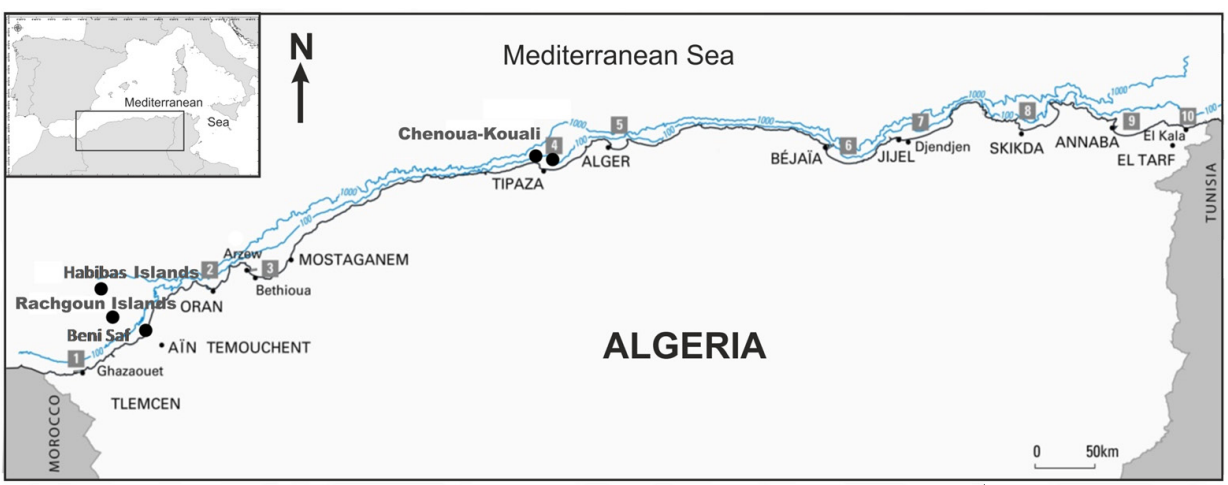

Fig. 1: Location of the sampling sites along the Algerian coast. Black circles, new prospected sites—the Beni Saf, Rachgoun and Habibas Islands in the Oran Bay and from the Chenoua–Kouali area in the western part of Bou Ismail Bay. Grimes et al. (2009) sites: 1. Ghazaouet Bay; 2. Oran Bay; 3.Arzew Bay; 4. Bou Ismail Bay; 5. Algiers Bay; 6. Béjaïa Bay; 7. Jijel Bay; 8. Skikda Bay; 9. Annaba Bay; and 10. El Kala Bay.

Table 1. Chenoua-Kouali area (Bou Ismail Bay) – Localisations and characteristics of the stations sampling in this area.

Station	Date	Coordinates (deg.min.sec.)	Substratum/Habitat	Depth (meter)
14-2	October 2012	36.35.74N - 02.30.18E	*Posidonia* meadows	11
15-2	October 2012	36.35.79N - 02.29.76E	Sand, *Posidonia* meadows on hard bottom	21
15-6	October 2012	36.35.47N - 02.29.73E	Mediterranean vermetid gastropod formation with *Cystoseira* spp.	1,5
16-1	June 2012	36.35.41N - 02.29.74E	Fine Sand and hard bottom (beach)	0 – 0.1
16-2	June 2012	36.35.42N - 02.29.73E	Sand with Cymodocea	0.3
16-7	June 2012	36.35.55N - 02.30.71E	*Posidonia* meadows	3.5
17-1	June 2012	36.35.44N - 02.29.70E	Mediterranean vermetid gastropod formation with *Cystoseira* spp.	0 – 0.5
17-2	June 2012	36.35.46N - 02.29.70E	*Posidonia* meadows	1.5
18-1	June 2012	36.35.44N - 02.29.58E	Sand and hard bottom	0.5
20-2	June 2012	36.35.71N - 02.28.18E	*Posidonia* meadows on hard bottom	4
22-4	August 2012	36.36.12N - 02.27.20E	*Posidonia* meadows on hard bottom	10
24-1	August 2012	36.35.91N - 02.26.28E	Hard bottom - *Posidonia* meadows	7
25-1	August 2012	36.35.69N - 02.26.13E	Hard bottom	2
28-1	October 2012	36.38.20N - 02.25.95E	Mud	56
28-5	October 2012	36.36.97N - 02.24.50E	Fine Sand and hard bottom	14
28-6	October 2012	36.36.85N - 02.24.30E	Hard bottom	5
29-2	October 2012	36.37.14N - 02.24.52E	Hard bottom and Sand	15
32-7	October 2012	36.37.44N - 02.24.51E	Hard bottom	5

and distribution according to d'Udekem d'Acoz (1999) and more recent information's published after are given only for the 37 species recorded from the Algerian coast for the first time which are indicated in the Table 2. For the others, information's about ecology and distribution has been reported by d'Udekem d'Acoz (1999).

Inventory of the decapods from the Algerian coast

A total of 114 decapods species had been collected during the Bakalem and Grimes studies which extended from 1976 to 2013. For the Algerian waters, a total of 139 other species had been previously reported by Lucas (1846), Le Danois (1925), Seurat (1927, 1935), Sparck (1931), Dieuzeide (1940, 1950, 1954, 1955a, b), Dieuzeide & Goëau-Brissonière (1951), Molinier & Picard (1952), Dieuzeide & Roland (1956, 1957), Délye (1957), Forest (1957), Sollaud (1957), Maurin (1962), Vaissière & Fredj (1963), Le Gall (1969), Falconetti (1970), Seridji (1971, 1989), mainly in studies on the faunal composition of the benthic communities, as few studies had been dedicated specifically on decapods (see Délye, 1957; Forest, 1957; Sollaud, 1957; and Seridji, 1971, 1989). Falciai (2001) found *Palaemonetes varians* (Leach, 1814) in the marshy of Macta area near Arzew (west of Algiers). Recently, the Non-Native Species *Percnon gibbesi* had been reported from the western part of the Algerian coast (Rais Hamidou and Sidi Fredj) by Lamouti & Bachari (2011) and in the Skikda Bay (Katsanevakis *et al.*, 2011).

So, taken all the records available, the total number of recognized benthic and pelagic decapods species of the Algerian coast reaches 253 including 29 species which are only reported under larvae by Seridji (1971, 1989) (Table 3).

The more diversified families were: Paguridae (17 species), Polybiidae (16), Processidae (13), Hippolytidae (12), Inachidae (11), Palaemonidae (11), Pandalidae (11), Crangonidae (10), Alpheidae (9), Xanthidae (9), Epialtidae (8), Leucosiidae (8), Sergestidae (8), Diogenidae (6), and Galatheidae (6).

Among these 253 species, we accounted:

- 14 Mediterranean Endemic species: *Anapagurus petiti, Automate branchialis, Brachynotus foresti, Brachynotus gemmellaroi, Brachynotus sexdentatus, Carcinus aestuarii, Macropodia longirostris, Maja squinado, Periclimenes amethysteus, Periclimenes granulatus, Periclimenes scriptus, Pisa muscosa, Processa acutirostris* and *Upogebia tipica.*

- 10 Mediterranean Endemic species *sensu lato* (species found in the Mediterranean Sea and in the south of the Iberian Peninsula): *Derilambrus angulifrons, Gourretia denticulate, Inachus communissimus, Lissa chiragra, Macropodia czernjawskii, Palaemon xiphias, Pestarella candida, Sirpus zariquieyi, Synalpheus gambarelloides* and *Xantho poressa.*

- 4 Lessepsian species: *Alpheus inopinatus, Alpheus rapacida, Glabropilumnus leavis,* and *Percnon gibbesi.*

- 12 exploited species: *Aristaeomorpha foliacea, Aristeus antennatus, Homarus gammarus, Palinurus elephas, Palinurus mauritanicus, Parapenaeus longirostris, Penaeus kerathurus, Plesionika edwardsii, Plesionika martia, Plesionika narval, Scyllarides latus* and *Scyllarus arctus.*

And 4 species protected under the Bern Convention: *Homarus gammarus, Scyllarides latus, Palinurus elephas* and *Maja squinado*; however in Algeria the first three species are the object of illegal fishing.

Table 2. Annotated list of crustacean decapods first reported along the Algerian coast.

Family Species	Sites of collections – Depth – Type of benthic substratum	Abundance
Family ALPHEIDAE		
Alpheus rapacida De Man, 1908	Ghazaouet Bay; 88 m; mud.	1 ind.
	Oran Bay; 79 and 88 m; muddy sand.	4 ind.
Family ATELECYCLIDAE		
Atelecyclus undecimdentatus (Herbst,1783)	Arzew Bay; 80 and 92 m; sand and gravel.	2 ind.
Family CALLIANASSIDAE		
Gourretia denticulata (Linneaus, 1758)	Bou Ismail Bay; 15 to 61 m; sandy gravel and *Posidonia* meadows.	2 ind.
Family EPIALTIDAE		
Pisa muscosa (Linnaeus, 1758)	Chenoua-Kouali area (Bou Ismail Bay); stations 22(4), 24(1); 7-10 m.	2 ind.
Family GALATHEIDAE		
Galathea bolivari Zariquiey- Alvarez, 1950	Arzew Bay; 14 m; *Posidinia* meadows.	3 ind.
	Bou Ismail Bay; 16-96 m; mud and hard bottom.	10 ind.
Family HIPPOLYTIDAE		
Hippolyte leptocerus (Heller, 1863)	Arzew Bay;16 m; *Posidonia* meadows.	1 ind.
	Bou Ismail Bay; 21 m; hard bottom.	1 ind.
	Chenoua-Kouali area (Bou Ismail Bay; station 28(6), 5 m.	1 ind.
	Bou Ismail Bay; 16-21 m; fine sand and hard bottom.	3 ind.
Eualus sollaudi (Zariquiey-Cenarro, 1935)	Algiers Bay of; 8-10 m; fine sand.	2 ind.
Family INACHIDAE		
Dorhynchus thomsoni Thomson, 1873	Algiers Bay; 12 m; fine sand.	1 ind.
Macropodia czernjawskii (Brandt, 1880)	Arzew harbour; 13m; muddy gravel.	1 ind.
	Bou Ismail Bay; 20 m; hard bottom.	1 ind.
Macropodia linaresi Forest & Zaraquiey-Alvarez, 1964	Bay of Bou Ismail; 20-21 m; muddy gravel and hard bottom.	2 ind.
Family LEUCOSIIDAE		
Ebalia granulosa H. Milne Edwards, 1837	Arzew Bay; 60 m; sand and gravel.	1 ind.
	Bou Ismail Bay; 110 m; mud charged with vegetables debris and empty mollusc shell.	1 ind.
Ebalia tumefacta (Montagu, 1808)	Algiers harbour; 20 m; compact putrid mud.	1 ind.
Merocryptus boletifer Milne Edwards & Bouvier, 1894	Bou Ismail Bay; 17 m; sand.	1 ind.
Family MAJIDAE		
Eurynome spinosa Hailstone, 1835	Bay of Oran; 85 m; coarse sand charged with gastropods shells and polychaeta tubes.	1 ind.
Family PAGURIDAE		
Anapagurus curvidactylus Chevreux & Bouvier, 1892	Bou Ismail Bay; 88-90 m;muddy gravel.	1 ind.
Anapagurus hyndmanni (Bell, 1846)	Bethioua harbour (two stations); 57m; coarse sand.	7 ind.
Anapagurus petiti Dechancé & Forest, 1862	Oran Bay; 40 and 80 m; sand and gravel.	3 ind.
Pagurus carneus (Pocock, 1889)	Western to central sectors of the Algerian coast: Oran bay and harbour, Bou Ismail Bay; 22-110 m; mud charged with vegetables debris sandy mud, muddy sand, fine sand charged with gastropods shells, coarse shelly sand, *Posidonia* meadows.	Common species
Family PANOPEIDAE		
Panopeus africanus A. Milne-Edwards, 1867	Arzew Bay; 83 m; muddy gravel.	1 ind.
Family PLAGUSIIDAE		
Euchirograpsus liguricus H. Milne Edwards, 1853	Arzew Bay; 55 m; mud.	1 ind.
	Older Skikda harbour; putrid mud.	1 ind.
Family POLYBIIDAE		
Liocarcinus bolivari (Zariquiey Alvarez, 1948)	Arzew Bay; 82 m; sand and gravel.	1 ind.
Liocarcinus holsatus (Fabricius, 1798)	Three stations of new Skikda harbour; 18 m; mud and on pebbly mud.	3 ind.
Liocarcinus maculatus (Risso, 1827)	Algiers Bay; 10 to 23 m; muddy sand and fine sand.	3 ind.
Liocarcinus marmoreus (Leach, 1814)	Bou Ismail Bay; 45 to 70 m; sandy mud and muddy gravel.	3 ind.
Liocarcinus navigator (Herbst, 1794)	Bou Ismail Bay; 110 m; muddy bottom charged with some vegetables debris and empty mollusks shell.	2 ind.
Liocarcinus pusillus (Leach, 1816)	Chenoua-Kouali area (Bou Ismail Bay);stations 16(2), 25(1); 0,3 and 2 m.	3 ind.
	Bou Ismail Bay; sandy mud, fine sand, and muddy gravel.	3 ind.
	Algiers Bay on fine sand.	2 ind.
	10-56 m.	
Liocarcinus vernalis (Risso, 1816)	Oran harbour; 12 m; putrid compact mud.	1 ind.
Liocarcinus zariquieyi Gordon, 1968	Oran, Arzew and Bou Ismail bays; 42 to 90 m; mud, sandy mud and mainly coarse sand charged with empty shell and vegetables debris and empty polychaetes tubes, and hard bottom.	Common species
Family PROCESSIDAE		
Processa acutirostris Nouvel & Holthuis, 1957	Chenoua-Kouali area (Bou Ismail Bay) ;station 14(2); 11 m.	2 ind.
Processa edulis edulis (Risso, 1816)	Two stations of the Oran Bay; coarse sand with molluscs shells and polychaetes tubes empty.	4 ind.
	Bou Ismail Bay; 22 m; coarse sand and *Posidonia* meadows.	2 ind.
	Bejaia Bay; 22-87 m; compact mud and on sand.	2 ind.
Processa macrophthalma Nouvel & Holthuis, 1957	Algiers Bay; 68 m; pure mud.	1 ind.
Processa robusta Nouvel & Holthuis, 1957	Oran Bay; 21 m; coarse sand.	1 ind.

(continued)

Table 2 *(continued)*

Family Species	Sites of collections – Depth – Type of benthic substratum	Abundance
Family UPOGEBIIDAE		
Upogebia stellata (Montagu, 1808)	Ghazaouet and Bou Ismail bays, Rachgoun island, Arzew harbour; 23-88 m; muddy and sandy mud.	Common species
Family VARUNIDAE		
Asthenognathus atlanticus Monod, 1933	Algiers Bay; 10 to 45 m; sandy mud, fine sand.	2 ind.
Brachynotus atlanticus Forest, 1957	Rachgoun Island; 23 m; sandy mud.	1 ind.
Brachynotus foresti Zariquiey Alvarez, 1968	Older Skikda harbour; 16 m; sandy mud with pebbles and charged with vegetables debris.	3 ind.
	Skikda Bay; 70 m; mud with calcareous concretions and shelly debris.	1 ind.
Family XANTHIDAE		
Microcassiope minor (Dana, 1852)	Bou Ismail Bay; 62 to 109 m; muddy sand and muddy gravel.	4 ind.

Biogeographical considerations

As several studies had been recently published for the Mediterranean decapods and especially the d'Udekem d'Acoz (1999) reference book, we have compared the presence in the Mediterranean Sea of the 253 existing decapods fauna recorded in the Algerian waters with seven other areas (Table 3).

- Alboran Sea: Iberian Peninsula (Mediterranean Sea) (Zariquiey-Alvarez, 1968; Gonzalez-Gordillo *et al*., 2001; Marco-Herrero *et al*., 2015) and Mediterranean Morocco coast (Zariquiey-Alvarez, 1968; Beaubrun,1978) – 233 common species;

- French Mediterranean coast: Noël (1993); http://inpn.mnhn.fr/ - 194 common species;

- West Italy (Tyrrhenian Sea and Ligurian Sea): Froglia (2010) - 209 common species;

- Central Italy (Ionian Sea and Sicily straits): Pipitone & Arculeo (2003) and Froglia (2010) - 186 common species;

- Tunisia coast: Forest & Guinot (1956), El Lakhrach & Hattour (2010), Shaiek *et al.* (2010), El Lakhrach *et al.* (2012), and Daoulatli *et al.* (2014)– 94 common species;

- Adriatic Sea: Ungaro *et al.* (2005), Müller & Schubart (2007), and Kirincic & Stevcic (2008) – 187 common species

- Aegean Sea: Koukouras *et al.* (1992), d'Udekem d'Acoz (1995), Ates *et al.* (2010), and Corsini-Foka & Pancucci-Papadopoulou (2012), Bakir *et al*. (2014) – 204 common species;

- Levantine Basin: Syria: Hasan (2008); Turkey: Ates *et al.* (2010), Bakir *et al*. (2014); Israël: Galil & Shlagman (2011) – 167 common species.

This comparison permitted to underline three main points:

- the Algerian decapods fauna shared a large number of species with the Alboran Sea (92% of common species), the West Italy (83 %) and the Central Italy (74%), the Aegean Sea (80%), the French Mediterranean Coast (77%) and the Adriatic Sea (75%);

- the low number of shared decapods with the Tunisian coasts probably due to two main causes, the weak length of these national coast and the lack of knowledge of this group for this country;

- the low number of shared species with the Levantine Basin (65%) probably due to the impoverishment of the decapods as other crustacean species such as amphipods (Dauvin *et al.*, 2013).

At the scale of the Mediterranean decapod fauna, the total number recorded by Coll *et al*. (2010) was 383 species, nevertheless since this inventory 16 new species at been recorded in the Mediterranean Sea *Actaea savignii, Actaeodes tomentosus, Callinectes exasperatus, Charybdis (Charybdis) japonica, Elamena mathoei, Eurycarcinus integrifrons, Penaeus aztecus, Penaeus subtilis, Gonioinfradens paucidentatus, Lysmata kempi*, *Matuta victor, Nikoides sibogae, Saron marmoratus, Xanthias lamarckii*, *Palaemon macrodactulus,* and *Pagurus mbizi* (Kapiris *et al.,* 2014; Corsini-Foka & Kondylatos, 2015; Cuesta *et al*., 2015; Galil *et al*., 2015), for a total of 399 species; so 63% of the decapods presented in the Mediterranean Sea was also recorded along the Algerian coast. Taken into account only the western Mediterranean Sea, the number was 316 species among them 79% were sampled in the Algerian waters. The diversity of the actual Algerian decapods fauna was similar than those counted for the Alboran Sea (233 species) (Zariquiey-Alvarez, 1968; Gonzalez-Gordillo *et al*., 2001; Marco-Herrero *et al*., 2015), the Levantine Basin (240 species) (Hasan, 2008; Galil & Shlagman, 2011; Bakir *et al*., 2014), the Turkish waters (261 species) (Ates *et al.*, 2010; Bakir *et al*., 2014), and the Adriatic Sea (241 species) (Kirincic & Stevcic, 2008). It remained lower than the Western Italian coast (266 species) (Froglia, 2010) and the Aegean Sea (281 species) (Corsini-Foka & Pancucci-Papadopoulou, 2012) and higher than this found along the French Mediterranean coast (213 species) (Noël, 1993) and the Central Italian coast (212 species) (Pipitone & Arculeo, 2003; Froglia, 2010).

Apart some deep species which could be recorded on the continental slope and the bathyal zone of the Algerian waters which were insufficiently sampled in the western Mediterranean Sea, the inventory of the shallow and coastal marine decapods species could be considered more or less complete for the continental shelf of the Algerian waters. Nevertheless, 29 species remained only reported under larvae by Seridji (1971, 1989), supplementary samplings were needed to record their adult stages.

Acknowledgements

The authors thanks Alexandrine Baffreau for her help of WORMS consultation, Michael Carpenter for the English revision, and two anonymous reviewers for their

Table 3. List of the recorded decapod species along the Algerian coast and their presence in other locations from the Mediterranean Sea

Species names	Contributors	Algeria	Alboran Sea	Morocco (Mediterranean)	France (Mediterranean)	West Italy	Central Italy	Tunisia	Adriatic Sea	Aegean Sea	Levantine Basin
Acanthephyra eximia	Smith, 1884	1	1	1	1	1	1			1	1
Acanthephyra pelagica	(Risso, 1816)	1	1	1	1	1	1		1	1	1
Acanthonyx lunulatus	(Risso, 1816)	1	1	1	1	1	1	1	1	1	1
Achaeus cranchii	Leach, 1817	1	1		1	1	1		1	1	1
Achaeus gracilis	(Costa, 1839)	1	1		1	1	1		1	1	1
Aegaeon cataphractus	(Olivi, 1792)	1	1	1	1	1	1	1	1	1	1
Aegaeon lacazei	(Gourret, 1887)	1	1	1	1	1	1		1	1	1
Albunea carabus	(Linnaeus, 1758)	1		1		1	1				1
Allosergetes sargassi	(Ortmann, 1893)	1	1	1		1	1		1		1
Alpheus dentipes	Guérin, 1832	1	1	1	1	1	1	1	1	1	1
Alpheus glaber	(Olivi, 1792)	1		1	1	1	1	1	1		1
Alpheus inopinatus	Holthuis & Gottlieb,1958	1						1			1
Alpheus macrocheles	(Hailstone, 1835)	1	1	1	1	1	1		1	1	1
Alpheus rapacida	de Man, 1908	1									1
Anamathia rissoana	(Roux, 1828)	1	1		1	1	1		1	1	
Anapagurus bicorniger	A. Milne-Edwards & Bouvier, 1892	1	1		1	1	1		1	1	1
Anapagurus breviaculeatus	Fenizia, 1937	1			1	1	1		1	1	1
Anapagurus chiroacanthus	(Lilljeborg, 1856)	1	1		1	1	1		1	1	
Anapagurus curvidactylus	Chevreux & Bouvier, 1892	1				1	1				
Anapagurus hyndmanni	(Bell, 1846)	1	1								
Anapagurus laevis	(Bell, 1846)	1	1		1	1	1			1	
Anapagurus petiti	Dechancé & Forest, 1962	1	1		1	1	1			1	
Aristaeomorpha foliacea	(Risso, 1827)	1	1		1	1	1		1	1	1
Aristeus antennatus	(Risso, 1816)	1	1	1	1	1	1		1	1	1
Ascidonia flavomaculata	(Heller, 1864)	1				1	1				
Asthenognathus atlanticus	Monod, 1933	1	1		1						
Atelecyclus rotundatus	(Olivi, 1792)	1	1	1	1	1	1	1	1	1	
Atelecyclus undecimdentatus	(Herbst, 1783)	1	1				1		1		
Athanas nitescens	(Leach, 1813 [in Leach, 1813-1814])	1	1	1	1	1	1	1	1		1
Automate branchialis	Holthuis & Gottlieb, 1958	1			1				1	1	1
Axius stirynchus	Leach, 1815	1	1	1	1	1			1	1	
Bathynectes longipes	(Risso, 1816)	1	1		1	1	1		1	1	
Bathynectes maravigna	(Prestandrea, 1839)	1	1	1		1	1		1	1	1
Brachycarpus biunguiculatus	(Lucas, 1846)	1	1			1	1	1			1
Brachynotus atlanticus	Forest, 1957	1	1								
Brachynotus foresti	Zariquiey Alvarez, 1968	1	1			1	1		1	1	1
Brachynotus gemmellaroi	(Rizza, 1839)	1	1			1	1	1	1	1	
Brachynotus sexdentatus	(Risso, 1827)	1	1		1	1	1	1	1	1	1
Calappa granulata	(Linnaeus, 1758)	1	1		1	1	1	1	1	1	1
Calcinus tubularis	(Linnaeus, 1767)	1	1	1	1	1	1		1	1	1
Callianassa subterranea	(Montagu, 1808)	1	1		1	1	1		1	1	1
Calocaris macandreae	Bell, 1853	1	1	1	1	1	1		1	1	1
Carcinus aestuarii	Nardo, 1847	1	1		1	1	1	1	1	1	1
Carcinus maenas	(Linnaeus, 1758)	1	1	1	1						
Caridion gordoni	(Spence Bate, 1858)	1									
Cestopagurus timidus	(Roux, 1830)	1	1		1	1	1		1	1	1
Chlorotocus crassicornis	(A. Costa, 1871)	1	1	1	1	1	1	1	1	1	1
Clibanarius erythropus	(Latreille, 1818)	1	1	1	1	1	1		1	1	1
Corystes cassivelaunus	(Pennant, 1777)	1	1	1	1	1	1	1	1	1	

(continued)

Table 3 *(continued)*

Species names	Contributors	Algeria	Alboran Sea	Morocco (Mediterranean)	France (Mediterranean)	West Italy	Central Italy	Tunisia	Adriatic Sea	Aegean Sea	Levantine Basin
Crangon crangon	(Linnaeus, 1758)	1	1		1	1			1	1	1
Dardanus arrosor	(Herbst, 1796)	1	1		1	1	1	1	1	1	1
Dardanus calidus	(Risso, 1827)	1	1	1	1	1	1	1	1	1	1
Deosergestes corniculum	(Krøyer, 1855)	1									
Derilambrus angulifrons	(Latreille, 1825)	1	1	1	1	1	1	1	1	1	1
Diogenes pugilator	(Roux, 1829)	1		1	1	1	1	1	1	1	1
Distolambrus maltzami	(Miers, 1881)	1	1		1	1	1		1	1	
Dorhynchus thomsoni	Thomson, 1873	1	1			1	1		1	1	1
Dromia personata	(Linnaeus, 1758)	1	1		1	1	1	1	1	1	1
Ebalia cranchii	Leach, 1817	1	1		1	1			1	1	1
Ebalia deshayesii	Lucas, 1846	1	1		1	1	1			1	1
Ebalia edwardsii	Costa, 1838	1	1		1	1	1		1	1	
Ebalia granulosa	H. Milne Edwards, 1837	1	1		1	1	1		1	1	1
Ebalia nux	A. Milne-Edwards, 1883	1	1			1			1		1
Ebalia tuberosa	(Pennant, 1777)	1	1		1	1	1		1	1	
Ebalia tumefacta	(Montagu, 1808)	1	1		1					1	
Eriphia verrucosa	(Forskål, 1775)	1	1	1	1	1	1	1	1	1	1
Ethusa mascarone	(Herbst, 1785)	1	1		1	1	1	1	1	1	1
Eualus cranchii	(Leach, 1817 [in Leach, 1815-1875])	1	1	1	1	1	1	1	1	1	1
Eualus occultus	(Lebour, 1936)	1	1	1	1	1		1	1	1	
Eualus pusiolus	(Krøyer, 1841)	1									
Eualus sollaudi	(Zariquiey Cenarro, 1936)	1	1		1	1			1	1	
Euchirograpsus liguricus	H. Milne Edwards, 1853	1	1		1	1	1				
Eurynome aspera	(Pennant, 1777)	1	1	1	1	1	1		1	1	1
Eurynome spinosa	Hailstone, 1835	1	1		1	1	1		1		
Eusergestes arcticus	(Krøyer, 1855)	1	1	1		1	1		1	1	
Funchalia woodwardi	Johnson, 1868	1	1			1	1				
Galathea bolivari	Zariquiey Álvarez, 1950	1	1		1	1			1	1	1
Galathea dispersa	Bate, 1859	1	1	1	1	1	1	1	1	1	1
Galathea intermedia	Liljeborg, 1851	1	1		1	1	1	1	1	1	1
Galathea nexa	Embleton, 1834	1	1		1	1	1		1	1	
Galathea squamifera	Leach, 1814	1	1	1	1	1	1		1	1	1
Galathea strigosa	(Linnaeus, 1761)	1	1		1	1	1		1	1	
Gennadas elegans	(Smith, 1882)	1	1			1	1		1	1	1
Geryon longipes	A. Milne-Edwards, 1882	1	1		1	1	1		1	1	1
Geryon trispinosus	(Herbst, 1803)	1	1								
Glabropilumnus laevis	(Dana, 1852)	1				1	1				1
Gnathophyllum elegans	(Risso, 1816)	1	1		1	1	1		1	1	1
Goneplax rhomboides	(Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1
Gourretia denticulata	(Lutze, 1937)	1	1		1	1		1	1	1	1
Herbstia condyliata	(Fabricius, 1787)	1	1	1	1	1	1		1	1	1
Hippolyte holthuis	Zariquiey Alvarez, 1953	1	1		1	1	1		1	1	1
Hippolyte inermis	Leach, 1816	1	1	1	1	1	1	1	1	1	1
Hippolyte leptocerus	(Heller, 1863)	1	1		1	1	1	1	1	1	1
Hippolyte prideauxiana	Leach, 1817 [in Leach, 1815-1875]	1	1		1	1	1		1	1	
Hippolyte varians	Leach, 1814 [in Leach, 1813-1814]	1	1		1						
Homarus gammarus	(Linnaeus, 1758)	1	1	1	1	1	1		1	1	1
Homola barbata	(Fabricius, 1793)	1	1		1	1	1		1	1	1
Ilia nucleus	(Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1
Inachus communissimus	Rizza, 1839	1	1		1	1	1		1	1	1
Inachus dorsettensis	(Pennant, 1777)	1	1	1	1	1	1	1	1	1	1
Inachus phalangium	(Fabricius, 1775)	1	1		1	1	1	1	1	1	1

(continued)

Table 3 *(continued)*

Species names	Contributors	Algeria	Alboran Sea	Morocco (Mediterranean)	France (Mediterranean)	West Italy	Central Italy	Tunisia	Adriatic Sea	Aegean Sea	Levantine Basin
Inachus thoracicus	Roux, 1830	1	1	1	1	1	1	1	1	1	1
Jaxea nocturna	Nardo, 1847	1	1	1	1	1			1	1	1
Latreillia elegans	Roux,1830	1	1			1	1		1	1	1
Ligur ensiferus	(Risso, 1816)	1	1		1	1	1				
Liocarcinus bolivari	(Zariquiey Alvarez, 1948)	1	1		1	1			1		
Liocarcinus corrugatus	(Pennant, 1777)	1	1	1	1	1	1	1	1	1	1
Liocarcinus depurator	(Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1
Liocarcinus holsatus	(Fabricius, 1798)	1	1								
Liocarcinus maculatus	(Risso, 1827)	1	1		1	1	1		1	1	1
Liocarcinus marmoreus	(Leach, 1814)	1	1								
Liocarcinus navigator	(Herbst, 1794)	1	1		1	1	1	1		1	1
Liocarcinus navigator navigator	(Herbst,1794)	1	1								
Liocarcinus pusillus	(Leach, 1816)	1	1	1	1						1
Liocarcinus rondeletii	(Risso,1816)	1	1		1						
Liocarcinus vernalis	(Risso, 1816)	1	1	1	1	1	1	1	1	1	1
Liocarcinus zariquieyi	Gordon, 1968	1	1		1	1	1		1	1	1
Lissa chiragra	(Fabricius, 1775)	1	1	1	1	1	1		1	1	1
Lophozozymus incisus	(H. Milne Edwards, 1834)	1									
Lucifer typus	H. Milne Edwards, 1837 [in H. Milne Edwards, 1834-1840]	1	1			1	1		1	1	1
Lysmata nilita	Dohrn & Holthuis, 1950	1			1	1			1		
Lysmata seticaudata	(Risso, 1816)	1	1		1	1	1		1	1	1
Macropipus tuberculatus	(Roux, 1830)	1	1		1			1	1	1	
Macropodia czernjawskii	(Brandt, 1880)	1	1		1	1	1	1	1	1	1
Macropodia linaresi	Forest & Zariquiey Alvarez, 1964	1	1		1	1			1	1	1
Macropodia longirostris	(Fabricius, 1775)	1	1	1	1	1	1	1	1	1	1
Macropodia rostrata	(Linnaeus, 1761)	1	1	1	1	1	1	1	1	1	1
Macropodia tenuirostris	(Leach, 1814)	1	1						1	1	1
Maja crispata	Risso, 1827	1	1		1	1	1	1	1	1	1
Maja squinado	(Herbst, 1788)	1	1	1	1	1	1	1	1	1	1
Medorippe lanata	(Linnaeus, 1767)	1	1		1	1	1	1	1	1	1
Merocryptus boletifer	A. Milne-Edwards & Bouvier, 1894	1	1						1	1	
Microcassiope minor	(Dana, 1852)	1	1							1	1
Mithrax verrucosus	H. Milne Edwards, 1832	1									
Monodaeus couchii	(Couch, 1851)	1	1	1	1	1	1		1	1	
Monodaeus guinotae	Forest, 1976	1	1		1	1	1			1	
Munida curvimana	A. Milne Edwards & Bouvier, 1894	1	1							1	1
Munida intermedia	A. Milne Edwards & Bouvier, 1899	1	1		1				1		
Munida rugosa	(Fabricius, 1775)	1	1		1	1	1		1	1	
Munida rutllanti	Zariquiey Álvarez, 1952	1	1	1		1	1			1	
Munida sarsi	Huus, 1935	1									
Munida tenuimana	Sars, 1872	1	1			1	1		1	1	
Necallianassa truncata	(Giard & Bonnier, 1890)	1	1	1	1	1		1	1	1	1
Necora puber	(Linnaeus, 1767)	1	1		1	1	1			1	
Nematopagurus longicornis	A. Milne-Edwards & Bouvier, 1892	1	1							1	
Nephrops norvegicus	(Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	
Nepinnotheres pinnotheres	(Linnaeus, 1758)	1	1		1	1	1	1	1	1	
Pachygrapsus marmoratus	(Fabricius, 1787)	1	1	1	1	1	1	1	1	1	1
Pachygrapsus maurus	(Lucas, 1846)	1	1		1	1	1			1	1
Paguristes eremita	(Linnaeus, 1767)	1	1	1	1	1	1	1	1	1	1
Pagurus alatus	Fabricius, 1775	1	1		1	1	1	1	1	1	1
Pagurus anachoretus	Risso, 1827	1	1	1	1	1	1	1	1	1	1
Pagurus carneus	(Pocock, 1889)	1	1								

(continued)

Table 3 *(continued)*

Species names	Contributors	Algeria	Alboran Sea	Morocco (Mediterranean)	France (Mediterranean)	West Italy	Central Italy	Tunisia	Adriatic Sea	Aegean Sea	Levantine Basin
Pagurus cuanensis	Bell, 1846	1	1	1	1	1	1	1	1	1	1
Pagurus excavatus	(Herbst, 1791)	1	1		1	1	1	1	1	1	1
Pagurus forbesii	Bell, 1846	1	1		1	1			1	1	1
Pagurus prideaux	Leach, 1815	1	1		1	1	1	1	1	1	1
Palaemon adspersus	Rathke, 1837	1	1	1	1	1	1	1	1	1	1
Palaemon elegans	Rathke, 1837	1	1	1	1	1	1	1	1	1	1
Palaemon longirostris	H. Milne Edwards, 1837 [in H. Milne Edwards, 1834-1840]	1	1			1	1	1		1	1
Palaemon serratus	(Pennant, 1777)	1	1	1	1	1	1	1	1	1	1
Palaemon xiphias	Risso, 1816	1	1	1	1	1	1	1		1	1
Palicus caronii	(Roux,1830)	1	1			1	1		1	1	1
Palinurus elephas	(Fabricius, 1787)	1	1	1	1	1	1	1	1	1	1
Palinurus mauritanicus	Gruvel, 1911	1	1	1	1	1					
Pandalina brevirostris	(Rathke, 1843)	1	1		1	1	1	1	1	1	1
Pandalina profunda	Holthuis, 1946	1	1		1	1			1	1	
Panopeus africanus	A. Milne-Edwards, 1867	1	1								
Paractaea rufopunctata	(H. Milne Edwards, 1834)	1	1		1	1	1			1	1
Paragalene longicrura	(Nardo, 1869)	1	1			1			1	1	
Parapenaeus longirostris	(Lucas, 1846)	1	1	1	1	1	1	1	1	1	1
Parasergestes vigilax	(Stimpson, 1860)	1	1	1		1	1		1	1	1
Paromola cuvieri	(Risso, 1816)	1	1		1	1	1			1	
Parthenope expansa	(Miers, 1879)	1	1			1	1			1	
Parthenopoides massena	(Roux, 1830)	1	1		1	1	1	1	1	1	1
Pasiphaea multidentata	Esmark, 1866	1	1	1	1	1	1		1	1	1
Pasiphaea sivado	(Risso, 1816)	1	1	1	1	1	1		1	1	1
Percnon gibbesi	(H. Milne Edwards, 1853)	1	1			1	1	1		1	1
Penaeus japonicus	Spence Bate, 1888	1	1		1				1	1	1
Penaeus kerathurus	(Forskål, 1775)	1	1	1	1	1	1	1	1	1	1
Periclimenes amethysteus	(Risso, 1827)	1	1		1	1			1	1	
Periclimenes granulatus	Holthuis, 1950	1					1				
Periclimenes scriptus	(Risso, 1822)	1	1		1	1			1	1	
Pestarella candida	(Olivi, 1792)	1	1		1	1	1	1	1	1	1
Pestarella tyrrhena	(Petagna, 1792)	1	1		1	1	1	1	1	1	1
Philocheras bispinosus bispinosus	(Hailstone, 1835a)	1	1		1	1			1	1	1
Philocheras bispinosus neglectus	(Sars G.O.,1883)	1	1		1				1		
Philocheras echinulatus	(M. Sars, 1862)	1	1			1			1	1	
Philocheras fasciatus	(Risso, 1816)	1	1	1	1	1	1	1	1	1	
Philocheras sculptus	(Bell, 1847 [in Bell, 1844-1853])	1	1	1	1	1			1	1	
Philocheras trispinosus	(Hailstone in Hailstone & Westwood, 1835)	1	1		1	1		1		1	1
Pilumnus hirtellus	(Linnaeus, 1761)	1	1		1	1	1	1	1	1	1
Pilumnus spinifer	H. Milne Edwards, 1834	1	1	1	1	1	1		1	1	1
Pilumnus villosissimus	(Rafinesque, 1814)	1	1	1	1	1	1		1	1	1
Pinnotheres pisum	(Linnaeus, 1767)	1	1	1	1	1	1		1	1	1
Pirimela denticulata	(Montagu, 1808)	1	1	1	1	1	1	1	1	1	1
Pisa armata	(Latreille, 1803)	1	1	1	1	1	1	1	1	1	1
Pisa hirticornis	(Herbst,1804)	1	1		1	1	1		1	1	1
Pisa muscosa	(Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1
Pisa tetraodon	(Pennant, 1777)	1	1	1	1	1	1	1	1	1	1
Pisidia bluteli	(Risso, 1816)	1	1		1	1	1		1	1	1
Pisidia longicornis	(Linnaeus, 1767)	1	1	1	1	1	1	1	1	1	1
Planes minutus	(Linnaeus, 1758)	1	1		1	1	1		1	1	1
Plesionika acanthonotus	(Smith, 1882)	1	1		1	1	1		1	1	

(continued)

Table 3 *(continued)*

Species names	Contributors	Algeria	Alboran Sea	Morocco (Mediterranean)	France (Mediterranean)	West Italy	Central Italy	Tunisia	Adriatic Sea	Aegean Sea	Levantine Basin
Plesionika antigai	Zariquiey Alvarez, 1955	1	1			1			1	1	
Plesionika edwardsii	(Brandt, 1851)	1	1		1	1	1		1	1	1
Plesionika ensis	(A. Milne-Edwards, 1881)	1	1								
Plesionika gigliolii	(Senna, 1902)	1	1		1	1	1			1	1
Plesionika heterocarpus	(A. Costa, 1871)	1	1	1	1	1	1	1	1	1	1
Plesionika martia	(A. Milne-Edwards, 1883)	1	1		1	1	1		1	1	1
Plesionika narval	(Fabricius, 1787)	1	1		1	1	1		1	1	1
Polybius henslowii	Leach, 1820	1	1	1		1	1				
Polycheles typhlops	Heller, 1862	1	1	1	1	1	1		1	1	1
Pontonia pinnophylax	(Otto, 1821)	1	1	1	1	1	1	1	1	1	1
Pontophilus spinosus	(Leach, 1816)	1	1	1	1	1	1		1	1	
Porcellana platycheles	(Pennant, 1777)	1	1	1	1	1	1	1	1	1	1
Portumnus latipes	(Pennant, 1777)	1	1	1	1	1	1		1	1	1
Portunus (Portunus) hastatus	(Linnaeus, 1767)	1	1	1	1	1	1	1	1	1	1
Processa acutirostris	Nouvel & Holthuis, 1957	1	1	1	1	1	1	1	1	1	1
Processa canaliculata	Leach, 1815 [in Leach, 1815-1875]	1	1	1	1	1	1			1	
Processa edulis crassipes	(Nouvel & Holthuis,1957)	1			1						
Processa edulis edulis	(Risso, 1816)	1	1	1	1	1	1	1	1	1	1
Processa elegantula	Nouvel & Holthuis, 1957	1	1		1	1	1	1		1	1
Processa macrophthalma	Nouvel & Holthuis, 1957	1	1		1	1	1		1	1	1
Processa modica carolii	Williamson in Williamson & Rochanaburanon,1979	1			1	1	1				
Processa modica modica	Williamson in Williamson & Rochanaburanon,1979	1	1			1	1		1	1	1
Processa nouveli holthuisi	Al-Adhub & Williamson,1975	1									
Processa nouveli nouveli	Al-Adhub & Williamson, 1975	1	1		1	1	1		1	1	1
Processa parva	Holthuis, 1951	1		1							
Processa robusta	Nouvel & Holthuis, 1957	1	1	1	1	1		1	1	1	
Rochinia carpenteri	(Thomson, 1873)	1	1								
Scyllarides latus	(Latreille, 1803)	1	1	1	1	1	1		1	1	1
Scyllarus arctus	(Linnaeus, 1758)	1	1	1	1	1	1		1	1	1
Scyllarus pygmaeus	(Bate, 1888)	1	1	1		1	1		1	1	1
Sergestes atlanticus	H. Milne Edwards, 1830	1	1	1						1	
Sergestes henseni	(Ortmann, 1893)	1	1	1				1			
Sergia robusta	(Smith, 1882)	1	1	1	1	1	1		1	1	1
Sicyonia carinata	(Brünnich, 1768)	1	1	1	1	1	1	1	1	1	1
Sirpus zariquieyi	Gordon, 1953	1	1		1	1	1		1	1	1
Solenocera membranacea	(Risso, 1816)	1	1	1	1	1	1	1	1	1	1
Spinolambrus macrochelos	(Herbst, 1790)	1	1		1	1	1	1	1	1	1
Stenopus spinosus	Risso, 1827	1	1		1	1	1	1	1	1	1
Synalpheus gambarelloides	(Nardo, 1847)	1	1	1	1	1	1	1	1	1	1
Thia scutellata	(Fabricius, 1793)	1	1		1	1	1	1	1	1	1
Upogebia deltaura	(Leach, 1815)	1	1		1	1	1	1	1	1	1
Upogebia pusilla	(Petagna, 1792)	1	1		1	1	1		1	1	1
Upogebia stellata	(Montagu, 1808)	1								1	
Upogebia tipica	(Nardo, 1869)	1			1	1	1		1	1	1
Xaiva biguttata	(Risso,1816)	1	1		1	1	1			1	1
Xantho granulicarpus	Forest, in Drach & Forest, 1953	1		1	1			1		1	1
Xantho hydrophilus	(Herbst, 1790)	1	1		1				1	1	1
Xantho pilipes	A. Milne-Edwards, 1867	1	1	1	1	1	1	1	1	1	
Xantho poressa	(Olivi, 1792)	1	1	1	1	1	1	1	1	1	1
Total		**253**	**228**	**101**	**194**	**209**	**186**	**94**	**187**	**204**	**167**

(continued)

very useful comments and suggestions on the first version of the typecript.

References

Alexander, V., Miloslavich P., Yarincik K., 2011. The Census of Marine Life, evolution of worldwide marine biodiversity research. *Marine Biodiversity,* 41, 545-554.

Ateş, A.S., Kocataş, A., Katağan, K., Özcan T., 2010. An updated list of decapod crustaceans on the Turkish coast with a new record of the Mediterranean shrimp, *Processa acutirostris* Nouvel and Holthuis 1957 (Caridea, Processidae). *North-Western Journal of Zoology,* 6, 209-217.

Bakalem, A., 1979. *Contribution à l'étude des peuplements benthiques de la baie d'Alger*. Thèse de 3ème cycle, Université de Brest, France, 228 pp.

Bakalem, A., 2008. *Les peuplements des sables fins de la côte algérienne*. PhD Thesis. Université des Sciences et de la Technologie, faculté des sciences biologiques, Algérie, 678 pp.

Bakalem, A., Dauvin, J.C., 1995. Inventaire des Crustacés Amphipodes (Gammaridea Caprellidae, Hyperiidea) des côtes d'Algérie: Essai de synthèse. *Mésogée,* 54, 49-62.

Bakalem, A., Romano, J.C., 1988. Les peuplements benthiques du port d'Alger: 2. Les Crustacés. *Rapport de la Commission Internationale pour l'Exploration Scientifique de la Méditerranée,* 31, 17.

Bakalem, A., Dauvin, J.C., Grimes, S., 2014. New marine amphipod records on the Algerian coast . *Journal of the Marine Biological Association of the United Kingdom*, 94, 753-762.

Bakir, A.K., Katağan T., Aker, H.V., Özcan, T., Sezgin, M. *et al*., 2014. The marine arthropods of Turkey. *Turkish Journal of Zoology*, 38, 1-67.

Beaubrun, P.C., 1978. Crustacés décapodes marcheurs des côtes marocaines (sections des Astacidea, Eryonidea,Palinura, Thalassinidea). *Bulletin de l'Institut Scientifique, Rabat,* 3, 1-110.

Boeuf, G., 2011. Marine biodiversity characteristics. *Compte Rendu Biologies,* 334, 435-440.

Bourdon, R., 1965. *Inventaire de la faune marine de Roscoff. Décapodes et Stomatopodes*. Editions de la Station Biologique de Roscoff, France. 45 pp.

Coll, M., Piroddi, C., Steenbeek, J., Kaschner, K., Ben Rais Lasram, F. *et al*., 2010. The Biodiversity of the Mediterranean Sea: Estimates, Patterns, and Threats. *PLoS ONE* 5(8): e11842.

Corsini-Foka, M., Kondylatos, G., 2015. First occurrence of *Actaeodes tomentosus* (H. Milne Edwards, 1834) (Brachyura: Xanthidae: Actaeinae) in the Mediterranean Sea. *Mediterranean Marine Science,* 16, 201-205.

Corsini-Foka, M., Pancucci-Papadopoulou M.A., 2012. Inventory of Crustacea Decapoda and Stomatopoda from Rhodes (Eastern Mediterranean Sea), with emphasison rare and newly recorded species. *Journal of Biological Research-Thessaloniki,* 18, 359-371.

Costello, M.J., Wilson, S.P., 2011. Predicting the number of known and unknown species in European seas using rates of description. *Global Ecology and Biogeography*, 20: 319-330.

Cuesta, J.A., Drake, P., Arias, A., 2015**.** First record of the blue crab *Callinectes exasperatus* (Gerstaecker, 1856) (Decapoda, Brachyura) for European waters. *Marine Biodiversity Records,* 8**,** e36, 1-4.

D'Udekem d'Acoz, C., 1995. Contribution à la connaissance des crustacés décapodes helléniques II: Penaeidea, Stenopodidea, Palinuridea, Homaridea, Thalassinidea, Anomora, et note sur les Stomatopodes. *Bios (Macedonia, Greece),* 3, 51-77.

D'Udekem d'Acoz, C., 1999. Inventaire et distribution des crustacés de l'Atlantique nord-oriental, de la méditerranée et des eaux continentales au nord de 25°N. *Patrimoines naturels,* 40, 1-393.

Daoulatli, A., Antit, M., Azzouna, A., Garcia-Raso, J.E., 2014. Seasonal and diel changes in the structure of a crustacean decapod assemblage associated to a shallow *Cymodocea nodosa* meadow in northern Tunisia (Mediterranean Sea). An overview of Mediterranean decapod taxocoenoses. *Mediterranean Marine Science,* 15 (1), 59-71.

Dauvin, J.C., Grimes, S. Bakalem, A., 2013. Marine biodiversity on the Algerian Continental Shelf (Mediterranean Sea). *Journal of Natural History,* 47, 1745-1765.

Délye, G., 1957. Crustacés Décapodes récoltés au cours de la croisière du Comité Local d'Océanographie et d'Etudes des Côtes d'Algérie aux Iles Habibas. *Bulletin de l'Institut Océanographique,* 1093, 1-8.

Dieuzeide, R., 1940. Etude d'un fond de pêche d'Algérie: la gravelle de Castiglione. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 1, 37-57.

Dieuzeide, R., 1950. La faune du fond chalutable de la baie de Castiglione. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 2, 11-85.

Dieuzeide, R., 1954. Recherche sur les fonds chalutables de la région d'Alger. Notes faunistiques sur la zone méso-abyssale. *Comité Local d'Océanographie et d'Etude des côtes d'Algérie*, 78-81.

Dieuzeide, R., 1955a. Dragages et chalutages dans les régions de l'oued Réghaia et l'île Aguelli. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 7, 17-22.

Dieuzeide, R., 1955b. Dragages et chalutages dans les régions de l'oued Isser et de l'oued Sebaou. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 7, 23-31.

Dieuzeide, R., Goëau-Brissonière W., 1951. Les prairies de zostères naines et de Cymodocées (mattes) aux environs d'Alger. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 3, 11-53.

Dieuzeide, R., Roland J., 1956. Opérations de dragages et de chalutages effectuées au large des côtes algériennes au cours des années 1954 et 1955. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 8, 11-27.

Dieuzeide, R., Roland J., 1957. Répartition bathymétrique de la faune des fonds chalutables des côtes d'Algérie. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 9, 50-69.

El Lakhrach, H., Hattour A., 2010. Répartition des Crustacés décapodes dans le golfe de Gabes. *Rapport de la Commission Internationale pour l'Exploration Scientifique de la Méditerranée,* 39, 503.

El Lakhrach, H., Hattour, A., Jarboui, O., Elhasni, K. Ramos-Espla, A.A., 2012. Spatial distribution and abundance of the stomapoda and Decapoda crustaceans sampled by bottom trawl in the gulf of Gabes (Tunisia, Central Mediterranean). *Cahiers de Biologie Marine,* 53, 435-446.

Falciai, L., 2001. Occurrence of *Palaemonetes varians* (Leach, 1814) (Decapoda, Palaemonidae) in a brackish pond in Algeria. *Crustaceana*, *74*, 697-701.

Falconetti, C., 1970. Etude faunistique d'un faciès : la "Gravelette"ou maërl de Castiglione (Algérie). *Tethys,* 1, 1057-1096.

Forest. J., 1957. Crustacés Décapodes recueillis au cours de la croisière du "Professeur Lacaze-Duthiers" au large des côtes d'Algérie (juin-juillet 1952). Reptantia. *Vie et Milieu,* 6 (Suppl.), 117-120.

Forest, J., Guinot, D., 1956. Sur une collection de Crustacés Décapodes et Stomatopodes des mers tunisiennes. *Bulletin de la Station Océanographique de Salammbô,* 53, 24-53.

Fredj, G., 1974. Stockage et exploitation de données en écologie marine. Considérations biogéographiques sur le peuplement benthique de la Méditerranée. *Mémoire de l'Institut Océanographique de Monaco,* 7, 1-88.

Froglia, C., 2010. Crustacea, Malacostraca, Decapoda. *Biologia Marina Mediterranea* 17 *(supplement 1),* 519-534.

Galil, B.S., Shlagman, A., 2011. An annotated list of the Decapod Crustacea of the Mediterranean coast of Israel – Half acentury later. p. 269-282. In: *Studies on Malacostraca: Lipke Bijdeley Holthuis Memorial Volume*, Fransen, C.H.J.M., De Grave, S., Ng, P.K.L. (Eds). Crustaceana Monographs 14.Brill, Leiden, Boston.

Galil, B.S., Froglia, C., Noël, P., 2015. Looking Back, Looking Ahead: the CIESM Atlas Crustaceans. *Management of Biological Invasions*, 6, 171-175.

Gonzalez-Gordillo, J.I., Dos Santos, A., Rodriguez, A., 2001. Checklist and annotated bibliography of decapod crustacean larvae from the Southwestern European coast (Gibraltar Strait area). *Bulletin of Sciences Marines,* 65, 275-305.

Grimes, S., 2010. *Les peuplements macrobenthiques des substrats meubles algériens: organisation et structure*. PhD Thesis. Université Es Sénia, Oran, Algérie, 358 pp.

Grimes, S., Dauvin, J.C., Ruellet, T., 2009. New records of marine amphipod fauna (Crustacea: Peracarida) on the Algerian coast. *Marine Biodiversity Records,* 2, e134, 1-9.

Grimes, S., Ruellet, T., Dauvin, J.C., 2010. Ecological Quality Status of the soft-bottom communities from the Algeria coast: general patterns and diagnostic. *Marine Pollution Bulletin,* 60, 1969-1977.

Hasan, H., 2008. *Biodiversité spécifique des crustacés Decapoda et Stomatopoda de Syrie : systématique, taxonomie, écologie, origine biogéographique*. PhD Thesis. Muséum National d'Histoire Naturelle, Paris, France, 520 pp.

Kapiris K., Apostolidis, C., Baldacconi, R., Başusta, N., Bilecenoglu, M. *et al*., 2014. New Mediterranean Marine biodiversity records (April, 2014). *Mediterranean Marine Science,* 15, 198-212.

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

Kirincic, M., Stecic, Z., 2008. Fauna of the Adriatic decapod crustaceans (Crustacea: Decapoda): status and outlook. *Natural Croatian,* 17, 131-139.

Koukouras, A., Dounas, C., Turkay, M., Voultsiadou-Koukoura E., 1992. Decapod crustacean fauna of the Aegean Sea: New information, check list, affinities. *Senckenbergiana maritime,* 22, 217-244.

Lamouti, S., Bachari, N., 2011. Records of alien species along the Algerian coast. p. 95. In: Quillez-Badis, G., Drake, L. (***E***ds). 7th International Conference on Marine Bioinvasions, Barcelona, Spain 2011.

Le Danois, E., 1925. Recherches sur les fonds chalutables des côtes de Tunisie et d'Algérie en 1924. *Mémoires de l'Office Scientifique et Technique* des *Pêches Maritimes,* 3, 55pp.

Le Gall, J.Y., 1969. Etude de l'endofaune des pelouses de Zostéracées superficielles de la baie de Castiglione. *Téthys,* 1, 395-420.

Lucas, H., 1846. Crustacés, Arachnides, Myriopodes [sic] et Hexapodes. *Exploration scientifique de l'Algérie pendant les années 1840, 1841, 1842. Sciences physiques, Zoologie I. Histoire naturelle des animaux articulés*, 1, 1-403.

Marco-Herrero, E., Abelló, P., Drake, P., García-Raso, J.E., González-Gordillo, J.I. *et al*., 2015. Annotated checklist of brachyuran crabs (Crustacea: Decapoda) of the Iberian Peninsula (SW Europe). *Scientia Marina*, 79, 243-256.

Marine Biological Association, 1957. *Plymouth Marine Fauna (3rd Edition)*. Plymouth, United Kingdom, 457 pp.

Maurin, C., 1962. Etude des fonds chalutables de la Méditerranée Occidentale (écologie et pêche). *Revue des Travaux de l'Institut des Pêches Maritimes,* 26, 163-218.

Molinier, M., Picard, J., 1952. Etudes biologiques sur les herbiers de Phanérogames marines à l'Ouest d'Alger. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 4, 335-362.

Müller, C.H.G., Schbart, C.D., 2007. Insights into the Crustacea Decapoda of the Adriatic Sea. Observations from four sampling locations along the Croatian coast. *Rostocker Meeresbiologische Beiträge,* 18, 112-130.

Noël, P.Y., 1993. *Atlas des Crustacés Décapodes de France (espèces marines et d'eaux saumâtres)*. État d'avancement au 28-06-1993. MNHN, CSP, MATE, Paris-France, 98 pp.

Pipitone, C., Arculeo, M., 2003. The marine Crustacea Decapoda of Sicily (central Mediterranean Sea): a checklist with remarks on their distribution. *Italian Journal of Zoology,* 70, 69-78.

Seridji, R., 1971. Contribution à l'étude des larves de Crustacés Décapodes en baie d'Alger. *Pélagos,* 3, 1-105.

Seridji, R., 1989. *Etude des larves de Crustacés Décapodes : aspects taxonomique, écologique et biogéographique*. PhD Thesis. Université des Sciences et de la Technologie Houari Boumediene, Algeria, 619 pp.

Seurat, L.G., 1927. L'étage intercotidal des côtes algériennes. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 1, 1-20.

Seurat, L.G., 1935. Etage intercotidal des côtes algériennes. Falaises battues. *Bulletin de la Station Aquicole et Pêche, Castiglione (Nouvelle Série),* 1, 1-39.

Shaiek, M., Romdhane, M.S., Ben Rejeb Jenhani, A., 2010. Communauté actuelle de crabes (Brachyura, Decapoda, Crustacea, Arthropodea) de la lagune de Bizerte (Tunisie Septentrionale). *Rapport de la Commission Internationale pour l'Exploration Scientifique de la Méditerranée,* 39, 800.

Sollaud, E., 1957. Liste des espèces de Decapoda Natantia récoltées en juin-juillet 1952 par le "Professeur Lacaze-Duthiers" sur les côtes d'Algérie. *Vie et Milieu* (*Supplement),* 6, 1-116.

Sparck, R., 1931. Some quantitative investigations on the bottom fauna at the west coast of Italy, in the bay of Algiers and at the west coast of Portugal. *Report on the Danish Oceanographical Expeditions 1908-10 to the Mediterranean and adjacent Seas,* 3, 3-9.

Ungaro, N., Marano, G.A., Ceriola, L., Martino, M., 2005. Distribution of demersal crustaceans in the southern Adriatic Sea. *Acta Adriatica,* 46, 27-40.

Vaissière, R., Fredj, G., 1964. Contribution à l'étude de la faune benthique du plateau continental de l'Algérie. *Bulletin de l'Institut Océanographique de Monaco,* 60, 1-83.

Zariquiey-Alvarez, R., 1968. Crustaceos decapodos Ibericos. *Investigations Pesqeras,* 32, 1-510.