



# An updated checklist of marine and brackish water Amphipoda (Crustacea: Peracarida) of the southern Bay of Biscay (NE Atlantic)

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**Abstract:** An updated list of the marine and brackish water amphipods recorded from the southern Bay of Biscay, i.e. from 46°N and 9°W to the Atlantic coastlines of Spain and France, is given. This checklist, based on literature review and unpublished observations, includes recent systematics revision and provides distributional and ecological data for each species. A total of 319 species (14 Caprellidea, 284 Gammaridea, 21 Hyperidea) has been recorded; this number is higher than in the English Channel which is a continental shelf sea, while the number of Gammaridea species is similar to that of the Mediterranean French waters. Nineteen species (15 in the bathyal zone, 2 on the continental shelf, and 2 in the intertidal zone) appear “endemic” to the Bay of Biscay. Bathymetric distribution shows that the highest amphipod diversity is found in the 0-10 m depth zone (148 species). This study also emphasizes the importance of bathyal amphipods (131 species), especially on the lower continental slope (500-2000 m depth), related to the presence of Cap Ferret and Capbreton canyons.

**Résumé :** *Inventaire actualisé des Amphipodes (Crustacea : Peracarida) marins et d'eau saumâtre du Sud du Golfe de Gascogne (Atlantique NE).* Un inventaire actualisé des amphipodes marins et d'eau saumâtre est établi pour la partie sud du Golfe de Gascogne, limitée par les coordonnées 46°N et 9°W et les côtes atlantiques espagnoles et françaises. Cette liste, basée sur une revue de la littérature (très dispersée pour ce groupe) et sur de nouvelles observations, est actualisée d'après les récentes révisions systématiques et inclut des données sur la distribution et l'écologie des espèces. Un total de 319 espèces (14 Caprellidea, 284 Gammaridea, 21 Hyperidea) a été recensé, ce qui représente une diversité supérieure à celle observée en Manche qui est une mer épicontinentale peu profonde, alors que le nombre d'espèces de Gammaridea est voisin de celui présent dans les eaux méditerranéennes françaises. Dix-neuf espèces (15 dans le domaine bathyal, 2 sur le plateau continental et 2 dans la zone intertidale) paraissent “endémiques” du Golfe de Gascogne. D'un point de vue bathymétrique, la plus forte diversité d'amphipodes se rencontre dans la zone 0-10 m (148 espèces). La composante bathyale est, en outre, extrêmement importante (131 espèces), en particulier dans la partie inférieure de la pente continentale (500-2000 m de profondeur), en relation avec la présence des deux profonds canyons du Cap Ferret et de Capbreton.

**Keywords:** Amphipoda, Bay of Biscay, systematics, diversity, biogeography.

## Introduction

With more than 6000 species and abundances often reaching several thousands of individuals per m<sup>2</sup>, the amphipods

constitute one of the most abundant and diverse group of macrofauna in aquatic environments, especially on soft-bottom substrata. Being primary productivity consumers as well as predators of larvae and adult organisms or preys for a variety of planktonic and benthic species, the amphipods play an important role in the recycling of organic matter and in aquatic food webs.

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The present checklist is a compilation of data on marine and brackish-water amphipods recorded in the southern part of the Bay of Biscay, i.e. from 46°N and 9°W to the Atlantic coastlines of Spain and France. Historically, the first lists of amphipods in this area were established for Arcachon Bay by Lafont in 1868 and 1871. In the following years, de Folin & Périer (1879) and Bolivar (1890) listed amphipods recorded at Capbreton (France) and Guetaria (Spain), respectively. The first comprehensive list of amphipods for the oceanic coast of France was published by Chevreux in 1898; this preliminary checklist was later extended to the whole French waters by Chevreux & Fage (1925) whose book was used by generations of European taxonomists. The end of the 19<sup>th</sup> century was the period of several oceanographic cruises in the southern Bay of Biscay; these expeditions were conducted on the vessels *Le Travailleur* in 1880-82 (Chevreux, 1927), *L'Hirondelle* in 1885-88 (Chevreux, 1900), *Le Caudan* in 1895 (Bonnier, 1896), *Princesse-Alice I* in 1891-97 and *Princesse-Alice II* in 1898-1910 (Chevreux, 1911, 1935; Pirlot, 1939) and provided large collections of shelf and deep-water amphipods including several new species. Since the 1960s, the knowledge of amphipod fauna in the Bay of Biscay has been improved essentially through ecological surveys conducted in the shelf and coastal zones. It is only during the last two decades that a renewal of interest appeared for bathyal peracarids in this area (Elizalde, 1994; Dauvin & Sorbe, 1995; Sorbe, 1999; Cartes et al., 2001).

Most inventories of marine amphipods in the French Atlantic and Channel waters have been based on the 'Faune de France' published by Chevreux & Fage in 1925; since then, 'The British Marine Amphipoda: Gammaridea' (Lincoln, 1979) and 'The Amphipoda of the Mediterranean' (Bellan-Santini et al., 1982, 1989, 1993, 1998) have completed the knowledge of this group for the French coasts and a number of taxonomic revisions have been published, modifying the nomenclature of several species (see Dauvin, 1999, and Dauvin & Bellan-Santini, 2002). Furthermore, new species were recently described from deep-water samples and from the continental slope using suprabenthic sledges. Finally, amphipod records are scattered through a vast primary literature and, for the Bay of Biscay, there is no integrated work taking into account both the French and Spanish amphipod faunas. Therefore, the aim of this paper is to provide an up-to-date systematical survey of marine amphipods in the southern part of the Bay of Biscay and to compile known distributional data for each species.

#### General physical features of the study area

In the southern Bay of Biscay, the topographic diversity and the wide range of substrata result in numerous different types of habitat. The coastal morphology varies considerably. From the Pertuis Charentais to the right bank of the Gironde estuary, the coastline is calcareous and also

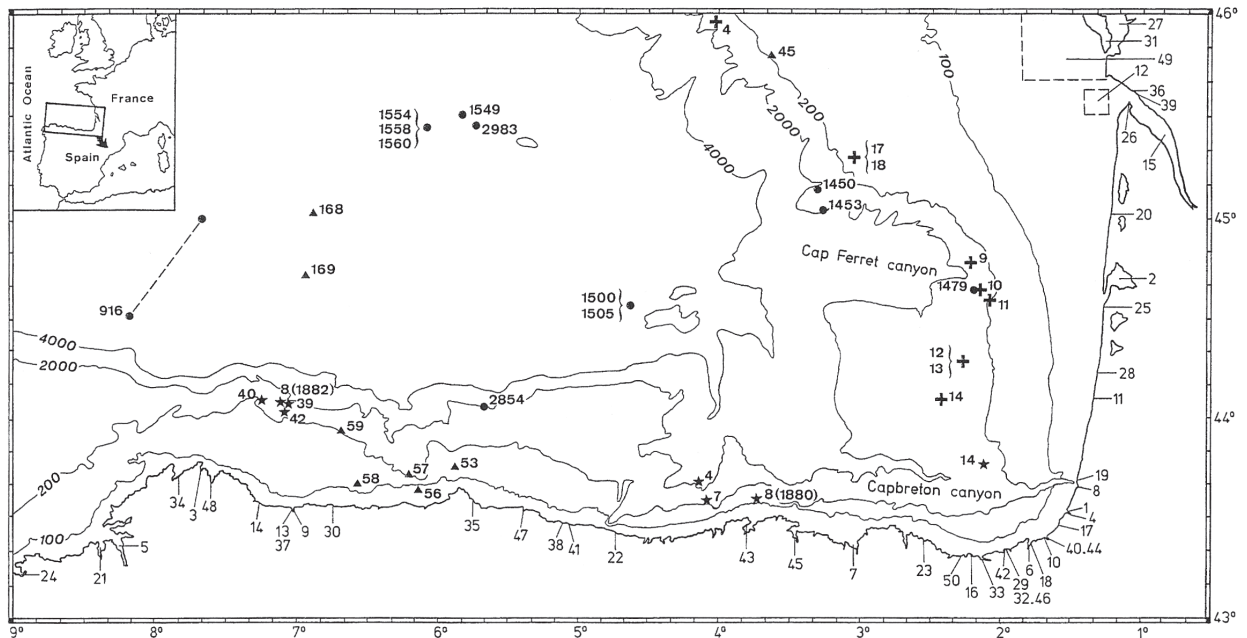
includes widespread marshlands. South of the Gironde, the Aquitaine coast is rectilinear and directly exposed to the swell; this sandy coastline is in a constant state of change, being eroded in some places at rates of 1-5 m yr<sup>-1</sup>. The Aquitaine coast is deeply indented by the Gironde, which is the largest estuary in Europe with a surface area of 625 km<sup>2</sup>, and by the Bay of Arcachon, a 156 km<sup>2</sup> mesotidal coastal lagoon. A major change is observed with the transition to the Basque coast, from which the coastline becomes mountainous and jagged. Several short rivers flow out along the almost continuous rocky stretch of Cantabrian and Galician coasts. In Galicia a large number of rias cut into the coastline.

The morphology of the seabed also is highly variable. The continental shelf is relatively wide along the north-eastern coast of the Bay of Biscay (about 150 km at 46°N), becomes narrower southwards, reaching only 60 km off Arcachon Bay, and ranges from 15 to 40 km wide along the Cantabrian coast. Several submarine canyons dissect the continental margin, two of these being particularly prominent in the south-eastern part of the Bay: the Capbreton canyon (at about 43° 40'N), where the 1000 m isobath is to be found only 3 km from the coast, and the Cap Ferret canyon (at about 44° 40'N). Maximum depth in the Biscay abyssal plain exceeds 4800 m.

Sea surface temperatures above the continental shelf vary between 11-12 °C in winter and 20-21 °C in summer, while a constant temperature of 11.5-12 °C is found below 50-60 m. The near-bottom water temperature at 20 m depth off Arcachon fluctuates annually between 10.1 °C in March and 18.9 °C in October (Sorbe, 1972). Temperature dramatically decreases with water depth in the bathyal zone, as exemplified in the Cap Ferret canyon: 10.7 °C at 500 m, 6.4 °C at 1500 m, 3.4 °C at 2500 m, 2.8 °C at 3000 m (15/10/90, JCS, unpubl. data). Hydrodynamics in the upper layers is dominated by a poleward-flowing slope current in autumn and winter, and a wind-induced coastal upwelling (along the northern Iberian coast and, to a lesser extent, along the south-western French coast) in spring and summer. At intermediate depth levels, the dominant mesoscale feature is the northward propagation of cores of Mediterranean water (Koutsikopoulos & Le Cann, 1996).

## Material and methods

Data were compiled from a survey of published literature and unpublished theses, and from the authors' personal observations. Location of the main sites cited in the text is indicated in Fig. 1. The precise co-ordinates of sampling stations during the scientific expeditions at the end of the 19<sup>th</sup> century are given in the text; for those expeditions conducted prior to 1897, longitudes have been recalculated because they were originally given with reference to the



**Figure 1.** Map of southern Bay of Biscay with location of collecting sites or areas mentioned in the text, and sampling stations of “Le Travailleur” (★), “L’Hirondelle” (▲), “Le Caudan” (+), “Princesse-Alice I” and “Princesse-Alice II” (●) expeditions. Legends of sites: 1, Adour estuary; 2, Arcachon Bay; 3, (Ría de El) Barquero; 4, Bayonne; 5, (Ría de) Betanzos; 6, Bidasoa estuary; 7, (Abra de) Bilbao; 8, Capbreton; 9, Castropol; 10, Ciboure; 11, Contis-plage; 12, Cordouan area; 13, (Ría del) Eo; 14, (Ría de) Foz; 15, Gironde estuary; 16, Guetaria; 17, Guéthary; 18, Hendaye; 19, Hossegor; 20, Lacanau-Océan; 21, La Coruña; 22, La Franca; 23, Lekeitio; 24, (Ría de) Lage; 25, La Salie; 26, Le Verdon; 27, Marennes-Oléron Bay; 28, Mimizan; 29, Mompas; 30, Navia; 31, Oléron island; 32, Ondarreta; 33, (Ría del) Oriá; 34, Ortigueira; 35, Perlora; 36, Pontaillac; 37, (Ría de) Ribadeo; 38, Ribadesella; 39, Royan; 40, St-Jean-de-Luz; 41, San Antolín; 42, San Sebastián; 43, Santander; 44, Socoa; 45, Treto; 46, (Rio) Urumea; 47, (Ría de) Villaviciosa; 48, Vivero; 49, West-Oléron area; 50, Zumaya.

**Figure 1.** Carte de la partie Sud du Golfe de Gascogne indiquant la localisation des sites ou des zones de récolte mentionnés dans le texte, et des stations d’échantillonnage lors des expéditions des navires “Le Travailleur” (★), “L’Hirondelle” (▲), “Le Caudan” (+), “Princesse-Alice I” and “Princesse-Alice II” (●). Légende des sites : 1, estuaire de l’Adour ; 2, Bassin d’Arcachon ; 3, (Ría de El) Barquero ; 4, Bayonne ; 5, (Ría de) Betanzos ; 6, estuaire de la Bidassoa ; 7, (Abra de) Bilbao ; 8, Capbreton ; 9, Castropol ; 10, Ciboure ; 11, Contis-plage ; 12, zone de Cordouan ; 13, (Ría del) Eo ; 14, (Ría de) Foz ; 15, estuaire de la Gironde ; 16, Guetaria ; 17, Guéthary ; 18, Hendaye ; 19, Hossegor ; 20, Lacanau-Océan ; 21, La Coruña ; 22, La Franca ; 23, Lekeitio ; 24, (Ría de) Lage ; 25, La Salie ; 26, Le Verdon ; 27, bassin de Marennes-Oléron ; 28, Mimizan ; 29, Mompas ; 30, Navia ; 31, Ile d’Oléron ; 32, Ondarreta ; 33, (Ría del) Oriá ; 34, Ortigueira ; 35, Perlora ; 36, Pontaillac ; 37, (Ría de) Ribadeo ; 38, Ribadesella ; 39, Royan ; 40, St-Jean-de-Luz ; 41, San Antolín ; 42, San Sebastián ; 43, Santander ; 44, Socoa ; 45, Treto ; 46, (Rio) Urumea ; 47, (Ría de) Villaviciosa ; 48, Vivero ; 49, zone Ouest-Oléron ; 50, Zumaya.

Paris meridian (2°20'15" East of Greenwich). For a given species, records were pooled in five depth/geographic areas: French (FL) and Spanish (SL) littoral, from the supralittoral zone to about 10 m depth; continental shelf (CS), between 10 and 200 m depth; deep sea (DS), at depth > 200 m; pelagic (P). Records were arranged from N to S (CS, DS, FL, P) or from E to W (SL) within an area, and in chronological order for a given locality. When available, data on sediments, depth, and biology (reproduction) are given. Systematics followed the classification of European amphipods established by the European Register of Marine Species (Bellan-Santini & Costello, 2001).

The biogeographic affinity between the amphipod fauna from the southern Bay of Biscay and those of other areas of

the North Eastern Atlantic was analysed by the Sørensen (1948)'s coefficient which affected a double weight to the presence of a species (binary code, presence=1 and absence=0). The dendrograms were constructed with the Lance & Williams (1967) method and  $\beta = -0.25$ . For this analysis, the amphipod lists of nine other European zones were retained for the Gammaridea: the Svalbard archipelago (Vader, 2002), the Norwegian coasts (Vader et al., 1997), the Eastern and Western coasts of the United Kingdom (Lincoln, 1979), the Irish coasts (Costello et al., 1989), the English Channel including the Iroise Sea (Dauvin, 1999; Dauvin & Bellan-Santini, 2002), the Central NE Atlantic, i. e. from 30°N to 43°N and east of 35°W (Marques & Bellan-Santini, 1991, 1993; Lopes et al., 1993; Bellan-Santini et al.,

1998), and the Western and Eastern Mediterranean (Bellan-Santini et al., 1998; Dauvin & Bellan-Santini, 2002; additional data from D. Bellan-Santini, pers. comm.); six zones were taken into account for the Caprellidea: the Norwegian coasts (Brattegard, 1997), the Irish coasts (Costello et al., 1989), the English Channel including the Iroise Sea (Dauvin, 1999), the Central NE Atlantic (same references as above), the Western Mediterranean (Bellan-Santini et al., 1998; Guerra-García & Takeuchi, 2002), and the Eastern Mediterranean (Bellan-Santini et al., 1998).

## Results

### Suborder CAPRELLIDEA

#### Family CAPRELLIDAE

*Caprella acanthifera* Leach, 1814. **FL:** Guéthary, St-Jean-de-Luz (Chevreux, 1898). **SL:** Ría de La Coruña, rocky intertidal (García Alvarez et al., 1993).

*Caprella andreae* Mayer, 1890. **SL:** San Sebastián beach, on floating debris (Aguirrezabalaga et al., 1986).

*Caprella danilevskii* Czerniavski, 1868. **FL:** Guéthary (Chevreux & Fage, 1925). **SL:** Santander (Chevreux & Fage, 1925); Ría de Ribadeo, Ría de Foz, La Coruña (Acuña & Mora, 1982).

*Caprella equilibra* Say, 1818 (also cited as *C. aequilibra*). **FL:** Gironde Estuary, from the mouth to about 60 km upstream (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay (Chevreux, 1898), on immersed wooden stakes (Bertrand, 1939); St-Jean-de-Luz (Chevreux, 1898). **SL:** Guetaria (Bolívar, 1890); La Coruña (Acuña & Mora, 1982); Abra de Bilbao, 3 m depth (Arresti et al., 1986).

*Caprella fretensis* Stebbing, 1878. **SL:** Abra de Bilbao, 5 m depth (Arresti et al., 1986); Vivero (Chevreux & Fage, 1925).

*Caprella linearis* Linnaeus, 1767. **FL:** Arcachon Bay, among the mussels on a ship hull (Lafont, 1871, as *C. linearis* Pennant).

*Caprella liparotensis* Haller, 1879. **SL:** Ría de Ribadeo (Acuña & Mora, 1982).

*Caprella penantis* Leach, 1814 (most records as *C. acutifrons* Latreille, 1816). **FL:** Royan, Arcachon, Guéthary, St-Jean-de-Luz (Chevreux, 1898; Chevreux & Fage, 1925, as *C. acutifrons* var. *testudo* Mayer). **SL:** Guetaria (Bolívar, 1890); Guipuzcoa coast, 0-30 m depth (Altuna et al., 1983); Abra de Bilbao, 0-8 m depth (Arresti et al., 1986); La Coruña (Acuña & Mora, 1982), in rocky intertidal (García Alvarez et al., 1993).

*Caprella tuberculata* Bate & Westwood, 1868. **SL:** Santander (Chevreux & Fage, 1925); La Coruña (Acuña & Mora, 1982), in rocky intertidal (García Alvarez et al., 1993).

*Parvipalpus major* Carausu, 1941. **DS:** Cap Ferret canyon, 186-924 m depth (Laubitz & Sorbe, 1996);

Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Protoaeginella spinipoda* Laubitz & Sorbe, 1996. **DS:** Cap Ferret canyon, 2990-3070 m depth (Laubitz & Sorbe, 1996).

#### Family PARIAMBIDAE

*Pariambus typicus* (Kröyer, 1844). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-40 m depth (Bachelet, 1981); off Arcachon Bay, 30-180 m depth (Sorbe, 1984); off San Sebastián, 50-185 m depth (Martínez & Adarraga, 2001). **FL:** Gironde Estuary (Le Verdon), intertidal (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay (Chevreux, 1898), on *Asterias rubens* L. (Cuénot, 1912, as *Podalirius typicus*) and in the Courbey channel (unpubl. rec.); St-Jean-de-Luz, 10 m depth, on *A. rubens* (Chevreux, 1898). **SL:** Abra de Bilbao (Arresti et al., 1986); Santander Bay, infralittoral (Lastra et al., 1991).

*Pseudoprotella phasma* (Montagu, 1804). **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1984). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); St-Jean-de-Luz (Chevreux, 1898, as *Protella phasma*). **SL:** Abra de Bilbao, 6-10 m depth (Arresti et al., 1986); Santander Bay, infralittoral (Lastra et al., 1991).

#### Family PHTISICIDAE

*Phthisica marina* Slabber, 1749. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area (unpubl. rec.); off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 30-180 m depth (Cornet et al., 1983; Sorbe, 1984; d'Elbée, 1985), and in stomach contents of *Phycis blennoides* (Brunnich) (Sorbe, 1977); off San Sebastián, 40-185 m depth (Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Gironde Estuary (Le Verdon), intertidal (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay (Chevreux, 1898; d'Elbée, 1985; Bachelet et al., 1996), on immersed wooden stakes (Bertrand, 1939), on sandy beaches (Salvat, 1962; unpubl. rec.), in *Zostera noltii* Hornem. meadows (Auby, 1991), and in subtidal channels (unpubl. rec.). **SL:** Abra de Bilbao (Aguirrezabalaga et al., 1986, as *Phthisica marina* (Mayer, 1903); Arresti et al., 1986); Santander Bay (Lastra et al., 1990, 1991); Ría del Eo, in *Z. marina* L. meadows (Currás & Mora, 1991; Currás et al., 1993).

### Suborder GAMMARIDEA

#### Family AMPELISCIDAE

*Ampelisca aequicornis* Bruzelius, 1859. **CS:** off Arcachon Bay, 165 m depth; off Capbreton, 125 m depth (Dauvin & Bellan-Santini, 1996). **DS:** Cap Ferret canyon, 400 m depth (Elizalde, 1994).

*Ampelisca anomala* Sars, 1883. **CS/DS:** Cap Ferret canyon, 250 m depth (Elizalde et al., 1993b); off Arcachon Bay, 107-300 m depth (Dauvin & Bellan-Santini, 1996).

*Ampelisca armoricana* Bellan-Santini & Dauvin, 1981. **CS:** off San Sebastián, 35 m depth (Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000).

*Ampelisca brevicornis* (Costa, 1853). **CS:** West-Oléron area, from sheltered beaches to *Ditrupa arietina* sands (Lagardère, 1971); Cordouan area, 30-40 m depth (Dauvin & Bellan-Santini, 1996); off Arcachon Bay, in fine sands (Monbet, 1972; Sorbe, 1972), 90-180 m depth (Sorbe, 1984; Dauvin & Bellan-Santini, 1996); off the Spanish Basque coast, 5-100 m depth (Aguirrezabalaga et al., 1984, 1986); off San Sebastián, 40-75 m depth (Martínez & Adarraga, 2001); Abra de Bilbao, 21-29 m depth (Arresti et al., 1986). **FL:** the whole Atlantic coast of France, south to St-Jean-de-Luz (Chevreux & Fage, 1925); Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Chevreux, 1898; Bachelet & Dauvin, 1993), in reduced sediment of sandy beaches at low intertidal levels (Salvat, 1962, 1967; Amanieu 1969b; unpubl. rec.), in *Zostera noltii* meadows (Salvat, 1962, 1967; Auby, 1991), and in muddy bottoms of shallow channels (unpubl. rec.), reproduction from March to November (Salvat, 1962, 1967); Capbreton (de Folin & Périer, 1879, as *A. laevigata* Lilljeborg); St-Jean-de-Luz, 6-15 m depth, in sand (Chevreux, 1898; Chevreux & Fage, 1925); Hendaye, 10 m depth (San Vicente & Sorbe, 2001). **SL:** Santander Bay (Lastra et al., 1991).

*Ampelisca cavicoxa* Reid, 1951. **CS:** West-Oléron area, 9-50 m depth, in muddy sand (Kaïm-Malka, 2000).

*Ampelisca declivitatis* Mills, 1967. **DS:** Cap Ferret canyon, 346-1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Dauvin & Bellan-Santini, 1996); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Ampelisca diadema* (Costa, 1853). **CS:** off Arcachon Bay, 107-300 m depth (Dauvin & Bellan-Santini, 1996); NW of St-Jean-de-Luz, 15-120 m depth (Chevreux, 1898, as *A. assimilis* Boeck; Chevreux & Fage, 1925); off Capbreton, 120 m depth (Dauvin & Bellan-Santini, 1996); off San Sebastián, 40-75 m depth (Martínez & Adarraga, 2001). **DS:** Cap Ferret canyon, 250-400 m depth (Elizalde et al., 1993b).

*Ampelisca gibba* Sars, 1882. **CS:** off Capbreton, 120-125 m depth (Dauvin & Bellan-Santini, 1996). **DS:** Cap Ferret canyon, 250 m depth (Elizalde et al., 1993b); off Arcachon Bay, 300 m depth (Dauvin & Bellan-Santini, 1996).

*Ampelisca parabyblisoides* Dauvin & Bellan-Santini, 1996. **DS:** off Arcachon Bay, 300 m depth (Dauvin & Bellan-Santini, 1996).

*Ampelisca pectenata* Reid, 1951. **CS:** continental shelf north to Capbreton canyon, 51-130 m depth, in reduced fine sands, muddy sands, and detritic sand with *Ditrupa arietina* (O.F. Müller) (Kaïm-Malka, 2000).

*Ampelisca pusilla* Sars, 1895. **DS:** Cap Ferret canyon, 747-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe,

1995; Dauvin & Bellan-Santini, 1996); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Ampelisca rubella* Costa, 1864. **FL:** St-Jean-de-Luz, 8 m depth, in sand (Chevreux, 1898; Chevreux & Fage, 1925).

*Ampelisca sarsi* Chevreux, 1888. **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay (Monbet, 1972; Sorbe, 1972). **FL:** St-Jean-de-Luz, 5-20 m depth (Chevreux, 1898; Chevreux & Fage, 1925).

*Ampelisca sorbei* Dauvin & Bellan-Santini, 1996. **CS:** off Capbreton, 120 m depth (Dauvin & Bellan-Santini, 1996).

*Ampelisca spinifer* Reid, 1951. **CS:** off Arcachon Bay, 107 m depth; off Capbreton, 120 m depth (Dauvin & Bellan-Santini, 1996); off the Spanish Basque coast, 100 m depth (Aguirrezabalaga et al., 1984).

*Ampelisca spinimana* Chevreux, 1887. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 15-40 m depth (Bachelet, 1981; Dauvin & Bellan-Santini, 1996); off San Sebastián, 50 m depth (Martínez & Adarraga, 2001). **FL:** St-Jean-de-Luz, 10 m depth (Chevreux, 1898; Chevreux & Fage, 1925).

*Ampelisca spinipes* Boeck, 1861. **CS:** West-Oléron area, in black mud and sandy muds (Lagardère, 1971); Cordouan area, 30-40 m depth (Dauvin & Bellan-Santini, 1996); off Arcachon Bay (Monbet, 1972), in gravels (Sorbe, 1972), 60 m depth (Dauvin & Bellan-Santini, 1996); off St-Jean-de-Luz, 120 m depth (Chevreux, 1898; Chevreux & Fage, 1925); off Capbreton, 120-125 m depth (Dauvin & Bellan-Santini, 1996); off the Spanish Basque coast, 100 m depth (Aguirrezabalaga et al., 1984); off San Sebastián, 75 m depth (Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000).

*Ampelisca tenuicornis* Liljeborg, 1855. **CS/DS:** off Arcachon Bay, 107-300 m depth; off Capbreton, 120-125 m depth (Dauvin & Bellan-Santini, 1996); off the Spanish Basque coast, 100 m depth (Aguirrezabalaga et al., 1984); off San Sebastián, 75-175 m depth (Martínez & Adarraga, 2001). **FL:** St-Jean-de-Luz (Chevreux & Fage, 1925). **SL:** Santander, 10 m depth (Parada et al., 1993).

*Ampelisca typica* (Bate, 1856). **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay (Monbet, 1972), 60-107 m depth (Dauvin & Bellan-Santini, 1996); off Capbreton, 120-125 m depth (Dauvin & Bellan-Santini, 1996).

*Ampelisca uncinata* Chevreux, 1887. **DS:** Cap Ferret canyon, 523-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995; Dauvin & Bellan-Santini, 1996); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

? *Byblis gaimardi* (Kröyer, 1846). **CS:** Capbreton (de Folin & Périer, 1879, as *B. gaymardi*). Doubtful record: this boreal species has not been collected in NE Atlantic south of Northumberland (Bellan-Santini & Dauvin, 1993).

*Byblis guernei* Chevreux, 1888. **DS:** Cap Ferret canyon, 300-610 m depth (Elizalde et al., 1993b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995; Dauvin & Bellan-Santini, 1996); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999, as *B. gernei*); Station 40-1881 (392 m depth, black sand) of the "Travailleur" expedition (Chevreux, 1927).

*Byblis minuticornis* Sars, 1879. **DS:** Station 10-1880 (off Santander, 1910 m depth, mud) of the "Travailleur" expedition (Chevreux, 1927, as *B. serrata* S.I. Smith, 1873). This is a NW Atlantic species, known from the depth range 0-200 m. The four specimens identified by Chevreux are in a very poor state of preservation (Dauvin & Bellan-Santini, 1986); the occurrence of this species in the Bay of Biscay has to be confirmed.

*Haploops gascogni* Dauvin & Bellan-Santini, 1996. **DS:** Cap Ferret canyon, 747 m depth (Dauvin & Sorbe, 1995; Dauvin & Bellan-Santini, 1996).

*Haploops proxima* Chevreux, 1927. **DS:** Stations 14-1880 (682 m depth, shells and coral) and 42-1881 (896 m depth, mud and corals) of the "Travailleur" expedition (Chevreux, 1927); ? Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999, as *H. cf. proxima*).

*Haploops similis* Stephensen, 1925. **DS:** Cap Ferret canyon, 1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Dauvin & Bellan-Santini, 1996).

#### Family AMPHILOCHIDAE

*Amphilochoides boeckii* Sars, 1892. **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1972, as *A. odontonyx* (Boeck, 1871), 1984, 1989). **DS:** Cap Ferret canyon, 346 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Amphilocheus neapolitanus* Della Valle, 1893. **CS:** Cordouan area (unpubl. rec.); off Arcachon Bay, 30-90 m depth (Sorbe, 1984, 1989). **FL:** the whole Atlantic coast of France, south to Guéthary (Chevreux & Fage, 1925); Arcachon Bay, subtidal (unpubl. rec.); Guéthary, at low tide (Chevreux, 1898).

*Amphilocheus spencebatei* (Stebbing, 1876). **CS:** off Arcachon Bay, 30-90 m depth (Sorbe, 1984).

*Gitana abyssicola* Sars, 1892. **DS:** Cap Ferret canyon, 791-923 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Peltocoxa brevirostris* (Scott & Scott, 1893). **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1984). **SL:** Guetaria, intertidal (Altuna et al., 1983).

#### Family AMPITHOIDAE

*Amphithoe ferox* (Chevreux, 1902). **FL:** Arcachon Bay, in *Zostera noltii* meadows (Auby, 1991).

*Amphithoe (Pleonexes) gammaroides* (Bate, 1856). **FL:** Arcachon Bay (Chevreux, 1898); Guéthary, St-Jean-de-Luz

(Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Abra de Bilbao (Arresti et al., 1986); Ría de La Coruña, rocky intertidal (García Alvarez et al., 1993).

*Amphithoe helleri* Karaman, 1975 (= *A. (Pleonexes) neglecta* (Lincoln, 1976)). **SL:** Abra de Bilbao, 0-5 m depth (Arresti et al., 1986); Ría del Eo, in *Zostera marina* meadows (Currás et al., 1993).

*Amphithoe ramondi* Audouin, 1826. **FL:** Guéthary, St-Jean-de-Luz, at low tide among algae (Chevreux, 1898; Chevreux & Fage, 1925, as *Amphithoe vaillanti* Lucas, 1846); Hendaye beach (San Vicente & Sorbe, 1993). **SL:** Abra de Bilbao, 0-10 m depth (Arresti et al., 1986); Laga (Vizcaya), on *Sabellaria alveolata* (L.) reefs (Aguirrezabalaga et al., 1984).

*Amphithoe rubricata* (Montagu, 1808). **SL:** Ría de Foz, La Coruña, Ría de Lage (Acuña & Mora, 1982); Ría de La Coruña, rocky intertidal (García Alvarez et al., 1993).

*Sunamphithoe pelagica* (Milne Edwards, 1830). **FL:** Guéthary, St-Jean-de-Luz, among algae (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** San Sebastián (Aguirrezabalaga et al., 1984).

#### Family AORIDAE

*Aora gracilis* (Bate, 1857) (all records except Chevreux, 1898, as *A. typica* Krøyer, 1845). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-30 m depth (unpubl. rec.); off Arcachon Bay (Monbet, 1972). **FL:** Oléron island (Chevreux & Fage, 1925); Arcachon Bay (Chevreux, 1898; Chevreux & Fage, 1925), intertidal (unpubl. rec.); St-Jean-de-Luz, Guéthary (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Abra de Bilbao, 0-5 m depth (Arresti et al., 1986); Santander, 10 m depth (Parada et al., 1993).

*Autonoe longidigitans* Bonnier, 1896. **DS:** Cap Ferret canyon, 523-923 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999, as *A. longidigitatus* Bonnier).

*Autonoe longipes* (Liljeborg, 1852). **CS:** off San Sebastián, 50-160 m depth (Martínez & Adarraga, 2001, as *Lembos longipes*).

*Autonoe spiniventris* (Della Valle, 1893) (cited as *Lembos spiniventris*). **CS:** off San Sebastián, 35-50 m depth (Martínez & Adarraga, 2001). **FL:** Ciboure (de Beauchamp, 1948).

*Lembos websteri* Bate, 1857. **FL:** Guéthary, among algae at LWST level (Chevreux, 1898; Chevreux & Fage, 1925).

*Leptocheirus hirsutimanus* (Bate, 1862). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000).

*Leptocheirus pectinatus* (Norman, 1869). **CS:** off Arcachon Bay, 180 m depth (Sorbe, 1984).

*Leptocheirus pilosus* Zaddach, 1844. **FL:** Arcachon Bay, in brackish fish ponds (Amanieu, 1967c); St-Jean-de-Luz,

in the Nivelle River (Chevreux & Fage, 1925). **SL:** Santander Bay (Lastra et al., 1991); Ría del Eo, in *Zostera noltii* meadows (Currás & Mora, 1992).

*Microdeutopus anomalus* (Rathke, 1843). **FL:** Arcachon Bay, on immersed wooden stakes (Bertrand, 1939), in *Zostera* meadows (Amanieu, 1969b), and in shallow channels (unpubl. rec.). **SL:** Abra de Bilbao, 0-6 m depth (Arresti et al., 1986).

*Microdeutopus armatus* Chevreux 1887. **CS:** Station 56 (90 m depth, sand and pebbles) of “L’Hirondelle” expedition (Chevreux, 1900, as *Stimpsonella armata*; 1935). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000).

*Microdeutopus chelifer* (Bate, 1862). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Guéthary, among algae (Chevreux, 1898, as *Stimpsonella chelifera*; Chevreux & Fage, 1925). **SL:** San Sebastián (Altuna et al., 1983); Ría de Foz, La Coruña, Ría de Lage (Acuña & Mora, 1982).

*Microdeutopus damnoniensis* (Bate, 1856). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000). **SL:** San Sebastián, Lekeitio (Altuna et al., 1983); Abra de Bilbao (Arresti et al., 1986).

*Microdeutopus gryllotalpa* Costa, 1853. **FL:** Marennes-Oléron Bay, in salt marsh ponds (Reymond, 1991, as *M. gryllotalpa*); Arcachon Bay (Chevreux, 1898; Chevreux & Fage, 1925), in brackish fish ponds (Amanieu, 1967c, 1969b; Labourg, 1980; Thimel & Labourg, 1987), in *Zostera noltii* meadows (Amanieu, 1969b; Auby, 1991), and on intertidal sand flats (unpubl. rec.). **SL:** Ría del Eo, in *Z. noltii* meadows (Currás & Mora, 1991, 1992).

*Microdeutopus stationis* Della Valle, 1893. **FL:** Arcachon Bay (Chevreux, 1898; Chevreux & Fage, 1925), in intertidal sands (Salvat, 1962; unpubl. rec.), in *Zostera marina* meadows (Salvat, 1962, 1967; Amanieu, 1969b), and in shallow subtidal (unpubl. rec.). **SL:** Ría del Eo, in *Z. marina* meadows (Currás & Mora, 1991, 1993).

*Microdeutopus versiculatus* (Bate, 1856). **FL:** Arcachon Bay (Chevreux, 1898; Chevreux & Fage, 1925, as *Coremapus versiculatus* Norman, 1905); St-Jean-de-Luz (Chevreux, 1898). **SL:** Santander, 10 m depth (Parada et al., 1993).

*Unciola crenatipalma* (Bate, 1862). **CS:** stations 56 (90 m depth, sand and pebbles) and 59 (248 m depth, fine sand) of “L’Hirondelle” expedition (Chevreux, 1900); Abra de Bilbao, 21 m depth (Arresti et al., 1986). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); St-Jean-de-Luz, 8 m depth (Chevreux, 1898; Chevreux & Fage, 1925).

*Unciola incerta* Bonnier, 1896. **CS:** Stations 17 and 18 (180 m depth, gravels and sand) of the “Caudan” expedition (Bonnier, 1896; Chevreux, 1898).

*Unciola planipes* Norman, 1867. **CS:** off San Sebastián, 185 m depth (Martínez & Adarraga, 2001).

*Unciolella lunata* Chevreux, 1911. **DS:** Cap Ferret canyon, 791 m depth (Dauvin & Sorbe, 1995, as *Unciolella* sp.); station 40-1881 (392 m depth, black sand) of the “Travailleur” expedition (Chevreux 1927).

#### Family ARGISSIDAE

*Argissa stebbingi* Bonnier, 1896. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20 m depth (unpubl. rec.); off Arcachon Bay, 25-180 m depth (Cornet et al., 1983; Sorbe, 1984, 1989; d’Elbée, 1985, as *A. hamatipes* (Norman, 1869)); off San Sebastián, 50 m depth (Martínez & Adarraga, 2001, as *A. hamatipes*). **DS:** Cap Ferret canyon, 711-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995; all as *A. hamatipes*); station 13 (950 m depth, mud) of the “Caudan” expedition (Bonnier, 1896); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999, as *A. hamatipes*). *A. hamatipes* is a boreal species only known north of the English Channel (Dauvin, 1999). The synonymy between *A. hamatipes* and *A. stebbingi* proposed by some authors is not admitted by others. We choose to distinguish the two species and to consider the occurrence of the sole *A. stebbingi* in the Bay of Biscay.

#### Family CARANGOLIOPSIDAE

*Carangoliopsis spinulosa* Ledoyer, 1970. **DS:** Cap Ferret canyon, 747-1098 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

#### Family CHELURIDAE

*Chelura terebrans* Philippi, 1839. **FL:** Arcachon Bay, on immersed wooden stakes (Bertrand, 1939; Dessenoix, 1962).

#### Family COROPHIIDAE

*Chevreuxius grandimanus* Bonnier, 1896. **DS:** Cap Ferret canyon, 923-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the “Caudan” expedition (Bonnier, 1896); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Corophium acherusicum* Costa, 1851. **FL:** Royan, Pontailac (Chevreux, 1898); Arcachon Bay (Chevreux, 1898), on immersed wooden stakes (Bertrand, 1939). **SL:** Zumaya (Altuna et al., 1983).

*Corophium acutum* Chevreux, 1908. **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Gironde Estuary, near the mouth (Sorbe, 1978); Arcachon Bay, on immersed wooden stakes, over *Maia squinado* (Herbst) carapace in the tanks of the Marine Station at Arcachon (Bertrand, 1939; Dessenoix, 1962), in intertidal sand banks (Salvat, 1962), and in *Zostera noltii* meadows (Auby, 1991);

Hendaye, swash-zone (San Vicente & Sorbe, 2001). **SL:** Santander, 10 m depth (Parada et al., 1993).

*Corophium arenarium* Crawford, 1937. **FL:** Marennes-Oléron Bay (Faure, 1969); Arcachon Bay (Bachelet & Dauvin, 1993), in sandy beaches at NTLW level (Salvat, 1962, 1967; Renaud-Debyser & Salvat, 1963; unpubl. rec.); Hossegor lake, intertidal (Lagardère, 1966).

*Corophium bonnellii* (Milne Edwards, 1830). **FL:** Capbreton, near the shore (de Folin & Périer, 1879, as *C. bonelli*).

*Corophium insidiosum* Crawford, 1937. **FL:** Marennes-Oléron Bay, in salt marsh ponds (Reymond, 1991); Arcachon Bay, in brackish fish ponds (Amanieu & Cazaux, 1962; Amanieu, 1967c, 1969b; Labourg, 1968, 1979, 1980; Thimel & Labourg, 1987; Bachelet et al., 2000), where it builds tubes on the thallus of *Ruppia maritima* L. or on *Chaetomorpha* sp. or, whenever vegetation is lacking, in muddy substratum (Amanieu, 1967c; Labourg, 1968, 1979, 1980) and where it reproduces continuously (Labourg, 1968), and in *Zostera noltii* meadows close to the fish ponds (Amanieu, 1969b; Auby, 1991). **SL:** Abra de Bilbao (Arresti et al., 1986).

*Corophium multisetosum* Stock, 1952. **FL:** Arcachon Bay, in brackish fish ponds (Cazaux & Labourg, 1973). **SL:** Ría de Bidasoa (Altuna et al., 1983); Ría de Foz, intertidal (Junoy & Viéitez, 1990).

*Corophium sextonae* Crawford, 1937 (also cited as *C. sextoni*). **FL:** Arcachon Bay (Bachelet et al., 1996), on immersed wooden stakes, over *Maia squinado* carapace in the tanks of the Marine Station at Arcachon (Bertrand, 1939; Dessenoix, 1962), on buoys and wrecks, in wrasse nests (Amanieu, 1969b), and in shallow channels (unpubl. rec.). **SL:** Santander Bay (Lastra et al., 1991).

*Corophium volutator* (Pallas, 1766). **CS:** Cordouan area, 20 m depth (unpubl. rec.); off Arcachon Bay, 30 m depth (Sorbe, 1984). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Gironde Estuary, from the mouth to about 35 km upstream, reproduction in July and November (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay, in brackish fish ponds (Amanieu, 1967c), and in the upper slikke and muddy sands with *Scrobicularia plana* (da Costa) (Amanieu, 1969b); Contis-plage (Delamare Deboutteville et al., 1955); St-Jean-de-Luz (Chevreux, 1898, as *C. grossipes* (L.); Chevreux & Fage, 1925). **SL:** Santander, 10 m depth (Parada et al., 1993); Ría del Eo, in *Zostera noltii* meadows (Currás & Mora, 1992); Ría de Foz, intertidal (Junoy & Viéitez, 1990).

*Siphonocetes dellavallei* Stebbing, 1899. **SL:** Santander Bay (Lastra et al., 1990, 1991); Ría del Eo (Currás & Mora, 1991).

*Siphonocetes kroyeranus* Bate, 1856. **CS:** West-Oléron area (Lagardère, 1971, as *S. colletti* Boeck, 1862); Cordouan area, 20-22 m depth (unpubl. rec.); off San

Sebastián, 15-50 m depth (Martínez & Adarraga, 2001). **FL:** St-Jean-de-Luz, 5-6 m depth (Chevreux, 1898; Chevreux & Fage, 1925; both as *S. colletti*); Hendaye, 6-10 m depth (San Vicente & Sorbe, 2001). **SL:** San Sebastián, 9-20 m depth (Aguirrezabalaga et al., 1986).

*Siphonocetes sabatieri* de Rouville, 1894. **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay, in empty shells of *Hydrobia ulvae* (Pennant) on intertidal sandflats (unpubl. rec.). **SL:** Santander Bay (Lastra et al., 1991); Ría del Eo (Currás & Mora, 1991).

*Siphonocetes striatus* Myers & McGrath, 1979. **CS:** off Arcachon Bay, 90 m depth (Sorbe, 1984, 1989).

#### Family DEXAMINIDAE

*Atylus falcatus* Metzger, 1871. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 15-50 m depth (unpubl. rec.); off San Sebastián, 10-35 m depth (Martínez & Adarraga, 2001). **SL:** San Sebastián, 8 m depth (Aguirrezabalaga et al., 1986); Abra de Bilbao, 0-10 m depth (Arresti et al., 1986); Santander Bay (Lastra et al., 1991); Ría del Eo (Currás & Mora, 1991).

*Atylus guttatus* (Costa, 1851). **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay (Monbet, 1972). **FL:** Pontailiac (Chevreux, 1898, as *Paratylus guttatus*); Arcachon Bay (Chevreux, 1898), in the plankton (Lubet, 1953, as *Nototropis guttatus*), in the lower level of sandy beaches (Salvat, 1962, as *Nototropis guttatus*), and in shallow subtidal (unpubl. rec.); St-Jean-de-Luz, 8 m depth (Chevreux, 1898, as *Paratylus guttatus*; Chevreux & Fage, 1925, as *Nototropis guttatus*). **SL:** Ondarreta, among rocks (Altuna et al., 1983); Ría del Eo, in *Zostera marina* meadows (Currás et al., 1993).

*Atylus swammerdami* (Milne Edwards, 1830). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-40 m depth (unpubl. rec.); off Arcachon Bay (Monbet, 1972), 30-90 m depth (Sorbe, 1984, 1989; d'Elbée, 1985); off San Sebastián, 35-40 m depth (Altuna et al., 1983; Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (Faure, 1969; de Montaudouin & Sauriau, 2000); Royan (Chevreux, 1898, as *Paratylus swammerdami*); Gironde Estuary (Sorbe, 1978); Arcachon Bay (Chevreux, 1898), in the plankton (Lubet, 1953), in the lower level of sandy beaches (Salvat, 1962, 1967, as *Nototropis swammerdami*; unpubl. rec.), in *Zostera noltii* meadows (Auby, 1991), and in shallow channels (unpubl. rec.); St-Jean-de-Luz, 8 m depth (Chevreux, 1898, as *Paratylus swammerdami*; Chevreux & Fage, 1925, as *Nototropis swammerdami*); Hendaye, 0-10 m depth (San Vicente & Sorbe, 1993, 2001).

*Atylus vedlomensis* (Bate & Westwood, 1862). **CS:** off Arcachon Bay, 90-130 m depth (Sorbe, 1984); off San Sebastián, 35-75 m depth (Martínez & Adarraga, 2001). **FL:** Capbreton, 'shore' (de Folin & Périer, 1879, as *A. redlomensis*).



*Dexamine spiniventris* (Costa, 1853). **FL:** Guéthary, St-Jean-de-Luz, at low tide, among algae (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Ría de La Coruña, in rocky intertidal (Garcia Alvarez et al., 1993).

*Dexamine spinosa* (Montagu, 1813). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Chevreux, 1898), in sandy beaches (Salvat, 1962, 1967), in shallow channels (Amanieu, 1967c), and in *Zostera noltii* meadows (Salvat, 1967; Auby, 1991); Guéthary, St-Jean-de-Luz (Chevreux, 1898); Hendaye, 6 m depth (San Vicente & Sorbe, 2001). **SL:** Guetaria (Bolivar, 1890); Abra de Bilbao, 0-10 m depth (Arresti et al., 1986); Ría del Eo, in *Z. marina* meadows (Currás et al., 1991, 1993); Ría de Betanzos (Acuña & Mora, 1982).

*Dexamine thea* Boeck, 1861. **FL:** Guéthary, Hendaye, at low tide, among algae (Chevreux, 1898; Chevreux & Fage, 1925); Hendaye, 6 m depth (San Vicente & Sorbe, 2001).

*Guerneia coalita* (Norman, 1868). **FL:** Guéthary, St-Jean-de-Luz (Chevreux, 1898; Chevreux & Fage, 1925); Hendaye, swash-zone (San Vicente & Sorbe, 1993, 2001).

#### Family EPIMERIIDAE

*Epimeria cornigera* (Fabricius, 1779). **CS:** stations 45 (160 m depth, fine sand with *Ditrupa arietina*) and 58 (134 m depth, sand with pebbles and shells) of “L’Hirondelle” expedition (Chevreux, 1900); off Arcachon Bay, 90-180 m depth (Sorbe, 1972, 1984). **DS:** Cap Ferret canyon, 747-1098 m depth (Dauvin & Sorbe, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Epimeria parasitica* (Sars, 1858). **DS:** Cap Ferret canyon, 346-1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 8-1882 (411 m depth, sand and gravel) of the “Travailleur” expedition (Chevreux, 1927).

#### Family EUSIRIDAE

*Apherusa bispinosa* (Bate, 1857). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area (unpubl. rec.); off Arcachon Bay (Sorbe, 1972), 85-180 m depth (Cornet et al., 1983; Sorbe, 1984, 1989), and in stomach contents of *Phycis blennoides* (Sorbe, 1977); off San Sebastián, 75-175 m depth (Martínez & Adarraga, 2001). **DS:** Cap Ferret canyon, 346 m depth (Dauvin & Sorbe, 1995). **FL:** the whole Atlantic coast of France, among algae (Chevreux & Fage, 1925); Arcachon Bay (Chevreux, 1898), in small puddles within *Zostera noltii* and *Z. marina* meadows, where it pullulates in March-April (Amanieu, 1969b; Auby, 1991); Hendaye, 6 m depth (San Vicente & Sorbe, 2001).

*Apherusa jurinei* (Milne Edwards, 1830). **FL:** St-Jean-de-Luz, Guéthary, at low tide, among algae (Chevreux, 1898; Chevreux & Fage, 1925); Hendaye, swash-zone (San Vicente & Sorbe, 1993, 2001). **SL:** Abra de Bilbao, 0-5 m

depth (Arresti et al., 1986); Ría de La Coruña, in rocky intertidal (Garcia Alvarez et al., 1993).

*Apherusa ovalipes* Norman & Scott, 1906. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 30-40 m depth (unpubl. rec.); off Arcachon Bay, 30-180 m depth (Sorbe, 1984, 1989; d’Elbée, 1985). **DS:** Cap Ferret canyon, 346 m depth (Dauvin & Sorbe, 1995). **FL:** Arcachon Bay (Lubet, 1956; Bachelet et al., 1996), among algae (Chevreux & Fage, 1925), in sandy beaches (Salvat, 1962; unpubl. rec.), and in shallow subtidal (unpubl. rec.).

*Eusirella elegans* Chevreux, 1908. **DS:** Cap Ferret canyon, 523-1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995).

*Eusiroides dellavallei* Chevreux, 1899. **FL:** St-Jean-de-Luz, Guéthary, at low tide, among algae (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Ondarreta, intertidal (Altuna et al., 1983).

*Eusirus biscayensis* Bonnier, 1896. **DS:** Cap Ferret canyon, 687-1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the “Caudan” expedition (Bonnier, 1896); station 1500 (4330 m depth, sandy mud) of the “Princesse-Alice II” expedition (Chevreux, 1935).

*Eusirus leptocarpus* Sars, 1893. **DS:** Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Eusirus longipes* Boeck, 1861. **CS:** off Arcachon Bay (Sorbe, 1972), 90-180 m depth (Sorbe, 1984, 1989), and in stomach contents of *Phycis blennoides* (Sorbe, 1977). **DS:** Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Rhachotropis caeca* Ledoyer, 1977. **DS:** Cap Ferret canyon, 346-791 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Rhachotropis faeroensis* (Stephensen, 1944). **DS:** Cap Ferret canyon, 431-923 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Rhachotropis glabra* Ledoyer, 1977. **DS:** Cap Ferret canyon, 346-610 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Rhachotropis gracilis* Bonnier, 1896. **DS:** Cap Ferret canyon, 523-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995; all as *R. distincta* (Holmes, 1908)); stations 13 (950 m depth, mud) and 14 (960 m depth, mud) of the “Caudan” expedition (Bonnier, 1896, as *Rhachotropis gracilis*); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999); station 20-1880 (off Bayonne, 1143 m depth, mud) of the “Travailleur” expedition (Chevreux, 1927).

*Rhachotropis grimaldii* (Chevreux, 1888). **DS:** Cap Ferret canyon, 346-1034 m depth (Elizalde et al., 1993a;

Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896, as *R. elegans* n. sp.); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999); station 20-1880 (off Bayonne, 1143 m depth, mud) of the "Travailleur" expedition (Chevreux, 1927, as *R. elegans* Bonnier, 1896).

*Rhachotropis integricauda* Carausu, 1948. **CS:** off Arcachon Bay, 114-180 m depth (Cornet et al., 1983; Sorbe, 1984). **DS:** Cap Ferret canyon, 346 m depth (Dauvin & Sorbe 1995).

*Rhachotropis rostrata* Bonnier, 1896. **DS:** Cap Ferret canyon, 485-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896, as *Rachotropis rostrata*); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

#### Family GAMMARELLIDAE

*Gammarellus angulosus* (Rathke, 1843). **SL:** Ría de La Coruña, in rocky intertidal (Garcia Alvarez et al., 1993).

#### Family GAMMARIDAE

*Echinogammarus berilloni* (Catta, 1878). **FL:** St-Jean-de-Luz (Chevreux & Fage, 1925). **SL:** San Antolín beach, La Franca beach (van Maren, 1975).

*Echinogammarus pirloti* (Sexton & Spooner, 1940). **FL:** Hendaye beach (San Vicente & Sorbe, 1993, as *Chaetogammarus pirloti*).

*Echinogammarus planicrurus* (Reid, 1940). **FL:** Guéthary beach, at mid-tide level (Stock, 1982, as *Pectenogammarus planicrurus*).

? *Gammarus aequicauda* (Martynov, 1931). **FL:** Arcachon Bay, in brackish fish ponds (Amanieu, 1967c) and all intertidal biotopes (Amanieu, 1969b). According to Labourg et al. (1971), these records should be a misidentification.

*Gammarus chevreuxi* Sexton, 1913. **FL:** Arcachon Bay, on sandy beaches (Salvat, 1962) and in oligohaline fish ponds (Amanieu, 1967c; Labourg et al., 1971; Thimel & Labourg, 1987); Bidart, Guéthary (Chevreux & Fage, 1925). **SL:** La Franca, Ribadesella, Navia (van Maren, 1975).

*Gammarus crinicornis* Stock, 1966. **CS:** Cordouan area (unpublished record), off Hourtin, 20 m depth (Sorbe, 1978); off Arcachon Bay, 15-130 m depth (Labourg et al., 1971; Sorbe, 1984, 1989). **FL:** Gironde Estuary, from the mouth to the 15 ‰ isohaline (Sorbe, 1978, 1979, 1981; Bachelet et al., 1981); Arcachon Bay, in semi-exposed sandy beaches (Labourg et al., 1971), and in shallow subtidal (unpublished record). **SL:** Covas beach (Vivero) (Laborda, 1986).

? *Gammarus duebeni* Liljeborg, 1852. **FL:** Arcachon Bay, in sandy beaches (Salvat, 1962, 1967). According to

Labourg et al. (1971), these records should be a misidentification.

*Gammarus insensibilis* Stock, 1966. **FL:** Marennes-Oléron Bay, in salt marsh ponds (Reymond, 1991); Arcachon Bay, in both intertidal and subtidal habitats (Labourg et al., 1971; Labourg, 1979, 1980; unpubl. rec.).

*Gammarus locusta* (Linné, 1758). **FL:** Arcachon Bay (Chevreux, 1898), in both intertidal and subtidal habitats (Labourg et al., 1971), and in *Zostera noltii* meadows (Auby, 1991); St-Jean-de-Luz (Chevreux, 1898). **SL:** Santander Bay (van Maren, 1975; Lastra et al., 1991); Ría del Eo (Currás & Mora, 1991), in *Z. noltii* (Currás et al., 1994) and *Z. marina* meadows (Currás & Mora, 1992); Covas beach (Vivero) (Laborda, 1986); Ría de El Barquero (Chevreux, 1927; Mazé et al., 1990); Ría de La Coruña, in rocky intertidal (Garcia Alvarez et al., 1993).

*Gammarus marinus* Leach, 1815 (also cited as *Chaetogammarus marinus*). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Royan (Chevreux, 1898); Gironde Estuary, in mesohaline waters, under *Fucus vesiculosus* L. (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay, over *Maia squinado* carapace in the tanks of the Marine Station at Arcachon (Bertrand, 1939), in *Zostera noltii* meadows (Amanieu, 1969b, as *Marinogammarus marinus*), and on sandy beaches (unpubl. rec.). **SL:** Treto, Ribadesella, Ría de Villaviciosa, Navia, Castropol, Foz, Vivero, Ortigueira, Ría de Betanzos (van Maren, 1975); Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992); Ría de La Coruña, in rocky intertidal (Garcia Alvarez et al., 1993).

*Gammarus salinus* Spooner, 1947. **FL:** Gironde Estuary, from the mouth to the upstream limit of saline waters (Sorbe, 1978, 1979, 1981; Bachelet et al., 1981). **SL:** La Franca beach (van Maren, 1975).

*Gammarus zaddachi* Sexton, 1912. **FL:** Gironde Estuary, in waters with a salinity of 0-12 ‰, continuous reproduction (maximum in early summer) (Sorbe, 1978, 1979, 1981; Bachelet et al., 1981).

#### Family HAUSTORIIDAE

*Haustorius arenarius* (Slabber, 1767). **FL:** Marennes-Oléron Bay (Faure, 1969; de Montaudouin & Sauriau, 2000); mouth of the Gironde Estuary (Le Verdon), intertidal (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay (Cuénot, 1927), in clean sands at the zone of resurgence on semi-exposed beaches where it reproduces continuously (Salvat, 1962, 1967; Renaud-Debyser & Salvat, 1963), and in shallow subtidal (unpublished record); Contis-plage (Delamare Deboutteville et al., 1955); highly exposed beaches along the Landes coast; Hossegor lake; Socoa and Hendaye beaches; Chingoudy Bay at Hendaye (Lagardère, 1966). **SL:** Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992); Covas beach (Vivero) (Laborda, 1986); Ría de El Barquero (Mazé et al., 1990).

## Family HYALIDAE

*Hyale camptonyx* (Heller, 1866). **FL:** Guéthary, St-Jean-de-Luz (Chevreux, 1898).

*Hyale dollfusi* Chevreux, 1911. **FL:** Guéthary, St-Jean-de-Luz, among algae (Chevreux & Fage, 1925). **SL:** San Sebastián (Romero, 1985); Abra de Bilbao (Arresti et al., 1986).

*Hyale grimaldii* Chevreux 1900. **SL:** Abra de Bilbao (Arresti et al., 1986).

*Hyale perieri* (Lucas, 1849). **FL:** Guéthary, St-Jean-de-Luz (Chevreux & Fage, 1925). **SL:** the whole coast of Guipuzcoa (San Sebastián, Ondarreta, Orío, Guetaria, Zumaya) (Altuna et al., 1983), on *Sabellaria alveolata* reefs (Aguirrezabalaga et al., 1984); Abra de Bilbao (Arresti et al., 1986; Sáiz Salinas & Urkiaga Alberdi, 1997); Ría de Betanzos (Acuña & Mora, 1982); Ría de La Coruña, in rocky intertidal (García Alvarez et al., 1993).

*Hyale pontica* Rathke, 1837. **FL:** Pontailac, at the mouth of the Gironde Estuary (Chevreux, 1898). **SL:** San Sebastián (Romero, 1985); Abra de Bilbao (Arresti et al., 1986).

*Hyale prevosti* (Milne Edwards, 1830) (all records as *H. nilssoni* (Rathke, 1843)). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Royan (Chevreux, 1898); Gironde Estuary, intertidal (Sorbe, 1978); Arcachon Bay, in the slikke and upper slikke under *Fucus* (Amanieu, 1969b), and in *Zostera noltii* meadows (Auby, 1991); St-Jean-de-Luz, Guéthary (Chevreux, 1898). **SL:** Ría de Ribadeo (Acuña & Mora, 1982); Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992); Ría de La Coruña, in rocky intertidal (García Alvarez et al., 1993). At the present moment, there is no agreement between taxonomists neither on the synonymy between *H. nilssoni* and *H. prevosti* nor on the priority order between these two names (Krapp-Schickel & Vader, personal communication). We retain Barnard & Karaman (1991)'s proposal, as in Dauvin (1999).

*Hyale schmidtii* (Heller, 1866). **FL:** Guéthary, among algae (Chevreux & Fage, 1925). **SL:** Abra de Bilbao (Arresti et al., 1986).

*Hyale stebbingi* Chevreux, 1888. **FL:** Royan; Guéthary (Chevreux, 1898; Chevreux & Fage, 1925, as *H. nilssoni* var. *stebbingi*). **SL:** San Sebastián, Ría del Oria (Altuna et al., 1983); Abra de Bilbao (Arresti et al., 1986); Vivero, La Coruña, Ría de Lage (Acuña & Mora, 1982, as *H. nilssoni* var. *stebbingi*).

*Parhyale explorator* Arresti, 1989. **FL:** Arcachon Bay, in intertidal sand below hard substratum (Arresti, 1989) and within mussels on intertidal rocks (X. de Montaudouin, personal communication).

## Family IPHIMEDIIDAE

*Iphimedia minuta* Sars, 1882. **CS:** off Arcachon Bay (Sorbe, 1972). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000).

*Iphimedia obesa* Rathke, 1843. **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1984, 1989). **DS:** Cap Ferret canyon, 346 m depth (Dauvin & Sorbe, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

## Family ISAEIDAE

*Gammaropsis maculata* (Johnston, 1828). **CS:** West-Oléron area (Lagardère, 1971, as *Eurystheus maculatus*); Cordouan area (unpublished record); off Arcachon Bay, 30-90 m depth (Sorbe, 1984); stations 57 (240 m depth, rock, pebbles and sand) and 58 (134 m depth, sand with pebbles and shells) of "L'Hirondelle" expedition (Chevreux, 1900). **FL:** Royan (Chevreux, 1898; Chevreux & Fage, 1925); Arcachon Bay (Chevreux, 1898; Bachelet et al., 1996), on immersed wooden stakes, on *Maia squinado* carapace in the tanks of the Marine Station at Arcachon (Bertrand, 1939), and in shallow subtidal (unpublished record); Guéthary (Chevreux, 1898; Chevreux & Fage, 1925).

*Gammaropsis palmata* (Stebbing & Robertson, 1891). **CS:** off Arcachon Bay, 90 m depth (Sorbe, 1984).

*Gammaropsis sophiae* (Boeck, 1861). **CS:** Cordouan area (unpubl. rec.); off Arcachon Bay, 90-180 m depth (Sorbe, 1984, 1989). **DS:** station 59 (248 m depth, fine sand) of "L'Hirondelle" expedition (Chevreux, 1900, as *Podocerosopsis sophiae*).

*Isaea montagui* Milne Edwards, 1830. **FL:** Arcachon Bay, on *Maia squinado* carapace in the tanks of the Marine Station at Arcachon (Bertrand, 1939); Guéthary, on buccal appendices of *M. squinado* (Chevreux & Fage, 1925).

*Megamphopus cornutus* Norman, 1869. **FL:** Arcachon Bay, in sandy intertidal (Chevreux & Fage, 1925) and muddy subtidal (unpublished record) habitats.

*Megamphopus longicornis* Chevreux, 1911. **SL:** Abra de Bilbao (Arresti et al., 1986).

*Microprotopus maculatus* Norman, 1867. **FL:** West-Oléron area (Lagardère, 1971); Pontailac; Arcachon Bay; St-Jean-de-Luz (Chevreux, 1898; Chevreux & Fage, 1925); Hendaye, 6-10 m depth (San Vicente & Sorbe, 2001).

*Photis longicaudata* (Bate & Westwood, 1862). **CS:** West-Oléron area, below 30 m depth, in stabilized sands, black mud, and *Ditrupa arietina* sands (Lagardère, 1971); Cordouan area, 30-40 m depth (unpublished record); off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 90 m depth (Sorbe, 1984); Cap Ferret canyon (Sorbe & Weber, 1995); off St-Jean-de-Luz, 120 m depth (Chevreux, 1898; Chevreux & Fage, 1925); off San Sebastián, 75 m depth (Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon (Chevreux, 1898).

## Family ISCHYROCERIDAE

*Bonnierella abyssorum* (Bonnier, 1896). **DS:** Cap Ferret canyon, 791-1098 m depth (Elizalde et al., 1993a, b; Dauvin

& Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896, as *Gammaropsis abyssorum* n. sp.); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Ericthonius difformis* Milne Edwards, 1830. **FL:** Arcachon Bay (Chevreux & Fage, 1925), in *Zostera noltii* meadows (Salvat, 1962, 1967; Auby, 1991) and in brackish fish ponds (Amanieu, 1967c, 1969b; Labourg, 1980); St-Jean-de-Luz, 8 m depth (Chevreux, 1898; Chevreux & Fage, 1925).

*Ericthonius* cf. *fasciatus* (Stimpson, 1853). **DS:** Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Ericthonius punctatus* (Bate, 1857). **CS:** off Arcachon Bay, 80-90 m depth (Chevreux, 1898, as *Ericthonius abditus* (Sars, 1895); Chevreux & Fage, 1925, as *E. brasiliensis* (Dana, 1855)). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay, in brackish fish ponds and in *Zostera noltii* meadows at the periphery of the ponds (Amanieu, 1967c, 1969b, as *E. brasiliensis*); St-Jean-de-Luz, 6 m depth (Chevreux, 1898, as *E. abditus*). **SL:** El Barquero (Chevreux, 1927, as *E. brasiliensis*).

*Jassa falcata* (Montagu, 1808). **FL:** the whole Atlantic coast of France, among algae on rocks and on buoys in harbours (Chevreux & Fage, 1925); Arcachon Bay (Bachelet & Dauvin, 1993; Bachelet et al., 1996), in both intertidal and shallow subtidal habitats (unpublished record); St-Jean-de-Luz (Chevreux, 1898, as *Podocerus falcatus*). **SL:** Abra de Bilbao, 0-8 m depth (Arresti et al., 1986); Ría de Ribadeo, Ría de Foz, Ría de Vivero, La Coruña (Acuña & Mora, 1982); Ría de La Coruña, in rocky intertidal (García Alvarez et al., 1993).

*Jassa marmorata* (Holmes, 1903). **FL:** Hendaye, swash-zone (San Vicente & Sorbe, 2001). **SL:** Abra de Bilbao, 0-5 m depth (Arresti et al., 1986).

*Jassa ocia* (Bate, 1862). **FL:** Arcachon Bay, on *Sabellaria alveolata* reefs (de Montaudouin, personal communication); Guéthary (Chevreux, 1898, as *Podocerus ocius*; Chevreux & Fage, 1925). **SL:** Laga (Vizcaya), on *S. alveolata* reefs (Aguirrezabalaga et al., 1984); Abra de Bilbao (Arresti et al., 1986).

*Jassa pusilla* (Sars, 1894). **FL:** Guéthary, in algae; St-Jean-de-Luz, in sponges (Chevreux & Fage, 1925, as *J. dentex* (Czerniavski, 1864)).

*Parajassa pelagica* (Leach, 1814). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); St-Jean-de-Luz, in algae (Chevreux, 1898, as *Janassa capillata* (Bruzelius); Chevreux & Fage, 1925). **SL:** Guetaria (Bolivar, 1890); Abra de Bilbao (Arresti et al., 1986); Ría de La Coruña, in rocky intertidal (García Alvarez et al., 1993).

#### Family LAPHYSTIOPSISIDAE

*Laphystiopsis planifrons* Sars, 1893. **DS:** Cap Ferret canyon, 923-1098 m depth (Dauvin & Sorbe, 1995).

#### Family LEPECHINELLIDAE

*Lepechinella manco* Barnard, 1973. **DS:** Cap Ferret canyon, 687-923 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

#### Family LEUCOTHOIDAE

*Leucothoe incisa* Robertson, 1892. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area (unpubl. rec.); off Arcachon Bay (Monbet, 1972), 90 m depth (Sorbe, 1984); off San Sebastián, 35 m depth (Aguirrezabalaga et al., 1986). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Chevreux, 1898; Chevreux & Fage, 1925; Bachelet & Dauvin, 1993), in water-saturated and reduced sand at the lower level of semi-exposed beaches (Salvat, 1962, 1967; unpublished record), reproduction from March to November (maximum in June and September-October) (Salvat, 1962, 1967); St-Jean-de-Luz, 0-18 m depth (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Santander Bay (Lastra et al., 1991); Ría del Eo (Currás & Mora, 1991; Currás et al., 1993); Covas beach (Vivero) (Laborda, 1986).

*Leucothoe lilljeborgi* Boeck, 1861. **CS:** Cordouan area, 35-40 m depth (unpublished record); off Arcachon Bay, 90-130 m depth (Sorbe, 1972, 1984); off the Spanish Basque coast, 100 m depth (Aguirrezabalaga et al., 1984). **FL:** mouth of the Gironde Estuary (Le Verdon), intertidal (Bachelet et al., 1981); Arcachon Bay, intertidal (unpublished record).

*Leucothoe procera* Bate, 1857. **CS:** off Arcachon Bay, 90 m depth (Sorbe, 1984).

*Leucothoe spinicarpa* (Abildgaard, 1789). **FL:** Capbreton, near the shore (de Folin & Périer, 1879). **SL:** Santander, at low tide, in ascidians (Chevreux, 1927).

#### Family LILJEBORGIIDAE

*Idunella longirostris* (Chevreux, 1920) (also cited as *Sextonia longirostris*). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-25 m depth (unpublished record); off Arcachon Bay, 30 m depth (Monbet, 1972; Sorbe, 1972, 1984); off San Sebastián, 15-35 m depth (Aguirrezabalaga et al., 1986; Martínez & Adarraga, 2001).

*Liljeborgia macronyx* (Sars, 1894). **DS:** Cap Ferret canyon, 485-1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995); ? Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999, as *L. cf. macronyx*).

*Liljeborgia pallida* (Bate, 1857). **CS:** station 58 (134 m depth, sand with pebbles and shells) of "L'Hirondelle" expedition (Chevreux, 1900).

*Listriella picta* Norman, 1889. **CS:** off San Sebastián, 35 m depth (Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); St-Jean-de-Luz, sand, 5-6 m depth (Chevreux, 1898, as *Lilljeborgia picta*; Chevreux & Fage, 1925, as *Idunella picta*).

#### Family LYSIANASSIDAE

*Acidostoma nodiferum* Stephensen, 1923. **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1984, as *A. obesum* (Bate & Westwood, 1861)). **DS:** Cap Ferret canyon, 1098 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995; both as *A. sarsi* Lincoln, 1979). **SL:** Santander, 10 m depth (Parada et al., 1993, as *A. sarsi*).

*Acidostoma obesum* (Bate & Westwood, 1861). **CS:** West-Oléron area (Lagardère, 1971, as *A. laticorne* Sars, 1879); Cordouan area, 15-25 m depth (unpublished record).

*Amaryllis haswelli* Stebbing, 1888. **DS:** station 1450 (1804 m depth, sandy mud) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Amaryllis pulchella* Bonnier, 1896. **DS:** station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896).

*Ambasia atlantica* (Milne Edwards, 1830). **DS:** Cap Ferret canyon, 1098 m depth (Dauvin & Sorbe, 1995).

*Aristias commensalis* Bonnier, 1896. **DS:** station 1450 (1804 m depth, sandy mud) of the "Princesse-Alice II" expedition (Chevreux, 1935); stations 10 (650 m depth, mud) and 14 (960 m depth, mud) of the "Caudan" expedition (Bonnier, 1896).

*Cyphocaris anonyx* Boeck, 1871. **DS:** station 2983 (0-4500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935); Cap Ferret canyon, 200-1600 m depth (Macquart-Moulin, 1993).

*Euonyx biscayensis* Chevreux, 1908. **DS:** station 1453 (1455 m depth, sandy mud) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Euonyx talismani* Chevreux, 1927. **DS:** Cap Ferret canyon, 1000 m depth (Elizalde et al., 1993a, as *E. chelatus* Norman, 1867; Dauvin & Sorbe, 1995, as *Euonyx* sp.).

*Eurythenes gryllus* Lichtenstein, 1822. **DS:** station 1554 (4780 m depth, mud) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Hippomedon denticulatus* (Bate, 1857). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-25 m depth (unpublished record); off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 90-180 m depth (Sorbe, 1984), and in stomach contents of *Phycis blennoides* (Sorbe, 1977); off San Sebastián, 15-75 m depth (Martínez & Adarraga, 2001). **DS:** Cap Ferret canyon, 346-431 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995). **FL:** Oléron island, Arcachon, 0-10 m depth (Chevreux & Fage, 1925); Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000). **SL:** Basque coast, 5-30 m depth (Aguirrezabalaga et al., 1986); Santander Bay (Lastra et al., 1990, 1991); Ría del Eo (Currás & Mora, 1991).

*Hippomedon* sp. **DS:** Cap Ferret canyon, 1000 m depth (Elizalde et al., 1993a, as *H. oculatus* Chevreux & Fage, 1925).

*Lepidepecreum longicornis* (Bate & Westwood, 1862). **CS:** off Arcachon Bay, 90 m depth (Sorbe, 1984, as *L. longicorne*); off San Sebastián, 35 m depth (Martínez & Adarraga, 2001, as *L. longicorne*). **FL:** Guéthary, at low tide, among algae (Chevreux, 1898, as *L. carinatum* Bate & Westwood; Chevreux & Fage, 1925, as *L. longicorne*).

*Lepidepecreum typhlops* Bonnier, 1896. **DS:** Cap Ferret canyon, 747-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); stations 12 and 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896); stations 7-1880 (1353 m depth, mud) and 14-1880 (682 m depth, shells and coral) of the "Travailleur" expedition (Chevreux, 1927).

*Lysianassa plumosa* Boeck, 1871. **CS:** off Arcachon Bay (Sorbe, 1972). **DS:** Cap Ferret canyon, 687-923 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); stations 14-1880 (682 m depth, shells and coral) and 15-1880 (off Bayonne, 813 m depth, soft mud) of the "Travailleur" expedition (Chevreux, 1927).

*Metambasia* sp. **DS:** Cap Ferret canyon, 687-1098 m depth (Dauvin & Sorbe, 1995).

*Normanion chevreuxi* Diviacco & Vader, 1988, or *N. ruffoi* Diviacco & Vader, 1988. **CS:** off Arcachon Bay, 180 m depth (Sorbe, 1984, as *N. quadrimanus* (Bate & Westwood, 1868)).

*Orchomene abyssorum* (Stebbing, 1865). **DS:** stations 1479 (1414 m depth) and 1500 (4330 m depth, sandy mud) of the "Princesse-Alice II" expedition (Chevreux, 1935, as *Orchomenopsis abyssorum*).

*Orchomene humilis* (Costa, 1853). **DS:** Cap Ferret canyon, 610-747 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Orchomene pectinatus* Sars, 1882. **DS:** Cap Ferret canyon, 1098 m depth (Dauvin & Sorbe, 1995).

*Orchomenella nana* Kröyer, 1846. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-40 m depth (unpublished record); off Arcachon Bay, 25-180 m depth (Sorbe, 1972, 1984, 1989; Cornet et al., 1983); off San Sebastián, 40-75 m depth (Martínez & Adarraga, 2001, as *Orchemene nana*). **DS:** Cap Ferret canyon, 346-1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995). **FL:** the whole Atlantic coast of France, south to Guéthary (Chevreux & Fage, 1925); Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Chevreux, 1898), in shallow subtidal (unpublished record).

*Paracallisoma alberti* Chevreux, 1903. **DS:** stations 1500 (4330 m depth, sandy mud) and 1554 (4780 m depth, mud) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Paracentromedon crenulatum* Chevreux, 1900. **DS:** Cap Ferret canyon, 1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995). **FL:** Arcachon Bay (Bachelet & Dauvin, 1993; Bachelet et al., 1996), in semi-exposed beaches (Salvat, 1962, 1967; unpublished record) and in shallow subtidal habitats (unpublished record).

*Paralicella tenuipes* Chevreux, 1908. **DS:** stations 1479 (1414 m depth), 1500 (4330 m depth, sandy mud) and 1554 (4780 m depth, mud) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Podoprion bolivari* Chevreux, 1891. **CS:** Cordouan area, 15-20 m depth (unpublished record) off Arcachon Bay, 90-180 m depth (Sorbe, 1984, 1989). **DS:** Cap Ferret canyon, 485-711 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995). **SL:** San Sebastián (Chevreux & Fage, 1925).

*Scopelocheirus hopei* (Costa, 1851). **CS:** off Arcachon Bay, 30-180 m depth (Sorbe, 1984, 1989; d'Elbée, 1985); off St-Jean-de-Luz, 50-100 m depth (Chevreux & Fage, 1925). **DS:** Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Socarnes erythrophthalmus* Robertson, 1892. **SL:** San Sebastián, on rocks (Altuna et al., 1983).

*Socarnes filicornis* Heller, 1866. **CS:** off Guéthary, 20 m depth (Chevreux & Fage, 1925, as *Socarnopsis crenulata* Chevreux, 1911).

*Sophrosyne hispana* Chevreux, 1888. **DS:** Cap Ferret canyon, 346-687 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995).

*Sophrosyne robertsoni* Stebbing & Robertson, 1891. **CS:** off Arcachon Bay, 180 m depth (Sorbe, 1984).

*Tmetonyx similis* (Sars, 1891). **CS:** off Arcachon Bay (Monbet, 1972), 90 m depth (Sorbe, 1984). **DS:** Cap Ferret canyon, 523-923 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995).

*Trischizostoma nicaeense* (Costa, 1853). **DS:** Cap Ferret canyon, 346-386 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Tryphosella insignis* (Bonnier, 1896). **DS:** station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896, as *Tryphosa insignis*); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Tryphosella laevis* (Bonnier, 1896). **DS:** Cap Ferret canyon, 386-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896, as *Orchomenella laevis*).

*Tryphosella longidactyla* Ruffo, 1985. **DS:** Cap Ferret canyon, 386-523 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Tryphosites alleni* Sexton, 1911. **DS:** Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe,

1995; Sorbe & Weber, 1995); station 8-1880 (312 m depth, sands, shells and gravels) of the "Travailleur" (Chevreux, 1927).

*Tryphosites longipes* (Bate & Westwood, 1861). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 30-40 m depth (unpublished record); off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 90-180 m depth (Sorbe, 1984, 1989; d'Elbée, 1985); off San Sebastián, 40 m depth (Martínez & Adarraga, 2001). **DS:** Cap Ferret canyon, 485 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

#### Family MEGALUROPIDAE

*Megaluropus agilis* Hoeck, 1889. **CS:** Cordouan area, 20-40 m depth (unpublished record); off Arcachon Bay, 25-130 m depth (Cornet et al., 1983; Sorbe, 1984, 1989; d'Elbée, 1985); off San Sebastián, 40 m depth (Martínez & Adarraga, 2001). **FL:** Oléron island (Chevreux & Fage, 1925); Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Bachelet & Dauvin, 1993), in sand, 0-5 m depth (Chevreux & Fage, 1925), in intertidal (Salvat, 1962; unpublished record) and shallow subtidal (unpublished record) habitats, and in *Zostera noltii* meadows (Auby, 1991); Hendaye, 6-10 m depth (San Vicente & Sorbe, 2001).

#### Family MELITIDAE

*Abludomelita gladiosa* (Bate, 1862) (also cited as *Melita gladiosa*). **CS/DS:** stations 45 (160 m depth, fine sand with *Ditrupa arietina*) and 59 (248 m depth, fine sand) of "L'Hirondelle" expedition (Chevreux, 1900). **FL:** Arcachon Bay, on immersed wooden stakes (Bertrand 1939) and on sandy beaches (Salvat, 1962).

*Abludomelita obtusata* (Montagu, 1813) (also cited as *Melita obtusata*). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-40 m depth (unpublished record); off Arcachon Bay, 30 m depth (Sorbe, 1984). **FL:** the whole Atlantic coast of France, south to Arcachon, 0-20 m depth (Chevreux & Fage, 1925); Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Chevreux, 1898; Bachelet et al., 1996), in both intertidal and shallow subtidal habitats (unpublished record).

*Ceradocus semiserratus* (Bate, 1862). **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay, 90 m depth (Sorbe, 1984).

*Cheirocratus intermedius* Sars, 1894. **DS:** off Arcachon Bay, 400 m depth (Dauvin et al., 1995); Cap Ferret canyon, 346-687 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995). **FL:** Arcachon Bay (Chevreux, 1898; Chevreux & Fage, 1925), in subtidal bottoms mixed with shells (Amanieu & Cazaux, 1965).

*Cheirocratus sundevalli* (Rathke, 1843). **CS/DS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay, 90-180 m depth (Sorbe, 1984; d'Elbée, 1985); stations 58 (134 m

depth, sand with pebbles and shells) and 59 (248 m depth, fine sand) of “L’Hirondelle” expedition (Chevreux, 1900). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Chevreux & Fage, 1925; Bachelet et al., 1996), in subtidal bottoms mixed with shells (Amanieu & Cazaux, 1965; unpublished record).

*Elasmopus pocillimanus* (Bate, 1862). **SL:** La Coruña (Acuña & Mora, 1982).

*Elasmopus rapax* Costa, 1853. **FL:** Arcachon Bay, within mussels, 15-18 m, de Montaudouin pers. com.); St-Jean-de-Luz, Guéthary, at low tide, among algae (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Guetaria (Bolivar, 1890); Laga (Vizcaya), on *Sabellaria alveolata* reefs (Aguirrezabalaga et al., 1984); Abra de Bilbao, 1-10 m depth (Arresti et al., 1986); Ría de Vivero, La Coruña (Acuña & Mora, 1982); Ría de La Coruña, in rocky intertidal (García Alvarez et al., 1993).

*Eriopisa elongata* (Bruzelius, 1859). **DS:** Cap Ferret canyon, 791-1034 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Gammarella fucicola* (Leach, 1814) (also cited as *Pherusa fucicola*). **FL:** the whole Atlantic coast of France, south to St-Jean-de-Luz, at low tide, among algae and below stones (Chevreux & Fage, 1925); Arcachon Bay (Chevreux, 1898, as *G. brevicaudata* (Milne Edwards)), on sandy beaches (Salvat, 1962, 1967) and in *Zostera noltii* meadows (Auby, 1991); Guéthary, St-Jean-de-Luz (Chevreux 1898, as *G. brevicaudata*). **SL:** Abra de Bilbao, 0-5 m depth (Arresti et al., 1986); Santander Bay (Lastra et al., 1991); Ría del Eo, in *Z. marina* meadows (Currás et al., 1993); Barquero (Galicia) (Chevreux, 1927).

*Maera grossimana* (Montagu, 1808). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000).

*Maera inaequipes* (Costa, 1857). **SL:** Ría de Ribadeo, Ría de Ortigueira, La Coruña (Acuña & Mora, 1982).

*Maera othonis* (Milne Edwards, 1830). **CS/DS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay (Monbet, 1972), 90 m depth (Sorbe, 1984); stations 53 (135 m depth, grey sands and rocks) and 59 (248 m depth, fine sand) of “L’Hirondelle” expedition (Chevreux, 1900, 1935, as *M. longimana* Leach, 1814). **DS:** Cap Ferret canyon, 392 m depth (Sorbe & Weber, 1995). **SL:** Abra de Bilbao (Arresti et al., 1986).

*Maerella tenuimana* (Bate, 1862). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000).

*Melita hergensis* Reid, 1939. **FL:** Hendaye beach (San Vicente & Sorbe, 1993). **SL:** Abra de Bilbao (Arresti et al., 1986); Ría de Ribadeo, Ría de Foz, Ría de Vivero, Ría de Ortigueira, Ría de Betanzos, La Coruña, Ría de Lage (Acuña & Mora, 1982).

*Melita palmata* (Montagu, 1804). **FL:** the whole Atlantic coast of France, south to St-Jean-de-Luz, at low tide, under stones (Chevreux & Fage, 1925); Marennes-Oléron Bay (de

Montaudouin & Sauriau, 2000), in salt marsh ponds (Reymond, 1991); Gironde Estuary, from the mouth to about 10 km upstream, in the upper intertidal (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay (Chevreux, 1898; Bachelet & Dauvin, 1993; Bachelet et al., 1996), on immersed wooden stakes (Bertrand, 1939; Dessennoix, 1962), in intertidal (Salvat, 1962; de Coutures, 1968; Amanieu, 1969b; unpublished record) and shallow subtidal (unpublished record habitats), in poly-mesohaline fish ponds (Amanieu, 1967c), and in *Zostera noltii* meadows (Amanieu, 1969b; Auby, 1991), reproduction in April and September (de Coutures, 1968); St-Jean-de-Luz, Guéthary (Chevreux, 1898). **SL:** Bidasoa Estuary (Sola, 1997); the whole Guipuzcoa coast (Altuna et al., 1983); Guetaria (Bolivar, 1890); Abra de Bilbao (Arresti et al., 1986); Treto, Santander Bay, Ría de Villaviciosa, Perlora, Castropol, Foz, Vivero, Ortigueira, Ría de Betanzos (van Maren, 1975); Ría del Eo (Currás & Mora, 1991), in *Z. noltii* meadows (Currás & Mora, 1992); Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992); Covas beach (Vivero) (Laborda, 1986); Ría de La Coruña, in rocky intertidal (García Alvarez et al., 1993).

#### Family MELPHIDIPPIDAE

*Melphidippella macra* (Norman, 1869). **CS:** off Arcachon Bay, 85-180 m depth (Cornet et al., 1983; Sorbe, 1984, 1989; d’Elbée, 1985). **DS:** Cap Ferret canyon, 346-747 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

#### Family OEDICEROTIDAE

*Arrhis mediterraneus* Ledoyer, 1983. **DS:** Cap Ferret canyon, 687-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Bathymedon acutifrons* Bonnier, 1896. **DS:** Cap Ferret canyon, 800 m depth (Elizalde et al., 1993b; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the “Caudan” expedition (Bonnier, 1896).

*Bathymedon longimanus* (Boeck, 1871). **CS:** off Arcachon Bay, 180 m depth (Sorbe, 1984). **DS:** Cap Ferret canyon, 610-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Bathymedon longirostris* Jaume, Cartes & Sorbe, 1998. **DS:** Cap Ferret canyon, 523-1098 m depth (Dauvin & Sorbe, 1995, as *Westwoodilla* sp.); Capbreton canyon (unpublished record).

*Bathymedon monoculodiformis* Ledoyer, 1983. **DS:** Cap Ferret canyon, 523-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Bathymedon saussurei* (Boeck, 1871). **DS:** Cap Ferret canyon, 610-923 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Halicreion aequicornis* (Norman, 1869). **CS:** off Arcachon Bay, 180 m depth (Sorbe, 1984). **DS:** Cap Ferret canyon, 610-747 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Monoculodes acutipes* Ledoyer, 1983. **DS:** Cap Ferret canyon, 485-747 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Monoculodes carinatus* (Bate, 1857). **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 30-90 m depth (Sorbe, 1984); off San Sebastián, 35 m depth (Martínez & Adarraga, 2001). **DS:** Cap Ferret canyon, 400 m depth (Elizalde, 1994).

*Monoculodes gibbosus* Chevreux, 1888. **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1984).

*Monoculodes packardi* Boeck, 1871. **DS:** Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Oediceroides proxima* Bonnier, 1896. **DS:** stations 9 (1200 m depth, mud) and 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896).

*Oediceropsis brevicornis* (Liljeborg, 1865). **DS:** Cap Ferret canyon, 346-791 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Perioculodes longimanus longimanus* (Bate & Westwood, 1868). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-40 m depth (unpublished record); off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 25-180 m depth (Cornet et al., 1983; Sorbe 1984, 1989); off San Sebastián, 14-225 m depth (Aguirrezabalaga et al., 1986; Martínez & Adarraga, 2001); Abra de Bilbao, 22 m depth (Arresti et al., 1986). **DS:** Cap Ferret canyon, 250-747 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995). **FL:** Oléron island (Chevreux & Fage, 1925); Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Chevreux, 1898; Bachelet & Dauvin, 1993), on lower levels of sandy beaches (Chevreux & Fage, 1925; Salvat, 1962; unpublished record), in *Zostera noltii* meadows (Auby, 1991), and in shallow subtidal (unpublished record); St-Jean-de-Luz, 5-30 m depth (Chevreux, 1898; Chevreux & Fage, 1925); Hendaye, 0-10 m depth (San Vicente & Sorbe, 1993, 2001). **SL:** Santander Bay (Lastra et al., 1991); Ría del Eo, in *Z. marina* meadows (Currás et al., 1993).

*Perioculodes longimanus angustipes* Ledoyer, 1983. **DS:** off Arcachon Bay, 700 m depth (Elizalde, 1984).

*Pontocrates altamarinus* (Bate & Westwood, 1862). **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay, 30-90 m depth (Sorbe, 1984); off San Sebastián, 10-35 m depth (Martínez & Adarraga, 2001). **FL:** Hendaye, swash-zone (San Vicente & Sorbe, 1993, 2001). **SL:** Basque coast, 2-40 m depth (Aguirrezabalaga et al., 1986); Santander Bay (Lastra et al., 1990, 1991).

*Pontocrates arenarius* (Bate, 1858). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-50 m depth (unpublished record); off Arcachon Bay, 30-90 m depth (Monbet, 1972, as *P. norvegicus* Boeck, 1860; Sorbe, 1972, 1984); off San Sebastián, 35 m depth (Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (Faure, 1969, as *P. norvegicus*; de Montaudouin & Sauriau, 2000); Gironde Estuary (Sorbe, 1978); Arcachon Bay (Bachelet et al., 1996, as *P. norvegicus*), on exposed sandy beaches (Salvat, 1962, 1967, as *P. norvegicus*; unpublished record) and in shallow subtidal (unpublished record); Landes coast, at lower levels of exposed sandy beaches (Lagardère, 1966); St-Jean-de-Luz, 5-6 m depth (Chevreux, 1898; Chevreux & Fage, 1925, as *P. norvegicus*); Hendaye, 0-10 m depth (San Vicente & Sorbe, 2001). **SL:** mouth of the Rio Urumea, 3 m depth (Aguirrezabalaga et al., 1984); San Sebastián, 2-9 m depth (Aguirrezabalaga et al., 1986; Martínez & Adarraga, 2001); Ría del Eo (Currás & Mora, 1991); Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992).

*Synchelidium haplocheles* (Grube, 1864). **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1984, 1989). **FL:** Pontailac (Chevreux, 1898). **SL:** Santander, 10 m depth (Parada et al., 1993).

*Synchelidium maculatum* Stebbing, 1906. **CS:** off San Sebastián, 50 m depth (Martínez & Adarraga, 2001); Abra de Bilbao, 25 m depth (Arresti et al., 1986). **DS:** Cap Ferret canyon, 250-1034 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999). **SL:** Santander Bay (Lastra et al., 1990).

*Westwoodilla caecula* (Bate, 1857). **CS:** off Arcachon Bay, 85-180 m depth (Cornet et al., 1983; Sorbe, 1984, 1989; d'Elbée, 1985); off San Sebastián, 125-175 m depth (Martínez & Adarraga, 2001). **DS:** Cap Ferret canyon, 250-700 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Westwoodilla rectirostris* (Della Valle, 1893). **CS:** off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 90-180 m depth (Sorbe, 1984, 1989), and in stomach contents of *Micromesistius poutassou* (Risso) (Sorbe, 1980).

#### Family PARDALISCIDAE

*Halice abyssii* Boeck, 1871. **DS:** off Arcachon Bay, 400-700 m depth (Dauvin et al., 1995); Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a, as *H. aculeata* Chevreux, 1912, 1993b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Halicoides anomalus* Walker, 1893. **CS:** off Arcachon Bay, 90-180 m depth (Sorbe, 1984, 1989, as *Halice walkeri* (Ledoyer, 1973)). **DS:** Cap Ferret canyon, 687-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995).



*Nicippe tumida* Bruzelius, 1859. **CS:** off Arcachon Bay, 180 m depth (Cornet et al., 1983; Sorbe, 1984), in gut contents of *Pasiphea tarda* (Krøyer) (Lagardère, 1975). **DS:** Cap Ferret canyon, 346-1034 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); stations 11-1880 (off Santander, 300-600 m depth) and 40-1881 (392 m depth, black sand) of the “Travailleur” expedition (Chevreux, 1927).

*Pardalisca mediterranea* Bellan-Santini, 1984. **DS:** Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

#### Family PHOXOCEPHALIDAE

*Harpinia antennaria* Meinert, 1890. **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 30-40 m depth (unpubl. rec.); off Arcachon Bay (Monbet, 1972; Sorbe, 1972), 90-180 m depth (Sorbe, 1984); off San Sebastián, 75-160 m depth (Martínez & Adarraga, 2001). **DS:** Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); St-Jean-de-Luz Bay, mud (Chevreux, 1900, as *H. neglecta* G. O. Sars).

*Harpinia crenulata* (Boeck, 1871). **CS:** off Arcachon Bay, 90 m depth (Sorbe, 1984). **DS:** Cap Ferret canyon, 523-1034 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the “Caudan” expedition (Bonnier, 1896, as *H. nana* Bonnier, 1896); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Harpinia dellavallei* Chevreux, 1910. **FL:** St-Jean-de-Luz (Chevreux & Fage, 1925).

*Harpinia laevis* Sars, 1891. **DS:** Cap Ferret canyon, 431-687 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995).

*Harpinia latipes* Norman, 1900. **DS:** Cap Ferret canyon, 700-1098 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Harpinia pectinata* Sars, 1891. **CS:** off the Spanish Basque coast, 100 m depth (Aguirrezabalaga et al., 1984); Abra de Bilbao, 32 m depth (Arresti et al., 1986). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay (Bachelet et al., 1996), in subtidal habitat (unpublished record); St-Jean-de-Luz, 5-20 m depth, in mud (Chevreux, 1898; Chevreux & Fage, 1925).

*Harpinia serrata* Sars, 1878. **DS:** Cap Ferret canyon, 395-669 m depth (Sorbe & Weber, 1995).

*Harpinia truncata* Sars, 1891. **DS:** Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Leptophoxus falcatus* (Sars, 1882). **DS:** Cap Ferret canyon, 923-1098 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Metaphoxus fultoni* (Scott, 1890). **CS:** off Arcachon Bay, 90 m depth (Sorbe, 1984). **FL:** Arcachon Bay, in *Zostera noltii* meadows (Auby, 1991); St-Jean-de-Luz, 0-20 m depth (Chevreux & Fage, 1925).

*Metaphoxus pectinatus* (Walker, 1896). **CS:** off the Spanish Basque coast, 83-100 m depth (Aguirrezabalaga et al., 1984). **FL:** Arcachon Bay, in muddy subtidal habitat (unpublished record).

*Metaphoxus simplex* (Bate, 1857). **DS:** Cap Ferret canyon, 386-1098 m depth (Elizalde et al., 1993a, b; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); station 13 (950 m depth, mud) of the “Caudan” expedition (Bonnier, 1896, as *M. typicus* Bonnier, 1896); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999); station 10 (off Santander, 1910 m, mud) of the “Travailleur” expedition in 1880 (Chevreux, 1927, as *M. typicus*).

*Pseudharpinia brevirostris* (Chevreux, 1927). **DS:** station 10-1880 (off Santander, 1910 m, sand mixed with shells and gravels) of the “Travailleur” expedition (Chevreux, 1927, as *Harpinia brevirostris*).

*Pseudharpinia excavata* (Chevreux, 1887) (also cited as *Harpinia excavata*). **DS:** Cap Ferret canyon, 711-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Dauvin et al., 1995; Sorbe & Weber, 1995); stations 15-1880 (off Bayonne, 813 m depth, soft mud), 20-1880 (off Bayonne, 1143 m depth, mud) and 22-1880 (off Bayonne, 425 m depth, mud) of the “Travailleur” expedition (Chevreux, 1927); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

#### Family PLEUSTIDAE

*Cleonardopsis carinata* Barnard, 1915. **DS:** Cap Ferret canyon, 1034-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Stenopleustes latipes* (Sars, 1858). **DS:** station 4 (1410 m depth, corals and mud) of the “Caudan” expedition (Bonnier 1896, as *Parapleustes latipes*); station 39-1881 (953 m depth, black sand) of the “Travailleur” expedition (Chevreux, 1927, as *Sympleustes latipes*).

#### Family PODOCERIDAE

*Laetmatophilus tuberculatus* Bruzelius, 1859. **DS:** Cap Ferret canyon, 923 m depth (Dauvin & Sorbe, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Podocerus variegatus* Leach, 1814. **FL:** St-Jean-de-Luz (Chevreux, 1898, as *Platophium darwini* (Bate, 1857)); the whole Atlantic coast of France, south to St-Jean-de-Luz (Chevreux & Fage, 1925). **SL:** Mompas, Ondarreta, Guetaria (Altuna et al., 1983).

## Family PONTOPOREIIDAE

*Bathyporeia elegans* Watkin, 1938. **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay, 30-180 m depth (Sorbe, 1984, 1989); off San Sebastián, 15-40 m depth (Martínez & Adarraga, 2001). **FL:** Marennes-Oléron Bay (Faure, 1969; de Montaudouin & Sauriau, 2000); Arcachon Bay, in intertidal sand banks (Salvat, 1962) and in soft and oxygenized sands of the slikke (Amanieu, 1969b); Hendaye beach (San Vicente & Sorbe, 1993). **SL:** Basque coast, 5-40 m depth (Aguirrezabalaga et al., 1986); Santander Bay (Lastra et al., 1990, 1991); Ría del Eo (Currás & Mora, 1991).

*Bathyporeia guilliamsoniana* (Bate, 1857). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20 m depth (unpublished record); off Arcachon Bay, 0-90 m depth, in medium sands with *Nephtys cirrosa* Ehlers and *Gastrosaccus spinifer* (Goës) (Monbet, 1972; Sorbe, 1984). **FL:** Arcachon Bay, in fine sands at low tide (Chevreux & Fage, 1925), in the lower levels of semi-exposed and on intertidal sand banks, reproduction from April to November (Salvat, 1962, 1967). **SL:** Ría del Eo (Currás & Mora, 1991; Currás et al., 1993).

*Bathyporeia nana* Toulmond, 1966. **FL:** Hendaye, 6 m depth (San Vicente & Sorbe, 2001).

*Bathyporeia pelagica* (Bate, 1856). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-25 m depth (unpublished record). **FL:** the Atlantic coast of France, south to Arcachon, at low tide, in fine sand (Chevreux & Fage, 1925); Pontailiac, at low tide (Chevreux, 1898); Gironde Estuary, intertidal (Le Verdon) and in the water column from the mouth to about 60 km upstream (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay (Bachelet & Dauvin, 1993; Bachelet et al., 1996), in intertidal and shallow subtidal habitats (unpublished record); Hendaye beach (Lagardère, 1966). **SL:** Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992); Covas beach (Vivero) (Laborda, 1986); Ría de El Barquero (Mazé et al., 1990).

*Bathyporeia pilosa* Lindström, 1855. **FL:** Gironde Estuary (Bachelet et al., 1981); Arcachon Bay, on semi-exposed sandy beaches where it reproduces continuously (Salvat, 1962, 1967; Renaud-Debyser & Salvat, 1963), and in soft, oxygenated sands of the slikke and upper slikke (Amanieu, 1969b); Hendaye, 6 m depth (San Vicente & Sorbe, 2001).

*Bathyporeia sarsi* Watkin, 1938. **CS:** off San Sebastián, 40 m depth (Martínez & Adarraga, 2001). **FL:** Arcachon Bay (Bachelet & Dauvin, 1993; Bachelet et al., 1996), in the zone of resurgence on sandy beaches (Salvat, 1967; unpublished record) and in shallow subtidal habitats (unpublished record); continuous reproduction (Salvat, 1967).

*Bathyporeia tenuipes* Meinert, 1877. **CS:** West-Oléron area (Lagardère, 1971); off Arcachon Bay, 30-90 m depth (Sorbe, 1984).

## Family STEGOCEPHALIDAE

*Andaniexis mimonectes* Ruffo, 1975. **DS:** off Arcachon Bay, 700 m depth (Dauvin et al., 1995); Cap Ferret canyon, 431-1034 m depth (Elizalde et al., 1993a, as *A. abyssis* (Boeck, 1871); Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Andaniopsis nordlandica* (Boeck, 1871). **DS:** Cap Ferret canyon, 610-791 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995).

*Stegocephaloides auratus* (Sars, 1882). **DS:** Cap Ferret canyon, 346-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); stations 11 (650 m depth, mud) and 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Stegocephaloides christianiensis* Boeck, 1871. **CS:** off Arcachon Bay, 180 m depth (Cornet et al., 1983; Sorbe, 1984). **DS:** Cap Ferret canyon, 747 m depth (Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

## Family STENOTHOIDAE

*Proboloides grandimanum* (Bonnier, 1896). **DS:** station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896, as *Probolium grandimanum* Bonnier, 1896).

*Stenothoe cavimana* Chevreux, 1908. **FL:** St-Jean-de-Luz, in sponges (Chevreux & Fage, 1925).

*Stenothoe marina* (Bate, 1856). **CS:** West-Oléron area (Lagardère, 1971); Cordouan area, 20-40 m depth (unpublished record); off Arcachon Bay, 30-180 m depth (Sorbe, 1984, 1989). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon, St-Jean-de-Luz, 0-20 m depth (Chevreux, 1898; Chevreux & Fage, 1925).

*Stenothoe monoculoides* (Montagu, 1815). **FL:** Arcachon Bay (Durègne, 1890; Chevreux, 1898), in intertidal (Salvat, 1962) and shallow subtidal (unpublished record) habitats; Guéthary, St-Jean-de-Luz, (Chevreux, 1898); Hendaye, swash-zone (San Vicente & Sorbe, 2001). **SL:** Guetaria (Bolivar, 1890); the whole coast of Guipuzcoa (San Sebastián, Ondarreta, Guetaria, Zumaya) (Altuna et al., 1983); Abra de Bilbao, 0-8 m depth (Arresti et al., 1986); La Coruña (Acuña & Mora, 1982).

*Stenothoe richardi* Chevreux, 1895. **DS:** station 14-1880 (682 m depth, shells and coral) of the "Travailleur" expedition (Chevreux, 1927).

*Stenothoe tergestina* (Nebeski, 1881). **SL:** Ría de La Coruña, in rocky intertidal (García Alvarez et al., 1993, as *S. spinimana* Chevreux, 1911).

*Stenothoe valida* Dana, 1852. **CS:** off Arcachon Bay, 30-90 m depth (Sorbe, 1984). **FL:** Arcachon Bay (Bachelet et al., 1996), subtidal (unpublished record); St-Jean-de-Luz, in sponges (Chevreux & Fage, 1925).

## Family STILIPIDAE

*Stilipes* sp. **DS:** Cap Ferret canyon, 523-923 m depth (Dauvin & Sorbe, 1995).

## Family SYNOPIIDAE

*Bruzelia typica* Boeck, 1871. **DS:** Cap Ferret canyon, 346-711 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995); Capbreton canyon, 1000 m depth (Marquiegui & Sorbe, 1999).

*Jeddo* sp. **DS:** Cap Ferret canyon, 1098 m depth (Dauvin & Sorbe, 1995).

*Pseudotiron* sp. **DS:** Cap Ferret canyon, 523 m depth (Dauvin & Sorbe, 1995).

*Syrrhoe affinis* Chevreux, 1908. **DS:** Cap Ferret canyon, 346-687 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Syrrhoites pusilla* Enequist, 1949. **DS:** Cap Ferret canyon, 485-791 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995).

*Syrrhoites walkeri* Bonnier, 1896. **DS:** station 12 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896).

## Family TALITRIDAE

*Orchestia cavimana* Heller, 1865. **SL:** Guipuzcoa coast, supralittoral (Altuna et al., 1983).

*Orchestia gammarellus* (Pallas, 1766). **FL:** the whole Atlantic coast of France, under stones, above HWST level (Chevreux, 1898, as *O. littorea* (Montagu, 1808); Chevreux & Fage, 1925); Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Arcachon Bay, in the schorre and upper part of sheltered sandy beaches (Lafont, 1871, as *O. littoralis* Leach, 1814; Amanieu & Salvat, 1963a; Amanieu, 1969b), reproduction from April to October (Amanieu, 1967a, b, 1969a); Socoa beach (Lagardère, 1966).

*Orchestia mediterranea* Costa, 1853. **FL:** Arcachon Bay, in the schorre and upper slikke (Amanieu & Salvat, 1963a, 1965; Amanieu, 1969b); St-Jean-de-Luz, under stones, at HWNT level (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Laga (Vizcaya) (Aguirrezabalaga et al., 1985); Abra de Bilbao (Arresti et al., 1986).

*Orchestia microphtalma* Amanieu & Salvat, 1963. **FL:** Arcachon Bay, on exposed sandy beaches, under stranded woods at HW level (Amanieu & Salvat, 1963a, b).

*Orchestia spinifera* Mateus, 1962 (also cited as *Talorchestia spinifera*). **FL:** Arcachon Bay (Amanieu & Salvat, 1963a), in the schorre between HWNT and HWST levels, among plant debris and under the leaves of *Obione portulacoides*, in clean sand of salt marshes and semi-exposed beaches (Amanieu & Salvat, 1965; Amanieu, 1969b).

*Talitrus saltator* (Montagu, 1808). **FL:** the whole Atlantic coast of France, on fine sand beaches (Chevreux, 1898, as *T. locusta* (Pallas); Chevreux & Fage, 1925);

Arcachon Bay (Lafont, 1868; Salvat, 1962), in supralittoral sands of sheltered beaches (Amanieu, 1969b), semi-exposed beaches and salt marshes (Amanieu & Salvat, 1965); Lacanau-Océan, La Salie, Mimizan canal (Delamare Deboutteville et al., 1955); Capbreton beach (de Folin & Périer, 1879, as *T. locusta* Latreille); exposed beaches on the Landes coast, Hossegor lake, Hendaye beach (Lagardère, 1966). **SL:** Guetaria (Bolivar, 1890); Abra de Bilbao (Arresti et al., 1986); Covas beach (Vivero) (Laborda, 1986); Ría de El Barquero (Mazé et al., 1990).

*Talorchestia brito* Stebbing, 1891. **FL:** Le Verdon, Lacanau, Cap Ferret (Chevreux, 1898; Chevreux & Fage, 1925); Arcachon Bay (Salvat, 1962; Amanieu & Salvat, 1965); exposed beaches of the Landes coast, supralittoral (Lagardère, 1966). **SL:** Ría de El Barquero (Mazé et al., 1990).

*Talorchestia deshayesi* (Audouin, 1826). **FL:** Arcachon Bay, on exposed sandy beaches (Salvat, 1962), in salt marshes (Amanieu & Salvat, 1965), and in dry sands of the schorre and upper slikke (Amanieu, 1969b); Hendaye beach, supralittoral (Lagardère, 1966). **SL:** Ría de El Barquero (Mazé et al., 1990).

## Family UROTHOIDAE

*Carangolia barnardi* Jaume & Sorbe, 2001. **DS:** Cap Ferret canyon, 522-924 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995; Sorbe & Weber, 1995, all records as *Carangolia* sp.; Jaume & Sorbe, 2001); Capbreton canyon, 550-727 m depth (Jaume & Sorbe, 2001).

*Urothoe brevicornis* Bate, 1862. **CS:** off Arcachon Bay, 0-40 m depth, in medium sands with *Nephtys cirrosa* (Monbet, 1972); off San Sebastián, 15-50 m depth (Martínez & Adarraga, 2001). **FL:** Oléron island (Chevreux & Fage, 1925; Lagardère, 1971); Marennes-Oléron Bay (Faure, 1969); Arcachon Bay, 0-5 m depth (Chevreux & Fage, 1925), in reduced sands and muddy sands between mid-tide and LWST levels on semi-exposed beaches, reproduction from March to January (Salvat, 1962, 1967; Renaud-Debyser & Salvat, 1963). **SL:** Santander Bay (Lastra et al., 1990); Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992); Ría del Eo (Currás et al., 1993); Ría de El Barquero (Mazé et al., 1990).

*Urothoe elegans* (Bate, 1857). **CS:** Cordouan area, 20-25 m depth (unpublished record); off Arcachon Bay, 90-180 m depth (Sorbe, 1984; d'Elbée, 1985); off San Sebastián, 40 m depth (Martínez & Adarraga, 2001). **DS:** Cap Ferret canyon, 300 m depth (Elizalde et al., 1993b), 1034-1098 m depth (Elizalde et al., 1993a; Dauvin & Sorbe, 1995). **FL:** Hendaye, 10 m depth (San Vicente & Sorbe, 2001).

*Urothoe grimaldii* Chevreux, 1895. **CS:** Cordouan area (unpublished record); off Arcachon Bay (Monbet, 1972); off San Sebastián, 40-50 m depth (Martínez & Adarraga, 2001). **FL:** Arcachon Bay, in reduced or sandy-muddy sediments at

LWST level on semi-exposed beaches, reproduction from March to September (Salvat, 1962, 1967; Renaud-Debyser & Salvat, 1963), in intertidal and shallow subtidal habitats (unpublished record) St-Jean-de-Luz, 0-6 m depth, in sand (Chevreux, 1898; Chevreux & Fage, 1925). **SL:** Covas beach (Vivero) (Laborda, 1986).

*Urothoe marina* (Bate, 1857). **FL:** Arcachon Bay, commensal of synaptes (Pérez, 1905), in lower levels of sandy beaches (Salvat, 1962).

*Urothoe poseidonis* Reibisch, 1905. **FL:** Oléron island (Lagardère, 1971); Marennes-Oléron Bay (Faure, 1969); Chingoudy Bay (Hendaye), in *Zostera noltii* meadows (Lagardère, 1966). **SL:** Basque coast, 5-40 m depth (Aguirrezabalaga et al., 1986); Ría del Eo (Currás & Mora, 1991; Currás et al., 1993); Ría de Foz, intertidal (Junoy & Viéitez, 1990, 1992).

*Urothoe pulchella* (Costa, 1853). **CS:** off Arcachon Bay (Monbet, 1972), 5-30 m depth (Bouchet et al., 1983), 90 m depth (Sorbe, 1984). **FL:** Marennes-Oléron Bay (de Montaudouin & Sauriau, 2000); Gironde Estuary (Le Verdon), intertidal (Sorbe, 1978; Bachelet et al., 1981); Arcachon Bay (Bachelet & Dauvin, 1993; Bachelet et al., 1996), in sand at low tide (Chevreux & Fage, 1925), in intertidal (Salvat, 1962; unpublished record) and subtidal (unpublished record) habitats; St-Jean-de-Luz (Chevreux & Fage, 1925). **SL:** Santander Bay (Lastra et al., 1991); Ría del Eo (Currás & Mora, 1991; Currás et al., 1993).

#### Family VALETTIIDAE

*Valettiopsis macrodactyla* Chevreux, 1909. **DS:** station 4-1880 (off Santander, 2400-2600 m depth, mud) of the "Travailleur" expedition (Chevreux, 1927).

#### Suborder HYPERIIDEA Family BRACHYSCELIDAE

*Brachyscelus crusculum* Bate, 1861. **P:** stations 1549 (0-1500 m depth) (Chevreux, 1935) and 1560 (0-500 m depth) of the "Princesse-Alice II" expedition (Pirlot, 1939); station 916 (surface) of the "Princesse-Alice I" expedition (Chevreux, 1935).

#### Family HYPERIIDAE

*Hyperia galba* (Montagu, 1815). **P:** the whole Atlantic coast of France, in Discomedusae *Rhizostoma*, *Aurelia*, *Cyanea*, *Chrysaora* (Chevreux, 1898).

*Hyperioides longipes* Chevreux, 1900 (cited as *Hyperia longipes*). **P:** stations 1549 (0-1500 m depth) and 1560 (0-500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935); station 169 (494 m depth) of "L'Hirondelle" expedition (Chevreux, 1900).

*Lestrigonus schizogeneios* (Stebbing, 1888). **P:** in stomach contents of *Micromesistius poutassou* (Sorbe, 1980, as *Hyperia schizogeneios*).

*Themisto abyssorum* Boeck, 1870 (also cited as *Parathemisto oblivia* (Krøyer, 1838)). **P:** station 1549 (0-1500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935); stations 168 (surface) and 169 (494 m depth) of "L'Hirondelle" expedition (Chevreux, 1900); off Arcachon Bay, in gut contents of *Sergestes robustus* (Smith) (Lagardère, 1975); station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896); off Contis and the Adour estuary, 50-90 m depth (Chevreux, 1898).

*Themisto gaudichaudi* (Guérin, 1825). **P:** stations 1505 (1700 m depth) (Pirlot, 1939, as *T. gracilipes* Norman, 1869) and 2983 (0-4500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1911, 1935, as *Euthemisto compressa* (Goës, 1865); Pirlot, 1939); Cap Ferret canyon, 0-1600 m depth (Macquart-Moulin, 1993; Sorbe & Weber, 1995, both as *Parathemisto gaudichaudi*).

#### Family LANCEOLIDAE

*Lanceola sayana* Bovallius, 1885. **P:** station 1549 (0-1500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Scypholanceola aestiva* (Stebbing, 1888). **P:** stations 1558 (4780 m depth) and 2983 (0-4500 m depth) of the "Princesse-Alice II" expedition (Pirlot, 1939, as *S. vanhoeffeni* Woltereck, 1909).

#### Family MICROPHASMIIDAE

*Microphasma agassizi* Woltereck, 1909. **P:** station 2983 (0-4500 m depth) of the "Princesse-Alice II" expedition (Pirlot, 1939).

#### Family PHRONIMIDAE

*Phronima sedentaria* (Forsk., 1775). **P:** stations 1549 (0-1500 m depth) and 1560 (0-500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935).

#### Family PHROSINIDAE

*Phrosina semilunata* Risso, 1882. **P:** station 916 (surface) of the "Princesse-Alice I" expedition (Chevreux, 1935).

*Primno macropa* (Guérin, 1836). **P:** off Arcachon Bay, in gut contents of *Sergestes arcticus* Krøyer, *S. robustus*, *Pasiphaea tarda* (Lagardère, 1975, as *Euprimno macropus*).

#### Family SCINIDAE

*Scina borealis* (Sars, 1882). **P:** station 1505 (1700 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935); off Arcachon Bay, in gut contents of *Sergestes robustus* (Lagardère, 1975); Cap Ferret canyon, 100-2000 m (Macquart-Moulin, 1993; Sorbe & Weber, 1995); station 14 (960 m depth, mud) of the "Caudan" expedition (Bonnier, 1896).

*Scina crassicornis* (Fabricius, 1775). **P:** Cap Ferret canyon, 300-1600 m (Macquart-Moulin, 1993).

*Scina marginata* (Bovallius, 1885). **P:** station 2854 (0-1410 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Scina oedicarpus* Stebbing, 1895. **P:** stations 1549 (0-1500 m depth) and 2854 (0-1410 m depth, as *S. megameros* Chevreux, 1919) of the "Princesse-Alice II" expedition (Chevreux, 1935).

#### Family VIBILIIDAE

*Vibilia armata* Bovallius, 1887. **P:** stations 1549 (0-1500 m depth, as *V. gracilentata* Bovallius, 1887) and 1560 (0-500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Vibilia bovallii* Bonnier, 1896. **P:** station 13 (950 m depth, mud) of the "Caudan" expedition (Bonnier, 1896).

*Vibilia cultripipes* Vosseler, 1901. **P:** station 1549 (0-1500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935).

*Vibilia jeangerardi* Lucas, 1845. **P:** Cap Ferret canyon, 0-1600 m depth (Macquart-Moulin, 1993; Sorbe & Weber, 1995).

*Vibilia propinqua* Stebbing, 1888. **P:** station 1549 (0-1500 m depth) of the "Princesse-Alice II" expedition (Chevreux, 1935).

### Discussion and conclusion

The amphipod fauna of the southern Bay of Biscay (SBB) consists of 319 species (Table 1 and Appendix). Three species (*Byblis gaimardi*, *Gammarus aequicauda* and *G. duebeni*) are not accounted for in this checklist, due to probable misidentifications. Of the 319 species listed, about 50 species (except those described as new species) were collected on a single occasion. The occurrence of some of these rare species in the area is doubtful or needs more investigation, especially for those species recorded only once several decades ago in the littoral zone (which is assumed to be more prospected than the deep sea); this is the case of seven species (*Caprella linearis*, *Ampelisca rubella*, *Lembos websteri*, *Corophium bonnellii*, *Hyale camptonyx*, *Harpinia dellavallei*, *Stenothoe cavimana*) whose occurrence has thus to be confirmed.

Amphipod species diversity in SBB (319 species: 14 Caprelliidea, 284 Gammaridea, 21 Hyperiidea) is higher than in the English Channel (255 species: 11 Caprelliidea, 240 Gammaridea, 4 Hyperiidea; Dauvin, 1999). This difference may be largely explained by the shallower depth of the latter (about 100 m vs. > 4800 m in SBB) and the concurrent absence of bathyal and abyssal species in the Channel: when considering only those species down to 200 m depth, the number of amphipod species in SBB is

lower (209 species: 13 Caprelliidea, 196 Gammaridea) than in the Channel. On the other hand, the number of Gammaridea species is similar in SBB (284) and in the Mediterranean French waters (293) (Dauvin & Bellan-Santini, 2002), both areas having a similar depth range. Amphipod fauna in SBB is partly composed of Boreal and Mediterranean species: 52.4% (167 species) and 57.7% (184 species) of the SBB species are common to the English Channel and western Mediterranean, respectively (Table 1). For the benthic species (Caprelliidea and Gammaridea), SBB amphipod fauna from the supralittoral zone to the continental shelf has a higher similarity with the Channel fauna than with the Mediterranean fauna (45 and 27 species in common, respectively), while the reverse is true for the SBB bathyal amphipods (5 and 38 species in common with the Channel and the Mediterranean, respectively).

The total number of Gammaridea and Caprelliidea recorded in different areas of the NE Atlantic is given in Table 2, which shows that SBB has an intermediate amphipod diversity. For the Gammaridea, the similarity analysis identified three main groups: (1) a northern arctic and boreal group with the Svalbard and Norway faunas, (2) a cold temperate group with the faunas from the United Kingdom, Ireland and the English Channel, and (3) a warm temperate and subtropical group with the faunas from the Mediterranean, the central NE Atlantic and the southern Bay of Biscay (Fig. 2). For the Caprelliidea, only two main groups were identified: (1) a warm temperate and subtropical group with the Mediterranean and the central NE Atlantic, and (2) a northern group with the other faunas from the southern Bay of Biscay to Norway (Fig. 3). Nevertheless, results obtained with the Caprelliidea data can be doubtful as the number of species is weak for each zone, except for the western Mediterranean where Guerra-Garcia & Takeuchi (2002) increased significantly the number of species found in this area. For the Gammaridea, the present results are similar with those obtained by Dauvin & Bellan-Santini (2002) showing a high affinity between the Bay of Biscay and the Central Atlantic faunas. Previously, Dauvin & Sorbe (1995) showed that several 'endemic Mediterranean species' have been also collected from the continental slope of the Bay of Biscay, illustrating the high affinity between both areas.

Among the 21 species of Hyperiidea found in the southern Bay of Biscay, 13 were also collected in the Irish waters (Costello et al., 1989), but the Irish fauna appeared more diversified than the Bay of Biscay one with a total of 38 hyperiid species.

Eighty-five species (26.6 %) in SBB have not been recorded so far in the English Channel and western Mediterranean (Table 1). However, most of these species are known from other NE Atlantic areas or the Mauritanian region. To our knowledge, 19 species are known only in

**Table 1.** Number of amphipod species per Suborder (bold characters) and Family in the southern Bay of Biscay, together with the number of species in common with the English Channel (from Dauvin, 1999) and with the western Mediterranean (from Bellan-Santini et al., 1998).

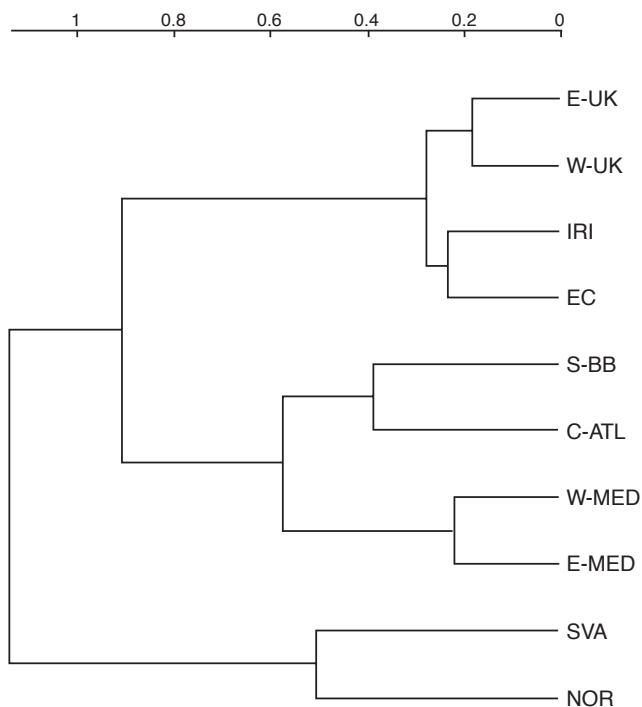
**Tableau 1.** Nombre d'espèces d'amphipodes par sous-ordre (en caractères gras) et par famille présentes dans la partie Sud du Golfe de Gascogne, comparé au nombre d'espèces en commun avec la Manche (d'après Dauvin, 1999) et avec la Méditerranée occidentale (d'après Bellan-Santini et al., 1998).

Families	Total in S Bay of Biscay	Also occurring in English Channel	Also occurring in W Mediterranean	Occurring in S Bay of Biscay, but not in Channel and W Mediterranean
<b>CAPRELLIDEA</b>	<b>14</b>	<b>9</b>	<b>10</b>	<b>1</b>
Caprellidae	11	6	7	1
Pariambidae	2	2	2	-
Phtisicidae	1	1	1	-
<b>GAMMARIDEA</b>	<b>284</b>	<b>155</b>	<b>166</b>	<b>74</b>
Ampeliscidae	25	10	11	11
Amphilochidae	5	3	4	-
Ampithoidae	6	5	4	-
Aoridae	19	12	13	4
Argissidae	1	-	1	-
Carangoliopsidae	1	-	1	-
Chelurida	1	1	1	-
Corophiidae	13	9	6	2
Dexaminidae	8	7	7	-
Epimeriidae	2	1	1	-
Eusiridae	15	4	8	5
Gammarellidae	1	1	1	-
Gammaridae	10	9	3	1
Haustoriidae	1	1	-	-
Hyalidae	9	5	6	2
Iphimediidae	2	2	2	-
Isaeidae	8	7	8	-
Ischyroceridae	9	7	4	2
Laphystiopsidae	1	-	-	1
Lepechinellidae	1	-	1	-
Leucothoidae	4	4	3	-
Liljeborgiidae	4	3	0	1
Lysianassidae	37	13	17	18
Megaluropidae	1	1	-	-
Melitidae	15	13	14	-
Melphidippidae	1	1	1	-
Oedicerotidae	21	7	17	4
Pardaliscidae	4	-	3	1
Phoxocephalidae	14	5	7	7
Pleustidae	2	1	-	1
Podoceridae	2	1	1	1
Pontoporeiidae	7	7	1	-
Stegocephalidae	4	-	2	2
Stenothoidae	7	4	5	2
Stilipidae	1	-	-	1
Synopiidae	6	-	3	3
Talitridae	8	5	6	2
Urothoidae	7	6	4	1
Valettiidae	1	-	-	1
<b>HYPERIIDEA</b>	<b>21</b>	<b>3</b>	<b>8</b>	<b>10</b>
Brachyscelidae	1	-	-	1
Hyperiididae	5	3	2	-
Lanceolidae	2	-	-	2
Microphasmidae	1	-	-	1
Phronimidae	1	-	1	-
Phrosinidae	2	-	2	-
Scinidae	4	-	2	2
Vibiliidae	5	-	1	4
<b>Total</b>	<b>319</b>	<b>167</b>	<b>184</b>	<b>85</b>

**Table 2.** Number of species of Gammaridea and Caprellidea recorded in different areas of the North-Eastern Atlantic: Svalbard area (SVA), Norway coasts (NOR), Eastern (E-UK) and Western (W-UK) coasts of the United Kingdom, Irish coasts (IRI), English Channel (EC), Southern Bay of Biscay (S-BB), Central NE Atlantic (C-ATL), Western (W-MED) and Eastern (E-MED) Mediterranean (see references in the text).

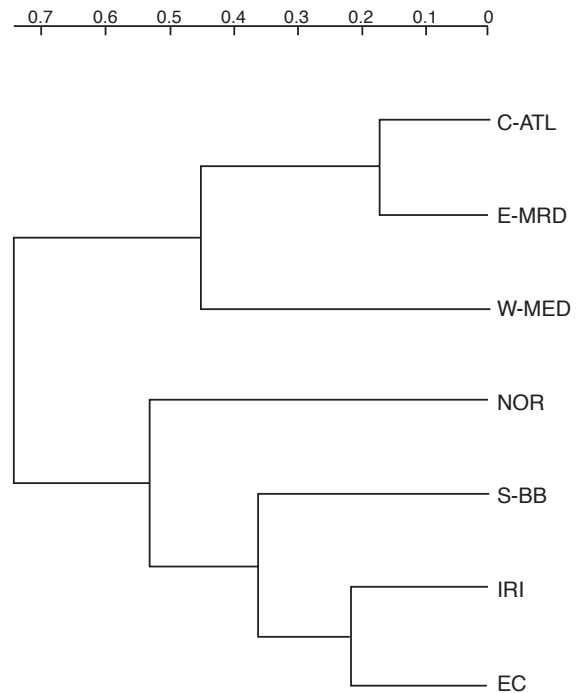
**Tableau 2.** Nombre d'espèces de Gammaridea et de Caprellidea recensées dans différentes zones de l'Atlantique Nord-Est : archipel de Svalbard (SVA), côtes de Norvège (NOR), côtes Est (E-UK) et Ouest (W-UK) du Royaume-Uni, côtes d'Irlande (IRI), Manche (EC), Sud du Golfe de Gascogne (S-BB), Atlantique NE Central (C-ATL), Méditerranée occidentale (W-MED) et orientale (E-MED) (voir les références dans le texte).

	SVA	NOR	E-UK	W-UK	IRI	EC	S-BB	C-ATL	W-MED	E-MED
Gammaridea	261	383	196	208	231	246	284	331	414	298
Caprellidea	-	12	-	-	12	11	14	14	32	15



**Figure 2.** Dendrogram showing the similarity (Sørensen's coefficient) between the Gammaridea faunas of ten areas of the North-Eastern Atlantic (abbreviations as in Table 2).

**Figure 2.** Dendrogramme des similitudes (coefficient de Sørensen) entre les faunes de Gammaridea de dix régions de l'Atlantique Nord-Est (voir Tableau 2 pour les abréviations).



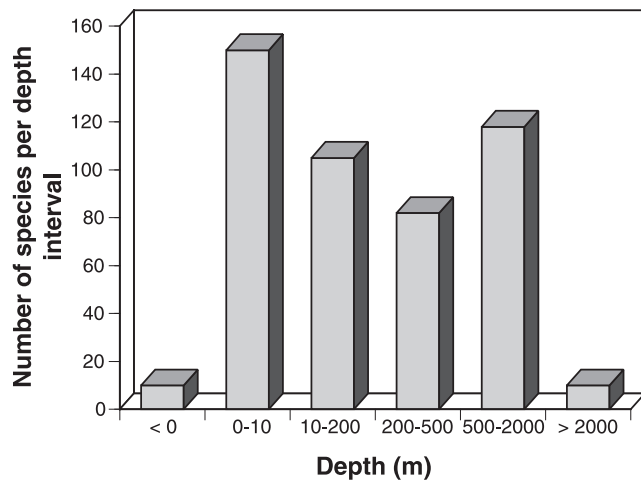
**Figure 3.** Dendrogram showing the similarity (Sørensen's coefficient) between the Caprellidea faunas of seven areas of the North-Eastern Atlantic (abbreviations as in Table 2).

**Figure 3.** Dendrogramme des similitudes (coefficient de Sørensen) entre les faunes de Caprellidea de sept régions de l'Atlantique Nord-Est (voir Tableau 2 pour les abréviations).

SBB. The highest number of "endemic" species (15) is found in the bathyal zone (*Protoaeginella spinipoda*, *Ampelisca parabyblisoides*, *Haploops gascogni*, *Chevreuxius grandimanus*, *Eusirus biscayensis*, *Rhachotropis gracilis*, *Bonnierella abyssorum*, *Amaryllis pulchella*, *Aristias commensalis*, *Tryphosella insignis*, *Oediceroides proxima*, *Pseudharpinia excavata*, *Proboloides grandimanum*, *Syrrhoites walkeri*, *Carangolia barnardi*). Four other "endemic" species live on the continental shelf (*Ampelisca sorbei*, *Unciola incerta*) and in

the intertidal zone (*Parhyale explorer*, *Orchestia microphthalmia*). The recent discovery of *O. microphthalmia* (in 1963) and *P. explorer* (in 1989) in Arcachon Bay shows that new species can be still discovered in easily accessible and *a priori* well-known areas.

The maximum number of species (148) is found in the 0-10 m depth zone, i.e. in intertidal habitats and upper infralittoral zone (Fig. 4). This number decreases to 104 between 10-200 m depth (continental shelf) and 75 between 200-500 m depth (upper continental slope), then increases



**Figure 4.** Bathymetric distribution of benthic amphipods (Gammaridea + Caprellidea) in the southern Bay of Biscay. Note that the sum of numbers per depth range is higher than the total number of species, because some species occur on a wide depth range.

**Figure 4.** Distribution bathymétrique des amphipodes benthiques (Gammaridea + Caprellidea) dans la partie Sud du Golfe de Gascogne. NB : certaines espèces étant réparties sur une gamme importante de profondeur, la somme des nombres d'espèces par intervalle de profondeur est supérieure au nombre total d'espèces.

(109) in the lower part of the bathyal zone (500-2000 m). Only 8 species are found in the supralittoral zone, and the same number in the abyssal zone. This bathymetric distribution is quite different from the pattern found in the Mediterranean where the number of species decreases regularly from 0 to > 2000 m (Bellan-Santini et al., 1998) and confirms the species richness of the continental slope in SBB.

On a regional scale, the amphipod fauna in the littoral zone (from > 0 m to about 10 m depth) of SBB is more diverse along the French coast (137 species) than along the Spanish one (95 species). A higher amphipod diversity also is found on the continental shelf north of the Capbreton canyon (93 species) than on the northern Spain shelf (57 species). However, these differences might be partly explained by more intense investigations in the French part of SBB.

It should be finally noted that Arcachon Bay and canyons are major areas for amphipod diversity. In Arcachon Bay, which has an area of only 156 km<sup>2</sup>, 81 species have been recorded, i. e. 52.6% of the known amphipod fauna from the whole SBB littoral. Cap Ferret (107 species) and Capbreton (51 species) canyons are inhabited by 82.4% and 38.9%, respectively, of amphipod species known from the bathyal depths of SBB. The continental slope of SBB appears as an area with great interest for amphipod studies (Dauvin &

Sorbe, 1995) and new prospections will undoubtedly provide new data on the distribution of amphipods in this part of the North Atlantic Ocean.

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**Appendix.** Alphabetical list of the amphipods recorded in the southern Bay of Biscay, together with their distribution area (CS, continental shelf; DS, deep sea; FL, French littoral; P, pelagic; SL, Spanish littoral).

**Annexe.** Liste alphabétique des Amphipodes recensés dans la partie Sud du Golfe de Gascogne, avec indication de leur zone de répartition (CS, plateau continental ; DS, domaine profond ; FL, littoral français ; P, pélagique ; SL, littoral espagnol).

<i>Abludomelita gladiosa</i>	CS, DS, FL
<i>Abludomelita obtusata</i>	CS, FL
<i>Acidostoma nodiferum</i>	CS, DS
<i>Acidostoma obesum</i>	CS
<i>Amaryllis haswelli</i>	DS
<i>Amaryllis pulchella</i>	DS
<i>Ambasia atlantica</i>	DS
<i>Ampelisca aequicornis</i>	CS, DS
<i>Ampelisca anomala</i>	CS, DS
<i>Ampelisca armoricana</i>	CS, FL
<i>Ampelisca brevicornis</i>	CS, FL, SL
<i>Ampelisca cavicoxa</i>	CS
<i>Ampelisca declivitatis</i>	DS
<i>Ampelisca diadema</i>	CS, DS
<i>Ampelisca gibba</i>	CS, DS
<i>Ampelisca parabyblisoides</i>	DS
<i>Ampelisca pectenata</i>	CS

<i>Ampelisca pusilla</i>	DS	<i>Caprella liparotensis</i>	SL
<i>Ampelisca rubella</i>	FL	<i>Caprella penantis</i>	FL, SL
<i>Ampelisca sarsi</i>	CS, FL	<i>Caprella tuberculata</i>	SL
<i>Ampelisca sorbei</i>	CS	<i>Carangolia barnardi</i>	DS
<i>Ampelisca spinifer</i>	CS	<i>Carangoliopsis spinulosa</i>	DS
<i>Ampelisca spinimana</i>	CS, FL	<i>Ceradocus semiserratus</i>	CS
<i>Ampelisca spinipes</i>	CS, FL	<i>Cheirocratus intermedius</i>	DS, FL
<i>Ampelisca tenuicornis</i>	CS, DS, FL, SL	<i>Cheirocratus sundevalli</i>	CS, DS, FL
<i>Ampelisca typica</i>	CS	<i>Chelura terebrans</i>	FL
<i>Ampelisca uncinata</i>	DS	<i>Chevreuxius grandimanus</i>	DS
<i>Amphilochooides boeckii</i>	CS, DS	<i>Cleonardopsis carinata</i>	DS
<i>Amphilochus neapolitanus</i>	CS, FL	<i>Corophium acherusicum</i>	FL, SL
<i>Amphilochus spencebatei</i>	CS	<i>Corophium acutum</i>	FL, SL
<i>Ampithoe ferox</i>	FL	<i>Corophium arenarium</i>	FL
<i>Ampithoe gammaroides</i>	FL, SL	<i>Corophium bonnellii</i>	FL
<i>Ampithoe helleri</i>	SL	<i>Corophium insidiosum</i>	FL, SL
<i>Ampithoe ramondi</i>	FL, SL	<i>Corophium multisetosum</i>	FL, SL
<i>Ampithoe rubricata</i>	SL	<i>Corophium sextonae</i>	FL, SL
<i>Andaniexis mimonectes</i>	DS	<i>Corophium volutator</i>	CS, FL, SL
<i>Andaniopsis nordlandica</i>	DS	<i>Cyphocaris anonyx</i>	DS
<i>Aora gracilis</i>	CS, FL, SL	<i>Dexamine spiniventris</i>	FL, SL
<i>Apherusa bispinosa</i>	CS, DS, FL	<i>Dexamine spinosa</i>	FL, SL
<i>Apherusa jurinei</i>	FL, SL	<i>Dexamine thea</i>	FL
<i>Apherusa ovalipes</i>	CS, DS, FL	<i>Echinogammarus berilloni</i>	FL, SL
<i>Argissa stebbingi</i>	CS, DS	<i>Echinogammarus pirloti</i>	FL
<i>Aristias commensalis</i>	DS	<i>Echinogammarus planicrurus</i>	FL
<i>Arrhis mediterraneus</i>	DS	<i>Elasmopus pocillimanus</i>	SL
<i>Atylus falcatus</i>	CS, SL	<i>Elasmopus rapax</i>	FL, SL
<i>Atylus guttatus</i>	CS, FL, SL	<i>Epimeria cornigera</i>	CS, DS
<i>Atylus swammerdami</i>	CS, FL	<i>Epimeria parasitica</i>	DS
<i>Atylus vedlomensis</i>	CS, FL	<i>Erichthonius difformis</i>	FL
<i>Autonoe longidigitans</i>	DS	<i>Erichthonius cf. fasciatus</i>	DS
<i>Autonoe longipes</i>	CS	<i>Erichthonius punctatus</i>	CS, FL, SL
<i>Autonoe spiniventris</i>	CS, FL	<i>Eriopisa elongata</i>	DS
<i>Bathymedon acutifrons</i>	DS	<i>Euonyx biscayensis</i>	DS
<i>Bathymedon longimanus</i>	CS, DS	<i>Euonyx talismani</i>	DS
<i>Bathymedon longirostris</i>	DS	<i>Eurythenes gryllus</i>	DS
<i>Bathymedon monoculodiformis</i>	DS	<i>Eusirella elegans</i>	DS
<i>Bathymedon saussurei</i>	DS	<i>Eusiroides dellavallei</i>	FL, SL
<i>Bathyporeia elegans</i>	CS, FL, SL	<i>Eusirus biscayensis</i>	DS
<i>Bathyporeia guilliamsoniana</i>	CS, FL, SL	<i>Eusirus leptocarpus</i>	DS
<i>Bathyporeia nana</i>	FL	<i>Eusirus longipes</i>	CS, DS
<i>Bathyporeia pelagica</i>	CS, FL, SL	<i>Gammarella fucicola</i>	FL, SL
<i>Bathyporeia pilosa</i>	FL	<i>Gammarellus angulosus</i>	SL
<i>Bathyporeia sarsi</i>	CS, FL	<i>Gammaropsis maculata</i>	CS, FL
<i>Bathyporeia tenuipes</i>	CS	<i>Gammaropsis palmata</i>	CS
<i>Bonnierella abyssorum</i>	DS	<i>Gammaropsis sophiae</i>	CS, DS
<i>Brachyscelus crusculum</i>	P	<i>Gammarus chevreuxi</i>	FL, SL
<i>Bruzelia typica</i>	DS	<i>Gammarus crinicornis</i>	CS, FL, SL
? <i>Byblis gaimardi</i>	CS	<i>Gammarus insensibilis</i>	FL
<i>Byblis guernei</i>	DS	<i>Gammarus locusta</i>	FL, SL
<i>Byblis minuticornis</i>	DS	<i>Gammarus marinus</i>	FL, SL
<i>Caprella acanthifera</i>	FL, SL	<i>Gammarus salinus</i>	FL, SL
<i>Caprella andreae</i>	SL	<i>Gammarus zaddachi</i>	FL
<i>Caprella danilevskii</i>	FL, SL	<i>Gitana abyssicola</i>	DS
<i>Caprella equilibra</i>	FL, SL	<i>Guerneia coalita</i>	FL
<i>Caprella fretensis</i>	SL	<i>Halice abyssii</i>	DS
<i>Caprella linearis</i>	FL	<i>Halicoides anomalus</i>	CS, DS

<i>Halicreion aequicornis</i>	CS, DS	<i>Megaluropus agilis</i>	CS, FL
<i>Haploops gascogni</i>	DS	<i>Megamphopus cornutus</i>	FL
<i>Haploops proxima</i>	DS	<i>Megamphopus longicornis</i>	SL
<i>Haploops similis</i>	DS	<i>Melita hergensis</i>	FL, SL
<i>Harpinia antennaria</i>	CS, DS, FL	<i>Melita palmata</i>	FL, SL
<i>Harpinia crenulata</i>	CS, DS	<i>Melphidippella macra</i>	CS, DS
<i>Harpinia dellavallei</i>	FL	<i>Metambasia</i> sp.	DS
<i>Harpinia laevis</i>	DS	<i>Metaphoxus fultoni</i>	CS, FL
<i>Harpinia latipes</i>	DS	<i>Metaphoxus pectinatus</i>	CS, FL
<i>Harpinia pectinata</i>	CS, FL	<i>Metaphoxus simplex</i>	DS
<i>Harpinia serrata</i>	DS	<i>Microdeutopus anomalus</i>	FL, SL
<i>Harpinia truncata</i>	DS	<i>Microdeutopus armatus</i>	CS, FL
<i>Hauistorius arenarius</i>	FL, SL	<i>Microdeutopus chelifer</i>	FL, SL
<i>Hippomedon denticulatus</i>	CS, DS, FL, SL	<i>Microdeutopus damnoniensis</i>	FL, SL
<i>Hippomedon</i> sp.	DS	<i>Microdeutopus gryllotalpa</i>	FL, SL
<i>Hyale camptonyx</i>	FL	<i>Microdeutopus stationis</i>	FL, SL
<i>Hyale dollfusi</i>	FL, SL	<i>Microdeutopus versiculatus</i>	FL, SL
<i>Hyale grimaldii</i>	SL	<i>Microphasma agassizi</i>	P
<i>Hyale perieri</i>	FL, SL	<i>Microprotopus maculatus</i>	FL
<i>Hyale pontica</i>	FL, SL	<i>Monoculodes acutipes</i>	DS
<i>Hyale prevosti</i>	FL, SL	<i>Monoculodes carinatus</i>	CS, DS
<i>Hyale schmidti</i>	FL	<i>Monoculodes gibbosus</i>	CS
<i>Hyale stebbingi</i>	FL, SL	<i>Monoculodes packardi</i>	DS
<i>Hyperia galba</i>	P	<i>Nicippe tumida</i>	CS, DS
<i>Hyperioides longipes</i>	P	<i>Normanion chevreuxi</i>	CS
<i>Idunella longirostris</i>	CS	<i>Oediceroides proxima</i>	DS
<i>Iphimedia minuta</i>	CS, FL	<i>Oediceropsis brevicornis</i>	DS
<i>Iphimedia obesa</i>	CS, DS	<i>Orchestia cavimana</i>	SL
<i>Isaea montagui</i>	FL	<i>Orchestia gammarellus</i>	FL
<i>Jassa falcata</i>	FL, SL	<i>Orchestia mediterranea</i>	FL, SL
<i>Jassa marmorata</i>	FL, SL	<i>Orchestia microphthalmia</i>	FL
<i>Jassa ocia</i>	FL, SL	<i>Orchestia spinifera</i>	FL
<i>Jassa pusilla</i>	FL	<i>Orchomene abyssorum</i>	DS
<i>Jeddo</i> sp.	DS	<i>Orchomene humilis</i>	DS
<i>Laetmatophilus tuberculatus</i>	DS	<i>Orchomene pectinatus</i>	DS
<i>Lanceola sayana</i>	P	<i>Orchomenella nana</i>	CS, DS, FL
<i>Laphystiopsis planifrons</i>	DS	<i>Paracallisoma alberti</i>	DS
<i>Lembos websteri</i>	FL	<i>Paracentromedon crenulatum</i>	DS, FL
<i>Lepechinella manco</i>	DS	<i>Parajassa pelagica</i>	FL, SL
<i>Lepidepcreum longicornis</i>	CS, FL	<i>Paralicella tenuipes</i>	DS
<i>Lepidepcreum typhlops</i>	DS	<i>Pardalisca mediterranea</i>	DS
<i>Leptocheirus hirsutimanus</i>	FL	<i>Parhyale explorator</i>	FL
<i>Leptocheirus pectinatus</i>	CS	<i>Pariambus typicus</i>	CS, FL, SL
<i>Leptocheirus pilosus</i>	FL, SL	<i>Parvipalpus major</i>	DS
<i>Leptophoxus falcatus</i>	DS	<i>Peltocoxa brevirostris</i>	CS, SL
<i>Lestrigonus schizogeneios</i>	P	<i>Periocolodes longimanus angustipes</i>	DS
<i>Leucothoe incisa</i>	CS, FL, SL	<i>Periocolodes longimanus longimanus</i>	CS, DS, FL, SL
<i>Leucothoe lilljeborgi</i>	CS, FL	<i>Photis longicaudata</i>	CS, FL
<i>Leucothoe procera</i>	CS	<i>Phronima sedentaria</i>	P
<i>Leucothoe spinicarpa</i>	FL, SL	<i>Phrosina semilunata</i>	P
<i>Liljeborgia macronyx</i>	DS	<i>Phthisica marina</i>	CS, FL, SL
<i>Liljeborgia pallida</i>	CS	<i>Podocerus variegatus</i>	FL, SL
<i>Listriella picta</i>	CS, FL	<i>Podoprion bolivari</i>	CS, DS, SL
<i>Lysianassa plumosa</i>	CS, DS	<i>Pontocrates altamarinus</i>	CS, FL, SL
<i>Maera grossimana</i>	FL	<i>Pontocrates arenarius</i>	CS, FL, SL
<i>Maera inaequipes</i>	SL	<i>Primno macropa</i>	P
<i>Maera othonis</i>	CS, DS, SL	<i>Proboloides grandimanum</i>	DS
<i>Maerella tenuimana</i>	FL	<i>Protoaeginella spinipoda</i>	DS

<i>Pseudoharpinia brevisrostris</i>	DS	<i>Synchelidium haplocheles</i>	CS, FL, SL
<i>Pseudoharpinia excavata</i>	DS	<i>Synchelidium maculatum</i>	CS, DS, SL
<i>Pseudoprotella phasma</i>	CS, FL, SL	<i>Syrrhoe affinis</i>	DS
<i>Pseudotiron</i> sp.	DS	<i>Syrrhoites pusilla</i>	DS
<i>Rhachotropis caeca</i>	DS	<i>Syrrhoites walkeri</i>	DS
<i>Rhachotropis faeroensis</i>	DS	<i>Talitrus saltator</i>	FL, SL
<i>Rhachotropis glabra</i>	DS	<i>Talorchestia brito</i>	FL, SL
<i>Rhachotropis gracilis</i>	DS	<i>Talorchestia deshayesi</i>	FL, SL
<i>Rhachotropis grimaldii</i>	DS	<i>Themisto abyssorum</i>	P
<i>Rhachotropis integricauda</i>	CS, DS	<i>Themisto gaudichaudi</i>	P
<i>Rhachotropis rostrata</i>	DS	<i>Tmetonyx similis</i>	CS, DS
<i>Scina borealis</i>	P	<i>Trischizostoma nicaeense</i>	DS
<i>Scina crassicornis</i>	P	<i>Tryphosella insignis</i>	DS
<i>Scina marginata</i>	P	<i>Tryphosella laevis</i>	DS
<i>Scina oedicarpus</i>	P	<i>Tryphosella longidactyla</i>	DS
<i>Scopelocheirus hopei</i>	CS, DS	<i>Tryphosites alleni</i>	DS
<i>Scypholanceola aestiva</i>	P	<i>Tryphosites longipes</i>	CS, DS
<i>Siphonoecetes dellavallei</i>	SL	<i>Unciola crenatipalma</i>	CS, FL
<i>Siphonoecetes kroyeranus</i>	CS, FL, SL	<i>Unciola incerta</i>	CS
<i>Siphonoecetes sabatieri</i>	FL, SL	<i>Unciola planipes</i>	CS
<i>Siphonoecetes striatus</i>	CS	<i>Unciolella lunata</i>	DS
<i>Socarnes erythrophthalmus</i>	SL	<i>Urothoe brevicornis</i>	CS, FL, SL
<i>Socarnes filicornis</i>	CS	<i>Urothoe elegans</i>	CS, DS, FL
<i>Sophrosyne hispana</i>	DS	<i>Urothoe grimaldii</i>	CS, FL, SL
<i>Sophrosyne robertsoni</i>	CS	<i>Urothoe marina</i>	FL
<i>Stegocephaloides auratus</i>	DS	<i>Urothoe poseidonis</i>	FL, SL
<i>Stegocephaloides christianiensis</i>	CS, DS	<i>Urothoe pulchella</i>	CS, FL, SL
<i>Stenopleustes latipes</i>	DS	<i>Valettioopsis macrodactyla</i>	DS
<i>Stenothoe cavimana</i>	FL	<i>Vibilia armata</i>	P
<i>Stenothoe marina</i>	CS, FL	<i>Vibilia bovallii</i>	P
<i>Stenothoe monoculoides</i>	FL, SL	<i>Vibilia cultripes</i>	P
<i>Stenothoe richardi</i>	DS	<i>Vibilia jeangerardi</i>	P
<i>Stenothoe tergestina</i>	SL	<i>Vibilia propinqua</i>	P
<i>Stenothoe valida</i>	CS, FL	<i>Westwoodilla caecula</i>	CS, DS
<i>Stilipes</i> sp.	DS	<i>Westwoodilla rectirostris</i>	CS
<i>Sunamphithoe pelagica</i>	FL, SL		