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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)

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Abstract. The present paper includes an updated list of the decapod crustaceans collected during the surveys performed on the Turkish coast. A total of 244 species was reported (88 Natantia, 17 Macrura Reprantia, 37 Anomura, 102 Brachyura), an increase of 9.84% over the number published by Kocataş & Katağan (2003). Zoogeographic remarks regarding the species are briefly discussed. The Mediterranean caridean shrimp, *Processa acutirostris* Nouvel and Holthuis, 1957 recently collected from the Turkish Mediterranean coast is a new record for the Turkish Seas. The following nomenclature is also up to date based on the Marine Species (Worms, 2008)

Key words: checklist, Crustacea Decapoda, Aegean Sea, Turkish Straits System, Black Sea, Mediterranean Sea, Turkey.

Introductıon

The Turkish coasts are an important part of the Mediterranean and the Black Sea ecosystems. The Turkish Straits System including the Sea of Marmara, Istanbul, and Çanakkale Straits connects these two ecosystems. Biological, physiographical, meteorological, and hydrological characteristics combine there to form a peculiar ecosystem between the Mediterranean and the Black Seas. Many studies have been carried out on decapod crustaceans of the Turkish Seas since 1960s. A detailed list of decapod species found on the Turkish coast was presented by Kocataş & Katağan (2003) and this list includes a total of 220 species. Recently, Kumlu et al. (2002) reported *Melicertus hathor*; Katağan & Çevik (2003) *Albunea carabus*; Balkıs & Çeviker (2003) *Calappa hepatica*; Katağan et al. (2004) *Balssia gasti*; Yokeş & Galil (2004) *Metapenaeopsis aegpytia*; Ateş et al. (2004) *Processa macrodactyla*, *Pestarella subterranea*, *Palicus caronii*, *Ebalia tumafecta*, and *Liocarcinus maculatus*; Engin et al. (2004) *Pestarella candida* (*Callianassa candida*); Grippa (2004) *Salmoneus kekovae*; Özcan et al. (2006) *Fenneropenaeus merguiensis*; Yokeş & Galil (2006a) *Percnon gibbesi*; Yokeş & Galil (2006b) *Carupa tenuipes*, *Metapenaeopsis moigensis consobrina*, and *Urocaridella pulchella*; Özcan et al. (2008) *Ogyrides mjoebergi*, Özcan et al. (2010) *Charybdis hellerii* and Ateş et al. (2008) *Inachus parvirostris*. So, the number of decapod species known from the Turkish Seas reached 239. Recently, Ateş et al. (2009) reported the new records of the Indo-west Pacific caridean shrimp, *Palaemonella rotumana* (Borradaile, 1898) and the other caridean shrimp, *Eualus sollaudi* (Zariquiey Cenarro, 1935) from the Turkish Seas. Aydın et al. (2009) recorded the Jinga shrimp, *Metapenaeus affinis* (H. Milne Edwards, 1837) from the Turkish Mediterranean Sea coast.

On the other hand, the Mediterranean environment is quite susceptible to invasions

by alien migrants because to it has many ports that are open to international transporting, urbanization, and tourism (Galil 2000). Many exotic species inhabit the Mediterranean ecosystem via three different ways (the Suez Canal for the Indo-Pacific migrants, the Gibraltar Strait for the northeastern Atlantic elements, and the Turkish Straits System for the Black Sea species). Because of the climatic changes the number of alien species in different areas has gradually been increased (Zenetos et al. 2008). The conception of recent colonization of the Mediterranean Sea by many exotic species is emphasized in relevant literatures in recent decades.

The cruises conducted since the beginning of 1960s on the coast of Turkey have increased the number of known alien species of decapod crustaceans.

Materıal and methods

Data presented herein is composed of results belonging to all the studies carried out on decapod crustaceans of the Turkish coasts before. Previous studies were begun in the late 1950s and mostly carried out by İstanbul University and Ege University on the coast of Turkish Aegean Sea and the Turkish Straits System.

Results

New record

Processa acutirostris Nouvel and Holthuis, 1957 (Fig. 1)

Nika edulis Roux, 1828

Material examined: The eastern Mediterranean, Turkey, Fethiye Bay, 11.09.08, GPS Coordinates; 36°35'34″N 29°02'14″E, sand bottom with *Cymodocea nodosa* meadows, 5-10 m, 1 ♂, TL: 26.28 mm.

Processa acutirostris is one of twelve species [*Processa canaliculata* Leach, 1815; *P. edulis* (Risso, 1816); *P. elegantula* Nouvel and Holthuis, 1957; *P. intermedia* Holthuis, 1951; *P. macrodactyla* Holthuis, 1952; *P. macrophthalma* Nouvel and Holthuis, 1957; *P. modica* Williamson and Rochanaburanon, 1979; *P. nouveli* Al Adhub and Williamson, 1975; *P. parva* Holthuis, 1951; *P. pontica* (Sowinsky, 1882); *P. robusta* Nouvel and Holthuis, 1957] of the genus *Processa* Leach, 1815 in the north-eastern Atlantic and the Mediterranean Sea. This species is endemic to the Mediterranean and it lives at the depth range between 0 and 25 m in the Adriatic Sea (D'Udekem d'Acoz 1999). *P. acutirostris* prefers mostly sand bot-toms covered with *Cymodocea nodosa*, *Posidonia oceanica*, and *Zostera marina* meadows in the Mediterranean ecosystem (Noël 1992).

Its previous records in the Mediterranean are from the Spanish waters (Zariquiey Alvarez 1968), the Adriatic Sea (Holthuis 1961), the southern Cyprus coast (Lewinsohn & Holthuis 1986), the Gulf of Taranto, the southern Italy (Forest 1967), Tunisia shores (Ďuriš 1996), and the Greek waters of the Aegean Sea (Koukouras 1998). Koukouras (1998) reported a total of eight species (*Processa acutirostris*, *P. canaliculata*, *P. edulis*, *P. elegantula*, *P. macrophthalma*, *P. modica*, *P. nouveli*, and *P. robusta*) belong to the genus *Processa* from the Greek coast of the Aegean Sea. However, from the Turkish coast, a total of eight (*Processa acutirostris*, *P. canaliculata*, *P. edulis*, *P. elegantula*, *P. macrodactyla*, *P. macrophthalma*, *P. modica*, and *P. nouveli*) was recorded.

Remarks

Nomenclature updates

The scientific names of most species cited herein were updated for *Thoralus cranchi* (Leach, 1817) as *Eualus cranchii* (Leach, 1817); *Xantho granulicarpus* Forest, 1953 as *Xantho hydrophilus* (Herbst, 1790); *Callianasa candida* (Olivi, 1972) as *Pestarella candida* (Olivi, 1792); *Callianasa tyrrhena* (Petagna, 1792) as *Pestarella tyrrhena* (Petagna, 1792); *Trachypenaeus curvirostris* (Stimpson, 1860) as *Trachysalambria palaestinensis* Steinitz, 1932; *Portumnus pestai* Forest, 1967 as *Portumnus lysianassa* (Herbst,

Figure 1. Lateral view of *Processa acutirostris*, TL: 26.28 mm.

1796) (Ngoc-Ho 2003; Ciesm 2008).

Accidental or incorrect records

Liocarcinus holsatus (Fabricius, 1798); the first erroneous re cord of this species on the coast of Turkey was given by Bilgin & Çelik (2004) for the Black Sea. Yet, *Liocarcinus holsatus* is known to occur in the northeastern Atlantic and its adjacent areas only, and this species is not reported from the Mediterranean Sea. Besides, there are some records which are currently excluded as accidental or spurious records regarding this species. Besides, this study increased to 244 (88 Natantia, 17 Macrura Reprantia, 37 Anomura, 102 Brachyura) the number of known decapod crustaceans on the Turkish Aegean and Mediterranean Sea coasts.

Zoogeographic distribution

Appendix 1 presents decapods zoogeographical patterns in Turkish coasts. As a result of evaluation the number of decapod species on the Turkish coast increased to 243 (33 for the Black Sea; 118 Turkish Straits Systems; 204 the Aegean Sea; 178 the Mediterranean Sea). Aprroximately 83.61% of decapod species found on the Turkish coast is reported from the Turkish Aegean Sea,it is followed by the Mediterranean shores with a value of 72.95%. When the decapod diversity in the Sea of Marmara is 48.36%, the Black Sea coast of Turkey is the poorest (13.52%).

Conclusıon

The new records are added to the decapod fauna of the Turkish Seas as a results of scientific studies carried out on the Turkish coast. In last five years, a total of 24 new records was reported from the Turkish Seas.

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Appendix 1. Zoogeographic distribution of the decapod species found in the Turkish Seas. BS: Black Sea; TSS: Turkish Straits Systems; AS: Aegean Sea ; MS: Mediterranean Coast (*new records not existing on the list of Kocataş and Katağan (2003).

Species	BS	TSS	AS	MS
Natantia				
Acanthephyra pelagica (Risso, 1816)	-	-	+	-
Aegaeon cataphractus (Olivi,1792)	-	+	+	+
Aegaeon lacazei (Gouret, 1887)	+	+	+	+
Alpheus dentipes Guérin-Méneville, 1832	+	+	+	+
Alpheus glaber (Olivi, 1792)	-	+	+	+
Alpheus inopinatus Holthuis & Göttlieb, 1958*	-	-	-	+
Alpheus macrocheles (Hailstone, 1835)	-	+	+	+
Alpheus migrans Lewinsohn & Holthuis,1978*	-	-	-	+
Alpheus rapacida De Man,1908	-	-	+	+
Aristaeomorpha foliacea (Risso,1827)	-	-	+	+
Aristeus antennatus (Risso,1816)	-	-	+	+
Athanas amazone Holthuis,1951	-	-	+	-
Athanas nitescens (Leach,1814)	+	+	+	+
Automate branchialis Holthuis & Göttlieb, 1958	-	-	-	+
Balssia gasti (Balss, 1921) *	-	-	+	-
Brachycarpus biunguiculatus (Lucas,1846)	-	-	-	+
Chlorotocus crassicornis (A.Costa,1871)	-	+	+	+
Crangon crangon (Linnaeus,1758)	+	+	+	+
Eualus cranchii (Leach,1817) *	-	+	+	+
Eualus occultus (Lebour,1936)	-	-	+	-
Eualus sollaudi (Zariquiey Cenarro, 1935)*	-	-	-	+
Fenneropenaeus merguiensis (De Man, 1888) *	-	-	-	+
Gennadas elegans (Ssmith,1882)	-	+	-	-
Gnathophyllum elegans (Risso,1816)	-	-	+	-
Hippolyte holthuisi Zarıquıey- Alvarez,1953	-	+	+	-
Hippolyte inermis Leach,1815	-	+	+	+
Hippolyte leptocerus (Heller,1863)	+	+	+	+
Hippolyte leptometrae Ledoyer,1969	-	-	+	-
Leptochela pugnax De Man,1916	-	-	+	+
Lysmata seticaudata (Risso,1816)	+	+	+	+
Lucifer typus H.Milne-Edwards,1837	-	-	+	+
Marsupenaeus japonicus (Bate,1888)	-	+	-	+
Melicertus hathor (Burkenroad, 1959) *	-	-	+	+
Melicertus kerathurus (Forskal,1775)	-	+	+	+
Metapenaeopsis aegyptia Galil & Golani, 1990*	-	-	-	+
Metapenaeopsis moigensis consobrina (Nobili, 1904) *	-	-	-	+
Metapenaeus affinis (H. Milne Edwards, 1837) *	-	-	+	-
Metapenaeus monoceros (J.C. Fabricius, 1798)	-	-	-	+
Metapenaeus stebbingi Nobili,1904	-	-	-	+
Ogyrides mjoebergi (Balss, 1921) *	-	-	-	+
Palaemon adspersus Rathke,1837	+	+	+	+
Palaemon elegans Rathke,1837	+	+	+	+
Palaemon longirostris longirostris H.Milne-Edwards,1837	+	+	+	+
Palaemon serratus (Pennant,1777)	+	+	+	+
Palaemon xiphias Risso,1816	-	+	+	+
Palaemonella rotumana (Borradaile, 1898)*	-	-	-	+
Palaemonetes antennarius (H.Milne-Edwards,1837)	-	-	+	+

Appendix 1. (Continued).

Species	BS	TSS	AS	MS
Natantia				
Pandalina brevirostris (Rathke,1843)	-	+	+	+
Pandalina profunda Holthuis,1946	-	+	-	-
Parapandalus narval (Fabricius,1787)	-	-	+	+
Parapenaeus longirostris (Lucas,1846)	-	+	+	+
Pasiphaea multidentata Esmark,1866	-	-	+	+
Pasiphaea sivado (Risso,1816)	-	+	+	+
Penaeus semisulcatus De Haan,1842	-	-	-	+
Periclimenes scriptus (Risso,1822)	-	+	-	+
Philocheras bispinosus (Hailstone,1835)	-	-	+	+
Philocheras fasciatus (Risso,1816)	-	+	+	-
Philocheras monacanthus (Holthuis,1961)	-	-	+	+
Philocheras sculptus (Bell,1847)	-	-	+	-
Philocheras trispinosus (Hailstone,1835)	+	+	+	+
Plesionika acanthonotus (Smith,1882)	-	-	+	-
Plesionika edwardsii (Brandt,1851)	-	-	+	+
Plesionika gigliolii (Senna,1902)	-	-	+	-
Plesionika heterocarpus (A.Costa,1871)	-	+	+	+
Plesionika martia martia (A. Milne-Edwards,1883)	-	-	+	-
Pontonia flavomaculata Heller,1864	-	+	-	-
Pontonia pinnophylax (Otto,1821)	-	-	+	+
Pontophilus spinosus (Leach,1815)	-	-	+	-
Processa acutirostris Nouvel and Holthuis, 1957*	-	-	-	+
Processa canaliculata Leach,1815	-	+	+	+
Processa edulis edulis (Risso,1816)	-	+	+	+
Processa elegantula Nouvel & Holthuis,1957	-	-	+	+
Processa macrodactyla Holthuis,1952*	-	-	+	-
Processa macrophthalma Nouvel & Holthuis,1957	-	-	+	+
Processa modica Williamson & Rochanaburanon, 1979	-	-	+	+
Processa nouveli Al-Adhub & Williamson,1975	-	+	+	+
Richardina fredericii Lo Bianco,1903	-	-	+	-
Salmoneus kekovae Grippa, 2004*	-	-	-	+
Sergestes arcticus Kröyer,1855	-	+	+	-
Sergia robusta (Smith,1882)	-	+	+	-
Sicyonia carinata (Brünnich,1768)	-	-	+	+
Solenocera membranacea (Risso,1816)	-	+	+	+
Stenopus spinosus Risso,1827	-	-	+	+
Synalpheus gambarelloides (Nardo,1847)	-	-	+	+
Synalpheus tumidomanus africanus Paulson,187	-	-	+	+
Trachysalambria palaestinensis Steinitz, 1932	-	-	-	+
Typton spongicola O.G. Costa,1844	-	+	+	-
Urocaridella pulchella Yokes & Galil, 2006*	-	-	-	+
Macrura Reptantia				
Calocaris macandreae Bell,1846	-	+	+	-
Gourretia denticulata (Lütze,1837)	-	-	+	+
Homarus gammarus (Linnaeus,1758)	-	+	+	-
Jaxea nocturna Nardo,1847	-	+	+	-
Nephrops norvegicus (Linnaeus,1758)	-	+	+	-
Palinurus elephas (Fabricius,1787)	-	+	+	-
Pestarella candida (Olivi, 1792) *	+	-	-	-
Pestarella subterranea (Montagu, 1808) *	-	-	+	+

Appendix 1. (Continued).

Species	BS	TSS	AS	MS
Macrura Reptantia				
Pestarella turuncata Giard & Bonnier,1890	-	-	+	+
Pestarella tyrrhena (Petagna, 1792)	-	+	+	+
Polycheles typhlops typhlops Heller,1862	-	+	+	+
Scyllarides latus (Latreille,1803)	-	-	+	+
Scyllarus arctus (Linnaeus,1758)	-	+	+	+
Scyllarus pygmaeus (Bate,1888)	-	-	+	+
Upogebia deltaura (Leach,1815)	-	-	+	+
Upogebia pusilla (Petagna,1792)	+	+	+	+
Upogebia tipica (Nardo,1869)	-	-	+	+
Anomura				
Albunea carabus (L., 1758) *	-	-	-	+
Anapagurus bicorniger A.Milne-Edwards & Bouvier,1892	-	+	+	+
Anapagurus breviacuelatus Fenizia,1937	-	+	+	-
Anapagurus chiroacanthus (Lilljeborg,1856)	-	-	+	+
Anapagurus laevis (Bell,1846)	+	-	+	+
Anapagurus longispina A.Milne-Edwards & Bouvier,1892	-	-	+	+
Anapagurus petiti Dechancé & Forest,1962	-	-	+	+
Calcinus tubularis (Linnaeus,1767)	-	-	+	+
Cestopagurus timidus (Roux,1830)	-	+	+	+
Clibanarius erythropus (Latreille,1818)	+	+	+	+
Dardanus arrasor (Herbst,1796)	-	+	+	-
Dardanus calidus (Risso,1827)	-	-	+	+
Diogenes pugilator (Roux,1829)	+	+	+	+
Galathea bolivari Zariquiey- Alvarez ,1950	-	-	+	+
Galathea cenarroi (Zariquiey- Alvarez,1968)	-	-	+	-
Galathea dispersa Bate,1859	-	-	+	+
Galathea intermedia Lilljeborg,1851	-	+	+	+
Galathea nexa Embleton,1834	-	+	+	+
Galathea squamifera Leach,1814	-	+	+	+
Galathea strigosa (Linnaeus,1767)	-	+	+	-
Munida intermedia A.Milne-Edwards & Bouvier,1899	-	-	+	-
Munida rutlanti Zariquiey- Alvarez,1952	-	-	+	-
Munida rugosa (Fabricius,1775)	-	+	+	-
Munida tenuimana G.O.Sars,1872	-	+	+	-
Paguristes eremita (Linnaeus,1767)	-	+	+	+
Paguristes syrtensis De Saint Laurent,1971	-	-	+	+
Pagurus alatus Fabricius,1775	-	-	+	-
Pagurus anachoretus Risso,1827	-	+	+	+
Pagurus chevreuxi (Bouvier,1896)	-	-	+	+
Pagurus cuanensis Bell,1845	-	+	+	+
Pagurus excavatus (Herbst,1791)	-	+	+	+
Pagurus forbesii Bell,1845	-	+	+	+
Pagurus prideaux Leach,1815	-	-	+	+
Pisidia bluteli (Risso,1816)	-	+	+	+
Pisidia longicornis (Linnaeus,1767)	-	+	-	+
Pisidia longimana (Risso,1816)	+	+	+	+
Porcellana platycheles (Pennant,1777)	-	+	+	+
Brachyura				
Acanthonyx lunulatus (Risso,1816)	-	+	+	+
Achaeus cranchii Leach, 1817	-	+	+	+

Appendix 1. (Continued).

Species	BS	TSS	AS	MS
Brachyura				
Achaeus gracilis O.G. Costa, 1839	-	+	+	+
Atelecyclus rotundatus (Olivi, 1792)	-	+	+	-
Atergatis roseus (Rüppell, 1830)	-	-	+	+
Bathynectes longipes (Risso, 1816)	-	+	-	-
Bathynectes maravigna (Prestandrea, 1839)	-	-	+	+
Brachynotus foresti Zariquiey Alvarez, 1968	-	-	+	+
Brachynotus gemmellari (Rizza, 1839)	-	-	+	+
Brachynotus sexdentatus (Risso, 1827)	+	+	+	+
Calappa granulata (Linnaeus, 1758)	-	+	+	+
Calappa hepatica (Linnaeus, 1758) *	-	-	-	+
Callinectes sapidus Rathbun, 1896	-	+	+	+
Carcinus aestuarii Nardo, 1847	+	+	+	+
Carupa tenuipes Dana, 1851*	-	-	+	+
Charybdis hellerii (A. Milne-Edwards, 1867)	-	-	+	+
Charybdis longicollis Leene, 1938	-	-	+	+
Daira perlata (Herbst, 1790)	-	-	-	+
Dorhynchus thomsoni (Thomson, 1873)	-	-	+	-
Dromia personata (Linnaeus, 1758)	-	+	+	+
Ebalia cranchii (Leach, 1817)	-	+	+	-
Ebalia deshayesi (Lucas, 1846)	-	-	+	+
Ebalia edwardsii (Costa, 1838)	-	-	+	-
Ebalia granulosa (H.Milne-Edwards, 1837)	-	-	+	-
Ebalia nux (A.Milne-Edwards, 1883)	-	-	+	-
Ebalia tuberosa (Pennant, 1777)	-	+	+	+
Ebalia tumefacta (Montagu, 1808) *	-	-	+	-
Eriphia verrucosa (Forskål, 1775)	+	+	+	+
Ethusa mascarone (Herbst, 1785)	-	-	+	+
Eucrate crenata (De Haan, 1835)	-	-	-	+
Eurynome aspera (Pennant, 1777)	-	+	+	+
Geryon longipes (A.Milne-Edwards, 1882)	-	+	+	+
Goneplax rhomboides (Linnaeus, 1758)	-	+	+	+
Herbstia condyliata (Fabricius, 1787)	-	+	-	-
Homola barbata (Fabricius, 1793)	-	-	+	+
Ilia nucleus (Linnaeus, 1758)	-	+	+	+
Inachus aguiarii (De Brito Capello, 1876)	-	-	+	-
Inachus communissimus (Rizza, 1839)	-	-	+	+
Inachus dorsettensis (Pennant, 1777)	-	+	+	+
Inachus leptochirus (Leach, 1817)	-	+	+	+
Inachus parvirostris (Risso, 1816) *	-	-	+	-
Inachus thoracicus (Roux, 1830)	-	+	+	-
Ixa monodi Holthuis & Göttlieb, 1956	-	-	+	+
Latreillia elegans elegans (Roux, 1830)	-	-	+	-
Coleusia signata Paulson, 1875	-	+	-	+
Liocarcinus corrugatus (Pennant, 1777)	-	+	+	+
Liocarcinus depurator (Linnaeus, 1758)	+	+	+	+
Liocarcinus maculatus (Risso, 1827) *	-	-	+	+
Liocarcinus marmoreus (Leach, 1918)	+	+	+	+
Liocarcinus navigator (Risso, 1816)	+	+	+	+
Liocarcinus pusillus (Leach, 1815)	-	-	+	+
Liocarcinus vernalis (Risso, 1816)	+	+	+	+

Appendix 1. (Continued).

Species	BS	TSS	AS	MS
Brachyura				
Liocarcinus zariquieyi (Gordon, 1968)	-	-	-	+
Lissa chiragra (Fabricius, 1775)	-	-	+	-
Macrophthalmus graeffei A.Milne-Edwards, 1873	-	-	+	+
Macropipus tuberculatus (Roux, 1830)	-	-	+	-
Macropodia czernjawskii (Brandt, 1880)	-	-	+	-
Macropodia linaresi (Forest & Zariquiey-Alvarez 1964)	-	-	+	+
Macropodia longipes (A.Milne-Edwards & Bouvier, 1899)	-	-	+	+
Macropodia longirostris (Fabricius, 1775)	+	+	+	+
Macropodia rostrata (Linnaeus, 1761)	+	+	+	+
Macropodia tenuirostris (Leach, 1814)	-	-	+	+
Maja crispata (Risso, 1827)	-	+	+	+
Maja goltziana d'Oliveira, 1888	-	-	+	+
Maja squinado (Herbst, 1788)	-	+	+	+
Medorippe lanata (Linnaeus, 1767)	-	+	+	+
Micippa thalia (Herbst, 1803)	-	-	+	+
Microcassiope minor (Dana, 1852)	-	-	+	+
Monodaeus couchii (Couch, 1851)	-	+	+	-
Myra subgralunata Kossmann, 1877	-	-	-	+
Nepinnotheres pinnotheres (Linnaeus, 1758)	-	+	+	-
Ocypode cursor (Linnaeus, 1758)	-	-	+	+
Pachygrapsus marmoratus (J.C. Fabricius, 1787)	+	+	+	+
Pachygrapsus maurus (Lucas, 1846)	-	-	-	+
Pachygrapsus transversus (Gibbes, 1850)	-	-	-	+
Palicus caronii (Roux, 1830) *	-	-	+	-
Paractea monodi (Guinot, 1969)	-	-	-	+
Parthenope angulifrons (Latreille, 1825)	+	+	+	+
Parthenope macrochelos (Herbst, 1790)	-	+	+	+
Parthenope massena (P.Roux, 1830)	-	+	+	+
Percnon gibbesi (H. Milne Edwards, 1853) *	-	-	-	+
Pilumnopeus vauquelini (Audouin, 1826)	-	-	-	+
Pilumnus hirsutus (Stimpson, 1858)	+	-	+	+
Pilumnus hirtellus (Linnaeus, 1761)	+	+	+	+
Pilumnus spinifer (H.Milne-Edwards, 1834)	-	+	+	+
Pinnotheres pisum (Linneaus, 1767)	-	+	+	-
Pirimela denticulata (Montagu, 1808)	-	+	+	+
Pisa armata (Latreille, 1803)	-	+	+	+
Pisa hirticornis (Herbst, 1904)	-	-	+	-
Pisa muscosa (Linnaeus, 1758)	-	+	+	+
Pisa nodipes (Leach, 1815)	-	+	+	+
Pisa tetraodon (Pennant, 1777)	-	+	+	+
Portumnus latipes (Pennant, 1777)	+	+	+	+
Portumnus lysianassa (Herbst, 1796) *	-	-	+	-
Portunus hastatus (Linnaeus, 1767)	-	-	+	+
Portunus pelagicus (Linnaeus, 1758)	-	-	+	+
Sirpus zariquieyi Gordon, 1953	+	+	+	+
Thalamita poissonii (Audouin, 1826)	-	-	+	+
Xaiva biguttata (Risso, 1816)	-	-	-	+
Xantho hydrophilus (Herbst, 1790)	-	+	+	+
Xantho pilipes A.Milne-Edwards, 1867	-	+	+	+
Xantho poressa (Olivi, 1792)	+	+	+	+
Total 244	**33**	**118**	**204**	**178**