**UNIVERSIDADE DE LISBOA**

**FACULDADE DE CIÊNCIAS**

**DEPARTAMENTO DE BIOLOGIA ANIMAL**


# The European Fauna of Annelida Polychaeta

# (II)

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**(ESPECIALIDADE: BIODIVERSIDADE)**

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# *FAMILY **PARALACYDONIIDAE** Pettibone 1963

**AS:** *PARALACYDONIIDAE* PETTIBONE, 1963*a*: 184.
**TYPE GENUS:** *Paralacydonia* Fauvel 1913.
**REMARKS:** The family Paralacydoniidae includes a single genus, *Paralacydonia*, with three species and one subspecies described (see below).

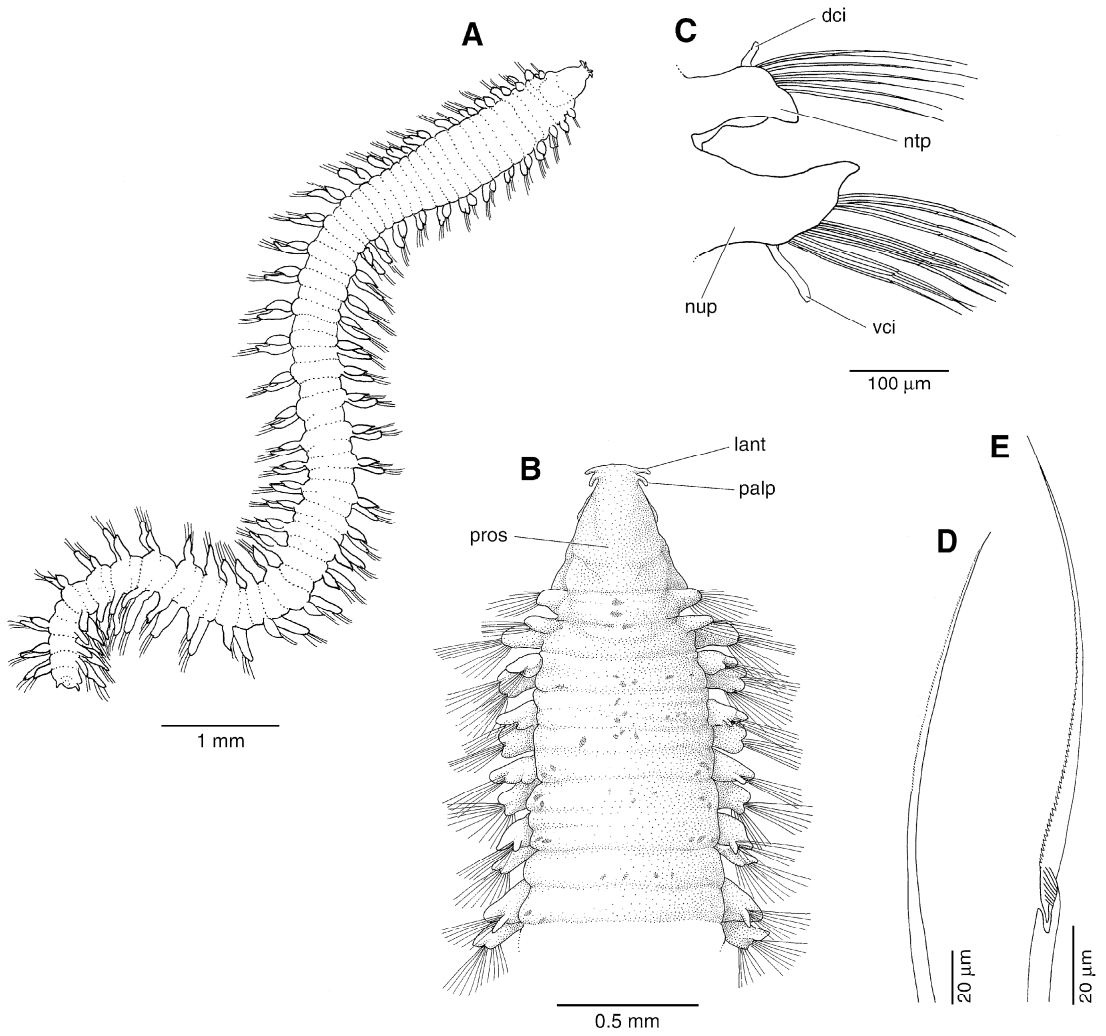


**Figure legend:** Family Paralacydoniidae. *Paralacydonia* specimen. **A**, entire animal, dorsal view. **B**, anterior end, dorsal view. **C**, parapodium from chaetiger 15. **D**, capillary from notopodium of chaetiger 15. **E**, compound spiniger from neuropodium of chaetiger 15. **dci**, dorsal cirrus; **lant**, lateral antenna; **ntp**, notopodium; **nup**, neuropodium; **palp**, palp; **pros**, prostomium; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## *GENUS ***Paralacydonia*** Fauvel 1913

*Paralacydonia* FAUVEL, 1913*a*: 54.
**TYPE SPECIES:** *Paralacydonia paradoxa* Fauvel 1913.
**REMARKS:** The genus *Paralacydonia* includes three described species: *P. paradoxa* FAUVEL (1913*a*), the type species, from Monaco, *P. weberi* HORST (1923), from Indonesia, and *P. mortenseni* AUGENER (1924*b*), from New Zealand, and one subspecies, *P. paradoxa japonica* KITAMORI (1965), from Japan.

Augener was probably unaware of the existence of *P. weberi* by HORST (1923) when describing his own species, and later synonymised *P. mortenseni* with *P. weberi* (AUGENER, 1927*a*). Finally USCHAKOV (1958*a*; see also 1972) suggested that all the three species were synonymous. The main difference between *P. paradoxa* and the other two species, would be the presence of a few simple chaetae in the lower part of the neuropodia, shorter than the notochaetae. USCHAKOV (1958*a*; 1972) based his oppinion on the fact that among the population of *Paralacydonia* from the Yellow Sea there were specimens with and without those simple neuropodial chaetae. No correlation was found between the absence or presence of that chaetae with size of worms, depth or geographic region, and one specimen from New Guinea (near the type locality of *P. weberi*) was found to have neuropodial simple chaetae. Finally, *P. paradoxa japonica* would differ from the stem species by having a small depression at the anterior end of the prostomium and a small median papilla on the pygidium, besides the two long anal cirri (KITAMORI, 1965; USCHAKOV, 1972). However, this pygidial papilla is also present in European specimens of the stem subspecies, *P. paradoxa paradoxa*.

As pointed by BLAKE (1997*c*), apparently no one seems to have examined the type material of the three species in order to confirm the proposed synonymies. This way, *P. paradoxa* has nowadays a wide geographic and bathymetrical distribution. This distribution would also include India, Indonesia, and New Zealand, if *P. weberi* is to be considered as a junior synonym of *P. paradoxa*. For this reason the above suggested synonymies are here considered as doubtful, until a more detailed study of the group is performed. The wide distribution of the species suggests the presence of several sibling or very similar species.

## ****Paralacydonia paradoxa*** Fauvel 1913

*Paralacydonia paradoxa* FAUVEL, 1913*a*: 54-55, fig. 10.

**TYPE LOCALITY:** One mile south Monaco (43º43'N, 7º25'20"E), at 48 meters, bottom of sand, gravel and broken shells, (1 specimen), and Pointe de la Vieille (near Monte-Carlo, Monaco), at 52 meters (2 specimens).

**SYNONYMS:** [?] *Paralacydonia Weberi* Horst 1923; [?] *Paralacydonia Mortenseni* Ehlers 1924; [?] *Paralacydonia paradoxa japonica* Kitamori 1965.

**SELECTED REFERENCES:** *Paralacydonia paradoxa* — FAUVEL, 1914*f*: 118-121, pl. 7 figs. 1-9; FAUVEL, 1923*c*: 198-199, fig. 74*e-i*; HARTMAN, 1960: 86-87, pl. 6; PETTIBONE, 1963*a*: 184-185, fig. 46; DAY, 1967: 350-351, fig. 15.3*e-h*; USCHAKOV, 1972: 228-229, pl. 34 figs. 4-9; KATZMANN, 1973*e*: 439, fig. 2; GATHOF, 1984*c*: 34.5, figs. 34.3-34.4; BLAKE, 1994*d*: 364, fig. 14.1; BLAKE, 1997*c*: 352, fig. 14.1; REDONDO & SAN MARTIN, 1997: 228, fig. 1*A-G*; IMAJIMA, 2003: 180-182, fig. 90; SAN MARTIN, 2004*a*: 420-422, fig. 153; RIZZO & AMARAL, 2007: 2-3, figs. 1-2.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 61 (A.2991)**, off Cape Sardão, 290 m, muddy sand: 1 posterior fragment with 29 chaetigers, in poor condition. **[?] St. 186**, 159 m, rest of data unknown: 1 complete specimen with 53 chaetigers, one anal cirrus lost. **St. 196 (A.3018)**, off Vila Nova de Milfontes, 147 m, muddy sand: 1 complete specimen with 62 chaetigers; pygidium like other specimen; with eggs. **SEPLAT 7 (2nd part) — St. 10 (A.4100)**, off Lagoa de Santo André, 118 m, sand: 1 incomplete specimen, with 54 chaetigers. **St. 35 (A.4072)**, north Sines, 135 m, gravelly sand: 1 complete specimen, with 57 chaetigers; pygidium only with 1 anal cirrus left, short, located in the middle and inserted at the ventralmost region. **St. 106 (A.4001)**, near Sines, 110 m, gravelly sand: 1 complete specimen with about 64 chaetigers; proboscis everted, without visible papillae; pygidium with 2 anal cirri, lateral and very long, and one central papilla, short, and inserted more ventrally. **St. 160 (A.3950)**, near Sines, 90 m, gravelly sand: 1 incomplete specimen, in poor condition, with 43 chaetigers. **St. 161 (A.3948)**, near Sines, 110 m, gravelly sand: 1 incomplete specimen, in poor condition, with 21 chaetigers. **St. 214 (A.3898)**, off Sines, 115 m, muddy sand: 2 specimens; (1) complete, with 54 chaetigers; pygidium with 2 anal cirri, long and lateral, and 1 short central papilla; (2) incomplete, with 44 chaetigers. **St. 242 (A.3884)**, off Vila Nova de Milfontes, 113 m, sandy mud: 3 incomplete specimens, with 30, 48, and 49 chaetigers. **FAUNA 1 — St. 5*A***, Alborán Sea, off Veléz-Málaga, 67-68 m, mud: 1 incomplete specimen, with 40 chaetigers. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 2 incomplete specimens, with 38 and 22 chaetigers, the second one with eggs. **St. 44*A***, Gulf of Cádiz, off Cádiz, 25-26 m, mud: 5 incomplete specimens; (1) 43 chaetigers, some parapodia with dark granules; (2) about 33 chaetigers, prostomium with two lateral projections, maybe nuchal organs; (3) 28 chaetigers; (4) about 26

chaetigers; (5) about 41 chaetigers, with eggs. **St. 66*A***, Gulf of Cádiz, off Cádiz, 25-28 m, muddy sand: 3 specimens, plus one middle fragment with 15 chaetigers; (1) complete, with 70 chaetigers; pygidium with 2 long cirri and one short median cirrus; posterior parapodia with dark spots; one of the posterior sides of the prostomium presents a small projection (maybe a nuchal organ), while in the same place on the other side there is a small depression; (2) incomplete, with 33 chaetigers; parapodia with darks spots; (3) incomplete, with 25 chaetigers. **St. 69*A***, Gulf of Cádiz, off mouth of Guadiana, 110-112 m, mud: 1 incomplete specimen, with 40 chaetigers.

**DISTRIBUTION:** Mediterranean Sea (Monaco; Spanish Mediterranean coast), on bottoms of sand, gravel, and broken shells, on muddy fine sand and sandy mud, between 14-52 meters; Adriatic Sea, 50-138 meters, in soft bottoms; Aegean Sea; Portugal, 90-160 meters, in sandy bottoms; Atlantic off Morocco; Atlantic off Massachusetts, at 106-122.5 meters; Gulf of Mexico, 98-189 meters, on silty bottoms; Brazil, 156-400 meters; off California, at 50-2010 meters, on mud; South Africa; Yellow Sea; Japan. On detritic bottoms, fine sand, muddy sand, and mud. Between 7-5498 meters.

**REMARKS:** The Mediterranean specimens were described as being blind but, as referred in REDONDO & SAN MARTÍN (1997), SAN MARTÍN (2004*a*), and also as observed in the present studied specimens, the species presents a small pair of eyes, which can be easily overlooked or fade due to the action of fixative and preservative fluids. Besides, the complete specimens studied had three type of pygidial projections: two lateral and long anal cirri, and one short median papilla, inserted between the two anal cirri, in a ventral position. This papilla is similar to the one described for *P. paradoxa japonica* by KITAMORI (1965), and is pictured by REDONDO & SAN MARTÍN (1997) and SAN MARTÍN (2004*a*).

HARTMAN (1960) emphasizes the curious distribution of the species, stating that it remained unexplained. It included (and still includes) a discontinuous geographical distribution, and also a wide bathymetrical range, like in many other cases of species with broad distributions. As well as in these cases, it is possible that the referred distribution includes more than one similar taxon recorded under the same name, as the ons previously described and later synonymised with *Paralacydonia paradoxa*.

# *FAMILY **PARAONIDAE** Cerruti 1909

**AS:** *PARAONIDAE* CERRUTI, 1909*b*: 503.
**TYPE GENUS:** *Paraonis* Grube 1873.
**SYNONYMS:** *LEVINSÉNIENS* Mesnil & Caullery 1898.
**REMARKS:** The family Paraonidae contains at present 8 genera (one of which divided into 4 subgenera), and about 110 species and 7 described subspecies. However, this number can fluctuate according to the authors and the accepted synonymies. Besides, the number of existing species must be much bigger than the described so far, as revealed, for instance, by the new paraonid findings in deep waters. On the other hand, many of the species actually recorded with a worldwide distribution hide quite probably complexes of species.

The most important recent review of the Paraonidae is the one published by STRELZOV (1973), translated to English in 1979. Important overviews of the group were also done by GASTON (1984), and especially BLAKE (1996*b*). The bibliography on paraonids include numerous papers, the references of which can be found in HARTMAN (1957), STRELZOV (1973), and BLAKE (1996*b*). Other important recent taxonomic papers, many of which with descriptions of new taxa or synoptic tables of species, include HARTLEY (1981, 1984), CASTELLI (1985, 1988), MACKIE (1991*b*), MCLELLAND & GASTON (1994), GASTON & MCLELLAND (1996), GILLET (1999*a*), LOVELL (2002), AGUADO & LÓPEZ (2003), MONTIEL & HILBIG (2004), LÉON-GONZÁLEZ, HERNÁNDEZ GUEVARA & RODRÍGUEZ-VALENCIA (2006), GIERE, EBBE & ERSÉUS (2008), AGUIRREZABALAGA & GIL (2009), and SARDÁ *et al.* (2009). Iberian paraonids are discussed in CAMPOY (1981), GIL & SARDÁ (1999) and AGUIRREZABALAGA & GIL (2008).

Six genera are known to occur in the European and nearby waters, including 52 species and two subspecies. Among the studied material were identified 4 genera, with 13 species and one subspecies, while the identification of another species was done only temptatively.

**KEY TO GENERA:**
(adapted from: CASTELLI, 1988; BLAKE, 1996*b*)

**1a.** Middle and posterior notopodia with acicular spines or lyrate chaetae.....**2**
**1b.** Notopodia without acicular spines or lyrate chaetae; modified spines, if present, in neuropodia, not notopodia.....**3**

**2a (1a).** Median antennae present.....***Cirrophorus****
**2b (1a).** Median antennae absent.....***Paradoneis****

**3a (1b).** Median antennae present; branchiae normally from chaetiger 4 (from chaetiger 2-3 in *A. simonae*; from chaetiger 5 in *A. mediterranea*).....***Aricidea****
**3b (1b).** Median antennae lacking; branchiae from chaetigers 4-9 or missing.....**4**

**4a (3b).** Middle and posterior neuropodia with modified chaetae.....**5**
**4b (3b).** Middle and posterior neuropodia without modified chaetae.....***Paraonides***

**5a (4a).** Prostomium without ciliary bands; nuchal organs along posterior prostomial margin, distinct from peristomial; modified neuropodial chaetae as curved modified spines, sometimes bidentate.....***Levinsenia****
**5b (4a).** Prostomium with ciliated bands; nuchal organs along posterior peristomial margin, indistinct from prostomium; modified neuropodial chaetae of different forms.....***Paraonis***

## *GENUS ***Aricidea*** Webster 1879

*Aricidea* WEBSTER, 1879*a*: 255.
**TYPE SPECIES:** *Aricidea fragilis* Webster 1879.
**SYNONYMS:** *Aedicira* Hartman 1957; *Allia* Strelzov 1973 [not Walker 1867 (Lepidoptera); not Schouteden 1907 (Hemiptera)]; *Acesta* Strelzov 1973 [not H. & A. Adams 1858 (Mollusca)]; *Acmira* Hartley 1981.

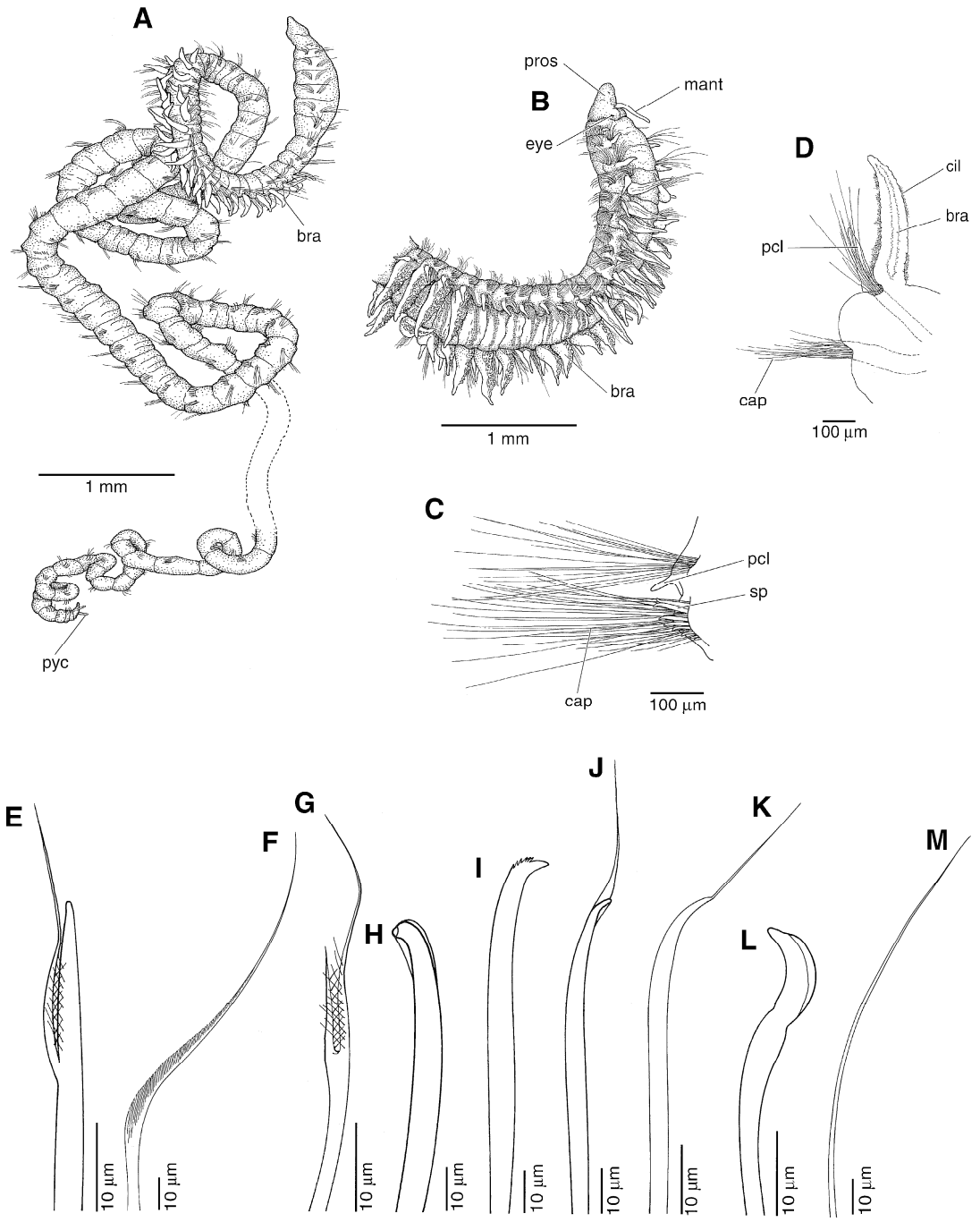


**Figure legend:** Family Paraonidae. **A**, *Levinsenia* specimen, entire animal; some middle segments are not shown. **B**, anterior end of *Aricidea* specimen, ventro-lateral view. **C**, **D**, parapodia of *Aricidea (Acmira)* specimen: **C**, from chaetiger 12, anterior view; **D**, from posterior chaetiger, anterior view. **E**-**M**, chaetae: **E**, *Cirrophorus* specimen, notopodial bayonet chaeta from anterior postbranchial chaetiger; **F**, *Aricidea (Allia)* specimen, neuropodial capillary from chaetiger 6; **G**, *Cirrophorus* specimen, notopodial lyrate chaeta from posterior chaetiger; **H**, *Aricidea* specimen, posterior neuropodial hook; **I**, *Aricidea (Acmira)* specimen, neuropodial spine from posterior chaetiger; **J**, *Aricidea* specimen, neuropodial spine from posterior chaetiger; **K**, *Aricidea (Allia)* specimen, modified neurochaeta from posterior chaetiger; **L**, *Levinsenia* specimen, neuropodial hook from posterior chaetiger; **M**, *Aricidea (Allia)* specimen, capillary from posterior chaetiger. **bra**, branchia; **cap**, capillary chaetae; **cil**, cilia; **eye**, eye; **mant**, median antenna; **pcl**, postchaetal lobe; **pros**, prostomium; **pyc**, pygidial cirrus; **sp**, spine. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

**REMARKS:** The genus *Aricidea* is presently divided into 4 subgenera, with base on the absence (*Aedicira*) or presence of modified chaetae, and on its type (*Acmira*, *Allia*, *Aricidea*). The status of the subgenus *Aedicira* is not clear, and the only species known to be present on European waters that is normally assigned to it is here considered as belonging to the subgenus *Allia* (see *REMARKS* under *Aricidea mediterranea*). On the other hand, the subgeneric name *Allia* is preoccupied in Lepidoptera and Hemiptera, and a new name will have to be coined to designate this subgenus (FLORENCIO AGUIRREZABALAGA, personal communication, December 2010). For the moment, the name *Allia* Strelzov 1973 is maintained here.

No phylogenetic study has ever been made on the genus *Aricidea*, but it is possible that the present division in four subgenera will not be supported by such study, revealing its artificiality. For this reason, and as in similar cases, the position supported here is the one of not creating new names unless strictly necessary, to avoid increasing the level of taxonomic noise. Only if after such phylogenetic study there is evidence of the existence of an unnamed clade including the type species of the subgenera *Allia*, *Aricidea albatrossae* Pettibone 1957, would such new name be necessary. If not, *Allia* Strelzov 1973 will become a junior synonym of an already existing name, and for this reason no new name will be necessary.

The subgenus to which each species is considered to belong appears in the following key. In the species list, the species are listed following an alphabetic order, instead of a subgeneric order.

**KEY TO SUBGENERA AND SPECIES:**

**1a.** Branchial region with supplementary circular dorsal lobes, besides the cirriform postchaetal lobes.....***Aricidea trilobata***
**1b.** Branchial region without supplementary circular dorsal lobes.....**2**

**2a (1b).** Modified chaetae either pseudocompound, or curved with a subterminal spine on concave side of shaft.....**SUBGENUS *Aricidea (Aricidea)*.....4**
**2b (1b).** Modified chaetae otherwise.....**3**

**3a (2b).** Modified chaetae resembling stout capillary chaetae abruptly tapering to an elongate thin terminal arista.....**SUBGENUS *Aricidea (Allia)*.....8**
**3b (2b).** Modified chaetae as stout hooks, with or without an accessory distal spine, arista, or pubescence.....**SUBGENUS *Aricidea (Acmira)*.....27**

**4a (2a).** Modified neurochaetae pseudoarticulate or geniculate, without subterminal spines and with tip bearing fine bristles and a long, tapering appendage; other modified neurochaetae with hooked tips, with or without long, thin mucron emerging from tip.....**5**
**4b (2a).** Modified neurochaetae strongly curved with subterminal spines on concave side of shaft.....**6**

**5a (4a).** Antenna clavate, with bottle-shaped terminal papilla; 10-13 pairs of branchiae, with blunt tips; short postchaetal neuropodial lobes present to about chaetiger 10-14.....***A (Aricidea) pseudoarticulata***
**5b (4a).** Coarse cirriform antenna; 25-60 pairs of branchiae, with pointed tips; well developed postchaetal neuropodial lobes, disappearing gradually in the postbranchial segments.....***A. (Aricidea) fragilis***

**6a (4b).** Modified neurochaetae multidentate, with 1 to 3 accessory teeth; other modified neurochaetae pseudocompound; specimens generally with a reddish rusty coloration.....***A. (Aricidea) capensis bansei****
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**7a (6b).** Prostomial antenna multiarticulate, reaching the third chaetiger.....***A. (Aricidea) wassi****
**7b (6b).** Prostomial antenna with a single articulation, not reaching the second chaetiger.....***A. (Aricidea) minuta***

**8a (3a).** Modified neurochaetae tapering abruptly, with terminal arista on the convex side of shaft.....**9**
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**10a (8b).** Branchiae absent.....***A. (Allia) abyssalis***
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**12b (11a).** Antennae short, club-shaped; notopodial lobes of prebranchial chaetigers reduced in chaetigers 1-2, long and cirriform from chaetiger 3; branchiae distally blunt.....***A. (Allia) sardai***

**13a (11b).** Besides the postchaetal lobes, supplementary lobes are present in the branchial region, being dorsal, laterodorsal, interramal or prechaetal.....**14**
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**18b (13b).** Neuropodial postchaetal lobes absent.....***A. (Allia) longisetosa***

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**24b (23a).** Antenna short, wide, ovoid, distally digitiform, seldom reaching posterior margin of prostomium; first notopodial postchaetal lobes short, ovoid, becoming cirriform and more than two times longer from chaetiger 2; up to 22 pairs of branchiae; branchiae distally pointed, with long filiform tips, but not tapering abruptly.....***A. (Allia) mirunekoa***

**25a (23b).** Small, tuberculate postchaetal dorsal lobes on the first two prebranchial chaetigers (slightly longer on chaetiger 2); antennae basally enlarged, with a digitate tip; neuropodial lobes tuberculate, ending at chaetiger 13; anterior branchiae with pointed tips.....***A. (Allia) mariannae***
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**31a (27b).** Interramal papillae present in the prebranchial and anterior branchial region; modified neurochaetae with a fringed distal hook and fine arista arising from the subterminal region of the hook; antenna short, of uniform width along its length, round terminally.....***A. (Acmira) laubieri***
**31b (27b).** Interramal papillae absent.....**32**

**32a (31b).** Modified neurochaetae bearing a basally enlarged subterminal arista, as a continuation of the convex side of shaft; subapical pubescence or hood sometimes apparent; antenna tapering from thickened base, sometimes with telescoping notches.....***A. (Acmira) lopezi***
**32b (31b).** Modified neurochaetae without an arista as a continuation from the convex side of shaft.....**33**

**33a (32b).** Modified neurochaetae with a distal hook, bearing long terminal and subterminal pubescence; a thin arista arising from the subterminal region of the hook (may be lost); antennae long, slender and cirriform.....***A. (Acmira) assimilis****

**33b (32b).** Modified neurochaetae with a distal hook bearing a terminal arista, arising from the tip (may be difficult to see or lost); distal pubescence or hood weakly developed.....**34**

**34a (33b).** Antenna short, thickened in the middle and tapering to pointed tip; notopodial postbranchial papillae absent.....***A. (Acmira) catherinae****
**34b (33b).** Antenna short, clavate, with two blunt, unequal lobes distally, subterminal lobe usually smaller, more slender; single small orbicular papilla posterior to and hidden by branchia on branchial segments (not to be confused with postchaetal notopodial lobe; present, at least, in the population from Florida; may be absent in the European population; see *REMARKS* section under this species).....***A. (Acmira) philbinae***

## ***Aricidea (Allia) aberrans*** Laubier & Ramos 1974

*Aricidea aberrans* LAUBIER & RAMOS, 1974*a*: 1102-1105, figs. 2-3.
**TYPE LOCALITY:** Off Algeria (Mediterranean Sea), 37º00.6'N, 5º17'E, at 2090 meters.
**SELECTED REFERENCES:** *Aricidea (Allia) aberrans* — AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3.
**DISTRIBUTION:** Off Algeria (Mediterranean Sea), 37º00.6' to 37º03.6'N, 3º34.9' to 5º17'E, between 2090-2292 meters.

## ***Aricidea (Allia) abyssalis*** Laubier & Ramos 1974

*Aricidea abyssalis* LAUBIER & RAMOS, 1974*a*: 1106-1108, fig. 4.
**TYPE LOCALITY:** Abyssal plain of the Western Mediterranean Sea, 39º06.2'N, 6º26.1'E, at 2857 meters.
**SELECTED REFERENCES:** *Aricidea (Allia) abyssalis* — AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3.
**DISTRIBUTION:** Abyssal plain of the Western Mediterranean Sea, 37º50.7' to 42º15'N, and 4º8' to 6º26.1'E, between 2090-2857 meters.

## ***Aricidea (Allia) albatrossae*** Pettibone 1957

*Arcidea (Aricidea) albatrossae* PETTIBONE, 1957: 354-356, fig. 1.
**TYPE LOCALITY:** Northwestern Atlantic, 37º12'N, 74º20'W, at 788 fathoms (1317.4 meters), on blue mud.
**SELECTED REFERENCES:** *Arcidea (Aricidea) albatrossae* — PETTIBONE, 1963*a*: 305, fig. 81. *Aricidea (Allia) albatrossae* — STRELZOV, 1973: 68-71, figs. 10.1, 26; HARTLEY, 1981: 136, fig. 1; GASTON & MCLELLAND, 1996: table 1; HARTMANN-SCHRÖDER, 1996: 381; AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3. *Aedicira albatrossae* — DAY, 1973: 93-94. *Aricidea suecica* [not Eliason 1920] — ELIASON, 1962*b*: 261 [in part; in part = *Aricidea (Acmira) catherinae* Laubier 1967]. *Aricidea fragilis* [not Webster 1879] — MCINTOSH, 1885*a*: 354-355, pl. 43 figs. 4-5, pl. 22*A* fig. 18.
**DISTRIBUTION:** Northwestern Atlantic (1317-2500 meters), in mud and ooze; North Carolina (200 meters); Molucca Islands (534 meters), in mud; North Sea (143 meters), on sand; Skagerrak.

## ***Aricidea (Allia) antennata*** Annenkova 1934

*Aricidea antennata* ANNENKOVA, 1934*a*: 658, figs. 1*C*, 2, 3*B*.
**TYPE LOCALITY:** Sea of Okhotsk.
**SELECTED REFERENCES:** *Aedicira antennata* — HARTMAN, 1969: 51-52, figs. 1-4. *Aricidea (Allia) antennata* — BLAKE, 1996*b*: 48-50, fig. 2.10*A-C*; AGUIRREZABALAGA & GIL, 2009: 651, figs. 14, 19*A-B*, table 4. *Aricidea longicornuta* — BERKELEY AND BERKELEY, 1950: 53-55, fig. 2; BERKELEY & BERKELEY, 1952: 38, figs. 68-69. *Aricidea uschakovi* [not Zachs 1925] — USCHAKOV, 1955: 287, fig. 103*D-I*; IMAJIMA, 1973: 256-258, fig. 1*A-K*. *Aricidea* (*Allia*) *quadrilobata* [not Webster & Benedict 1887] — STRELZOV, 1973: 88-91, figs. 13, 37*A-D* [in part].
**DISTRIBUTION:** Eastern Pacific, from Western Canada to Southern California; Western Pacific; off Japan; Sea of Okhotsk; Capbreton Canyon, Bay of Biscay. Between 100-2045 meters.
**REMARKS:** See the *REMARKS* section under *Aricidea (Allia) quadrilobata*.

## ****Aricidea (Acmira) assimilis*** Tebble 1959

*Aricidea assimilis* TEBBLE, 1959: 25-27, fig. 4.
**TYPE LOCALITY:** Coast of Israel, off Gaza (Mediterranean Sea), at 54 meters.
**SYNONYM:** *Aricidea mutabilis* Laubier & Ramos 1974.

**SELECTED REFERENCES:** *Aricidea assimilis* — RULLIER, 1963*b*: 243; LAUBIER & RAMOS, 1974*a*: 1109; CAMPOY, 1981: 20; CAMPOY, 1982: 652-653. *Aricidea (Acesta) assimilis* — STRELZOV, 1973: 93-95, figs. 16.7, 39; KATZMANN & LAUBIER, 1975: 575. *Aricidea (Acmira) assimilis* — CASTELLI, 1985: 276-277; CASTELLI, 1988: 324-325 [in part; in part = *Aricidea lopezi* Berkeley & Berkeley 1956]. *Aricidea mutabilis* — LAUBIER & RAMOS, 1974*a*: 1117-1121, fig. 7. *Aricidea fragilis* [not Webster 1879] — FAUVEL, 1936*c*: 65-66 [in part; in part = *Aricidea lopezi* Berkeley & Berkeley 1956]. *Aricidea* sp. — KISSELEVA, 1971: 64, fig. 22*a*-*b*. [?] *Aricidea* sp. — LAUBIER, 1966*d*: 14-15, fig. 1*F*.
**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 22 (A.4082)**, north Sines, 122 m, sand: 1 incomplete specimen with about 74 chaetigers; antenna reaching chaetiger 4; mouth and notocirri as described; neuropodial potschaetal lobes to chaetiger 15; modified chaetae as in STRELZOV (1973) and LAUBIER & RAMOS (1974*a*), from chaetiger 28, with subterminal pubescence and terminal hairs. **FAUNA 1 — St. 14*A***, 2 specimens; (1) incomplete with about 27 chaetigers; antenna reaching the 4th chaetiger; 13 pairs of branchiae; specimen coiled, which makes difficult to see the ventral lobes; modified chaetae from chaetiger 19; notocirri as described, partially oculted by the capillary chaetae; proboscis partially everted; (2) incomplete with 26 chaetigers; antenna missing, but scar visible; notocirri as described; about 15 neuropodial lobes; mouth as described in STRELZOV (1973); only one branchia remaining, at chaetiger 8, but scars visible from chaetiger 4 to about 18; modified chaetae from chaetiger 26; with the methyl blue it is possible to see 3 longitudinal ventral stripes without coloration, in the anterior region, being one central and two lateral. **St. 15*A***, Alborán Sea, off Adra, 274-306 m, mud: 1 incomplete specimen with about 30 chaetigers, plus one middle fragment with 7 chaetigers with modified chaetae; antenna missing; mouth as described in STRELZOV (1973); about 14 postchaetal neuropodial lobes; notopodial cirri as described; modified chaetae from chaetiger 27; almost all branchiae missing, the ones remaining as described; from chaetiger 4 (where still exists the pair) scars visible to chaetiger 17, at least. **St. 69*A***, Gulf of Cádiz, off mouth of Guadiana, 110-112 m, mud: 1 incomplete specimen with about 31 chaetigers, plus one middle fragment with 8 chaetigers; antenna reaching chaetiger 4; specimen coiled, making very difficult to see the mouth and to count the neuropodial lobes; branchiae from chaetiger 4 to at least chaetiger 13 (many missing), large, foliaceous, with tapering tips; notocirri as described; modified chaetae from chaetiger 24.
**DISTRIBUTION:** Mediterranean Sea (3-178 meters); Adriatic Sea (40-132 meters); Aegean Sea; Israel (18-180 meters); [?] Lebanon (120-150 meters); Morocco (105 meters); Molucca Islands (534 meters); Western Pacific (1155 meters); Scotia Sea (290 meters). On muddy and sandy bottoms.
**REMARKS:** Long unpaired antenna, reaching chaetiger 4 in specimen from SEPLAT (chaetigers 6-13 in other described specimens). Branchiae from chaetiger 4, numbering at least 14 pairs. Spines starting at about chaetiger 24-28, with a terminal filament that originates from the convex side of the tip, surrounded by terminal hairs. About 15 pairs of neuropodial postchaetal lobes in the anterior region, and notopodial lobes, from chaetiger 3, with a strongly developed asymmetrical basal enlargement in the branchial region.

LAUBIER (1966*d*) reported from the coasts of Lebanon a single specimen of an unidentified *Aricidea* sp. with modified neurochaetae with distal hooks fringed with fine hairs and a short antenna. Later, LAUBIER & RAMOS (1974*a*) included this specimen in the description of *Aricidea mutabilis*, a species with an antenna of variable length, according to the authors. STRELZOV (1973) redescribed *Aricidea assimilis* Tebble 1959, a species first found in the Mediterranean coast of Israel, which presents a long antenna. The description of the modified neurochaetae by STRELZOV (1973), absent from the original description by TEBBLE (1959), enabled KATZMANN & LAUBIER (1975) to establish the synonymy of the form with long antenna of *A. mutabilis* with *A. assimilis*, which had already been suggested by LAUBIER & RAMOS (1974*a*). Probably, the form from Lebanon, with a short antenna, belongs to a different species.

HARTLEY (1981) described *Aricidea laubieri* from the North, Irish and Celtic Seas, a species with short antenna and modified neurochaetae similar to the described for the Lebanese specimen. Due to the poor condition of the only Mediterranean specimen, a comparison between both populations depends on the finding of more material in a better condition. I keep the *Aricidea* sp. sensu Laubier 1966 under *A. assimilis*, as it is also possible that the antenna was broken, according to the general poor condition of the only available specimen.

## ***Aricidea (Allia) bifurcata*** Aguirrezabalaga & Gil 2009

*Aricidea (Allia) bifurcata* AGUIRREZABALAGA & GIL, 2009: 653-654, fig. 16, table 4.

**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º50.32'N, 2º10.90'W, 495 meters, to 43º49.78'N, 2º11.12'W, 492 meters.
**DISTRIBUTION:** Known from the type locality.

## *Aricidea (Allia) bulbosa* Hartley 1984

*Aricidea (Allia) bulbosa* HARTLEY, 1984: 13-17, fig. 4.
**TYPE LOCALITY:** Ras Budran Oilfield, Gulf of Suez, 28º57'N, 33º10'E, 34 meters.
**SELECTED REFERENCES:** *Aricidea (Allia) bulbosa* — GASTON & MCLELLAND, 1996: table 1; AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3.
**DISTRIBUTION:** Known from the type locality (one single specimen).

## **Aricidea (Aricidea) capensis bansei* Laubier & Ramos 1974

*Aricidea capensis bansei* LAUBIER & RAMOS, 1974*a*: 1109-1112, fig. 5.
**TYPE LOCALITY:** Western Mediterranean Sea. In the original description it wasn't specified which is the type locality, but the subspecies was described with base on specimens from 3 localities: 1) Bandol Bay, near Marseille, 43º8'N, 5º46.5'E, on sand, at 5 meters; 2) Bay of Rosas, 42º11.4'N, 3º7'W, at 6 meters; 3) Bay of Rosas, 41º45.5'N, 3º7'E, at 30 meters.
**SELECTED REFERENCES:** *Aricidea capensis bansei* — CAMPOY, 1981: 16; CAMPOY, 1982: 648; HARTLEY, 1981: 146. *Aricidea (Aricidea) capensis bansei* — CASTELLI, 1985: 275-276; CASTELLI, 1988: 322. *Aricidea fauveli* [not Hartman 1957 = *Aricidea lopezi* Berkeley & Berkeley 1956] — BANSE, 1959*d*: 306, fig. 7.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Aricidea capensis bansei*; off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 186 (A.3925)**, south Sines, 27 m, muddy sand: 7 specimens; (1) complete specimen, number of chaetigers not counted, with 11 pairs of branchiae; in the ventral bundles, between the modified chaetae (which number about 5), appears one pseudocompound chaeta similar to the one represented by STRELZOV (1973: fig. 3*F*); (2) incomplete, with about 49 chaetigers; between the 4 typical modified chaetae appears one pseudocompound chaeta; 11 pairs of branchiae; (3) incomplete, with 11 pairs of branchiae, broken before the appearance of the modified chaetae; (4) complete, with about 82 chaetigers; 11 pairs of branchiae, being the 11th the smaller; modified chaetae from about chaetiger 30; pseudocompound chaetae also present; (5) complete, with 10 pairs of branchiae, and about 65 chaetigers; as in the specimens above, there are pigmented spots in the neuropodium; modified chaetae from chaetiger 27; pseudocompound chaetae present; (6) incomplete, with 11 pairs of branchiae; pseudocompound chaetae present; (7) complete specimen, very coiled; seems to have 10 pairs of branchiae; chaetae as in the above specimens. **St. 318 (A.3843)**, near Arrifana, 54 m, sand: 2 specimens; (1) incomplete, with 37 chaetigers, 10 pairs of branchiae, from chaetiger 4; modified chaetae from chaetiger 22; reddish coloration, specially on branchiae and chaetigers; (2) complete, with 74 chaetigers; 11 pairs of branchiae (from chaetiger 4); modified chaetae from chaetiger 30; coloration as in the anterior specimen.
**DISTRIBUTION:** Western Mediterranean Sea (5-40 meters); Adriatic Sea (3-5 meters); Aegean Sea; Portugal (27-54 meters); West coast of Ireland. On sandy bottoms.
**REMARKS:** Prostomium longer than larger, with a long articulated median antenna, reaching about chaetiger 3. Branchiae from chaetiger 4, numbering 9-11 pairs (10-11 in studied specimens). Notopodial postchaetal lobes from chaetiger 1, very small on chaetigers 1 and 2, longer from chaetiger 3, being longer than the notopodial chaetae in the post-branchial region. Neuropodial postchaetal lobes absent. Modified neurochaetae aciculate, with one to three accessory teeth and a long arista arising from the concave side of chaetal shaft. Up to 5 modified neurochaetae per bundle, from chaetigers 22-30. Together with the modified and capillary chaetae occurs one pseudocompound capillary chaeta per bundle. Reddish coloration.

## **Aricidea (Acmira) catherinae* Laubier 1967

*Aricidea catherinae* LAUBIER, 1967: 112-118, figs. 4, 5*A-D*.
**TYPE LOCALITY:** Troc Bay, Banyuls-sur-Mer (France), 35-40 meters, on mud.
**SYNONYM:** *Aricidea zelenzovi* Strelzov 1968.
**SELECTED REFERENCES:** *Aricidea catherinae* — LAUBIER & RAMOS, 1974*a*: 1112; CAMPOY, 1981: 17, fig. 3*a-b*; CAMPOY, 1982: 648, pl. 82 figs. *a-b*. *Aricidea (Acesta) catherinae* — STRELZOV, 1973: 91-93, figs. 15.1, 38. *Aricidea (Acmira) catherinae* — HARTLEY, 1981: 138; GASTON, 1984: 2.43-2.45, figs. 2.43-2.44; CASTELLI, 1985: 276; CASTELLI, 1988: 325; BLAKE, 1996*b*: 56-57, fig. 2.14; HARTMANN-

SCHRÖDER, 1996: 379. *Aricidea zelenzovi* — STRELZOV, 1968: 86-87, fig. 6. *Aricidea suecica* [not Eliason 1920] — ELIASON, 1962*b*: 261 [in part; in part = *Aricidea (Allia) albatrossae* Pettibone 1957]. *Aricides Jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — DUMITRESCO, 1960: 78. *Aricidea Jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — RULLIER, 1963*b*: 243. *Aricidea jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — PETTIBONE, 1963*a*: 305-307, fig. 80*a-e*; PETTIBONE, 1965: 134-135, figs. 6-8. *Aricidea lopezi* [not Berkeley & Berkeley 1956] — HARTMAN, 1963: 38.

**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Aricidea catherinae*; off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 259 (A.3867)**, off Cape Sardão, 173 m, sand: 1 incomplete specimen with 31 chaetigers; antenna long, with the proximal part more or less inflated, distal part thinner, reaching the beginning of the 3rd chaetiger; mouth as described; notopodial lobe of 3rd chaetiger longer than the 1st and 2nd ones; on branchial region they are strongly asymmetrical, with a basal enlargement, giving them almost an angular shape; neuropodial lobes to about chaetiger 13; branchiae from chaetiger 4 to, at least, chaetiger 14 (many missing), foliaceous, with tapering tips; notopodial lobes after branchial region very long and slender; it is a female with eggs; modified chaetae from chaetiger 30, without hair at the tips as in *A. assimilis*, but with one thin spine instead, many times missing. **St. 266 (A.3865)**, off Cape Sardão, 175 m, sand: 1 incomplete specimen with 51 chaetigers and 14 pairs of branchiae; antenna reaching chaetiger 3, with a conical shape; tips of branchiae very thin, cirriform; posterior branchiae longer and thinner, with the exception of the last one, which is smaller; modified chaetae from chaetiger 28; notopodial lobes like in *A. assimilis*, with long base, asymmetrical; about 8 neuropodial lobes; posterior chaetigers with pigmented brown-reddish spots. **St. 271 (A.3863)**, off Praia de Odeceixe, 232 m, muddy sand: 1 incomplete specimen with 35 chaetigers; about 11 neuropodial postchaetal lobes; notopodial postchaetal lobes of the branchial region with strong asymmetrical basal enlargement; about 15 pairs of branchiae, last pairs longer and thinner; antenna as described, reaching about chaetiger 2; modified chaetae from about chaetiger 27. **St. 305 (A.3848)**, NW Arrifana, 120 m, sand: 1 incomplete specimen with about 46 chaetigers; antenna to the posterior part of the second chaetiger; 13 pairs of branchiae, at least, from chaetiger 4; they become longer and slender, with the last pairs shorter again; at least 8 anterior neuropodial lobes; notopodial lobes on branchial region, as in *A. assimilis*; modified chaetae from about chaetiger 30.

**DISTRIBUTION:** Western Mediterranean Sea (5-300 meters); Adriatic Sea (54-66 meters); Aegean Sea; Portygal (120-232 meters); Gulf of Gascony (100 meters); Celtic Sea (85-117 meters); North Sea (45-143 meters); Skagerrak; Barents Sea (20-39 meters); Kuril Islands (85 meters); San Francisco to South California (49-1272 meters); Atlantic coast of North America (2-1929 meters); Gulf of Mexico (15-54 meters); Off Uruguay (142 meters). On sandy and muddy bottoms.

**REMARKS:** Prostomium triangular, with one median antenna, thickest in the middle and tapering to a pointed tip, extending posteriorly to chaetiger 3. Up to 25 pairs of tapering, foliaceous branchiae (13-14 in our specimens) from chaetiger 4, being thinner and larger in the posterior part of the branchial region, with last pair shorter. Notopodial postchaetal lobes tubercular in the first two chaetigers, becoming longer and cirriform from chaetiger 3, with a strong asymmetrical basal enlargement in the branchial region and filiform on postbranchial chaetigers. Neuropodial postchaetal lobes short and tubercular, from chaetiger 1 to about chaetiger 13. Modified neurochaetae from chaetiger 19-70, depending on size of worm (from chaetigers 28-30, in studied specimens). They are modified spines with curved tip, bearing a weakly expanded sheath, from which a terminal arista arises (may be lost).

## *Aricidea (Acmira) cerrutii* Laubier 1966

*Aricidea cerrutii* LAUBIER, 1966*a*: 257-258.

**TYPE LOCALITY:** Plage du Racou, Argelès-sur-Mer (Southern France, Mediterranean Sea), at 4-6 meters, on sand.

**SELECTED REFERENCES:** *Aricidea cerrutii* — GUILLE & LAUBIER, 1966: 269; LAUBIER, 1966*d*: 14; LAUBIER, 1967: 102-106, fig. 1; LAUBIER & RAMOS, 1974*a*: 1113; CAMPOY, 1981: 18-19, fig. 1*a-d*; CAMPOY, 1982: 648-650, pl. 81 figs. *a-d*; KIRKEGAARD, 1996: 24-25, fig. 7. *Aricidea cerruti* — DAY, 1973: 93, fig. 13*b*. *Aricidea (Acesta) cerrutii* — STRELZOV, 1973: 105-106, figs. 16.9, 45*D-I*. *Aricidea (Acmira) cerrutii* — HARTLEY, 1981: 139; GASTON, 1984: 2.36-2.39, figs. 2.33-2.34; CASTELLI, 1985: 277; CASTELLI, 1988: 326; HARTMANN-SCHRÖDER, 1996: 379, fig. 178. *Aricidea (Aricidea) jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see: STRELZOV, 1973: pp. 106, 159; BROWN, 1976: pp. 435-436)] — CERRUTI, 1909*b*: 469-491, text-fig. *K*, pl. 18 figs. 1-6, 9-18,

22-26, pl. 19 figs. 28-42. *Aricidea Jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see: STRELZOV, 1973: pp. 106, 159; BROWN, 1976: pp. 435-436)] — SOUTHERN, 1914: 93-94; MCINTOSH, 1923*a*: 473-474; FAUVEL, 1927*a*: 75, fig. 25*a-e*. *Aricidea jeffreysi* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — AUGENER, 1932*c*: 669. *Aricidea jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — FRIEDRICH, 1938: 137, fig. 90*g*; [?] AUGENER, 1939: 143; BELLAN, 1964*b*: 114; STORCH, 1967: 107; KIRKEGAARD, 1969: 75, fig. 40. *Aricidea (Aricidea) jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see: STRELZOV, 1973: pp. 106, 159; BROWN, 1976: pp. 435-436)] — LAUBIER & PARIS, 1962: 41. *Aricidea jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — HARTMANN-SCHRÖDER, 1971*a*: 285-287 [in part; in part = *Aricidea (Allia) suecica* Eliason 1920]. *Aricidea jeffreysii* sensu Cerruti 1909 — HARTMAN, 1957: 322, pl. 43 fig. 2; HARTMAN, 1959*a*: 371; [?] DAY, 1963*b*: 423; [?] DAY, 1967: 558-560, fig. 24.1*j-m*. *?Aricidea jeffreysii* sensu Fauvel — ELIASON, 1962*a*: 45-46; ELIASON, 1962*b*: 261. [?] *Paraonis* sp. — AUGENER, 1931: 306. [?] *Paraonis paucibranchiata* — CERRUTI, 1909*b*: 498-500, pl. 18 figs. 8, 27; FAUVEL, 1927*a*: 71-72, fig. 25*f-g*; RULLIER, 1963*b*: 243. *Paranoïs paucibranchiata* — BELLAN, 1963*b*: 52. Not *Aricides Jeffreysii* — DUMITRESCO, 1960: 78 [= *Aricidea (Allia) claudiae* Laubier 1967]. Not *Aricidea Jeffreysii* — RULLIER, 1963*b*: 243 [= *Aricidea (Allia) claudiae* Laubier 1967]. [?] Not *Aricidea jeffreysii* — RENAUD, 1956: 26, fig. 18*a-e*.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Aricidea cerruti*; previous records: Ria Formosa); PARDAL, CALDEIRA & MARQUES, 1992 (as *Aricidea cerruti*; previous records: Ria Formosa); RAVARA, 1997 (as *Aricidea cerrutii*; off Aveiro).

**DISTRIBUTION:** Ireland (3.5-40 meters); Celtic Sea (122 meters); North Sea (45-64 meters); Gulf of Gascony (30 meters); Mediterranean Sea (2-115 meters); Adriatic Sea (10-56 meters); Aegean Sea; Red Sea; Skagerrak, Kattegat (15-531 meters); Øresund (23-35 meters); North Carolina (20 meters); Gulf of Florida (littoral); Gulf of Mexico (19-45 meters); [?] South Africa (48 meters). On sand, shells and gravel.

## ****Aricidea (Acmira)* cf. *cerrutii pacifica*** Imajima 1973

*Aricidea cerrutii pacifica* IMAJIMA, 1973: 260-262, fig. 3.

**TYPE LOCALITY:** Sea of Enshu (Japan, Pacific Ocean), at 30 meters.

**REFERENCES FOR PORTUGAL:** [?] GIL & SARDÁ, 1999 (as *Aricidea (Acmira)* cf. *cerrutii pacifica*; southwestern continental shelf); [?] present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 210 (A.3902)**, off Porto Covo, 163 m, sand: 1 incomplete specimen, plus one middle fragment with 35 chaetigers.

**REMARKS:** The specimen is in poor condition and incomplete, with about 53 chaetigers. Prostomium as described by IMAJIMA (1973), being longer than wider, and including a terminal sensory organ. Nuchal organs as slits, directed anteroposteriorly. The antenna is missing, but the scar of its insertion is visible. All branchiae are missing, but scars are visible from chaetiger 4 to, at least, chaetiger 11. Notopodial postchaetal lobes absent from chaetiger 1, small in chaetiger 2 and longer from chaetiger 3. Neuropodial postchaetal lobes absent. Modified neuropodial chaetae from chaetiger 14; they are very similar to the chaetae of *A. cerrutii* Laubier 1967, but the hoods are covered with minute cilia on the convex side.

A definitive identification of this specimen is not possible, due to its poor condition. However, the shape of both the prostomium and neuropodial modified chaetae resemble those presented by *A. cerrutii pacifica* Imajima 1973, described from Japanese specimens. It is highly unlikely that the Japanese subspecies occurs in Portuguese waters. Probably, this specimen belongs to another species, still unknown from the Portuguese waters.

## ****Aricidea (Allia) claudiae*** Laubier 1967

*Aricidea claudiae* LAUBIER, 1967: 124-128, figs. 8-9.

**TYPE LOCALITY:** Western Mediterranean Sea. In the original description it wasn't specified which is the type locality, but the species was described with base on specimens from 2 localities: 1) Gulf of Troc, Banyuls-sur-Mer (France), 35-40 meters, on mud; 2) Balandrau plain, between Rech Lacaze-Duthiers and Rech du Cap, 20 miles off Banyuls-sur-Mer, at 200 meters, on mud with shells.

**SELECTED REFERENCES:** *Aricidea claudiae* — LAUBIER & RAMOS, 1974*a*: 1113; MARINOV, 1977: 166-167, pl. 23 fig. 1; CAMPOY, 1981: 19, fig. 3*c*; CAMPOY, 1982: 650-652, pl. 82 fig. *c*. *Aricidea (Allia) claudiae* — STRELZOV, 1973: 77-79, figs. 17.4, 31; CASTELLI, 1988: 323; GASTON & MCLELLAND, 1996: table 1; AGUIRREZABALAGA & GIL, 2009: 661-662, fig. 21*A*, table 4; SARDÁ *et al.*, 2009: table 3.

*Aricidea Jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — VINOGRADOV, 1930: 39; VINOGRADOV, 1931: 14-16, fig. 7; VINOGRADOV, 1933: 470; DUMITRESCO, 1957: 123; MARINOV, 1959: 294; MARINOV, 1963: 63; MARINOV, 1964: 82-105. *Aricides Jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — DUMITRESCO, 1960: 78.

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 266 (A.3865)**, off Cape Sardão, 175 m, sand: 5 specimens plus one posterior fragment; (1) incomplete, 14 pairs of foliaceous branchiae, some missing, dorsal papilla on 4th chaetiger well visible, proboscis everted; (2) incomplete, 10 pairs of foliaceous branchiae, some missing; (3) incomplete, very long and coiled, 12 pairs of foliaceous branchiae; (4) incomplete, 13 pairs of branchiae; (5) incomplete, with about 40 chaetigers, dorsal papilla well visible, 14 pairs of branchiae (some missing), antenna missing. **St. 271 (A.3863)**, off Praia de Odeceixe, 232 m, muddy sand: 2 incomplete specimens, one with about 50 chaetigers and at least 9 pairs of branchiae, the other with 26 chaetigers and 16 pairs of branchiae. **St. 283 (A.3851)**, off Arrifana, 245 m, muddy sand: 1 incomplete specimen with 29 chaetigers; dorsal papilla on chaetiger 4 clearly visible; 15 pairs of branchiae, some missing, anterior and posterior ones shorter than middle ones, foliaceous, ending in a thin tip; proboscis everted, without special papillae. **FAUNA 1 — St. 6*A***, Alborán Sea, off Nerja, 70-74 m, sand with mud: 1 incomplete specimen with 23 chaetigers, in poor condition; antenna and dorsal papilla clearly visible; 11 pairs of branchiae; plus 3 middle fragments with 7 (2), and 6 chaetigers. **St. 69*A***, Gulf of Cádiz, off mouth of Guadiana, 110-112 m, mud: 3 specimens; (1) incomplete with 44 chaetigers; antenna typical of the species; papilla on 4th chaetiger well visible; 14 pairs of branchiae, from chaetiger 4; modified neurochaetae as described; (2) incomplete with about 43 chaetigers; 15 pairs of branchiae; (3) incomplete, with 26 chaetigers; about 9 pairs of branchiae.

**DISTRIBUTION:** Gulf of Gascony (100-576 meters); Portugal (175-245 meters); Western Mediterranean Sea (20-200 meters); Adriatic Sea (54-66 meters); Aegean Sea; Black Sea (14-92 meters). On muddy bottoms.

**REMARKS:** Prostomium with one median antenna, basally enlarged, narrowing distally, extending posteriorly up to chaetiger 3. Eyes red (fade in alcohol). Ten to 15 pairs of branchiae, from chaetiger 4. Short dorsal outgrowth (normally referred as being a papilla), anteriorly directed, on chaetiger 4. Notopodial postchaetal lobes from chaetiger 1, short and tubercular on the first two chaetigers, long and cirriform on branchial chaetigers, shorter again on post-branchial chaetigers. Ventral postchaetal podial lobes short and tubercular from chaetiger 1, through 8-9 segments. Modified neurochaetae present in the posterior region, arranged in a vertical row and showing a thick stem continuing into a long and slender spine. Lower neurochaetae shorter than superior ones.

## *Aricidea (Aricidea) fragilis* Webster 1879

*Aricidea fragilis* WEBSTER, 1879*a*: 255-257, pl. 9 figs. 127-132.

**TYPE LOCALITY:** Chesapeake Bay, off eastern shore (Virginia, Atlantic coast of USA).

**SYNONYMS:** *Aricidea fragilis caeca* Wu 1962.

**SELECTED REFERENCES:** *Aricidea fragilis* — MESNIL & CAULLERY, 1898: 138, pl. 6 fig. 11; CERRUTI, 1909*b*: 464, fig. *B*; HARTMAN, 1944*d*: 315-316, pl. 27 figs. 4-5; HARTMAN, 1945: 30, pl. 6 fig. 3; HARTMAN, 1957: 317, pl. 43 fig. 3. *Aricidea (Aricidea) fragilis* — PETTIBONE, 1965: 129-131, figs. 1-3; STRELZOV, 1973: 57-59, fig. 21; GASTON, 1984: 2.15-2.16, figs. 2.11-2.12. *Aricidea fragilis fragilis* — LAUBIER & RAMOS, 1974*a*: 1116, fig. 6*E*. *Aricidea fragilis caeca* — WU, 1962: 426. [?] *Aricidea fragilis mediterranea* — LAUBIER & RAMOS, 1974*a*: 1113-1116, fig. 6*D* [not population from Marseille and fig. 6*A-C*, *F* = *Aricidea pseudoarticulata* Hobson 1972]. Not *Aricidea fragilis* — MCINTOSH, 1885*a*: 354-355, pl. 43 figs. 4-5, pl. 22*A* fig. 18 [= *Aricidea albatrossae* Pettibone 1957].

**DISTRIBUTION:** Atlantic coast of United States, from New England to Florida; Atlantic coast of Africa (Angola); Gulf of Mexico; South China Sea; Yellow Sea; Western Mediterranean Sea; Adriatic Sea; Aegean Sea. In medium to very fine sand and silty substrates. Intertidal to about 54 meters.

**REMARKS:** See the *REMARKS* section under *Aricidea pseudoarticulata*.

## *Aricidea (Acmira) laubieri* Hartley 1981

*Aricidea (Acmira) laubieri* HARTLEY, 1981: 139-143, fig. 2.

**TYPE LOCALITY:** Smith Bank, Moray Firth (North Sea), 58º8'55"N, 3º5'18"W, at 50 meters, on fine sand.

**SELECTED REFERENCES:** *Aricidea (Acmira) laubieri* — AGUIRREZABALAGA & GIL, 2008: 47-52, figs. 10, 11*C-D*. *Aricidea suecica* [not Eliason 1920] — SOUTHWARD, 1956: 269, fig. 2*D*. *Aricidea (Aricidea) suecica* [not Eliason 1920] — MCINTYRE, 1961: 358.
**REFERENCES FOR PORTUGAL:** AGUIRREZABALAGA & GIL, 2008 (off Aveiro).
**DISTRIBUTION:** Moray Firth, North Sea (50 meters); Celtic Sea (94-117 meters); Isle of Man, Irish Sea; Bay of Biscay (Basque coast); Portugal. On muddy and sandy bottoms.

## *Aricidea (Allia) longisetosa* Sardá, Gil, Taboada & Gili 2009

*Aricidea (Allia) longisetosa* SARDÁ *et al.*, 2009: 4-8, fig. 2, table 3.
**TYPE LOCALITY:** Western Mediterranean Sea, submarine canyon of Planier (off Marseille, South France, 43º06'N, 05º13'E), at 560 meters, collected by a sediment trap located 30 meters above bottom.
**DISTRIBUTION:** Western Mediterranean Sea: submarine canyons of Planier (off Marseille) and Foix (off Barcelona), between 560-990 meters, collected by sediment traps located 30 meters above bottom.

## *Aricidea (Acmira) lopezi* Berkeley & Berkeley 1956

*Aricidea lopezi* BERKELEY & BERKELEY, 1956: 542, figs. 1-3.
**TYPE LOCALITY:** Off Upright Head, Lopez Island, San Juan Archipelago, Washington (U.S.A.), 12 fathoms (20 meters), in mud.
**SYNONYMS:** *Aricida fauveli* Hartman 1957; [?] *Aricidea (Aedicira) punctata* Hartmann-Schröder 1962; [?] *Aricidea (Aedicira) brevicornis* Hartmann-Schröder 1962.
**SELECTED REFERENCES:** *Aricidea lopezi* — HARTMAN, 1957: 318; HARTMAN, 1960: 111; PETTIBONE, 1967: 10; HARTMAN, 1969: 59-60, 3 figs.. *Aricidea (Acesta) lopezi lopezi* — STRELZOV, 1973: 102-104, figs. 15.2, 44. *Aricidea (Acmira) lopezi* — GASTON, 1984: 2.31-2.34, figs. 2.29-2.30; BLAKE, 1996*b*: 57-59, fig. 2.15. *Aricidea fauveli* — HARTMAN, 1957: 318, pl. 43 fig. 1; KIRKEGAARD, 1959: 27-28 [in part; in part = *Aricidea fragilis* Webster 1879]; DAY, 1961: 482; [?] BELLAN, 1965: 9-10; DAY, 1967: 560, fig. 24.2.*a-d*; DAY, 1973: 93, fig. 13*a*; [?] LAUBIER & RAMOS, 1974*a*: 1113; AMOUREUX, 1979: 261, 264; [?] AMOUREUX, 1981: 208. *Aricidea fragilis* [not Webster 1879] — FAUVEL, 1936*c*: 65-66, figs. 6-7 [in part; in part = *Aricidea assimilis* Tebble 1959]; [?] RULLIER & AMOUREUX, 1969: 399. *Aricidea fragilis* sensu Fauvel 1936 [not Webster 1879] — [?] AMOUREUX, 1971*a*: 11. *Aricidea (Acmira) assimilis* [not Tebble 1959] — CASTELLI, 1988: 324-325 [in part]. *Aricidea suecica* [not Eliason 1920] — BUZHINSKAJA, 1967: 104-106, fig. 5*A-F*. *Aricidea* near *suecica* — HARTMAN, 1957: 319-320 [in part; in part = *Aricidea (Acmira) simplex* Day 1963; in part = *Aricidea (Aricidea) pseudoarticulata* Hobson 1972; in part = *Aricidea (Aricidea) wassi* Pettibone 1965; in part = *Aricidea (Acmira) rubra* Hartman 1963]. *Aricidea (Aricidea)* near *fauveli* — HARTMAN, 1963: 38; HARTMAN, 1969: 57-58, 1 fig.. [?] *Aricidea (Aedicira) punctata* — HARTMANN-SCHRÖDER, 1962*a*: 136-137, pl. 15 figs. 94, 96, pl. 20 fig. 95. [?] *Aricidea (Aedicira) brevicornis* — HARTMANN-SCHRÖDER, 1962*a*: 135-136, pl. 14 figs. 90-91, pl. 15 figs. 92-93. Not *Aricidea (Aricidea) lopezi* — HARTMAN, 1963: 38 [= *Aricidea catherinae* Laubier 1967].
**DISTRIBUTION:** [?] Mediterranean Sea (320-450 meters); Morocco (93-160 meters); tropical west Africa, from Guinea Conakry to South Africa (12-205 meters); North Carolina (20-160 meters); Gulf of Mexico (19-24 meters); Washington (20 meters); California (16-1272 meters); [?] Sea of Japan (6-17 meters); [?] Peru (9 meters). On muddy and sandy bottoms.
**REMARKS:** FAUVEL (1936*c*) described some specimens of *Aricidea* from Morocco, which he identified as *A. fragilis* Webster 1879. In his description, Fauvel refers the variability of the length of the antenna, which reached chaetigers 4, 5, or 6 in some specimens, while in others it barely touched the anterior border of chaetiger 2, as in his figure 6. HARTMAN (1957) noted that the modified chaetae described and depicted by Fauvel were different from those of *A. fragilis*, and gave a new name to Fauvel's Moroccan specimens, *Aricidea fauveli*. She stated, however, that *A. fauveli* approached *A. lopezi* Berkeley & Berkeley 1956, in some aspects, and if identical, the specific name *lopezi* would have priority.

STRELZOV (1973) revised some of Fauvel's specimens and found them to be a mixture of, at least, two different species: *A. lopezi* [specimens with short antenna and depicted in FAUVEL (1936*c*: figs. 6 and 7)], and *A. assimilis* (which is a species with a long antenna). STRELZOV (*op. cit.*) considered *A. fauveli* as a junior synonym of *A. lopezi*, probably supported by the fact that *A. fauveli* Hartman 1957 was created for the specimens depicted in Fauvel's figures, with a short antenna. However his synonymy wasn't based on type material of *A. lopezi*, but in specimens identified as *A. lopezi* collected at the Gulf of Poset (Sea of Japan). It is possible to perceive one difference, at least, on the shape and length of the antennae, between the type material and Strelzov's description. While BERKELEY & BERKELEY (1956*b*) and BLAKE (1996*b*) described antennae extending to chaetigers 3-6 and being narrow at base, broader above, and tapering to a long thread-like tip, STRELZOV (1973) referred a cirriform antenna that extends

posteriorly to segments I-II. The description given by GASTON (1984) approaches Strelzov's own description.

STRELZOV (*op. cit.*) also revised some specimens from West Africa identified by KIRKEGAARD (1959) as *A. fauveli*, and attributed them to *A. fragilis*. In his short description Kirkegaard refers himself to FAUVEL (1936*c*), and points the presence of *"hook-like chaetae with a terminal long tip"* on his specimens (KIRKEGAARD, 1959). So, it seems that Kirkegaard's material from West Africa is also a mixture of at least two different species, which can be referred, for the moment, to *A. fragilis* and *A. lopezi*.

LAUBIER & RAMOS (1974*a*) and KATZMANN & LAUBIER (1975) suggested that the Mediterranean specimens identified as *Aricidea fauveli* by BELLAN (1965; not 1964, as erroneously referred by those authors), belonged probably to *Aricidea assimilis*. This opinion was also followed by CASTELLI (1988). However, BELLAN (1965) clearly quotes FAUVEL (1936*c*), in order to describe the modified neuropodial chaetae of his specimens. As stated above STRELZOV (1973) established the synonymy of *A. fauveli* with *A. lopezi*, as already suggested by HARTMAN (1957). I maintain here Bellan's specimens as belonging probably to *Aricidea lopezi*, as well as the ones identified as *A. fragilis* by RULLIER & AMOUREUX (1969) and AMOUREUX (1971*a*), and the ones referred to *A. fauveli* by AMOUREUX (1979; 1981).

## ***Aricidea (Allia) maialenae*** Aguirrezabalaga & Gil, 2009

*Aricidea (Allia) maialenae* AGUIRREZABALAGA & GIL, 2009: 661, figs. 20, 23*A-B*, table 4

**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º38.36'N, 2º18.03'W, 1040 meters, to 43º38.08'N, 2º18.14'W, 1007 meters.

**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, between 492-1113 meters.

## ***Aricidea (Allia) mariannae*** Katzmann & Laubier 1975

*Aricidea (Allia) mariannae* KATZMANN & LAUBIER, 1975: 576-578, fig. 3.

**TYPE LOCALITY:** Adriatic Sea, 43º20'42"N, 15º27'00"E, at 203 meters.

**SYNONYMS:** [?] *Aedicira hartmani* Strelzov 1968.

**SELECTED REFERENCES:** *Aricidea (Allia) mariannae* — CASTELLI, 1988: 323; GASTON & MCLELLAND, 1996: table 1; AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3.

**DISTRIBUTION:** Adriatic Sea, between 111-300 meters.

**REMARKS:** According to HARTLEY (1984), *Aedicira hartmani* Strelzov 1968, from the Barents Sea, and *Aricidea (Allia) mariannae* could represent the same species, as the distinction between the two species seems to rest only on the number of segments forming the posterior lip of the mouth, which may vary with the size of the animal.

## ***Aricidea (Allia) mediterranea*** (Laubier & Ramos 1974)

*Aedicira mediterranea* LAUBIER & RAMOS, 1974*a*: 1134-1138, fig. 14.

**TYPE LOCALITY:** Abyssal plain of the Western Mediterranean Sea, 40º58.2'N, 5º3'E, at 2110 meters.

**SELECTED REFERENCES:** *Aedicira mediterranea* — KATZMANN & LAUBIER, 1975: 584; CASTELLI, 1988: 327. *Aricidea (Allia) mediterranea* — AGUIRREZABALAGA & GIL, 2009: table 4.

**DISTRIBUTION:** Abyssal plain of the Western Mediterranean Sea (2090-2857 meters); Adriatic Sea (275-540 meters); Aegean Sea. On muddy bottoms.

**REMARKS:** *Aricidea mediterranea* was first described by LAUBIER & RAMOS (1974*a*), as belonging to the genus *Aedicira*. *Aedicira* was created as a subgenus of *Aricidea* by HARTMAN (1957), with type species as *A. (A.) pacifica* Hartman 1944, in order to include species with modified neurochaetae absent, being all chaetae capillaries without fringe or basal enlargement. DAY (1963*b*) raised this subgenus to the generic level. Posterior authors have considered *Aedicira* either as a subgenus or as a genus. However, and as stated by HARTLEY (1984), the status of *Aedicira* is unclear. Complete specimens of the type species have never been described, and this raises the doubt about if modified chaetae can be present only in far posterior chaetigers, as in other species. *A. ramosa* Annenkova 1934, for instance, was initially placed in the subgenus *Aedicira*, but later findings showed that modified neurochaetae were present in posteriormost chaetigers. HARTLEY (1984) also pointed the problem of defining what constitutes a modified chaeta.

LAUBIER & RAMOS (1974*a*), described and depicted the posterior neurochaetae of *Aedicira mediterranea* as tapering from about half length, becoming gradualy thinner closer to the tip, and with a pubescence at the region where it gets slender. These chaetae could be considered as being modified, in the sense of the subgenus *Allia* Strelzov 1973. The species was considered to belong to the subgenus

*Allia* by AGUIRREZABALAGA & GIL (2009), and the same opinion is followed here. The species is close to *Aricidea (Allia) facilis* Strelzov 1973, as stated by KATZMANN & LAUBIER (1975). Both species present branchiae from chaetiger 5, and the modified neuropodial chaetae are similar. However, in *A. facilis* the neuropodial lobes are absent, and it never presents bifurcated antenna.

### ***Aricidea (Aricidea) minuta*** Southward 1956

*Aricidea minuta* SOUTHWARD, 1956: 269, fig. 2*A-C*.

**TYPE LOCALITY:** About 9½ miles (about 15 Km) south 65ºW of Point Erin, Isle of Man, Irish Sea, at 34 fathoms (60 meters), in muddy sand and shell gravel.

**SELECTED REFERENCES:** *Aricidea minuta* — ELIASON, 1962*a*: 47-48, fig. 5; GIBBS, 1965: 34-35, fig. 1*A-B*; LAUBIER, 1967: 118, fig. 5*E*; GIBBS, 1969*a*: 313, 319, 322, 323, figs. 3, 4*D*, tables 1, 3; HARRIS, 1971: 705-706, fig. 13; [?] LAUBIER & RAMOS, 1974*a*: 1116-1117; CAMPOY, 1981: 19; CAMPOY, 1982: 652; KIRKEGAARD, 1996: 25-26, fig. 8. *Aricidea (Aricidea) minuta* — HARTMANN-SCHRÖDER, 1971: 287-288, fig. 95*a*, *e*; STRELZOV, 1973: 59-61, figs. 17.1, 22*A-E*; HARTLEY, 1981: 135-136; HARTMANN-SCHRÖDER, 1996: 377-378, fig. 177. *Aricidea* sp. — THULIN, 1922: 2.

**DISTRIBUTION:** Irish Sea and North Sea (intertidal-69 meters), English Channel (littoral-16 meters), Kattegat (13-15 meters); Øresund (10-12 meters); western part of Baltic Sea (48 meters); [?] Western Mediterranean Sea (50 meters); [?] Adriatic Sea; [?] Aegean Sea. On sandy bottoms. Intertidal to 70 meters.

### ***Aricidea (Allia) mirunekoa*** Aguirrezabalaga & Gil 2009

*Aricidea (Allia) mirunekoa* AGUIRREZABALAGA & GIL, 2009: 655-661, figs. 18, 19*C-D*, table 4.

**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º35.87'N, 2º17.43'W, 505 meters, to 43º35.87'N, 2º17.73'W, 512 meters.

**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, 480-968 meters.

### ****Aricidea (Allia) monicae*** Laubier 1967

*Aricidea monicae* LAUBIER, 1967: 118-124, figs. 6-7.

**TYPE LOCALITY:** Lacaze-Duthiers Canyon, 15 miles NE off Banyuls-sur-Mer, at 200-300 meters, on mud.

**SELECTED REFERENCES:** *Aricidea (Allia) monicae* — STRELZOV, 1973: 72-74, figs. 16.6, 28; CASTELLI, 1988: 323; BLAKE, 1996*b*: 52-54, fig. 2.12; GASTON & MCLELLAND, 1996: table 1; AGUIRREZABALAGA & GIL, 2009: 654-655, fig. 17, table 4; SARDÁ *et al.*, 2009: table 3. *Aricidea monicae* — LAUBIER & RAMOS, 1974*a*: 1117; CAMPOY, 1981: 20; CAMPOY, 1982: 652.

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 271 (A.3863)**, off Praia de Odeceixe, 232 m, muddy sand: 1 incomplete specimen with 26 chaetigers; mouth as described; short digitiform processes occur anterior to ventral chaetae, from chaetiger 6 to chaetiger 15 (1-3, at least); 9 pairs of branchiae, from chaetiger 4; capillary chaetae long. **FAUNA 1 — St. 15*A***, Alborán Sea, off Adra, 274-306 m, mud: 1 incomplete specimen with 15 chaetigers; mouth exactly as described; 8 pairs of branchiae, from chaetiger 4; modified chaetae not observed; ventral digitiform processes observed, at first one per segment, and then 2.

**DISTRIBUTION:** Western Mediterranean Sea (200-2900 meters); Adriatic Sea (20-760 meters); Aegean Sea; California (590-1745 meters); Portugal (232 meters). In muddy bottoms.

**REMARKS:** Prostomium broad, round anteriorly. A single median filamentous antenna, not extending beyond posterior margin of prostomium. Branchiae from chaetiger 4, numbering 4-9 pairs (8-9 pairs in studied specimens). Notopodial postchaetal lobes short on prebranchial segments, long and slender in the branchial region, with a basal enlargement, shorter again on postbranchial segments, and very long at the end of the body. Neuropodial lobes absent. One to 6 short digitiform prechaetal lamellae on chaetigers 6-15. Modified chaetae from chaetiger 24-31, aciculate, being the upper ones longer and straight, and the lower ones shorter, thicker and curved, with a pubescent tip. Capillary chaetae normally very long.

This is the first record of the species in the Atlantic Ocean.

STRELZOV (1973) identified as *Aricidea (Allia) monicae* a specimen from California, previously identified by Hartman as *A. uschakowi* (probably in HARTMAN, 1955*a*, St. 2900-54). STRELZOV (*op. cit.*) suggested, with some doubts, that all the other specimens identified by HARTMAN (1957, 1963, 1967) as *A. uschakowi*, are to be referred to that species. However, HARTMAN (1957, 1960) described normally that specimens as having a very long antenna, a large 3-lobed prostomium, a very deeply bifurcated

notopodial lobe on the branchial segments, and neurochaetae of three kinds. These features seem to identify Hartman's Californian specimens with what is considered to be *Aricidea antennata* Annenkova 1934, a possibility which was also considered by STRELZOV (*op.cit.*), under *Aricidea quadrilobata* (see *REMARKS* section under *Aricidea (Allia) quadrilobata*). It is possible that some of Hartman's Californian specimens were erroneously identified by her, but by no means it is possible to consider all of them as belonging to *A. monicae*, as suggested by STRELZOV (1973), and followed by BLAKE (1996*b*).

### *Aricidea (Allia) nekanae* Aguirrezabalaga & Gil 2009

*Aricidea (Allia) nekanae* AGUIRREZABALAGA & GIL, 2009: 662-663, figs. 22, 23*C-D*, table 4.
**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º50.32'N, 2º10.90'W, 495 meters, to 43º49.78'N, 2º11.12'W, 492 meters.
**DISTRIBUTION:** Known from the type locality.

### *Aricidea (Acmira) philbinae* Brown 1976

*Aricidea philbinae* BROWN, 1976: 433-437, fig. 1, table in page 437.
**TYPE LOCALITY:** Indian River Lagoon, adjacent to Hutchinson Island, Fort Pierce, Florida (USA), 20º29.9'N, 80º15.7'W, on *Halodule wrightii* grassflats, at 1 meter depth, in muddy sand.
**SELECTED REFERENCES:** *Aricidea (Acmira) philbinae* — GASTON, 1984: 2.39-2.41, figs. 2.37-2.38.
**DISTRIBUTION:** Florida (USA): Indian River Lagoon, intertidal to 1 meter, on *Halodule wrightii* grassflats, in muddy sand; Tampa Bay; Lassing Park, St. Petersburg; off Florida (Gulf of Mexico), at shallow water, 19-30 meters, in fine to very fine sand, clayey sandy silt.
**REMARKS:** MACKIE & GARWOOD (1995) refer to *Aricidea* cf. *philbinae* Brown 1976 numerous specimens collected at the Southern Irish Sea. Whenever these specimens belong or not to the same species than the described from Florida has not been yet investigated. Besides, no description was given of these specimens, and I believe that the temptative identification as *A.* cf. *philbinae* was based probably on its most conspicuous characters, which are the modified neuropodial chaetae and its antenna.

The European specimens seem to be present at deeper depths (45-170 meters, in Europe, against intertidal to 30 meters, in Florida), which, together with the geographic distance between the two populations, gives support to the possibility that the Irish Sea population belongs to a different species.

### *Aricidea (Allia) pseudannae* Katzmann & Laubier 1975

*Aricidea (Allia) pseudannae* KATZMANN & LAUBIER, 1975: 578-581, fig. 4.
**TYPE LOCALITY:** Adriatic Sea, 42º27'36"N, 17º15'00"E, 525-550 meters.
**SELECTED REFERENCES:** *Aricidea (Allia) pseudannae* — CASTELLI, 1988: 324; GASTON & MCLELLAND, 1996: table 1; AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3.
**DISTRIBUTION:** Western Mediterranean Sea (2090-2857 meters); Adriatic Sea (66-645 meters).

### *Aricidea (Aricidea) pseudoarticulata* Hobson 1972

*Aricidea pseudoarticulata* HOBSON, 1972: 550-552, fig. 1*b-h*.
**TYPE LOCALITY:** Southern California, near Santa Catalina Island, 33º24'N, 118º21'W, at 80 meters.
**SYNONYMS:** *Aricidea fragilis mediterranea* Laubier & Ramos 1974.
**SELECTED REFERENCES:** *Aricidea (Aricidea) pseudoarticulata* — BLAKE, 1996*b*: 45-46, fig. 2.8; AGUIRREZABALAGA & GIL, 2008: 39-45, figs. 4-5, 6*C-D*, 7*A-B*. *Aricidea (Aricidea)* cf. *pseudoarticulata* — GASTON, 1984: 2.13-2.15, figs. 2.9-2.10. *Aricidea fragilis mediterranea* — LAUBIER & RAMOS, 1974*a*: 1113-1116, fig. 6*A-C*, *F* [not population from Bay of Rosas and fig. 6*C* = (?) *Aricidea fragilis* Webster 1879]; CAMPOY, 1981: 19; CAMPOY, 1982: 652. *Aricidea (Aricidea) fragilis mediterranea* — CASTELLI, 1988: 322-323. [?] *Aricidea jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — FAUVEL, 1940: 6. Not *Aricidea fragilis* — MCINTOSH, 1885*a*: 354-355, pl. 43 figs. 4-5, pl. 22*A* fig. 18 [= *Aricidea albatrossae* Pettibone 1957].
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Aricidea fragilis mediterranea*; off Aveiro); AGUIRREZABALAGA & GIL, 2008 (off Aveiro).
**DISTRIBUTION:** California (80-90 meters); Gulf of Mexico, off Florida (26-27 meters); Bay of Biscay, at the Basque coast (25-50 meters); Portugal; Western Mediterranean Sea, at Marseille (5-7 meters); Adriatic Sea. In sand.
**REMARKS:** LAUBIER & RAMOS (1974*a*) used for their description of the subspecies *Aricidea fragilis mediterranea* specimens from two different populations, which showed slight differences between them. Five specimens, including the holotype of the subspecies, were collected near Marseille, between 5-7

meters, on sand, while other two were found and the Bay of Rosas, between 15-23 meters (type of substrate not specified). Marseille's specimens are 0.3 mm wide, at most, the antenna is "bottle-shaped" (clavate with a papilla at the tip), present 10-12 pairs of branchiae with blunt tips, the neuropodial lobes are present to about chaetiger 10, and the modified chaetae show different forms: 1) pseudoarticulate, with a long and thin appendage, a pubescence on the convex portion of the "articulation" and a fold on the opposite side (being sometimes bent or broken at this point); 2) abruptly tapered to hairlike tip; 3) weakly hooked, with a tip like an arista. Bay of Rosas' specimens were described as being "bigger", with a coarse cirriform antenna, 21 pairs of branchiae with pointed tips, and modified chaetae of only one type, being pseudoarticulated with a long and thin appendage (no information is given about the neuropodial lobes).

The Mediterranean subspecies was created with base on the following characters of *A. fragilis* Webster 1879, according to LAUBIER & RAMOS (1974*a*): bigger number of pairs of branchiae, absence of eyes, bigger size of neuropodial postchaetal lobes, and different shape of posterior lip of mouth. These differences were stated by comparing specimens from the Mediterranean populations with others from Florida, used by PETTIBONE (1965) on her redescription of the species (which included also specimens from South and North Carolina, close to its type locality, in Virginia). However, eyes are reported to be present on *A. fragilis* (WEBSTER, 1879*a*; HARTMAN, 1944*d*; HARTMAN, 1957; PETTIBONE, 1965; GASTON, 1984) and to fade upon preservation, while the description given by PETTIBONE (1965) of the posterior lip of mouth approaches the one given by LAUBIER & RAMOS (*op. cit.*). *A. fragilis* is also reported to have from 25-30 (GASTON, 1984) to 50-60 pairs of branchiae (WEBSTER, 1879*a*; HARTMAN, 1944*d*; HARTMAN, 1957; PETTIBONE, 1965), being the number size dependent. This way, the most important feature in order to separate both subspecies seems to be the shorter neuropodial postchaetal lobes of the European specimens.

HOBSON (1972) published the description of *Aricidea pseudoarticulata*, a species from Florida close to *A. fragilis*, from which it can be separated by the shape of the median antennae (clavate with a papilla at the tip) and the shorter neuropodial lobes. These two characters, together with the presence of 11-13 pairs of branchiae, with blunt tips, in specimens 0.35 mm wide, and the presence of neuropodial lobes from chaetiger 1 through the end of the branchial region (chaetigers 12-14), approaches it to the specimens described from Marseille. Besides, *A. pseudoarticulata* shows the same 3 kinds of chaetae present in the specimens from Marseille [compare fig. 1*e-g* in HOBSON (1972), with fig. 6*F* in LAUBIER & RAMOS (1974*a*)], together with a forth kind, the weakly hooked type without arista.

About Bay of Rosas' specimens, they resemble *A. fragilis fragilis* in several aspects besides the already commented. The branchiae of *A. fragilis fragilis* are also depicted as having pointed tips, and all the modified chaetae are reported to be of one single kind, pseudoarticulated with a long and slender appendage. The neuropodial lobes in the American specimens are referred to be present to about chaetiger 40 (PETTIBONE, 1965) or to disappear gradually in the postbranchial segments (HARTMAN, 1957), in specimens with 50-60 pairs of branchiae. No reference was made directly to the neuropodial postchaetal lobes of the Bay of Rosas' population in the description, from which it can be assumed that they were close to the described for Marseille's population (short, present to about chaetiger 10, disappearing before the end of the branchial region). However, in the drawing of the antero-lateral region of the specimen from the Bay of Rosas given by LAUBIER & RAMOS (1974*a*), no neuropodial postchaetal lobes are pictured. From the above, it seems that the main difference between both populations could be the different length of the neuropodial postchaetal lobes.

STRELZOV (1973) identified as *Aricidea fragilis* two specimens collected at the Adriatic Sea, and deposited at the Muséum National d'Histoire Naturelle de Paris. These specimens were previously identified as *Aricidea jeffreysii* by Fauvel, probably in FAUVEL (1940), as pointed by CASTELLI (1988), who also referred them to the Mediterranean subspecies *A. fragilis mediterranea*. They have 34-39 pairs of branchiae for 1.0-1.2 mm wide, the branchiae are shown to have pointed tips (STRELZOV, 1973: fig. 21*C*), and the neuropodial lobes are reported to reach chaetigers 25-30. This would approach the Adriatic specimens to the ones from the Bay of Rosas.

In summary, from the bibliography it seems that in the Mediterranean and Adriatic waters two different forms normally designated as *Aricidea fragilis mediterranea* are present: one close to *A. pseudoarticulata*, and the other close to *A. fragilis* sensu stricto. *A. fragilis mediterranea* (described with base on the population from Marseille) was synonymized with *A. pseudoarticulata* in AGUIRREZABALAGA & GIL (2008), while the population from the Bay of Rosas is here considered as belonging to *Aricidea fragilis* sensu stricto. In spite of these identifications, a detailed analysis of specimens from all the populations involved, including studies of size dependent characters, will be necessary in order to elucidate definitely the problem.

## *Aricidea (Allia) quadrilobata* Webster & Benedict 1887

*Aricidea quadrilobata* WEBSTER & BENEDICT, 1887: 739-740, pl. 7 figs. 93-96.

**TYPE LOCALITY:** Eastport, Maine (U.S.A.), in mud and sandy mud, 2-31 fathoms (3.3-51.8 meters).

**SYNONYMS:** *Aricidea annae* Laubier 1967.

**SELECTED REFERENCES:** *Aricidea quadrilobata* — MESNIL & CAULLERY, 1898: pl. 6 fig. 12, table 1**;** PETTIBONE, 1963*a*: 303-305, fig. 80*h-i*; STRELZOV, 1968: 84-85, fig. 5; CAMPOY, 1981: 16, figs. 1*e*, 2; CAMPOY, 1982: 645, pl. 80, pl. 81 fig. *e*. *Aricidea (Allia) quadrilobata* — STRELZOV, 1973: 88-91, figs. 13, 37*E* [in part; in part, including figs. 13, 37*A-D* = *Aricidea (Allia) antennata* Annenkova 1934 (see BLAKE, 1996*b*: p. 50)]; KATZMANN & LAUBIER, 1975: 581; GASTON, 1984: 2.20-2.23, figs. 2.17-2.18; CASTELLI, 1988: 324; GASTON & MCLELLAND, 1996: table 1; AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3. *Aricidea annae* — LAUBIER, 1967: 106-112, figs. 2-3; [?] LAUBIER & RAMOS, 1974*a*: 1109.

**DISTRIBUTION:** Atlantic Coast of North America (3-54 meters); Gulf of Mexico (27-189 meters); Mid-Atlantic (445 meters); Western Mediterranean Sea (30-2900 meters); Adriatic Sea (54-760 meters); Aegean Sea; Gulf of Gascony (60-100 meters). On muddy and sandy bottoms.

**REMARKS:** *Aricidea quadrilobata* Webster & Benedict 1887 was first described from the Maine, in the Atlantic Coast of the U.S.A.. In spite of being referred on several works (MESNIL & CAULLERY, 1898; CERRUTI, 1909*b*; FAUVEL, 1936*c*), it was only recorded again by PETTIBONE (1963*a*), also from the Atlantic Coast of the U.S.A.. LAUBIER (1967) described a similar species from the Mediterranean Sea, *Aricidea annae*, which was later synonymised with *A. quadrilobata* by STRELZOV (1973). Posteriorly to this, *A. quadrilobata* was also found in Northern Spain, by CAMPOY (1981).

Besides the synonymy with *A. annae*, STRELZOV (1973) also synonymized *A. quadrilobata* with three different names normally applied to Pacific species: *A. antennata* Annenkova 1934, *A. uschakovi* not Zachs 1925 (which is considered to be a synonym of *A. suecica*), and *A. longicornuta* Berkeley & Berkeley 1950, increasing the range of distribution of the species both to the Atlantic and the Pacific.

BLAKE (1996*b*) noted that HARTMAN (1969), without any explanation, used the name *A. antennata*, which designates a form from the Sea of Okhotsk, for her Californian specimens, previously designated as *A. uschakovi*. In consequence, BLAKE (*op. cit.*) decided to verify the validity of some of Strelzov's synonymys. In doing this, he compared specimens from both the American Atlantic and Pacific coasts, and found them to represent different species, being the Atlantic form *A. quadrilobata*. For practical reasons, he followed HARTMAN (1969) in provisionally calling the Californian form as *A. antennata*, while waiting for a study of the type material from the Sea of Okhotsk, and its comparison with material from Nanaimo, the type locality of *A. longicornuta*. If found to be different, the valid name for the Californian specimens would be *A. longicornuta* (unless the Californian form turns to be different from the Canadian one). *A. quadrilobata* can be separated from *A. antennata* with base on the presence of a broad prostomium and single notopodial postchaetal lobes, against a truncated prostomium, apparently trilobed, and double or biramous notopodial postchaetal lobes.

## *Aricidea (Allia) roberti* Hartley 1984

*Aricidea (Allia) roberti* HARTLEY, 1984: 10-13, figs. 2-3.

**TYPE LOCALITY:** Magnus Oilfield, northern North Sea, 61º37.2'N, 1º18.3'E, 188 meters.

**SELECTED REFERENCES:** *Aricidea (Allia) roberti* — GASTON & MCLELLAND, 1996: table 1; HARTMANN-SCHRÖDER, 1996: 381; AGUIRREZABALAGA & GIL, 2008: 46-47, figs. 7*C-D*, 8-9, 11*A-B*; AGUIRREZABALAGA & GIL, 2009: table 4. *Aricidea (Allia) roverti* — SARDÁ *et al.*, 2009: table 3. *Aricidea (Allia)* cf. *belgicae* [not Fauvel 1936] — HARTLEY, 1981: 137-138.

**REFERENCES FOR PORTUGAL:** AGUIRREZABALAGA & GIL, 2008 (off Aveiro; Guia, Cascais).

**DISTRIBUTION:** Northern North Sea, 61º3.5'N to 61º22.8'N, and 1º18.3'E to 1º42'E, between 143-188 meters, on fine sands with little mud; Basque coast, Bay of Biscay, 25-50 meters; Portugal.

## *Aricidea (Allia) sardai* Aguirrezabalaga & Gil 2009

*Aricidea (Allia) sardai* AGUIRREZABALAGA & GIL, 2009: 652-653, fig. 15, table 4.

**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º35.35'N, 1º55.15'W, 1000 meters.

**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, 1000 meters; Western Mediterranean Sea, 1000-1500 meters (LARRY LOVELL, personal communication, 13 February 2009).

## **Aricidea (Acmira) simonae* Laubier & Ramos 1974

*Aricidea simonae* LAUBIER & RAMOS, 1974*a*: 1123-1127, figs. 9-10.

**TYPE LOCALITY:** East side of Cape Couronne Canyon, west of Marseille, at 260 meters, on mud.

**SYNONYMS:** *Aricidea punctata* Katzmann 1973 [not *A. punctata* Hartmann-Schröder 1962; HOMONYM].
**SELECTED REFERENCES:** *Aricidea simonae* — CAMPOY, 1981: 20; CAMPOY, 1982: 653. *Aricidea (Acesta) simonae* — KATZMANN & LAUBIER, 1975: 581. *Aricidea (Acmira) simonae* — HARTLEY, 1981: 143-145, figs. 3*C*, 4; CASTELLI, 1985: 276; CASTELLI, 1988: 326-327; HARTMANN-SCHRÖDER, 1996: 380; AGUIRREZABALAGA & GIL, 2009: 663-664, fig. 21*B-C*. *Aricidea punctata* — KATZMANN, 1973*b*: 287-288, figs. 1-2. *Aricidea* cf. *neosuecica* — LAUBIER & RAMOS, 1974*a*: 1121-1123, fig. 8; KATZMANN & LAUBIER, 1975: 578.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Aricidea simonae*; off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 305 (A.3848)**, NW Arrifana, 120 m, sand: 1 incomplete specimen with 30 chaetigers; 23 pairs of branchiae, from chaetiger 3; branchiae cylindrical; no modified chaetae observed, which agrees with the data given by HARTLEY (1981) for a specimen of 30 chaetigers; coloration as described by KATZMANN (1973*b*): white with numerous round brown spots.
**DISTRIBUTION:** Mediterranean Sea (30-260 meters); Adriatic Sea (20-275 meters); Aegean Sea; Bay of Biscay (492-1113 meters); North Sea (45-130 meters). On muddy and sandy bottoms.
**REMARKS:** Trilobed prostomium, with a median small antenna, slightly inflated at the tip. 7-36 pairs of branchiae (23 in studied specimen), starting at chaetiger 3 (adults) or 4 (juveniles). Notopodial postchaetal lobes well developed from chaetiger 1, longer on branchial and post-branchial chaetigers. No neuropodial postchaetal lobes present. Modified neuropodial chaetae from chaetiger 14-54 (not present in our specimen, which is incomplete), being 10-20 per row. They are aciculated, lacking arista or hood, and slightly curved. Coloration whitish, with numerous tan spots.

According to HARTLEY (1981), it is possible that the specimens referred to *A.* cf. *neosuecica* Hartman 1965 by LAUBIER & RAMOS (1974*a*) and KATZMANN & LAUBIER (1975) are juvenile specimens of *A. simonae*.

This species was first described as *Aricidea punctata* Katzmann 1973 (KATZMANN, 1973*b*) and later referred to *A. simone* by KATZMANN & LAUBIER (1975), due to the existence of an older homonym, *A. punctata* Hartmann-Schröder 1962, from Chile [which, according to STRELZOV (1973), could be a synonym of *Aricidea (Acmira) lopezi* Berkeley & Berkeley 1956].

See also the *REMARKS* section under *Aricidea (Acmira) simplex*.

## *Aricidea (Acmira) simplex* Day 1963

*Aricidea suecica simplex* DAY, 1963*a*: 364-365, fig. 3*a-b*.
**TYPE LOCALITY:** South Africa, west of Cape Town, 34º25'S, 17º36'E, 1240 meters.
**SYNONYMS:** *Aricidea neosuecica* Hartman 1965; *Aricidea neosuecica nipponica* Imajima 1973.
**SELECTED REFERENCES:** *Aricidea suecica simplex* — DAY, 1967: 558, fig. 24.1*.f-i*; AMOUREUX, 1973*a*: 442; CAMPOY, 1981: 20; CAMPOY, 1982: 653. *Aricidea (Acesta) simplex* — STRELZOV, 1973: 99-101, figs. 12.5, 43*A-B*. *Aricidea (Acmira) simplex* — GASTON, 1984: 2.41-2.43, figs. 2.39-2.40; BLAKE, 1996*b*: 63-64, fig. 2.18. *Aricidea neosuecica* — HARTMAN, 1965*b*: 137; HARTMAN, 1969: 63-64, 1 fig.; HARTMAN & FAUCHALD, 1971: 96-97, pl. 13 figs. *d-f*; HOBSON, 1972: 549-550, fig. 1*a*. *Aricidea neosuecica nipponica* — IMAJIMA, 1973: 263-265, figs. 5, 10. *Aricidea uschakowi* [not Zachs 1925] — LEVENSTEIN, 1966: 39-40. *Aricidea* near *suecica* — HARTMAN, 1957: 319-320, plate 43 fig. 7 [in part; in part = *Aricidea (Acmira) lopezi* Berkeley & Berkeley 1956; in part = *Aricidea (Aricidea) pseudoarticulata* Hobson 1972; in part = *Aricidea (Aricidea) wassi* Pettibone 1965; in part = *Aricidea (Acmira) rubra* Hartman 1963]. *Aricidea jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — BERKELEY & BERKELEY, 1950: 55-56, fig. 3; BERKELEY & BERKELEY, 1952: 39-40, figs. 70-73. *Aricidea belgicae* — MONRO, 1939*d*: 127, fig. 16 [in part; in part = *Paraonis belgicae* Fauvel 1936 (see HARTLEY, 1984)]. *Aricidea* sp. ? — BERKELEY, 1927: 413.
**DISTRIBUTION:** Off South Africa (1240 meters); off Iceland, 1435-1915 meters; off Northern Spain (1000 meters); Mediterranean Sea (310 meters); Adriatic Sea (66 meters); Maryland (80 meters); North American Atlantic shelf and slope (1102-4749 meters); Gulf of Mexico (82-189 meters); Uruguayan shelf (35-1072 meters); Patagonian shelf (560 meters); Scotia Sea (364-855 meters); Antarctic Ocean (180-2320 meters); Bering Sea (986 meters); Kuril Basin (3570-5540 meters); Japan (17-800); Sea of Japan (1047-1100); Caroline Islands (534 meters); British Columbia (33.5-420 meters); off California (80-2385 meters). On muddy bottoms. From 17-5540 meters.
**REMARKS:** LAUBIER & RAMOS (1974*a*) approached provisionally their single specimen found in the Mediterranean Sea to the North American species *Aricidea neosuecica* Hartman 1965. This species was, however, synonymised with *Aricidea simplex* Day 1963 by BLAKE (1996*b*). The Mediterranean specimen is quite small, and differs from all the other described specimens by its reduced number of branchiae

(only 5 pairs) and by the modified chaetae starting sooner than the usual (at chaetiger 15). STRELZOV (1973) showed that the number of branchiae on *A. simplex* are size dependent, and the same could be true for the starting chaetiger of the modified chaetae. Due to the wide range of distribution recorded for this species, it wouldn't be surprising that several close species are involved.

HARTLEY (1981) suggested that the specimens identified as *Aricidea* cf. *neosuecica* could be juvenile examples of *Aricidea (Acmira) simonae* Laubier & Ramos 1974. He found a large number of specimens of this species. Specimens with 12 pairs of branchiae or less, had them to start at chaetiger 4; specimens with 13 or 14 pairs of branchiae, showed a small pair of them on chaetiger 3; while specimens with 16 or more pairs of branchiae had fully developed branchiae from chaetiger 3. I will follow here HARTLEY (1981), and the records by LAUBIER & RAMOS (1974*a*) and KATZMANN & LAUBIER (1975), from the Mediterranean and Adriatic Seas, as *Aricidea* cf. *neosuecica*, are considered here as belonging to *A. simonae*.

## ***Aricidea (Allia) suecica meridionalis*** Laubier & Ramos 1974

*Aricidea suecica meridionalis* LAUBIER & RAMOS, 1974*a*: 1127-1131, fig. 11.

**TYPE LOCALITY:** Gulf of Rosas (Mediterranean Sea), 42º11.1'N, 3º15'E, 80 meters.

**SELECTED REFERENCES:** *Aricidea suecica meridionalis* — CAMPOY, 1981: 20; CAMPOY, 1982: 658; CASTELLI, 1988: 324. *Aricidea (Allia) suecica meridionalis* — AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3.

**DISTRIBUTION:** Western Mediterranean Sea, 20-80 meters; Aegean Sea. On sandy bottoms.

**REMARKS:** The Mediterranean subspecies and the nominal subspecies from Øresund are very similar. LAUBIER & RAMOS (1974*a*) based the description of the meridional subspecies on minor differences found between the Mediterranean specimens and 2 specimens from Øresund, and one from the Baltic Sea, identified by Eliason. Many of the differences pointed by LAUBIER & RAMOS (*op. cit.*) seem to fall in the range of the variability of the species, as it is possible to note by comparing their data with the observations by STRELZOV (1973, as *A. nolani*), and HARTLEY (1981, 1984). It seems that the most important difference between both subspecies lies in the relative length of the notopodial postchaetal lobes of the three prebranchial chaetigers: they have almost the same length in *A. suecica meridionalis*, while in *A. suecica suecica* they show a strong increase in size, from the first to the third.

## ***Aricidea (Allia) suecica suecica*** Eliason 1920

*Aricidea suecica* ELIASON, 1920: 52-55, figs. 14-15.

**TYPE LOCALITY:** Øresund, 11-28 meters, on muddy bottoms.

**SYNONYMS:** *Aricidea uschakowi* Zachs 1925; *Aricidea heteroseta* Hartman 1948.

**SELECTED REFERENCES:** *Aricidea suecica* — ELIASON, 1962*a*: 46-47; HARTMAN, 1957: 318-319; STRELZOV, 1968: 82-84, fig. 4; HARTMAN, 1969: 65-66, 5 figs.; HARTMAN & FAUCHALD, 1971: 97; HARTLEY, 1984: 17-18, figs. 5-7; KIRKEGAARD, 1996: 26-28, fig. 9. *Aricidea suecica* anoculate — HARTMAN, 1965*b*: 137. *Aricidea (Aricidea) suecica* — PETTIBONE, 1963*a*: 307, fig. 80*f-g*. *Aricidea (Allia) suecica* — HARTLEY, 1981: 138, fig. 3*A-B*; GASTON, 1984: 2.18-2.20, figs. 2.15-2.16; GASTON & MCLELLAND, 1996: table 1; HARTMANN-SCHRÖDER, 1996: 382, fig. 179. *Aricidea (Allia) suecica suecica* — AGUIRREZABALAGA & GIL, 2009: table 4; SARDÁ *et al.*, 2009: table 3. *Aricidea (Aricidea) jeffreysii* [not *Scolelepis (?) Jeffreysii* McIntosh 1878 = *Aricidea* sp. indeterminable (see STRELZOV, 1973: pp. 106, 159; and BROWN, 1976: pp. 435-436)] — HARTMANN-SCHRÖDER, 1971*a*: 185-187, fig. 95*b-d* [in part; in part = *Aricidea (Acmira) cerrutii* Laubier 1966]. *Aricidea (Allia) nolani* — STRELZOV, 1973: 85-88, fig. 36, table 6 [in part; not *Aricidea nolani* Webster & Benedict 1887 = indeterminable (see HARTLEY, 1981: p. 138)]. *Aricidea uschakowi* — ZACHS, 1925: 2; USCHAKOV, 1939: 83. *Aricidea heteroseta* — HARTMAN, 1948*b*: 33-36, fig. 9. Not *Aricidea suecica* — SOUTHWARD, 1956: 269, fig. *D* [= *Aricidea laubieri* Hartley 1981]. Not *Aricidea (Aricidea) suecica* — MCINTYRE, 1961: 358 [= *Aricidea laubieri* Hartley 1981]. Not *Aricidea suecica* — ELIASON, 1962*b*: 261 [in part = *Aricidea catherinae* Laubier 1967; in part = *Aricidea albatrossae* Pettibone 1957]. Not *Aricidea suecica* — BUZHINSKAJA, 1967: 104-106, fig. 5*A-F* [= *Aricidea lopezi* Berkeley & Berkeley 1956]. Not *Aricidea suecica* — WESENBERG-LUND, 1950*a*: 32-33, chart 32, pl. 8 fig. 35; WESENBERG-LUND, 1950*b*: 79, chart 20; WESENBERG-LUND, 1953*a*: 60 [in part; not specimen from Kejer Franz Josephs Fjord Area, East Greenland] [see HARTMAN, 1957: 319].

**DISTRIBUTION:** Øresund (5-40 meters); North Sea (0.5-44 meters); Shetland (10 meters); Baltic Sea (35-85 meters); Iceland; West Greenland (1096-2258 meters); White Sea (6-30 meters); Barents Sea (litoral-199 meters); Novaya Zemlya (3-10 meters); Kara Sea (19 meters); Chuckchi Sea (43 meters); Alaska (shallow water); Gulf of Ussuri, Tatar Strait (44-66 meters); Sakhalin (14 meters); Atlantic Coast of

North America (5-2496 meters); Gulf of Mexico (15-54 meters). Generally on muddy bottoms, but also on sand.

**REMARKS:** *Aricidea nolani* was originally decribed from Maine (U.S.A.), by WEBSTER & BENEDICT (1887: 740-741). PETTIBONE (1963*a*) studied specimens of *Aricidea* collected at the New England region, which includes Maine, and considered *A. nolani* as being a mixture of two different species, *A. jeffreysii* (McIntosh 1878), and *A. suecica* Eliason 1920. However, she didn't make any comments about her conclusion, which seems to be based on the comparison of the original descriptions with the specimens from New England. Apparently, the type material of *A. nolani* was not studied. STRELZOV (1973) studied some of Pettibone's material, and concluded that the specimens identified as *A. jeffreysii* should be referred to *A. catherinae* Laubier 1967, and the ones identified as *A. suecica*, to *A. nolani* Webster & Benedict 1887. Once again, type material of this later species was not examined, and the synonymy of *A. suecica* with *A. nolani* was based on the comparison of the descriptions of both species.

Pettibone examined the type material of *A. nolani* later, and her conclusions were published by HARTLEY (1981), as a personal communication. The four type slides are deposited at the United States National Museum, and were found to consist on the anterior fragments of three specimens, appearing to be a mixture of two species, which she didn't identify. No posterior fragments were present, and they were not described by WEBSTER & BENEDICT (1887). In her opinion *A. nolani* should be regarded as an indeterminable species of *Aricidea*. This opinion was followed by HARTLEY (1981, 1984), and GASTON (1984), and is also followed here. This way, *A. suecica* Eliason 1920 is a valid species.

*Aricidea uschakowi* Zachs 1925, was described from the Gulf of Kola, in the Barents Sea. No type material is known to exist, but STRELZOV (1973) was able to study a specimen from Novaya Zemlya determined by I.G. Zachs as *A. uschakowi*. Strelzov found it to be a typical *A. nolani*, and as a consequence *A. uschakowi* becames a junior synonym of *A. suecica*.

The specimens described by WESENBERG-LUND (1950*a*: 32-33, fig. 35; 1950*b*: 79; 1953: 60) as *Aricidea suecica* from West Greenland in 1096 to 2258 meters, Jan Mayen, in 669 meters, and off the Faroe Islands, in 887 meters, according to HARTMAN (1957), differ from the original species in that the prostomium is broadly equitriangular and lacks eyes, the prostomial antenna is short and conical, the branchiae number 17 to 28 pairs, and the chaetae are said to be entirely capillary, which would place these specimens under the subgenus *Aedicira*.

## ***Aricidea trilobata*** Laubier & Ramos 1974

*Aricidea trilobata* LAUBIER & RAMOS, 1974*a*: 1131-1134, figs. 12-13.

**TYPE LOCALITY:** Abyssal plain of the Western Mediterranean Sea, 37º00.6'N, 5º17'E, at 2090 meters.

**SELECTED REFERENCES:** Not *Aricidea trilobata* [= senyor homonym (see BLAKE, 1996*b*: 61-62)] — IMAJIMA, 1973: 267-269, figs. 7, 10; BLAKE, 1996*b*: 61-62, fig. 2.17.

**DISTRIBUTION:** Abyssal plain of the Western Mediterranean Sea, 37º00.6' to 37º50.7'N, and 5º17' to 5º22'E, between 2090-2827 meters.

**REMARKS:** The posterior part of this species is unknown, as all the collected specimens (5) were incomplete. This makes impossible the inclusion of the species in any of the known subgenera of *Aricidea*, as no information on the modified chaetae is available.

As noted by BLAKE (1996*b*) this species is a junior homonym of *Aricidea trilobata* Imajima 1973, described from Japan. A new name is required for the Mediterranean species, but it is desirable that this is done with base on newly collected material, due to the incompleteness of the known specimens.

## ****Aricidea (Aricidea) wassi*** Pettibone 1965

*Aricidea (Aricidea) wassi* PETTIBONE, 1965: 135-138, figs. 9-11.

**TYPE LOCALITY:** Virginia (U.S.A.), off the eastern shore of Chesapeake Bay, 37º34'N, 75º55'W, at 8 fathoms (13.4 meters), in mud and sand.

**SELECTED REFERENCES:** *Aricidea (Aricidea) wassi* — HOBSON, 1971: 247-249; STRELZOV, 1973: 62-64, figs. 17.2, 23*C-E*; KATZMANN & LAUBIER, 1975: 582-584, fig. 5; HARTLEY, 1981: 136; GASTON, 1984: 2.13, figs. 2.7-2.8; CASTELLI, 1988: 323; BLAKE, 1996: 44-45, fig. 2.7. *Aricidea wassi* — HOBSON, 1972: 552-553; IMAJIMA, 1973: 265-267, figs. 6, 10. *Aricidea* near *suecica* — HARTMAN, 1957: 319-320 [in part; in part = *Aricidea (Acmira) lopezi* Berkeley & Berkeley 1956; in part = *Aricidea (Acmira) rubra* Hartman 1963; in part = *Aricidea (Acmira) simplex* Day 1963; in part = *Aricidea (Aricidea) pseudoarticulata* Hobson 1972].

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 23 (A.4083)**, north Sines, 127 m, sand: 1 fragment with 23 chaetigers; some with reddish spots. **St. 199 (A.3913)**, SW Sines, 155 m, sand: 2 middle fragments, with 8 and 13 chaetigers; some chaetigers have a reddish coloration; modified chaetae as described, being some very thick; up to 9 modified chaetae per parapodium. **St. 266 (A.3865)**, off Cape Sardão, 175 m, sand: 1 incomplete specimen very coiled, with about 70 chaetigers and 8 pairs of branchiae; antenna reaches the beginning of the 3rd chaetiger, being multiarticulated; posterior buccal lip hardly visible, due to the coiling of the specimen, but seems not to reach the second chaetiger, as described in KATZMANN & LAUBIER (1975) and HARTLEY (1981). **St. 270 (A.3869)**, SW cape Sardão, 243 m, muddy sand: 1 incomplete specimen with 38 chaetigers; 8 pairs of branchiae (from chaetiger 4); modified chaetae already at chaetiger 25; antenna almost reaching chaetiger 4; reddish spots present from chaetiger 20. **St. 271 (A.3863)**, off Praia de Odeceixe, 232 m, muddy sand: 1 incomplete specimen with 33 chaetigers; 8 pairs of branchiae (chaetiger 4-11); red pigment above notopodia from chaetiger 14; first modified chaetae on chaetiger 24. **St. 283 (A.3851)**, off Arrifana, 245 m, muddy sand: 1 incomplete specimen with about 32 chaetigers; antenna articulated, reaching chaetiger 3; 7 pairs of branchiae, from chaetiger 4; modified chaetae from chaetiger 20. **St. 306 (A.3847)**, SW Praia de Odeceixe, 105 m, sand: 3 specimens, plus one middle fragment with about 18 chaetigers; (1) incomplete, with 45 chaetigers; antenna reaching chaetiger 3; 8 pairs of branchiae; modified chaetae at least from chaetiger 23; 3rd dorsal cirri similar to the ones of *A. capensis bansei*; some posterior chaetigers with reddish spots; (2) incomplete, with 41 chaetigers; 8 pairs of branchiae; modified chaetae from about chaetiger 24; (3) incomplete, with 40 chaetigers; 8 pairs of branchiae, last one smaller; modified chaetae from about chaetiger 20.

**DISTRIBUTION:** Virginia, Chesapeake Bay (13-40 meters); Massachusetts, Cape Cod Bay (10 meters); Gulf of Mexico (15-36 meters); California (80, 1480 meters); Japan (45-50 meters); Adriatic Sea (54-111 meters); Portugal (105-245 meters); North Sea (143 meters). On muddy and sandy bottoms.

**REMARKS:** Prostomium with a long median antenna, distinctly articulated, reaching chaetigers 3-4. First branchiae present at chaetiger 4, occurring in 7-18 pairs, depending on the size of the specimen (7-8 pairs in the studied specimens). Notopodial postchaetal lobes from chaetiger 1, being small and bulbous in the first two, longer on chaetiger 3, digitiform on the branchial segments and filiform posteriorly. Neuropodial lobes absent. Modified neurochaetae from chaetiger 20-40 (20-25 in the studied specimens), up to nine per bundle. They are pseudocompound, strongly curved and unidentate, with a long subterminal spine on the concave side of shaft. Red pigmented spots present above neuropodia from chaetigers 14-20.

## *GENUS ***Cirrophorus*** Ehlers 1908

*Cirrophorus* EHLERS, 1908: 124.

**TYPE SPECIES:** *Cirrophorus branchiatus* Ehlers 1908.

**KEY TO SPECIES:**
(from BLAKE, 1996*b*)

**1a.** Modified spines acicular, bearing long, thin accessory filament arising well below tip; branchiae from chaetiger 5.....***C. branchiatus****

**1b.** Modified spines lyrate, with pair of long tynes; branchiae from chaetiger 4.....***C. furcatus****

## ****Cirrophorus branchiatus*** Ehlers 1908

*Cirrophorus branchiatus* EHLERS, 1908: 124-126, pl. 17 figs. 5-9.

**TYPE LOCALITY:** Agulhas Bank (South Africa), 35º21'S, 20º22'E, at 117 meters, in grey mud.

**SYNONYMS:** *Paraonis (Paraonides) lyriformis* Annenkova 1934; *Aricidea (Cirrophorus) aciculata* Hartman 1957.

**SELECTED REFERENCES:** *Cirrophorus branchiatus* — DAY, 1963*b*: 423-424, fig. 9*l-o*; DAY, 1967: 563, fig. 24.3.*a-e*; LAUBIER, 1966*b*: 469-474, figs. 1-2; GLÉMAREC, 1966*a*: 1049-1051, fig. 1*A*; GUILLE & LAUBIER, 1966: 269; GIBBS, 1969*a*: 323, fig. 4*E*, table 1; LAUBIER, 1971: 260, fig. 1*D-F*; DAY, 1973: 93, fig. 13*c*; IMAJIMA, 1973: 274-275, figs. 11, 20; STRELZOV, 1973: 108-111, figs. 15.3, 46; LAUBIER & RAMOS, 1974*a*: 1138; KATZMANN & LAUBIER, 1975: 584; CAMPOY, 1981: 21, fig. 4*a-b*; HARTLEY, 1981: 145; CAMPOY, 1982: 653-654, pl. 83 figs. *a-b*; GASTON, 1984: 2.6, figs. 2.1-2.2; CASTELLI, 1988: 327; MCLELLAND & GASTON, 1994: table 1; BLAKE, 1996*b*: 38, fig. 2.4; AGUIRREZABALAGA & GIL, 2009: 639-640, fig. 6. *Aricidea (Cirrophorus) branchiata* — CERRUTI, 1909*b*: 466, 505-506, fig. *F*;

SOUTHWARD, 1955: 264; SOUTHWARD, 1956: 271, fig. 2*E-G*; BERKELEY & BERKELEY, 1956*b*: 542-544, fig. 4; HARTMAN, 1957: 323, table in page 323. *Cirrophorus* conf. *branchiatus* — KISSELEVA, 1971: 62, 64, fig. 21*a-b*. *Paraonis (Paraonides) lyriformis* — ANNENKOVA, 1934*a*: 656-657, fig. 1*B*. *Aricidea (Cirrophorus) lyriformis* — ANNENKOVA, 1937: 172; ANNENKOVA, 1938: 179; USCHAKOV, 1950: 203; USCHAKOV, 1955*a*: 286, fig. 103*C*; HARTMAN, 1957: 325, table in page 323. *Cirrophorus lyriformis* — STRELZOV, 1968: 90-93, fig. 8. *Aricidea* sp. — HARTMAN, 1955*a*: 103, 110, 116. *Aricidea ? pacifica* — HARTMAN, 1955*a*: 97. *Aricidea (Cirrophorus) aciculata* — HARTMAN, 1957: 323-324, pl. 43 fig. 4, table in page 323; HARTMAN, 1960: 112; HARTMAN, 1963: 40. *Cirrophorus aciculatus* — HARTMAN, 1965*b*: 138; HARTMAN, 1969: 67-68, 1 fig.; FAUCHALD, 1972*a*: 181.

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 178 (A.3933)**, off Sines, 130 m, sand: 1 incomplete specimen; branchiae from chaetiger 5, numbering 13 pairs; modified chaetae dorsal, from chaetiger 8/9; posterior region of body with segments with moniliform appearance.

**DISTRIBUTION:** South Africa (117-128 meters); Red Sea (360 meters); Mediterranean Sea (6-135, 2090 meters); Adriatic Sea (40-124 meters); Aegean Sea; Bay of Biscay (100 meters); Irish Sea (25-60 meters); Celtic Sea (94-116 meters); off Bretagne (100 meters); Barents Sea (140-195 meters); NW Atlantic Ocean (500-1500 meters); North Carolina (20 meters); Gulf of Mexico (24-75 meters); Off South America (520-1500 meters); British Columbia (27 meters); California (85-976 meters); Western Mexico (2040-2090 meters); Tatar Strait (135 meters); Japan (60 meters); Yellow Sea, off Japan (1693 meters); Gulf of Peter the Great, Sea of Japan (230 meters); slope of the Kuril Basin (2780 meters). On muddy bottoms, sometimes also on sand.

**REMARKS:** Prostomium with one short antenna, club-shaped. Branchiae first present in chaetiger 5, continuing for 13-20 chaetigers (13 in studied specimen). Notopodial postchaetal lobes from chaetiger 1, being more developed at the branchial region. Modified notopodial chaetae from chaetiger 7-9 (from chaetiger 9 in studied specimen). They are present as single large yellow spines, very thickened, with blunt tips, bearing a long lateral curved filament that arises bellow tip.

## ****Cirrophorus furcatus*** (Hartman 1957)

*Aricidea (Cirrophorus) furcata* HARTMAN, 1957: 324-325, table p. 323, plate 43 fig. 6.

**TYPE LOCALITY:** California, off Catalina Island, in sandy mud, at 20 meters.

**SELECTED REFERENCES:** *Aricidea (Cirrophorus) furcata* — HARTMAN, 1960: 112; HARTMAN, 1963: 40. *Cirrophorus furcatus* — HARTMAN, 1969: 69-70, 1 fig.; STRELZOV, 1973: 118-120, figs. 18.5, 50*A-E*; KATZMANN & LAUBIER, 1975: 584-586, fig. 6; CAMPOY, 1981: 22; HARTLEY, 1981: 145; CAMPOY, 1982: 654; CASTELLI, 1985: 277; CASTELLI, 1988: 327; MCLELLAND & GASTON, 1994: table 1; BLAKE, 1996*b*: 40, fig. 2.5. *Cirrophorus* sp. proche de *Cirrophorus lyriformis* [not *Aricidea (Cirrophorus) lyriformis* Annenkova 1937 = *Cirrophorus branchiatus* Ehlers 1908] — LAUBIER, 1966*b*: 474-476. *Cirrophorus* cf. *lyriformis* [not *Aricidea (Cirrophorus) lyriformis* Annenkova 1937 = *Cirrophorus branchiatus* Ehlers 1908] — LAUBIER, 1966*d*: 15; LAUBIER & RAMOS, 1974*a*: 1138-1141. *Cirrophorus lyriformis* [not *Aricidea (Cirrophorus) lyriformis* Annenkova 1937 = *Cirrophorus branchiatus* Ehlers 1908] — GUILLE & LAUBIER, 1966: 269; [?] DAY, 1973: 92-93.

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1987 (as *C.* cf. *lyriformis*; off Aveiro; off Porto); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 106 (A.4001)**, near Sines, 110 m, gravelly sand: 1 incomplete specimen with about 45 chaetigers; color rusty brown, with dark brown pigment spots scattered over the anterior region of the body; prostomium with antenna; nuchal organs as curved grooves in posterior half of the prostomium, overlapped by peristomium; one pair of black eyes, located between the antenna and the nuchal organs; branchiae from chaetiger 4, numbering 23 pairs; notopodial postchaetal lobes longest on prebranchial and branchial segments, where they are narrower and fingerlike, gradually becoming shorter and blunter in the following segments; first chaetigers with limbate capillary chaetae; lyrate chaetae from chaetiger 4, numbering up to 4 per bundle.

**DISTRIBUTION:** Central and northern California (20-1820 meters); North Carolina (10-120 meters); Off New England (300-500 meters); Portugal (110 meters); Western Mediterranean Sea (23-200 meters); Adriatic Sea (40 meters); Aegean Sea; Celtic Sea (94 meters). On gravel and muddy bottoms.

**REMARKS:** Prostomium with one short, narrow median antenna. Branchiae first present at chaetiger 4, continuing for 25 or more segments (studied specimen with 23 pairs of branchiae). Notopodial postchaetal lobes from chaetiger 1, being longer at pre-branchial and branchial segments. Modified notopodial chaetae from chaetiger 3-4 (4 in studied specimen). They are lyrate, with long inner serrated tines, being one of them longer than the other.

The Mediterranean specimens identified as "*Cirrophorus* sp. proche de *Cirrophorus lyriformis* (Annenkova 1934)", in LAUBIER (1966*b*), and as *Cirrophorus* cf. *lyriformis*, in LAUBIER (1966*d*) and LAUBIER & RAMOS (1974*a*), were referred to *Cirrophorus furcatus* (Hartman 1957) by KATZMANN & LAUBIER (1975). On the other hand, STRELZOV (1973) synonymized *Cirrophorus lyriformis* (Annenkova 1934) with *Cirrophorus branchiatus* Ehlers 1908.

This species was previously recorded in Portuguese waters by AMOUREUX (1987: 574), as *Cirrophorus* cf. *lyriformis*.

## *GENUS ***Levinsenia*** Mesnil 1897

*Levinsenia* MESNIL, 1897*a*: 93-94.
**TYPE SPECIES:** *Aonides gracilis* Tauber 1879.
**SYNONYM:** *Tauberia* Strelzov 1973; *Periquesta* Brito & Núñez 2002.

**KEY TO SPECIES:**
(adapted from: BLAKE, 1996*b*; AGUIRREZABALAGA & GIL, 2009)

**1a.** Modified neurochaetae bidentate; 1-3 pairs of branchiae [?] present in the last 1-3 chaetigers.....***L. canariensis***
**1b.** Modified neurochaetae unidentate; branchiae present in the anterior region of the body.....**2**

**2a (1b).** Less than 7 pairs of branchiae; modified neurochaetae with pubescent sheath or hood.....**3**
**2b (1b).** More than 7 pairs of branchiae; pubescent sheath or hood present or absent.....**4**

**3a (2a).** Branchial segments numbering 3-5 (may vary with size of specimen); branchiae very short, with blunt tips, not reaching the basis of the other branchia on the same segment; modified neurochaetae slightly protruding, short, strongly hooked.....***L. flava***
**3b (2a).** Branchial segments numbering 5-6 (may vary with size of specimen); branchiae short, with blunt tips, reaching the basis of the other branchia on the same segment; modified neurochaetae strongly protruding, hooked, long, slightly curved.....***L. kantauriensis***

**4a (2b).** Branchial segments numbering 10-15 (but may vary with size of specimen); individual branchia about 4 times as long as wide, all branchiae of about the same length, with blunt tip; modified neurochaetae with pubescent sheath on convex side (sometimes described without it); without pigmented posterolateral spots surrounding nuchal organs.....***L. gracilis****
**4b (2b).** Branchial segments numbering 7-11 (but may vary with size of specimen); individual branchia about 7 times as long as wide, longest in middle of branchial region, with acute tip; modified neurochaetae without pubescent sheath on convex side; with pigmented posterolateral spots surrounding nuchal organs.....***L. oculata***

### ***Levinsenia canariensis*** (Brito & Núñez 2002)

*Periquesta canariensis* BRITO & NÚÑEZ, 2002: 284-285, figs. 2-3.
**TYPE LOCALITY:** Canary Islands: Ensenada de los Abades (28º7.53'N, 16º26.38'W), Tenerife, at 11-16 meters, in sediments from rhizomes of *Cymodocea nodosa*.
**SELECTED REFERENCES:** *Levinsenia canariensis* — GIERE, EBBE & ERSÉUS, 2008: 312-313, fig. 3; AGUIRREZABALAGA & GIL, 2009: table 2.
**DISTRIBUTION:** Central Macaronesian region: Canary Islands (Lanzarote, Gran Canaria, Tenerife, El Hierro), and Selvagens Islands. In sandy bottoms (muddy-sand, and fine and medium sands), without vegetation, as well as within beds of the seagrass *Cymodocea nodosa*. Between 5-18 meters.
**REMARKS:** The species was described by BRITO & NÚÑEZ (2002) as having 1-3 pairs of branchiae in the last 1-3 chaetigers. Nothing is said about the branchiae in the redescription of the species made by GIERE, EBBE & ERSÉUS (2008), except that it is branchiate, when comparing it with the new abranchiate species *L. hawaiiensis* Giere, Ebbe & Erséus 2008. Apart from the possible considerations concerning the validity of the species or its inclusion in the Paraonidae in general, and in *Levinsenia* in particular, in my opinion what was described as branchiae in the last 1-3 chaetigers could be the developed dorsal postchaetal lobes, which can be very expanded in the posterior region of some paraonid species. A more based statement on this matter will require the study of type or topotype material.

## *Levinsenia flava* (Strelzov 1973)

*Tauberia flava* STRELZOV, 1973: 144-145, figs. 11.6, 65*A-C*.

**TYPE LOCALITY:** Pacific Ocean, Sea of New Guinea, 3º51'S, 147º11'E, in foraminiferal mud, at 1790 meters.

**SELECTED REFERENCES:** *Levinsenia flava* — AGUIRREZABALAGA & GIL, 2009: 633-634, figs. 2-3, table 2.

**DISTRIBUTION:** Sea of Guinea, in foraminiferal mud at 1790 meters; Capbreton Canyon, Bay of Biscay, between 492-1113 meters.

## **Levinsenia gracilis* (Tauber 1879)

*Aonides gracilis* TAUBER, 1879: 115.

**TYPE LOCALITY:** Denmark.

**SYNONYMS:** *Paraonos* [sic] *ivanovi* Annenkova 1934; *Paraonis filiformis* Hartman 1953; [?] *Paraonis gracilis* aristate Hartman 1965; [?] *Paraonis gracilis minuta* Hartmann-Schröder 1965.

**SELECTED REFERENCES:** *Aonides gracilis* — LEVINSEN, 1884: 101; LEVINSEN, 1893: 335; EHLERS, 1913: 512; SÆDMUNDSSON, 1918: 205. *Levinsenia gracilis* — MESNIL, 1897*a*: 93-94, pl. 3 fig. 22; MESNIL & CAULLERY, 1898: 136-137, pl. 6 fig. 10, table on page 138; HARTLEY, 1981: 146; GASTON, 1984: 2.51-2.53, figs. 2.51-2.52; CASTELLI, 1985: 271; CASTELLI, 1988: 327-328; BLAKE, 1996*b*: 33-34, fig. 2.1; HARTMANN-SCHRÖDER, 1996: 386, fig. 183; KIRKEGAARD, 1996: 28-29, fig. 10; AGUIRREZABALAGA & GIL, 2009: 634-635, table 2. *Paraonis (Paraonis) gracilis* — CERRUTI, 1909*b*: 468, 498, 504, fig. *G*; PETTIBONE, 1963*a*: 301-302, fig. 79*a-d*; HARTMANN-SCHRÖDER, 1971*a*: 289-290, fig. 96*d-f*. *Paraonis (Paraonis) gracilis* Forme I — DUMITRESCO, 1960: 77-78, fig. 3*e-g*. *Paraonis gracilis* — ELIASON, 1920: 55-56, fig. 16*a-e*; FRIEDRICH, 1938: 136, fig. 90*a-b*; WESENBERG-LUND, 1950*a*: 32, chart 42, pl. 7 fig. 34; WESENBERG-LUND, 1953*a*: 59-60, chart 12; USCHAKOV, 1955*a*: 286, fig. 103*A-B*; HARTMAN, 1957: 330-331, table p. 329, pl. 44 figs. 4-5; HARTMAN, 1960: 110; ELIASON, 1962*a*: 44-45; ELIASON, 1962*b*: 262; HARTMAN, 1963: 40-41; RULLIER, 1963*b*: 243; KHLEBOVITCH, 1964: 172; MARINOV, 1964: 82-105; BELLAN, 1965: 9; HARTMAN, 1965*b*: 141; REISH, 1965: 141; GUILLE & LAUBIER, 1966: 270; HARTMAN, 1966*b*: 14, pl. 3 figs. 5-6; HARTMAN, 1969: 75-76, 3 figs.; HARTMAN & FAUCHALD, 1971: 102; LAUBIER & RAMOS, 1974*a*: 1098-1099; CAMPOY, 1981: 23; CAMPOY, 1982: 657. [?] *Paraonis gracilis* aristate — HARTMAN, 1965*b*: 142; HARTMAN & FAUCHALD, 1971: 102. *Paraonis (Paraonides) gracilis* — MONRO, 1930: 150-152, fig. 58; USCHAKOV, 1950: 202-203. *Paraonis gracilis gracilis* — DAY, 1963*b*: 425; DAY, 1967: 566, fig. 24.4.*a-b*; STRELZOV, 1968: 78-79, fig. 2. *Tauberia gracilis* — STRELZOV, 1973: 127-133, figs. 14, 54-57; MARINOV, 1977: 167. *Paraonis filiformis* — HARTMAN, 1953: 39-40, fig. 12*b-c*. *Paraonos* [sic] *ivanovi* — ANNENKOVA, 1934*a*: 657, fig. 1*A*. *Paraonis ivanovi* — HARTMAN, 1957: 333, table in page 329. *Paraonis (Paraonis) ivanovi* — BANSE & HOBSON, 1968: 23, fig. 5*f*. [?] *Paraonis gracilis minuta* — HARTMANN-SCHRÖDER, 1965*b*: 197-198, figs. 181-182; IMAJIMA, 1973: 284-285, figs. 16, 20.

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1987 (as *Paraonis gracilis*; off Aveiro; off Porto); RAVARA, 1997 (off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 265 (A.3866)**, off Cape Sardão, 227 m, muddy sand: [?] 1 incomplete specimen with 56 chaetigers, 5 prebranchial; 5 pairs of branchiae; sensorial organ visible at the tip of the prostomium; modified chaetae from chaetiger 14, numbering up to 6 per bundle. **St. 267 (A.3864)**, south Cape Sardão, 155 m, muddy sand: [?] 1 incomplete specimen with 30 chaetigers; 4 pairs of branchiae from chaetiger 6; modified chaetae from chaetiger 15; prostomial terminal papilla everted. **St. 270 (A.3869)**, SW cape Sardão, 243 m, muddy sand: [?] 1 incomplete specimen with 33 chaetigers; 3 pairs of branchiae (chaetigers 6-8); modified chaetae from chaetiger 12. **St. 271 (A.3863)**, off Praia de Odeceixe, 232 m, muddy sand: [?] 4 specimens, plus one middle fragment with about 22 chaetigers; (1) incomplete with about 56 chaetigers, 3 pairs of branchiae, in chaetigers 6-8, modified chaetae from chaetiger 13, up to 5 modified chaetae per bundle; (2) incomplete, with 33 chaetigers; 4 pairs of branchiae in chaetigers 6-9, modified chaetae from chaetiger 16, up to 6 per bundle; (3) incomplete, with about 33 chaetigers, branchiae in chaetigers 6-10 (5 pairs), modified chaetae from chaetiger 17; (4) incomplete with 70 chaetigers, branchiae in chaetigers 6-10 (5 pairs), modified chaetae from chaetiger 17 (up to 6 per bundle), from middle region of body chaetigers with pigmented spots. **St. 274 (A.3862)**, off Praia de Odeceixe, 327 m, muddy sand: [?] 4 incomplete specimens, with modified neurochaetae unidentate and with the pubescent sheath on convex side present; (1) 34 chaetigers, 6 pairs of branchiae (chaetigers 6-11), modified chaetae from chaetiger 14, proboscis with terminal sensorial organ; (2) about

62 chaetigers, 5 pairs of branchiae (chaetigers 6-10), modified chaetae from chaetiger 16; (3) 28 chaetigers, 5 pairs of branchiae (chaetigers 6-10), modified chaetae from chaetiger 13; (4) 36 chaetigers, 4 pairs of branchiae (chaetigers 6-9), modified chaetae from chaetiger 16, proboscis with terminal sensorial organ. **FAUNA 1 — St. 1*A***, Gulf of Cádiz, off Huelva, 190 m, mud: [?] 2 specimens; (1) incomplete, with 23 chaetigers; 5 pairs of branchiae, from chaetiger 6; modified chaetae from chaetiger 17; protomium with terminal papilla; (2) incomplete, with 23 chaetigers; 4 pairs of branchiae from chaetiger 6; modified chaetae from chaetiger 16. **St. 6*A***, Alborán Sea, off Nerja, 70-74 m, sand with mud: [?] 1 very small specimen, in poor condition; incomplete, with 24 chaetigers; modified chaetae from chaetiger 21; branchiae at chaetigers 10-17 (some missing); almost breaking in 2 pieces. **St. 14*A***, Alborán Sea, off Castell de Ferro, Granada, 285-290 m, mud: [?] 1 incomplete specimen with about 30 chaetigers, proboscis everted; branchiae remaining: 1 on chaetiger 7, 1 on chaetiger 8, 1 on chaetiger 17, 1 on chaetiger 18; modified neurochaetae from about chaetiger 24, being about 4 per bundle and with faint pubescence. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: [?] 1 incomplete specimen, with about 25 chaetigers; branchiae in chaetigers 6-16 (10 pairs); modified chaetae from chaetiger 19. **St. 69*A***, Gulf of Cádiz, off mouth of Guadiana, 110-112 m, mud: [?] 1 middle fragment with 13 chaetigers; neurochaetae as described and observed in Atlantic specimens.

**DISTRIBUTION:** Øresund (9-75 meters); North Sea (0.5-6, 69-143 meters); Skagerrak (140-650 meters); Kattegat (20 meters); Baltic Sea (48 meters); Greenland Sea (169-300 meters); Iceland (28-107 meters); off Faroe Islands (887 meters); Sea of Norway (887 meters); Barents Sea (10-220 meters); British Isles (75-110 meters); Gulf of Gascony (100-1113 meters); Mediterranean Sea (10-2700 meters); Adriatic Sea (54-203 meters); Aegean Sea; Black Sea (80 meters); Red Sea (50-56 meters); South Africa (124 meters); Kara Sea, Laptev Sea (22-40 meters); East Siberian Sea (38 meters); Chuckchi Sea (27.4-156 meters); Bering Sea (11-67, 1500-2000 meters); Sea of Okhotsk (67 meters); Tatar Strait (9.5-66 meters); Japan (60-3860 meters); Slope of Kuril Basin (2780 meters); Molucca Islands (260 meters); New Guinea (1602 meters); Washington (12-196 meters); California (16-1298 meters); Chile (160-240 meters); Uruguay Shelf (90 meters); Gulf of Mexico (19-131 meters); Atlantic Coast of North America (5-200 meters); Off New England (97-3753 meters); Southern Indian Ocean (1000 meters); Scotia Sea (855 meters); South Georgia (23-310 meters). On sandy and muddy bottoms.

**REMARKS:** Body long and thin. Prostomium without antennae, with a terminal sensory organ. Prebranchial region generally with 5 segments. The number of branchiae may vary between 3-15 pairs (3-5 pairs in Portuguese specimens), depending on the size of the specimen. Notopodial lobes from chaetiger 1. Modified neurochaetae from chaetiger 12-21 (in Portuguese specimens from chaetiger 12-17). Up to 7 modified chaetae per bundle, in one single vertical row, strongly protruding from the body wall. They are thick aciculate curved hooks, with an expanded shaft, narrowing to a pointing tip; the convex side of the shaft has a pubescent sheath, absent from the tip.

*Levinsenia gracilis* sensu lacto englobes several different species under the same designation. Specimens from different populations have been described with a different number of branchiae, and both with or without a slightly pubescent sheath (or guard) on the convex side of the modified neuropodial chaetae. Some controversial exists about if this pubescent sheath was present at the type material from the Danish waters and was overlooked by the first authors (*e.g.* MESNIL & CAULLERY, 1898), or if it was simply absent from them. HARTMANN-SCHRÖDER (1965*b*) was apparently the first to describe the narrow guard, creating a new subspecies for specimens from Chile (see synonymy list). Even in recent literature concerning the Polychaeta Fauna of the North Sea, authors disagree on this question. While HARTMANN-SCHRÖDER (1996: fig. 183*c*) shows the modified chaetae with a narrow guard, KIRKEGAARD (1996: fig. 10*b*) depicts them as being nacked. Besides, STRELZOV (1973) refers the existence of populations with longer branchiae without or with very short cilia.

The material identified in the present study includes probably more than one species, taking into account the variation found in the number of pairs of branchiae of the specimens. Besides, it is possibe that *Levinsenia gracilis* is not even present in Portugal, and that the specimens found in the present study, as well as the ones previously recorded in Portugal, belong to different species. To elucidate this question a more detailed study is necessary, including the redescription of the type species. In the meantime, all the identifications made in this work as *Levinsenia gracilis* are dubious, and need to be confirmed against the new bibliography on the genus. From the short notes taken during the identification process it is apparent that none of these specimens belongs to *Levinsenia gracilis*.

## ***Levinsenia kantauriensis*** Aguirrezabalaga & Gil 2009

*Levinsenia kantauriensis* AGUIRREZABALAGA & GIL, 2009: 636-639, figs. 4-5, table 2.

**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º50.32'N, 2º10.90'W, at 495 meters, to 43º49.78'N, 2º11.12'W, at 492 meters.

**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, between 492 and 1113 meters.

### *Levinsenia oculata* (Hartman 1957)

*Paraonis gracilis oculata* HARTMAN, 1957: 331-332, pl. 44 figs. 1-3, table in page 329.
**TYPE LOCALITY:** Southern California, outer Los Angeles Harbor, at 15 meters.
**SELECTED REFERENCES:** *Paraonis gracilis oculata* — HARTMAN, 1960: 110; MCINTYRE, 1961: 357; DAY, 1963*a*: 363; HARTMAN, 1963: 41; DAY, 1967: 565-566, fig. 24.3.*k-o*; HARTMAN, 1969: 77-78, 3 figs. *Tauberia oculata* — STRELZOV, 1973: 133-135, figs. 16.10, 58. *Levinsenia oculata* — BLAKE, 1996*b*: 34-36, fig. 2.2; AGUIRREZABALAGA & GIL, 2009: table 2. *Paraonis* n. sp. — HARTMAN, 1955*a*: 179. [?] *Paraonis (Paraonis) gracilis* Forme II — DUMITRESCO, 1960: 78, fig. 3*g-i*.
**DISTRIBUTION:** California (12-1272 meters); South Africa (1240 meters); [?] Adriatic Sea; [?] Black Sea (80 meters); [?] North Sea (150 meters). On muddy bottoms.

## *GENUS ***Paradoneis*** Hartman 1965

*Paradoneis* HARTMAN, 1965*b*: 139.
**TYPE SPECIES:** *Paraonis lyra* Southern 1914.

**KEY TO SPECIES:**

**1a.** Prebranchial chaetigers numbering more than three.....**2**
**1b.** Three prebranchial chaetigers.....**5**

**2a (1a).** Four prebranchial chaetigers.....**3**
**2b (1a).** Six prebranchial chaetigers; modified notochaetae acicular, lacking accessory structure.....***P. drachi***

**3a (2a).** Tines of modified notopodial lyriform chaetae of similar thickness along the whole body; postbranchial segments with one mid-dorsal fold.....**4**
**3b (2a).** Tines of modified notopodial lyriform chaetae of similar thickness in the anterior region of the body, becoming one tine much thicker and robust from chaetiger 10-11; postbranchial segments without mid-dorsal fold.....***P. bathyilvana***

**4a (3a).** Capillary chaetae extremelly long, often longer than 3 times the body width; 7 pairs of branchiae; tips of branchiae acutely pointed; base of modified notopodial lyriform chaetae with long hairs; postchaetal lobes digitiform from chaetiger 3, not decreasing in size on postbranchial chaetigers, and becoming longer in central part of body.....***P. hirsuta***
**4b (3a).** Capillary chaetae about as long as body width, or slightly longer; up to 12 pairs of branchiae; tips of branchiae rounded; modified notopodial lyriform chaetae with short hairs; postchaetal lobes short, conical to triangular in chaetigers 1-4, lengthening up to chaetiger 4, from chaetiger 5 longer, digitiform, slightly shorter in postbranchial region.....***P. mikeli***

**5a (1b).** Modified notochaetae of two main morphological types, being lyriform in the anterior segments, and highly modified from the lyriform basal type, with an acicular stem, in the posterior segments.....**6**
**5b (1b).** Modified notochaetae clearly lyriform along the whole body, but may present some slight modifications in some cases.....**7**

**6a (5a).** Modified notochaetae in the posterior segments acicular, with a subterminal arista; the subterminal arista can originate from a subdistal small conical protusion of the shaft.....***P. armata****
**6b (5a).** Modified notochaetae in the posterior segments clearly harpoon-like, with a massive lateral protusion of the chaetal stem, with or without an arista attached to it.....***P. harpagonea****

**7a (5b).** Lyriform chaetae with tynes of different thickness in the posterior segments; postchaetal notopodial lobes short and tuberculate in the prebranchial, branchial and beginning of post-branchial regions, increasing in size along the body, in some cases reaching the same length of the capillary chaetae at the end of the body.....***P. ilvana****

**7b (5b).** Lyriform chaetae with tynes of equal thickness along the whole body; notopodial postchaetal lobes on the branchial region of the body digitiform; their size changes between the prebranchial, branchial and anterior part of postbranchial region.....**8**

**8a (7b).** Adults with 3 (rarelly 4) pairs of branchiae, and 30-42 chaetigers; prebranchial notopodial postchaetal lobes short, tuberculate, becoming prominent and uniform in length on chaetigers 4-9, and then tuberculate and reduced in size on chaetigers 10-31, and finally progressively longer towards the end of body, beginning 3-5 chaetigers from end; pygidial region with nine cirri, consisting of 3 pairs arranged dorsolaterally to ventrolaterally, apparently representing dorsal podial lobes of three reduced segments, and three anal cirri, a single ventromedial one and a lateral pair; posterior neuropodia without hooks.....***P. perdidoensis***
**8b (7b).** Adults normally with more than 4 pairs of branchiae, and more than 50 chaetigers.....**9**

**9a (8b).** Prebranchial notopodial postchaetal lobes digitiform, increasing in size over the three anterior chaetigers, of similar length throughout the branchial region, and decreasing in the anterior postbranchial region; branchiae with blunt tips; anal cirri short; posterior neuropodia without hooks.....***P. lyra****
**9b (8b).** Prebranchial notopodial postchaetal lobes low, tuberculate, increasing in size from chaetiger 1 to 3, being digitiform from chaetiger 4, and not decreasing in the anterior postbranchial region; branchiae sharply pointed; anal cirri long; posterior neuropodia provided with conspicuous curved hooks.....***P. eliasoni***

## ****Paradoneis armata*** Glémarec 1966

*Paradoneis armata* GLÉMAREC, 1966*a*: 1046-1049, figs. 1*B-C*, 2.
**TYPE LOCALITY:** Morgat Beach, Presqu'île de Crozon, Bretagne (France), shallow water, on sand.
**SELECTED REFERENCES:** *Paradoneis armata* — HARMELIN, 1969: 310-312, figs. 1-3; LAUBIER, 1971: 259-262, fig. 1*A-C*; LAUBIER & RAMOS, 1974*a*: 1099; CAMPOY, 1981: 22; CAMPOY, 1982: 655; LÓPEZ-JAMAR, O'CONNOR & GONZÁLEZ, 1987: 130-135, figs. 2-7; CASTELLI, 1988: 328-329; KIRKEGAARD, 1996: 29-31, fig. 11; AGUIRREZABALAGA & GIL, 2009: 641, table 3; SARDÁ *et al.*, 2009: table 4. *Cirrophorus armatus* — STRELZOV, 1973: 111-113, figs. 18.3, 47*A-E*; MCLELLAND & GASTON, 1994: table 1; HARTMANN-SCHRÖDER, 1996: 383-384, fig. 180. *Paraonis (Paradoneis) lyra* [not Southern 1914] — HARTMANN-SCHRÖDER, 1971*a*: 290-291, fig. 97*a-b*. Not *Paradoneis armata* — HARTLEY, 1981: 145-146 [= *Paradoneis eliasoni* Mackie 1991].
**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 185 (A.3926)**, near Sines, 37 m, sandy mud: 1 incomplete specimen with about 73 chaetigers and 12/13 pairs of branchiae, plus one posterior fragment with 42 chaetigers. **St. 186 (A.3925)**, south Sines, 27 m, muddy sand: 3 specimens; (1) incomplete, with 14 pairs of branchiae; (2) complete with about 100 chaetigers and 12 pairs of branchiae, modified chaetae from about chaetiger 14; (3) complete, with about 113 chaetigers and 14 pairs of branchiae, modified chaetae from about chaetiger 13/14. **St. 187 (A.3924)**, south Sines, 17 m, sand: 8 specimens, plus one middle fragment; (1) complete, with about 80 chaetigers, 12 pairs of branchiae; (2) complete, with about 105 chaetigers, 14 pairs of branchiae; (3) incomplete, with about 62 chaetigers, 15 pairs of branchiae; (4) incomplete, with about 87 chaetigers, 15 pairs of branchiae; (5) complete, with about 78 chaetigers, 12 pairs of branchiae; (6) complete with about 105 chaetigers, 14 pairs of branchiae; (7) complete, with about 115 chaetigers, 14 pairs of branchiae; (8) incomplete, with 68 chaetigers, 16 pairs of branchiae. **St. 188 (A.3923)**, south Sines, 17 m, sand: 2 specimens; (1) complete, with about 112 chaetigers, 15/16 pairs of branchiae; (2) complete, with about 69 chaetigers, 14 pairs of branchiae; pygidium seems to have been regenerated; some segments with 2 modified chaetae, as in other specimens.
**DISTRIBUTION:** North Sea; English Channel; Bretagne (shallow water); Bay of Biscay (1026-1200 meters); Western and Eastern Mediterranean (0-180, 500 meters); Adriatic Sea; Aegean Sea; Black Sea (15-44 meters); Red Sea. On sandy bottoms.
**REMARKS:** Prostomium triangular, without antenna. Branchiae first present from chaetiger 4. Up to 19 pairs of branchiae (12-16 in studied specimens), rounded at tips. Notopodial lobes from chaetiger 1, being smaller on the first 3 segments, elongated at the branchial region and becoming very small on the postbranchial region of the body. Notopodial modified lyrate chaetae from chaetiger 3-10. From about chaetiger 17-18 (13-14 in some of the studied specimens) appear up to two modified aciculate chaetae. They are like a modified lyrate chaetae, with a thick main stem and an external subterminal arista, attached to the base at a right angle and with the internal borders pectinated.

## ***Paradoneis bathyilvana*** Aguirrezabalaga & Gil 2009

*Paradoneis bathyilvana* AGUIRREZABALAGA & GIL, 2009: 643-644, figs. 10-11, table 3.

**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º36.25'N, 1º48.24'W, 508 meters, to 43º36.45'N, 1º48.10'W, 576 meters.

**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, 492-576 meters; [?] Skagerrak, in mud, at 421 meters.

**REMARKS:** MACKIE (1991*b*) revised some specimens from Skagerrak previously identified by ELIASON (1962*b*) as *Paraonis lyra* (Station 25, 57º45'N, 8º7'E, 421 meters). This material included 7 specimens (0.225-0.35 mm wide) with four prebranchial chaetigers, 3-5 pairs of branchiae, conspicuous notopodial lyriform chaetae and no neuropodial hooks. The taxonomic status of these specimens was stated to be under investigation, but the short description given by MACKIE (1991*b*) seems to approach them of *Paradoneis bathyilvana*, in spite of the number of branchiae being smaller (3-5 against 7-8 in *P. bathyilvana*).

The synoptic key of *Paradoneis* species given by AGUIRREZABALAGA & GIL (2009) presents an error concerning *Paradoneis bathyilvana*, which is stated to have the modified notochaetae as "*forked (lyrate)*", when it should state "*forked (lyrate, acicular)*", as the modified lyriform chaetae appear first with both tines of similar thickness, and then one of the tines becomes progressively much thicker and robust.

## ***Paradoneis drachi*** Laubier & Ramos 1974

*Paradoneis drachi* LAUBIER & RAMOS, 1974*a*: 1099- 1102, fig. 1.

**TYPE LOCALITY:** Bay of Rosas (Spanish Catalonia, Mediterranean Sea), 42º13.7'N, 3º21.5'E, at 115 meters.

**SYNONYMS:** [?] *Paraonis spinifera* Hobson 1972.

**SELECTED REFERENCES:** *Paradoneis drachi* — KATZMANN & LAUBIER, 1975: 569; CAMPOY, 1981: 22; CAMPOY, 1982: 655; CASTELLI, 1988: 328; AGUIRREZABALAGA & GIL, 2009: 641-642, fig. 8, table 3; SARDÁ *et al.*, 2009: table 4. [?] *Paraonis spinifera* — HOBSON, 1972: 553-554, fig. 2. [?] *Paradoneis spinifera* — BLAKE, 1996*b*: 41-43, fig. 2.6.

**DISTRIBUTION:** Western Mediterranean (20-800 meters); Adriatic Sea (525-550 meters); Aegean Sea; Capbreton Canyon, Bay of Biscay, 508-576 meters. On muddy bottoms. [?] Washington (27-40 meters), and California (150 meters), on muddy bottoms.

**REMARKS:** This species is close to *Paradoneis spinifera* (Hobson 1972), as both species have smooth acicular spines as modified notopodial chaetae, as already noted by BLAKE (1996*b*), who suggested that the two could be synonymous. However, the two species differ in the number of prebranchial chaetigers, being 4-5 in *P. spinifera* and 6 in *P. drachi*. This difference was considered to be significant by AGUIRREZABALAGA & GIL (2009)

## ***Paradoneis eliasoni*** Mackie 1991

*Paradoneis eliasoni* MACKIE, 1991*b*: 152-154, figs. 3*B-C*, 4-5, table 2.

**TYPE LOCALITY:** Skagerrak (58º3'N, 10º13'30"E), at140 meters, in grey mud.

**SELECTED REFERENCES:** *Paradoneis eliasoni* — KIRKEGAARD, 1996: 31-32, fig. 12; SARDÁ *et al.*, 2009: table 4; AGUIRREZABALAGA & GIL, 2009: 642-643, fig. 9, table 3. *Cirrophorus eliasoni* — MCLELLAND & GASTON, 1994: table 1; HARTMANN-SCHRÖDER, 1996: 384-385, fig. 181. *Paraonis lyra* [not *Paradoneis lyra* (Southern 1914)] — ELIASON, 1920: 56-57; ELIASON, 1962*a*: 45; ELIASON, 1962*b*: 262 [in part; in part, taxonomic status uncertain]. *Cirrophorus lyra* [not *Paradoneis lyra* (Southern 1914)] — STRELZOV, 1968: 87-90, fig. 7; STRELZOV, 1973: 116-118, fig. 49. *Paradoneis armata* [not Glémarec 1966] — HARTLEY, 1981: 145-146.

**DISTRIBUTION:** Skagerrak (140-681 meters); Øresund (5-37 meters); Northern North Sea (100-130 meters); Norwegian Trough (320 meters); South-eastern Barents Sea (39-195 meters); Capbreton Canyon, Bay of Biscay (952-1029 meters). Preferably on muddy bottoms, but also on sandy substrates.

## ****Paradoneis harpagonea*** (Storch 1967)

*Paraonis (Paraonides) harpagonea* STORCH, 1967: 108, fig. 6.

**TYPE LOCALITY:** Giftun Islands, Hurghada (Egypt), Red Sea, in coarse sand, eulittoral.

**SELECTED REFERENCES:** *Cirrophorus harpagoneus* — STRELZOV, 1973: 113-114, figs. 18.4, 47*F-O*; MARINOV, 1977: 165-166, pl. 25 fig. 1, pl. 39 fig. 2. *Paradoneis harpagonea* — CASTELLI, 1985: 271-273, fig. 3*d*, *g-h*; AGUIRREZABALAGA & GIL, 2009: table 3; SARDÁ *et al.*, 2009: table 4. [?] *Paraonis*

*fulgens* [not *Paraonis fulgens* (Levinsen 1884)] — MARINOV, 1959*a*: 95-96, fig. 11; MARINOV, 1964: 82-105.

**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 189 (A.3922)**, south Sines, 29 m, muddy sand: 1 specimen with 12 pairs of branchiae and about 65 chaetigers; modified chaetae with a thick lateral projection, perpendicular to the axis of the modified chaetae, very close to the represented by STRELZOV (1973) and CASTELLI (1985).

**DISTRIBUTION:** Mediterranean Sea; Black Sea; Red Sea; Portugal. In sandy grounds. From eulittoral to about 50 meters.

**REMARKS:** LÓPEZ-JAMAR, O'CONNOR & GONZÁLEZ (1987) examined para- and topotype material of *P. armata*, and discovered the presence of acicular chaetae with long subdistal teeth, as described for *Paradoneis harpagonea* Storch 1967, from the Red Sea. The same authors were able to examine the holotype of the late species, and found no specific differences, regarding therefore *P. harpagonea* as a junior synonym of *P. armata*, which had been already suggested by LAUBIER & RAMOS (1974*a*). However, I consider here *Paradoneis harpagonea* as a valid species, at least until more evidence is given for its synonymy, as the shape of the modified neuropodial chaetae is clearly distinct in the posterior regions of both species (see also CASTELLI, 1985).

## ***Paradoneis hirsuta*** Sardá, Gil, Taboada & Gili 2009

*Paradoneis hirsuta* SARDÁ *et al.*, 2009: 8-11, fig. 3, table 4.

**TYPE LOCALITY:** Western Mediterranean Sea, submarine canyon of Foix (off Barcelona, Spain, 41º02'N, 01º56'E), at 990 meters, collected by a sediment trap located 30 meters above bottom.

**DISTRIBUTION:** Known from the type locality.

## ****Paradoneis ilvana*** Castelli 1985

*Paradoneis ilvana* CASTELLI, 1985: 273-275, figs. 3*b*, *e*, 4.

**TYPE LOCALITY:** Magazzini, Bay of Portoferraio (Elba Island, Italy), at 10 meters, on sand.

**SYNONYMS:** [?] *Paraonis lyra capensis* Day 1955.

**SELECTED REFERENCES:** *Paradoneis ilvana* — CASTELLI, 1988: 329; TENA *et al.*, 1991: 36, fig. 4, table 1; AGUIRREZABALAGA & GIL, 2008: 39, figs. 2-3, 6*A-B*; AGUIRREZABALAGA & GIL, 2009: table 3; SARDÁ *et al.*, 2009: table 4. *Cirrophorus ilvana* — MCLELLAND & GASTON, 1994: table 1. *Paraonis (Paraonides) lira* [not Southern 1914] — MARINOV, 1959*a*: 96-97, fig. 12. *Paraonis (Paraonides) lyra* [not *Paradoneis lyra* (Southern 1914)] — [?] AUGENER, 1932*c*: 669; [?] DUMITRESCO, 1960: 76-77, fig. 3*a-d*. *Paranoïs lyra* — RULLIER, 1963*b*: 243. *Cirrophorus neapolitanus* [?not *Paraonides neapolitana* (Cerruti 1909)] — STRELZOV, 1973: 114-116, fig. 48 [in part?; at least specimens from Black Sea and Bay of Biscay]; MARINOV, 1977: 165. *Paraonis lyra* [not *Paradoneis lyra* (Southern 1914)] — MARINOV, 1964: 82-105. [?] *Paraonis lyra* var. *capensis* — DAY, 1955: 417. [?] *Paraonides lyra capensis* — DAY, 1967: 568-569, fig. 24.4.*h-k*.

**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 21 (A.4081)**, north Sines, 116 m, sand with shells: 1 incomplete specimen with 37 chaetigers; 9 pairs of branchiae from chaetiger 4; some modified chaetae of the postbranchial region as described by CASTELLI (1985). **FAUNA 1 — St. 0*A***, Galicia, off Cies Islands, Ria de Vigo, 82-96 m, unknown substrate: 3 specimens; (1) incomplete with 23 chaetigers, branchiae from chaetiger 4 to 13th (10 pairs), pointed, postchaetal lobes of the first 3 chaetigers digitiform, not increasing in size from the 1st to the 3rd, prostomium with terminal papilla everted, lyriform chaetae from chaetiger 4; (2) incomplete with 19 chaetigers, 9 pairs of branchiae, postchaetal lobes as described; (3) incomplete with 22 chaetigers, 11 pairs of branchiae, postchaetal lobes as described, some of the modified chaetae as described by CASTELLI (1985).

**DISTRIBUTION:** Mediterranean Sea (0-30 meters); Adriatic Sea (estuarine); Aegean Sea; Black Sea (70-86 meters); Northeast Atlantic: Bay of Biscay; Galicia (25-50 meters); [?] South Africa (estuarine-100 meters). On sandy and muddy bottoms.

**REMARKS:** *Paradoneis ilvana* was originally described by CASTELLI (1985) as lacking notopodial postchaetal lobes in the prebranchial region. However, AGUIRREZABALAGA & GIL (2008) found these notopodial lobes to be present in type material of *P. ilvana*, loaned by A. Castelli. With base on this, it is possible to state that at least part of the specimens described by STRELZOV (1973) as *Cirrophorus neapolitanus* belong to *Paradoneis ilvana* (specimens from Black Sea and Bay of Biscay). STRELZOV (1973) also considered *Paraonis lyra capensis* Day 1955 as being the same species than the rest of the material identified by him as *Cirrophorus neapolitanus* and here referred to *Paradoneis ilvana*. DAY

(1967) described this taxon as lacking postchaetal notopodial lobes before chaetiger 8, but STRELZOV (1973) didn't fing evidences for referring both populations to different species. For the moment, and based mainly in the distance between both populations, I prefer to consider the synonymy between *P. ilvana* and *Paraonis lyra capensis* as doubtful. If shown to belong to the same taxon, it would be necessary to change the name of the species, according to the Law of Priority of the actual ICZN.

*Paradoneis ilvana* was also described has having lyriform chaetae in the branchial region with tines of equal length (see CASTELLI, 1985: fig. 3*e*). Specimens from Valencia are depicted as having the lyriform chaetae of the branchial region with one tine longer than the other (see TENA *et al.*, 1991: fig. 4*C*), which was also confirmed by AGUIRREZABALAGA & GIL (2008: fig. 3*C-D*).

See also the *REMARKS* section under *Paraonides neapolitana*.

## ****Paradoneis lyra*** (Southern 1914)

*Paraonis (Paraonides) lyra* SOUTHERN, 1914: 94-95, pl. 9 figs. 22*A-E*, pl. 10 figs. 22*F-G*.

**TYPE LOCALITY:** Ballynakill Harbour, Galway (Ireland), surface waters.

**SELECTED REFERENCES:** *Paraonis (Aricidea?) lyra* — MCINTOSH, 1922*a*: 15-16. *Paraonis lyra* — MCINTOSH, 1923*a*: 472-473, pl. 136 fig. 3; [?] THORSON, 1946: 103; HARMELIN, 1964: 86. *Paraonis (Paraonides) lyra* — FAUVEL, 1927*a*: 72-73, fig. 24*a-f*; [?] FRIEDRICH, 1938: 136, fig. 90*d-f*; [?] HARTMAN, 1957: 334-335; [?] PETTIBONE, 1963*a*: 300, fig. 79*g*; [?] BELLAN, 1965: 8-9; LAUBIER, 1965: 136. *Paranois (Paranoides) lyra* — BELLAN, 1964*b*: 114. *Paradoneis lyra* — GUILLE & LAUBIER, 1966: 270; LAUBIER & RAMOS, 1974*a*: 1102; CAMPOY, 1981: 22; HARTLEY, 1981: 146; CAMPOY, 1982: 655-657; CASTELLI, 1988: 329; MACKIE, 1991*b*: 148-151, figs. 1-2, 3*A*, table 1; KIRKEGAARD, 1996: 32-34, fig. 13; AGUIRREZABALAGA & GIL, 2009: table 3; SARDÁ *et al.*, 2009: table 4. *Cirrophorus lyra* — MCLELLAND & GASTON, 1994: table 1; HARTMANN-SCHRÖDER, 1996: 385-386, fig. 182. [?] *Paraonides lyra lyra* — DAY, 1963*b*: 425; DAY, 1967: 568, fig. 24.4.*c-g*. [?] *Paradoneis lyra* — HARTMAN, 1965*b*: 140; GALLARDO, 1968: 96, pl. 42 fig. 7, pl. 43 fig. 1; HARTMAN, 1969: 71-72, 4 figs.; FAUCHALD, 1972*a*: 185. Not *Paraonis lyra* — AMOUREUX, 1971*a*: 11. Not *Paraonis (Paraonides) lira* — MARINOV, 1959*a*: 96-97, fig. 12 [= *Paradoneis ilvana* Castelli 1985]. Not *Paraonis lyra* — ELIASON, 1920: 56-57; ELIASON, 1962*a*: 45; ELIASON, 1962*b*: 262 [= *Paradoneis eliasoni* Mackie 1991]. Not *Cirrophorus lyra* — STRELZOV, 1968: 87-90, fig. 7; STRELZOV, 1973: 116-118, fig. 49 [= *Paradoneis eliasoni* Mackie 1991]. Not *Paraonis (Paradoneis) lyra* — HARTMANN-SCHRÖDER, 1971*a*: 290-291, fig. 97*a-b* [= *Paradoneis armata* Glémarec 1966]. Not *Paradoneis lyra* — IMAJIMA, 1973: 287-288, figs. 18, 20; KATZMANN & LAUBIER, 1975: 569-572, fig. 1*A-C*.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Paraonis lyra*; continental shelf of Algarve); DEXTER, 1992 (as *Paraonides lyra*; previous records: Ria Formosa; continental shelf of Algarve; Sines); PARDAL, CALDEIRA & MARQUES, 1992 (as *Paraonis (Paraonides) lyra*; previous records: Ria Formosa); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 73 (A.3002)**, off Cape Sardão, 120 m, muddy sand: 1 small specimen with about 35 chaetigers; 5 pairs of branchiae; one anal cirri observed, about 100 µm long; lyriform chaetae not observed in the posterior region. **SEPLAT 7 (2nd part) — St. 22 (A.4082)**, north Sines, 122 m, sand: 2 specimens; (1) complete, with about 71 chaetigers; 7 pairs of branchiae, with rounded tips; lyriform chaete already present at chaetiger 7; (2) incomplete, with 37 chaetigers; 8 pairs of branchiae; lyriform chaetae already present at chaetiger 5. **St. 23 (A.4083)**, north Sines, 127 m, sand: 2 specimens; (1) complete, with about 64 chaetigers; 7 pairs of branchiae, from chaetiger 4; (2) incomplete, a posterior fragment with 56 chaetigers and pygidium. **St. 39 (A.4068)**, north Sines, 110 m, sand with shells: 1 complete specimen with about 68 chaetigers, branchiae from chaetiger 4, numbering 6 pairs, with rounded tips and directed forwards; first lyriform chaeta observed at chaetiger 12. **St. 89 (A.4018)**, off Sines, 300 m, sand: 1 complete specimen, broken in 2 pieces, with about 90 chaetigers and 8 pairs of branchiae; capillary chaetae very long; eggs present. **St. 266 (A.3865)**, off Cape Sardão, 175 m, sand: 1 complete specimen with about 87 chaetigers and 7 pairs of branchiae; capillary chaetae very long. **St. 267 (A.3864)**, south Cape Sardão, 155 m, muddy sand: 1 complete specimen, with 71 chaetigers; 5 pairs of branchiae, from chaetiger 4; modified chaetae at least from chaetiger 8. **FAUNA 1 — St. 5*A***, Alborán Sea, off Veléz-Málaga, 67-68 m, mud: 1 incomplete specimen with about 46 chaetigers; branchiae from chaetiger 4, numbering 8 pairs; lyriform chaetae from chaetiger 4/5. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 1 incomplete specimen with 42 chaetigers; 8 pairs of branchiae from chaetiger 4; modified chaetae already present at chaetiger 8.

**DISTRIBUTION:** Ireland (surface waters-20 meters); Celtic Sea (93-121 meters); Scotland (9-25 meters); North Sea (0.5-6, 45-130 meters); West coast of Sweden (30-40 meters); Gulf of Gascony (30-100 meters); Mediterranean Sea (20-90, 450-800 meters); Adriatic Sea; Aegean Sea; [?] Bay of Nha Trang,

Vietnam (40-51 meters); [?] Atlantic Coast of North America (13-72 meters); [?] NW Atlantic (300-1772 meters); [?] California (18-368 meters); [?] Venezuela (22 meters). On muddy and sandy bottoms.
**REMARKS:** According to MACKIE (1991*b*), the Mediterranean specimens described by KATZMANN & LAUBIER (1975) differ from the North European populations by having a variable number of prebranchial chaetigers (three or four), against a constant number of three chaetigers in the North European specimens (see KATZMANN & LAUBIER, 1975: fig. 1*A*). AMOUREUX (1971*a*) also referes one specimen, collected at the Gulf of Tarento, with 4 prebranchial chaetigers. Besides, KATZMANN & LAUBIER (1975) also refer their specimens with lyriform chaetae starting at chaetigers 6-10, while MACKIE (1991*b*) states lyriform chaetae starting between chaetigers 1-6. MACKIE (1991*b*) also noted that the Japanese specimens described by IMAJIMA (1973) were referred to have postbranchial postchaetal lobes not reduced in relation to those of the branchial region, while his own specimens show shorter postchaetal lobes after the branchial region.

### ***Paradoneis mikeli*** Aguirrezabalaga & Gil 2009

*Paradoneis mikeli* AGUIRREZABALAGA & GIL, 2009: 644-649, figs. 12-13, table 3.
**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, 43º35.87'N, 2º17.43'W, 505 meters, to 43º35.87'N, 2º17.73'W, 512 meters.
**SELECTED REFERENCES:** [?] *Paradoneis lyra* [not Southern 1914] — KATZMANN & LAUBIER, 1975: 569-572, fig. 1*A-C*.
**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, 492-1113 meters, [?] Mediterranean Sea; [?] Adriatic Sea; [?] off Britanny; [?] off northeast America.
**REMARKS:** The synoptic key of *Paradoneis* species given by AGUIRREZABALAGA & GIL (2009) presents an error concerning *Paradoneis mikeli*, which is stated to have the modified notochaetae as "*forked (lyrate, acicular)*", when it should state only "*forked (lyrate)*".

### ***Paradoneis perdidoensis*** (McLelland & Gaston 1994)

*Cirrophorus perdidoensis* MCLELLAND & GASTON, 1994: 525-527, fig. 1, table 1.
**TYPE LOCALITY:** Gulf of Mexico, Northwest Florida, Perdido Key (30º17'31"N, 87º25'12"W), 5.5 meters depth, in a sediment composed by 99.7% sand, and 0.3% silt-clay.
**SELECTED REFERENCES:** *Cirrophorus perdidoensis* — NÚÑEZ *et al.*, 2001: 33. *Paradoneis perdidoensis* — AGUIRREZABALAGA & GIL, 2009: table 3; SARDÁ *et al.*, 2009: table 4.
**DISTRIBUTION:** Gulf of Mexico, Northwest Florida, Perdido Key (30º17'31"N, 87º25'12"W), between 2.1-7.0 meters, in sand; Southern Florida, Florida Keys, Pigeon Key (24º50'N, 80º45'W), 1 meter depth, in coarse coralline sand with seagrasses; Canary Islands and Selvagens Islands (Macaronesia), in fine, coarse, and muddy sand, between 14-20 meters.

## GENUS ***Paraonides*** Cerruti 1909

*Paraonides* CERRUTI, 1909*b*: 493-495, 504.
**TYPE SPECIES:** *Paraonis (Paraonides) neapolitana* Cerruti 1909.
**SYNONYMS:** *Paraonella* Strelzov 1973.

**KEY TO SPECIES:**
(from CASTELLI, 1988)

**1a.** Branchiae present from chaetiger 4.....***P. neapolitana***
**1b.** Branchiae absent.....***P. myriamae***

### ***Paraonides myriamae*** Katzmann & Laubier 1975

*Paraonides myriamae* KATZMANN & LAUBIER, 1975: 572-575, fig. 2.
**TYPE LOCALITY:** Adriatic Sea, 43º29'00"N, 15º15'06"E, 135 meters.
**SELECTED REFERENCES:** *Paraonides myriamae* — CASTELLI, 1988: 330; AGUIRREZABALAGA & GIL, 2009: 640-641, fig. 7.
**DISTRIBUTION:** Adriatic Sea (50-800 meters); Capbreton Canyon, Bay of Biscay, 505-512 meters. On muddy bottoms.

### ***Paraonides neapolitana*** (Cerruti 1909)

*Paraonis (Paraonides) neapolitana* CERRUTI, 1909*b*: 493-495, 504, pl. 18 figs. 19-21.

**TYPE LOCALITY:** Gulf of Naples, in front of the Stazione Zoologica di Napoli, at 5 meters, in a bottom of sand.

**SELECTED REFERENCES:** *Paraonis (Paraonides) neapolitana* — DOLLFUS, 1924: 17-19; FAUVEL, 1927*a*: 73, fig. 25*h-i*; LAUBIER & PARIS, 1962: 41; RULLIER, 1963*b*: 243; LAUBIER & RAMOS, 1974*a*: 1102. *Paranois (Paranoides) neapolitana* — BELLAN, 1964*b*: 114. *Paraonides neapolitana* — CASTELLI, 1988: 330. [?] Not *Cirrophorus neapolitanus* — STRELZOV, 1973: 114-116, fig. 48 [at least specimens from Black Sea and Bay of Biscay = *Paradoneis ilvana* Castelli 1985].

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Paraonis neapolitana*; previous records: Sines).

**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Black Sea. On sandy bottoms. From shallow water to 200 meters.

**REMARKS:** The genus *Paraonides* was originally created by CERRUTI (1909*b*) as a subgenus of *Paraonis*, in order to include *Paraonis (Paraonides) neapolitana*, from the Gulf of Naples, a species without median antenna and modified chaetae. STRELZOV (1973) studied one specimen from the Bay of Biscay, deposited at the Muséum National d'Histoire Naturelle de Paris, and previously identified as *P. (P.) neapolitana* by Glémarec. STRELZOV (*op. cit.*) found notopodial lyrate chaetae to be present in this specimen, and assumed that this kind of chaetae was also present on Cerruti's material and overlooked by him. This way, *Paraonides* Cerruti 1909 was regarded by Strelzov as a junior synonym of *Cirrophorus* Ehlers 1908, as the same author considered also *Paradoneis* Hartman 1965 as a junior synonym of *Cirrophorus*. For species without antenna or modified notopodial chaetae STRELZOV (*op. cit.*) created the genus *Paraonella*. However, as already noted by CASTELLI (1988), Strelzov's conclusions cannot be accepted for the moment. He didn't studied the type material (which is probably lost) or any topotype material collected at, or nearby, the type locality (Gulf of Naples). Moreover, the Atlantic specimen studied by him seems to have been erroneously identified by Glémarec, before its deposition at the Museum, and it appears to be *Paradoneis ilvana*. For the moment being, and until a definitive study on the validity of *Paraonides neapolitana* is performed with base on topotype material, this species should be considered as valid, and *Paraonella* Strelzov 1973 regarded as a junior synonym of *Paraonides* Cerruti 1909. The specimens identified by STRELZOV (*op. cit.*) as *Cirrophorus neapolitanus* seem to belong, at least in part, to *Paradoneis ilvana*.

## GENUS ***Paraonis*** Grube 1873

*Paraonis* GRUBE, 1873*a*: 58.

**TYPE SPECIES:** *Aonides fulgens* Levinsen 1884.

### ***Paraonis fulgens*** (Levinsen 1884)

*Aonides fulgens* LEVINSEN, 1884: 101, 102-103.

**TYPE LOCALITY:** Øresund, Denmark.

**SELECTED REFERENCES:** *Aonides fulgens* — LEVINSEN, 1893: 335. *Levinsenia fulgens* — MESNIL, 1897: 93-94, pl. 3 fig. 23; MESNIL & CAULLERY, 1898: 128-136, pl. 6 figs. 1-9, table on page 138. *Paraonis fulgens* — CERRUTI, 1909*b*: 468-469, 495, fig. *H*; FAUVEL, 1927*a*: 71, fig. 24*g-l*; FRIEDRICH, 1938: 136, fig. 90*c*; AUGENER, 1939: 143; MCINTYRE, 1961: 357; ELIASON, 1962*a*: 45; PETTIBONE, 1963*a*: 302, fig. 79*e-f*; RULLIER, 1963*b*: 243; STRELZOV, 1973: 51-53, figs. 18.1, 20*A-E*; AMOUROUX, 1974: 423; LAUBIER & RAMOS, 1974*a*: 1098; CAMPOY, 1981: 23, fig. 4*c-d*; HARTLEY, 1981: 146; CAMPOY, 1982: 657-658, pl. 83 figs. *c-d*; GASTON, 1984: 2.47-2.49, figs. 2.45-2.46; CASTELLI, 1985: 268-270, fig. 2; CASTELLI, 1988: 330-331; GASTON, MCLELLAND & HEARD, 1992: 395-398, tables 1-3; HARTMANN-SCHRÖDER, 1996: 387-388, fig. 184; KIRKEGAARD, 1996: 34-35, fig. 14. *Paraonis (Paraonis) fulgens* — HARTMANN-SCHRÖDER, 1971*a*: 288-289, fig. 96*a-c*. Not *Paraonis fulgens* — MARINOV, 1959*a*: 95-96, fig. 11*b-d*; MARINOV, 1964: 82-105 [= *Paradoneis ilvana* Castelli 1985].

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Sado Estuary).

**DISTRIBUTION:** Irish Sea; English Channel; North Sea; Denmark; Øresund; Baltic Sea; Gulf of Gascony; Mediterranean Sea; Adriatic Sea; Black Sea; Gulf of Mexico; Atlantic Coast of North America. On sandy bottoms and beaches. Intertidal to about 100 meters.

## INVALID SPECIES

### *Paraonis tenera* Grube 1873

*Paraonis tenera* GRUBE, 1873*a*: 58.
**TYPE LOCALITY:** Adriatic Sea.
**SELECTED REFERENCES:** *Paraonis tenera* — FAUVEL, 1927*a*: 72; RULLIER, 1963*b*: 243.
**DISTRIBUTION:** Known from the type locality (one single specimen).
**REMARKS:** *Paraonis tenera* was described by GRUBE (1873*a*) with base on a single specimen. The description was very short and inaccurate, and without any illustration. As noted by STRELZOV (1973), *"the small, flat elongated caruncle, reaching up to the second segment"* described by GRUBE (1873*a*) refers probably to a prostomial antennae, instead to an artifact due to the compression of the specimen, as suggested by CERRUTI (1909*b*) (see STRELZOV, 1973, fig. 19, for a reconstruction based on the original description). Other features referred in the original description, as the branchiae starting at the fourth chaetiger, identifies the specimen as an indeterminable *Aricidea* specimen, a genus created by Webster in 1879. The species was only referred again in FAUVEL (1927*a*), based largelly in the description by Grube, and is cited in a list of Mediterranean Paraonidae by RULLIER (1963*b*). STRELZOV (1973) noted that *Paraonis* Grube 1873, would be an older synonym of *Aricidea* Webster 1879. However, Grube's species was never found again, no type material is known to exist, and the original description is too brief in order to allow an identification. Moreover, the name *Paraonis* has been used in a different sense, since 1873. For these reasons, STRELZOV (1973) considered *Paraonis tenera* Grube 1873 as a *nomen oblitum*, stating that the genus *Paraonis* should be retained as *Paraonis* Cerruti 1909 (not Grube 1873). This opinion is followed here.

# *FAMILY **PECTINARIIDAE** Quatrefages 1866

**AS:** *PECTINAREA* QUATREFAGES, 1866*b*: 327.

**TYPE GENUS:** *Pectinaria* Lamarck 1818.

**SYNONYMS:** *AMPHICTENIDAE* Grube 1850 [not to be given priority over Pectinariidae, according to Oppinion 1225 of the ICZN (1982)].

**REMARKS:** MALMGREN (1866) divided the Pectinariidae (as Amphictenea) in five genera: *Pectinaria* Savigny *in* Lamarck 1818, *Amphictene* Lamarck 1818, *Cistenides* Malmgren 1866, *Lagis* Malmgren 1866, and *Petta* Malmgren 1866. The five genera were not always recognised, and in some important works, as HESSLE (1917), FAUVEL (1927*a*) or HOLTHE (1986*b*), only two were accepted, *Pectinaria* and *Petta*, being the other three considered as subgenera of *Pectinaria*, together with the nominal subgenus, while in WOLLEBÆK (1912), only *Pectinaria* was considered as valid. FAUCHALD (1977*a*) recognised Malmgren's five genera as valid, and the same was followed in HUTCHINGS & PEART (2002) and will be followed here.

The nomenclatural history of the family, and especially of its older species, is quite complex, and was exposed by LUCAS & HOLTHUIS (1975) and NIELSEN, KIRKEGAARD & LEMCHE (1977). The situation was solved by NIELSEN, KIRKEGAARD & LEMCHE (1977), who applied to the ICZN in order to stabilize the nomenclature, which was done through the Oppinion 1225 of the ICZN (1982).

Important reference works on the family include HOLTHE (1986*b*) and HUTCHINGS & PEART (2002). The family is presently considered to include 5 genera with 49 species and 3 subspecies (HUTCHINGS & PEART, 2002). All five genera occur in European waters, with 7 species and 1 subspecies. Two species belonging to two different genera were present among the studied material.

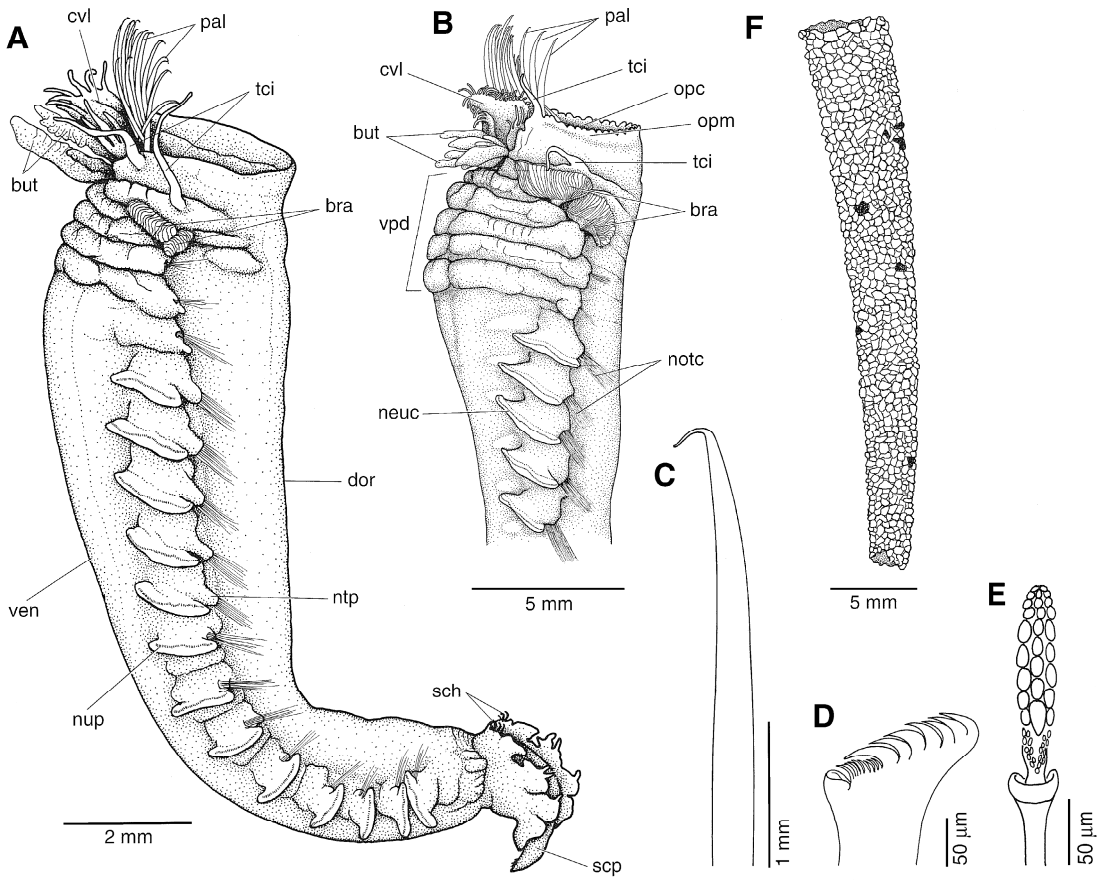


**Figure legend:** Family Pectinariidae. **A**, *Pectinaria* specimen, entire animal, lateral view. **B**-**E**, *Amphictene* specimen: **B**, anterior end, ventro-lateral view; **C**, palea; **D**, **E**, uncinus from chaetiger 6, lateral (**D**) and frontal (**E**) view. **F**, tube of a pectinariid. **bra**, branchiae; **but**, buccal tentacles; **cvl**, cephalic veil; **dor**, dorsum; **neuc**, neurochaetae; **notc**, notochaetae; **ntp**, notopodium; **nup**, neuropodium; **opc**, operculum; **opm**, opercular margin; **pal**, paleae; **sch**, scaphal spines; **scp**, scaphe; **tci**, tentacular cirrus; **ven**, venter; **vpd**, ventral pads. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

**KEY TO GENERA:**
(adapted from: FAUCHALD, 1977*a*; HOLTHE, 1986*b*; HUTCHINGS & PEART, 2002)

**1a.** Cephalic veil (tentacular membrane) serrated; scaphe distinctly separated from abdomen.....**2**
**1b.** Cephalic veil (tentacular membrane) smooth; scaphe indistinctly separated from abdomen.....***Petta***

**2a (1a).** Dorsal opercular rim smooth.....**3**
**2b (1a).** Dorsal opercular rim serrated.....***Amphictene****

**3a (2a).** Cephalic veil (tentacular membrane) free; 12-13 biramous chaetigers; normally dorsal bristles on 17 segments; no club-shaped papillae on scaphe.....**4**
**3b (2a).** Cephalic veil (tentacular membrane) laterally attached; 12 biramous chaetigers; normally dorsal bristles on 15 segments; club-shaped papillae can be present on scaphe.....***Lagis****

**4a (3a).** Major teeth of uncini in one row; normally 12 biramous chaetigers.....***Cistenides***
**4b (3a).** Major teeth of uncini in two rows; normally 13 biramous chaetigers.....***Pectinaria***

## *GENUS *Amphictene* Savigny 1822

*Amphictene* SAVIGNY, 1822: 88-89.
**TYPE SPECIES:** *Amphitrite auricoma* O.F. Müller 1776.

**KEY TO SPECIES:**
(data from HUTCHINGS & PEART, 2002)

**1a.** Three rows of teeth per uncini; 5-6 teeth within a row on uncinus; scaphe elongate, longer or as long as wide.....***A. auricoma auricoma****
**1b.** Two rows of teeth per uncini; 7-8 teeth within a row on uncinus; scaphe as long as broad.....***A. auricoma mediterranea***

### **Amphictene auricoma auricoma* (O.F. Müller 1776)

*Amphitrite auricoma* MÜLLER, 1776: 216.
**TYPE LOCALITY:** Denmark.
**SELECTED REFERENCES:** *Amphictene auricoma* — MALMGREN, 1866: 357-358, pl. 18 fig. 41; CLAPARÈDE, 1869: 122-124, pl. 28 fig. 2; FAUVEL, 1914*f*: 278-279; MCINTOSH, 1922*b*: 43-48, pl. 116 fig. 6, pl. 118 fig. 5, pl. 124 fig. 2; HUTCHINGS & PEART, 2002: table 1. *Pectinaria auricoma* — WOLLEBAEK, 1912: 37-38, pl. 4 figs. 1-5, pl. 5 figs. 1-6; HESSLE, 1917: 78-79. *Pectinaria (Amphictene) auricoma* — FAUVEL, 1927*a*: 222-224, fig. 78*a-f*; NILSSON, 1928: 54-57, fig. 17; ANNENKOVA, 1929*b*: 483, pl. 37 figs. 1-4; MARQUES, 1942: 46, fig. 1*f-g*; HOLTHE, 1986*b*: 22-24, fig. 4, map 3; HARTMANN-SCHRÖDER, 1996: 480-482, fig. 234; KIRKEGAARD, 1996: 280-281, fig. 156.
**REFERENCES FOR PORTUGAL:** MARQUES, 1942 (as *Pectinaria (Amphictene) auricoma*; Sines); MONTEIRO-MARQUES, 1987 (as *Pectinaria auricoma*; continental shelf of Algarve); DEXTER, 1992 (as *Pectinaria auricoma*; previous records: continental shelf of Algarve); RAVARA, 1997 (as *Pectinaria (Amphictene) auricoma*; off Aveiro); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 21 (A.4081)**, north Sines, 116 m, sand with shells: 1 specimen, in poor condition. **St. 23 (A.4083)**, north Sines, 127 m, sand: 1 specimen, complete, in a reasonable condition. **St. 185 (A.3926)**, near Sines, 37 m, sandy mud: 4 specimens, in a very poor condition; probably the formaline where the specimens were kept wasn't neutralized; the specimens had been identified in a previous phase of the work, and now it is still possible to see some of the main features of the species; dorsal brim serrated; paleae (10-15 on each side) with sharp tips; acicular hooks at base of scaphe distally curved; one of the specimens seems complete, with 17 chaetigers with dorsal bristles; one specimen is very small, probably a juvenile. **St. 189 (A.3922)**, south Sines, 29 m, muddy sand: 5 specimens, complete, in poor condition; one specimen with attached fragments of the tube. **St. 318 (A.3843)**, near Arrifana, 54 m, sand: 1 specimen, complete and in good condition; scaphe as described, anteriorly with folded margins, posteriorly smooth; anal tongue prominent, with an anal cirrus; dorsal bristles on 17 chaetigers; uncini on 13 chaetigers; 10 paleae on each side.

**DISTRIBUTION:** Arctic; Eastern North Atlantic, from Norway to the Gulf of Guinea; Sweden; Iceland; Ireland; Lofoten; North Sea; English Channel; Skagerrak; Kattegat; Øresund; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Canadian Atlantic; Canadian Pacific. Between 6-500 meters. In many kinds of sediments, ranging from silt to coarse sand.

### *Amphictene auricoma mediterranea* Nilsson 1928

*Pectinaria (Amphictene) auricoma mediterranea* NILSSON, 1928: 57-58, fig. 17*D*.
**TYPE LOCALITY:** Naples and Palermo, in the Mediterranean Sea, and Pischio, in Cres (= Cherso), Kvarner Gulf, in the Adriatic Sea.
**SYNONYMS:** [?] *Pectinaria nigrescens* Risso 1826.
**SELECTED REFERENCES:** *Amphictene mediterranea* — HUTCHINGS & PEART, 2002: table 1. *Amphictene auricoma* [not *Amphictene auricoma* (O.F. Müller 1776)] — CLAPARÈDE, 1869: 122-124, pl. 28 fig. 2.
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea.

## GENUS *Cistenides* Malmgren 1866

*Cistenides* MALMGREN, 1866: 358.
**TYPE SPECIES:** *Sabella granulata* Linnaeus 1767.
**REMARKS:** The genus *Cistenides*, created by MALMGREN (1866) to include the two species below, was diagnosed by its author as having 12 uncinigers, and this diagnosis was repeated by other authors (*e.g.* FAUVEL, 1927*a*; ANNENKOVA, 1929*b*). However, FAUCHALD (1977*a*) and later HUTCHINGS & PEART (2002) diagnosed the genus has having 13 uncinigers. I revised the descriptions of the 6 species attributed by HUTCHINGS & PEART (2002) to the genus. From these, two species are described as having 13 uncinigers, for 17 chaetigers: *C. brevicoma* Johnson 1901 (JOHNSON, 1901: 423), and *C. ehlersi* (Hessle 1917) (HESSLE, 1917: 78). All the other species are described or referred as having 12 uncinigers: *C. granulata* (Linnaeus 1767); *C. hyperborea* Malmgren 1866; *C. soldatovi* Annenkova 1929; and *C. okudai* Imajima & Hartman 1964. This way, the genus should be referred as presenting 12-13 uncinigers. *Cystenides* distinguishes itself for being the only genus with the scaphe distinctly separated from the abdomen to present a single vertical row of teeth on uncini.

**KEY TO SPECIES:**
(from USCHAKOV, 1955*a*)

**1a.** On each side 7-10 paleae; paleae short, very broad and flat, blunt or with small straight capilliform tip.....***C. granulata***
**1b.** On each side 10-15 paleae; paleae long, slender, gradually tapering into long capilliform tip, somewhat curved dorsally.....***C. hyperborea***

### *Cistenides granulata* (Linnaeus 1767)

*Sabella granulata* LINNAEUS, 1767: 1268.
**TYPE LOCALITY:** Northern Europe (probably Sweden), at big depths. "*Habitat in Oceano Septentrionali, locis profundis*".
**SYNONYMS:** *Amphitrite Eschrichtii* Rathke 1843; *Pectinaria Groenlandica* Grube 1850.
**SELECTED REFERENCES:** *Cistenides granulata* — MALMGREN, 1866: 359; HUTCHINGS & PEART, 2002: table 2. *Pectinaria granulata* — WOLLEBAEK, 1912: 41-42, text-fig. 3; HESSLE, 1917: 77. *Pectinaria (Cistenides) granulata* — NILSSON, 1928: 28-30, fig. 8; ANNENKOVA, 1929*b*: 487-488, pl. 37 figs. 23-24, pl. 28 figs. 32-35; HOLTHE, 1986*b*: 24-25, fig. 5, map 4; HARTMANN-SCHRÖDER, 1996: 482. *Amphitrite Eschrichtii* — RATHKE, 1843: 219-220.
**DISTRIBUTION:** East Greenland; Iceland; Faeroes; Spitsbergen; Norway; Denmark and Scandinavia; Canadian Atlantic; New England; Canadian Arctic; East Siberian Sea; Bering Sea; Sea of Okhotsk; Kamchatka; Sea of Japan; Alaska; Canadian Pacifc. In muddy and sandy bottoms. Between 2-250 meters, but mainly at depths below 50 meters.

### *Cistenides hyperborea* Malmgren 1865

*Cistenides hyperborea* MALMGREN, 1866: 360, pl. 18 fig. 40.

**TYPE LOCALITY:** Spitsbergen, Greenland and Norway (Finmark), in sandy and muddy bottoms, between 10-250 fathoms (18.3-457.2 meters). Spitsbergen: Augustibay, 50 fathoms (91.4 meters); Kingsbay and Adventbay, 25-40 fathoms (45.7-73.2 meters); Bellsund; Safehavn and Whalerspoint. Greenland: Pröven, 16-40 fathoms (29.3-73.2 meters); Omenak 250 fathoms (457.2 meters); Godhavn, 10-30 fathoms (18.3-54.9 meters). Finmark (Norway): Grötsund, 70 fathoms (128 meters); Ulfsfjorden and Kalfjorden, 50-80 fathoms (91.4-146.3 meters).
**SELECTED REFERENCES:** *Pectinaria hyperborea* — WOLLEBAEK, 1912: 38-39, pl. 5 figs. 10-12, pl. 38 fig. 1; HESSLE 1917: 76-77; HUTCHINGS & PEART, 2002: table 2. *Cistenides hyperborea* — MCNTOSH, 1915*a*: 47-48, pl. 1 figs-14; *Pectinaria (Cistenides) hyperborea* — NILSSON, 1928: 31-33, fig. 9; ANNENKOVA, 1929*b*: 484-486, pl. 37 fig. 22, pl. 38 figs. 25-31; HOLTHE, 1986*b*: 25-26, fig. 6, map 5; HARTMANN-SCHRÖDER, 1996: 482-483.
**DISTRIBUTION:** East Greenland; Iceland; Faeroes; Svalbard; Northern Norway; Skagerrak; Barents Sea; Canadian Atlantic; New England; Alaskan and Canadian Arctic; Siberian Arctic; Bering Sea; Alaskan Pacific; Sea of Okhotsk; Japan. Normally down to less than 100 meters, but in the Norwegian fjords can reach 343 meters.

## *GENUS ***Lagis*** Malmgren 1866

*Lagis* MALMGREN, 1866: 360.
**TYPE SPECIES:** *Lagis Koreni* Malmgren 1866.

**KEY TO SPECIES:**

**1a.** Cephalic veil entirely fused to the opercular rim, and does not continue beyond the point where its edges are fused to the bases of the first tentacular cirri; 3-4 rows of teeth per uncinus; anal flap of scaphe longer than broad with small cirrus.....***L. koreni****
**1b.** Cephalic veil partly fused to the opercular rim, being attached by a low fold to the base of the first tentacular cirri and also continuing posteriorly along the sides of the buccal cirri or peristomial palps; 2-3 rows of teeth per uncinus; anal flap of scaphe semi-circular with small cirrus.....***L. neapolitana***

## ****Lagis koreni*** Malmgren 1866

*Lagis Koreni* MALMGREN, 1866: 360-361.
**TYPE LOCALITY:** Finmark (Northern Norway): Kalfjorden, 50 fathoms (91.4 meters); Karlsö, 30 fathoms (54.9 meters). Near Stavanger (Southern Norway). France, at the Island of Ré, near La Rochelle.
**SYNONYMS:** [?] *Nereis cylindraria* Pallas 1766; [?] *Pectinaria robusta* Levinsen 1884.
**SELECTED REFERENCES:** *Lagis Koreni* — MALMGREN, 1867*a*: 104, pl. 13 fig. 74; SAINT-JOSEPH, 1898: 405-421, pl. 22 figs. 209-222, pl. 23 figs. 223-235; WOLLEBAEK, 1912: 40-41, text-figs. 1-2, pl. 5 figs. 7-9; MCINTOSH, 1922*b*: 49-58, text-figs. 141-142, pl. 112 fig. 2, pl. 116 fig. 7, pl. 118 fig. 6, pl. 124 fig. 3, pl. 134 fig. 21; HUTCHINGS & PEART, 2002: table 3. *Pectinaria koreni* — HESSLE, 1917: 80-81, text-fig. 1*b*. *Pectinaria (Lagis) Koreni* — FAUVEL, 1927*a*: 221-222, fig. 77*a-i*. *Pectinaria (Lagis) koreni* — NILSSON, 1928: 11-13, figs. 1, 2.3-2.4; ANNENKOVA, 1929*b*: 481, pl. 37 figs. 16-18; HOLTHE, 1986*b*: 18-20, fig. 2, map 1; HARTMANN-SCHRÖDER, 1996: 483-485, fig. 235; KIRKEGAARD, 1996: 283-284, fig. 158. *Cistena cylindraria* — LUCAS & HOLTHUIS, 1975: 87-89. [?] *Pectinaria robusta* — LEVINSEN, 1884: 153.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Pectinaria koreni*; Cape Santa Maria); AMOUREUX & CALVÁRIO, 1981 (Tagus Estuary); CALVÁRIO, 1984 (Tagus Estuary); COSTA, GAMITO & OLIVEIRA, 1984 (as *Pectinaria koreni*; Sado Estuary); MONTEIRO-MARQUES, 1987 (as *Pectinaria koreni*; continental shelf of Algarve); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); CANCELA DA FONSECA, COSTA & BERNARDO, 1989 (Lagoon of Santo André); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (as *Pectinaria (Lagis) koreni*; previous records: Ria Formosa; Ria de Alvor; continental shelf of Algarve; Mira Estuary; Sines; Sado Estuary; Lagoon of Albufeira; Tagus Estuary; Peniche; Lagoon of Óbidos; Figueira da Foz; Mondego Estuary; Ria de Aveiro); PARDAL, MARQUES & BELLAN, 1993 (Mondego Estuary); PARDAL, MARQUES & BELLAN, 1994 (Mondego Estuary); RAVARA, 1997 (as *Pectinaria (Lagis) koreni*; off Aveiro); CANCELA DA FONSECA *et al.*, 2006 (Aljezur); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 21 (A.4081)**, north Sines, 116 m, sand with shells: 1 incomplete specimen in poor condition; confirmed by comparison of its uncini with uncini from the

following specimen. **St. 130 (A.3979)**, near Sines, 87 m, gravelly sand: 1 complete specimen; uncini of one chaetiger removed. **St. 185 (A.3926)**, near Sines, 37 m, sandy mud: 2 specimens, in a very poor condition; dorsal brim smooth; acicular hooks at the base of the scaphe distally curved. **St. 189 (A.3922)**, south Sines, 29 m, muddy sand: 1 incomplete specimen in poor condition; nearly only prostomium and peristomium present; uncini not present; identified as belonging to this species by comparison with other specimens in a better condition.

**DISTRIBUTION:** Eastern North Atlantic, from the Barents Sea to Namibia; Iceland; Faroes; Norway; English Channel; North Sea; Skagerrak; Kattegat; Øresund; western Baltic Sea; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea. From silt to coarse sand, most abundant in mixed bottoms with silt and fine sand. Eulittoral, many times in beaches, to about 500 meters, but most abundant in moderate depths.

### ***Lagis neapolitana*** (Claparède 1869)

*Pectinaria neapolitana* CLAPARÈDE, 1869: 113-122, pl. 28 fig. 1.

**TYPE LOCALITY:** Gulf of Naples.

**SYNONYMS:** [?] *Pectinaria castanea* Risso 1826; [?] *Pectinaria Malmgreni* Grube 1870; [?] *Pectinaria (Lagis) pseudokoreni* Day 1955.

**SELECTED REFERENCES:** *Pectinaria neapolitana* — HESSLE, 1917: 79-80, text-fig. 1*b*. *Lagis neapolitana* — ANNENKOVA, 1929*b*: 483-484, pl. 37 figs. 9-12; HUTCHINGS & PEART, 2002: table 3. [?] *Pectinaria (Lagis) neapolitana* — NILSSON, 1928: 13-18, figs. 2.2-2.3, 3-4 DAY, 1967: 681, fig. 34.1.*a-f*; ARVANITIDIS, 2000: 81. *Pectinaria (Lagis) pseudokoreni* — DAY, 1955: 432-433, fig. 5*a-c*.

**DISTRIBUTION:** Italy (Naples, Messina), Mediterranean Sea; Adriatic Sea (Trieste); Aegean Sea; Black Sea; Azov Sea; [?] Southwest Africa. Intertidal-500 meters.

## GENUS ***Pectinaria*** Lamarck 1818

*Pectinaria* LAMARCK, 1818: 348-349.

**TYPE SPECIES:** *Nereis cylindraria* var. *Belgica* Pallas 1766.

**SYNONYMS:** *Cistena* Leach 1816 [not to be given priority over *Pectinaria*, according to Oppinion 1225 of the ICZN (1982)].

### ***Pectinaria belgica*** (Pallas 1766)

*Nereis cylindraria* varietas *Belgica* PALLAS, 1766: 122-131, pl. 9 [reference in text to plate 8 is wrong] figs. 3-13.

**TYPE LOCALITY:** Belgium. Neotype designated from Bohuslän, Sweden by NIELSEN, KIRKEGAARD & LEMCHE (1977).

**SYNONYMS:** *Sabella tubiformis* Pennant 1777; *Nereis pectinata* Sowerby 1805; *Cistena Pallasii* Leach 1816.

**SELECTED REFERENCES:** *Pectinaria belgica* — MALMGREN, 1866: 356-357, pl. 18 fig. 42; WOLLEBÆK, 1912: 39-40, pl. 3 figs. 9-11; HESSLE, 1917: 75-76 MCINTOSH, 1922*b*: 38-42, pl. 118 fig. 4, pl. 124 fig. 1; HUTCHINGS & PEART, 2002: table 4. *Pectinaria (Pectinaria) belgica* — FAUVEL, 1927*a*: 220-221, fig. 77*k-p*; NILSSON, 1928: 73-75, figs. 24-25; HOLTHE, 1986*b*: 21, fig. 3, map 2; HARTMANN-SCHRÖDER, 1996: 485-486, fig. 236; KIRKEGAARD, 1996: 282-283, fig. 157.

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (off Aveiro; off Porto); MONTEIRO-MARQUES, 1979 (southern continental shelf of Algarve); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: Ria Formosa; continental shelf of Algarve).

**DISTRIBUTION:** European Atlantic; North Sea and English Channel (Norway; England; Belgium); Irish Sea; west coast of Ireland; Skagerrak; Kattegat; Øresund; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Pacific coast of USA and Canada. Between 30-500 meters. In muddy or muddy sand bottoms.

## GENUS ***Petta*** Malmgren 1866

*Petta* MALMGREN, 1866: 361.

**TYPE SPECIES:** *Petta pusilla* Malmgren 1866.

## ***Petta pusilla*** Malmgren 1866

*Petta pusilla* MALMGREN, 1866: 361, pl. 18 fig. 43.

**TYPE LOCALITY:** Gullmarfjord (Bohuslän, Swedish west coast).

**SELECTED REFERENCES:** *Petta pusilla* — FAUVEL, 1914*f*: 279-281, pl. 25 figs. 22-26; HESSLE, 1917: 83-84; MCINTOSH, 1922*b*: 58-61, pl. 125 fig. 7; FAUVEL, 1927*a*: 224, fig. 78*g-m*; NILSSON, 1928: 83-85, fig. 30; HOLTHE, 1986*b*: 27-28, fig. 7, map 6; HARTMANN-SCHRÖDER, 1996: 487; KIRKEGAARD, 1996: 284-286, fig. 159; HUTCHINGS & PEART, 2002: table 5. *Pectinaria pusilla* — WOLLEBAEK, 1912: 35-37, pl. 3 figs. 1-8.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1979 (southern continental shelf of Algarve); AMOUREUX, 1987 (off Aveiro; off Porto); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).

**DISTRIBUTION:** English Channel; North Sea; Skagerrak; Kattegat; Øresund; Faeroes; Norwegian coast to Lofoten; Arctic Ocean; Ireland; Azores; Mediterranean Sea; Adriatic Sea; Aegean Sea; Eastern North Atlantic to Congo. In bottoms of sand, mud, or mixed. Between 15-200 meters, but recorded at 800 meters off Faial (Azores).

# *FAMILY **PHOLOIDAE** Kinberg 1857

**AS:** *PHOLOIDEA* KINBERG, 1857*a*: 1 [corrected to *PHOLOIDAE* by PETTIBONE, 1982: 14].
**TYPE GENUS:** *Pholoe* Johnston 1839.
**SYNONYMS:** *PEISIDICINAE* Darboux 1899; *PESIDICIDAE* Hartman & Fauchald 1971; *PHOLOIDIDAE* Fauchald 1977.
**REMARKS:** European oculate forms of *Pholoe* have been normally referred to *P. minuta* (Fabricius 1780), a species described from Western Greenland, with most authors treating smaller specimens as juveniles and justifying the differences found as intraspecific variation, like in MCINTOSH (1900*a*). PETERSEN (1998) revised a great number of specimens from eastern North America, Greenland, Faroe Islands, and Europe, including at or near type localities, and determined that *Pholoe minuta* (Fabricius 1780) does not occur in European waters. Besides, she found that the European oculated forms from shallower waters included up to three different species, and also elucidated part of the taxonomic complexity of the group, due to the numerous misidentifications and erroneous synonymies on the literature. Part of Petersen's results were published by PETTIBONE (1992*b*), with the redescription of *Pholoe longa* (O.F. Müller 1776), another species with type locality at West Greenland.

Some descriptions are based in a mixture of several species from several localities, being quite complicated to follow and determine to which of the presently known species is the author referring to. In this case is MCINTOSH (1900*a*), who under the name *Pholoe minuta* included specimens from all around Great Britain, from Shetlands to the English Channel, comparing them with the "typical *Pholoe minuta*" or the "northern form", based on specimens from Greenland and Canada (St. Lawrence). However, it is not clear if among the northern material he had only specimens of *P. minuta*, or if *P. longa* was also present. From the description of the British material it becomes clear that MCINTOSH (1900*a*) had specimens of at least *P. baltica* and *P. inornata*. To increase the confusion, MCINTOSH (1900*a*) considered that the British material included two varieties, based on species described anteriorly, the *inornata* variety (more common on the eastern side, and with moniliform elytral papillae), and the *eximia* variety (more frequent on the west and south, and with long isolated elytral papillae). However, it seems that McIntosh's *inornata* variety refers to *P. baltica*, while the *eximia* variety refers to *P. inornata*. Being a complex mixture of species, MCINTOSH'S (1900*a*) description should be used carefully.

Important recent taxonomic publications on the group include PETTIBONE (1992*b*), with the revision of the whole family with the exception of the genus *Pholoe*, of which only two species were included, BLAKE (1995), on the Pholoidae of California, including a new species, PETERSEN (1998), on the European nearshore species of *Pholoe*, and WU, ZHAO & DING (1994), and WESTHEIDE (2001) with the description of new species of *Pholoe* and *Laubierpholoe*, correspondingly.

The family includes at present 6 genera, with 27 species and 1 subspecies considered to be valid. Two genera and 6 species are known to occur in the European waters. *Pholoe longa* (O.F. Müller 1776) might also be present in northern and Arctic waters. However, this species is quite probably a senior synonym of *P. baltica*, and in this case it would have priority over this species. For the moment I consider both species as valid, but *P. longa* is not included here, as apparently there are no records of the species for the European waters.

**KEY TO GENERA:**
(adapted from PETTIBONE, 1992*b*)

**1a.** Prostomium subrectangular, with ceratophore of median antenna on anterior border, without lateral antennae; tentaculophores of segment 1 with notochaetae and single tentacular cirrus; parapodia biramous, with chaetigerous notopodia and neuropodia; middorsum not covered by elytra, with scattered adhesive tubercles; elytra on segments 2, 4, 5, 7, continuing on alternate segments, thick, with concentric rings and numerous long border papillae; notochaetae of one type, simple, slender, capillary, finely spinose; segments up to 48.....***Pholoides****
**1b.** Prostomium oval, bilobed, with ceratophore of median antenna in anterior notch, without auricles, with or without lateral antennae; tentaculophores of segment 1 achaetous, with dorsal and ventral tentacular cirri subequal in length; parapodia biramous, with chaetigerous notopodia and neuropodia; dorsum with elytrophores and elytra on segments 2, 4, 5, 7, and continuing on alternate segments to 23, then on every segment, delicate, with border and surface papillae; notochaetae of two types: short, strongly bent, and longer, slightly curved or straight; segments up to 90.....***Pholoe***

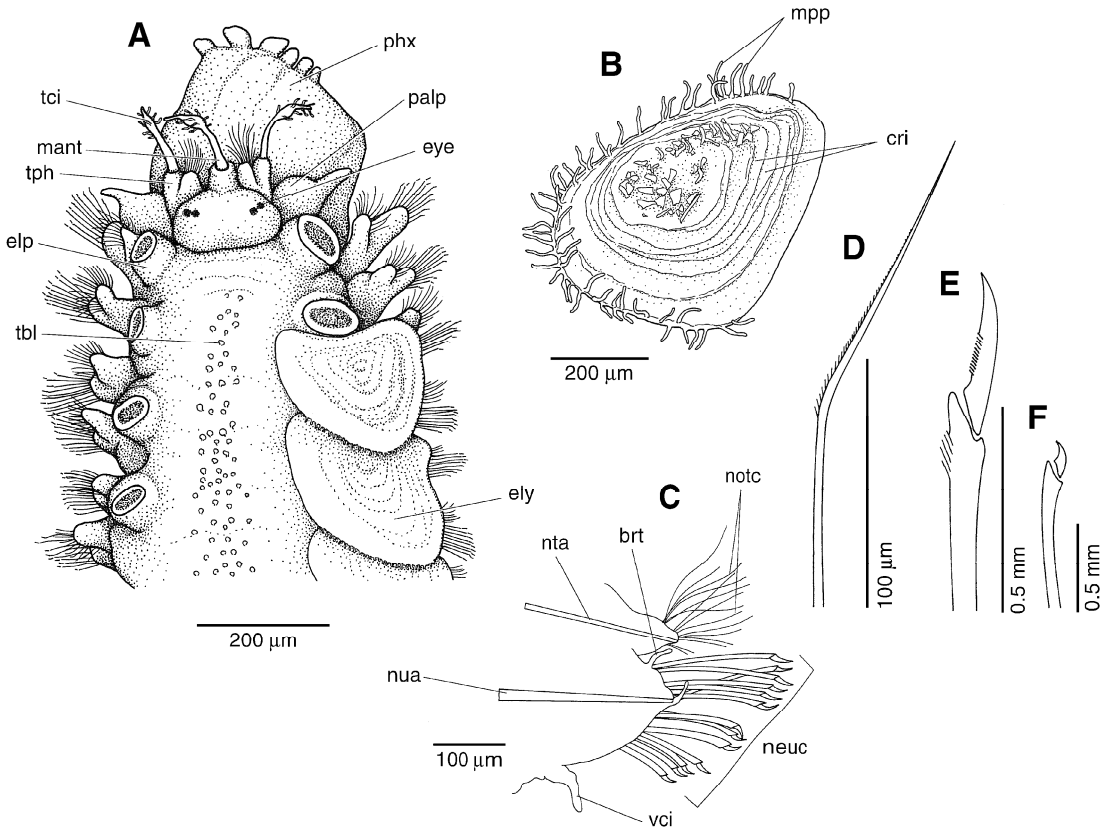


**Figure legend:** Family Pholoidae. *Pholoides* specimen. **A**, anterior end with proboscis everted, dorsal view. **B**, fifth elytron from parapodium of chaetiger 9. **C**, parapodium from mid-body region, anterior view. **D**, notochaeta from parapodium of chaetiger 20. **E**, superior neurochaeta from mid-body parapodium; **F**, inferior neurochaeta from midbody parapodium. **brt**, bract; **cri**, concentric rings; **elp**, elytrophore; **ely**, elytron; **eye**, eye; **mant**, medium antenna; **mpp**, marginal papillae; **neuc**, neurochaetae, **notc**, notochaetae; **nta**, notoacicula; **nua**, neuroacicula; **palp**, palp; **phx**, pharynx, everted; **tbl**, tubercles; **tci**, tentacular cirrus; **tph**, tentaculophore; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

## GENUS ***Pholoe*** Johnston 1839

*Pholoe* JOHNSTON, 1839*a*: 428.
**TYPE SPECIES:** *Aphrodita minuta* Fabricius 1780.

### KEY TO SPECIES:
(adapted from PETERSEN, 1998)

**1a.** Without eyes; elytra without pigment; elytral papillae swollen basally with moniliform tips; neuropodia without distal stylodes or these inconspicuous; facial tubercle prominent, with papillae at base.....***P. pallida***
**1b.** With eyes; other features variable.....**2**

**2a (1b).** Elytral papillae conical, with a thin elongated tip; elytra with a few large papillae on surface and a row of 10-12 similar papillae along the edge.....***P. fauveli***
**2b (1b).** Elytral papillae otherwise (moniliform, slightly capitate, or elongated and tapering).....**3**

**3a (2b).** Elytra without pigment; elytral papillae moniliform; facial tubercle prominent, often as large as median antenna; neuropodia with stylodes on distal part.....***P. baltica***
**3b (2b).** Elytra with pigment; elytral papillae tapering evenly, or slender and capitate but not moniliform; facial tubercle inconspicuous; neuropodia without stylodes on distal part.....**4**

**4a (3b).** Prostomium with conspicuous black eyes, usually without other pigment; tentacular cirri smooth or irregular, never with distinct papillae; elytra evenly pigmented brownish or blackish, often pale in worms from deep water, covering dorsum completely, usually lying flat against dorsum; elytral papillae marginal, slender, short and slightly capitate on anterior segments, elongated and tapering on posterior ones.....***P. assimilis***
**4b (3b).** Prostomium sometimes with dark pigment between eyes; dorsal tentacular cirri usually with five distinct papillae on inner side; elytra pale to strongly pigmented, with dark spots or rings, usually not covering dorsum completely, leaving narrow middorsal strip bare, often ruffled and not lying flat against dorsum; elytral papillae tapering evenly, marginal laterally, on posterior margin of elytra becoming submarginal towards middorsum.....***P. inornata***

## ***Pholoe assimilis*** Ørsted 1845

*Pholoe assimilis* ØRSTED, 1845*b*: 404.
**TYPE LOCALITY:** Drøbak, the Oslo Fjord, Norway.
**SELECTED REFERENCES:** *Pholoe assimilis* — PETERSEN, 1998: 1375, fig. 1*I-K*. *Pholoe minuta* [not Fabricius 1780] — BICK & GOSSELCK, 1985: 208, fig. 2*a-c*. [?] *Pholoë eximia* — DYSTER *in* JOHNSTON, 1865: 122, pl. 6 figs. 1-5.
**DISTRIBUTION:** Northern Europe.

## ***Pholoe baltica*** Ørsted 1843

*Pholoe baltica* ØRSTED, 1843*a*: 14-15, pl. 1 fig. 21, pl. 2 figs. 34-36, 40.
**TYPE LOCALITY:** Øresund, near Hellebæk, and Kattegat, near Skagen, Denmark, in muddy bottoms.
**SYNONYMS:** *Pholoe tuberculata* Southern 1914.
**SELECTED REFERENCES:** *Pholoe baltica* — PETERSEN, 1998: 1374-1375, fig. 1*E-H*. *Pholoe tuberculata* — SOUTHERN, 1914: 57-59, pl. 6 fig. 14. *Pholoë minuta* [not Fabricius 1780] — MCINTOSH, 1900*a*: 437-442, pl. 29 fig. 8, pl. 31 fig. 14, pl. 34 fig. 18, pl. 42 figs. 23-24 [text, in part; in part = *Pholoe minuta* (Fabricius 1780); in part = *Pholoe inornata* Johnston 1839]; FAUVEL, 1923*c*: 120-122, fig. 44*a-d*, *f*, *m*, *h* [in part; in part = *Phole inornata* Johnston 1839]; SOUTHWARD, 1956: 258, fig. 1*A-D*; HEFFERNAN, O'CONNOR & KEEGAN, 1983: 287-290, figs. 2-10. *Pholoe minuta* [not Fabricius 1780] — CHRISTIE, 1982: 284-290, figs. 1-2, 4-5; PLEIJEL, 1983: 21-23, tables 1-3; HARTMANN-SCHRÖDER, 1996: 74-75, fig. 24. *Pholoe inornata* [not Johnston 1839] — CHAMBERS, 1985: 19-20, figs. 2*b*, 13*a-b*, 18*a-d*, plates *A*1-2, *B*1-2; KIRKEGAARD, 1992: 91-92, fig. 38; CHAMBERS & MUIR, 1997: 164, fig. 53. *Pholoë minuta* var. *inornata* [not Johnston 1839] — FAUVEL, 1923*c*: 122.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1995 (as *Pholoe minuta*; Portugal).
**DISTRIBUTION:** Northern Europe (Skagerrak; Kattegat; British Isles; North Sea; Atlantic coast of France); Portugal. In muddy bottoms. Collected between 20-80 meters.
**REMARKS:** CHRISTIE (1982) described briefly his specimens identified as *Pholoe minuta*, without giving any figures of the worms. According to him the two pairs of tentacular cirri didn't show papillae along their length, and the facial tubercle was not visible. Besides, the elytral surface is described as being aureolated, and with moniliform papillae. These features are typical of *Pholoe baltica*, and Christie's specimens are referred to this species. HEFFERNAN, O'CONNOR & KEEGAN (1983) and PLEIJEL (1983) also gave brief descriptions of their specimens, in the first case accompanied by an illustration. In both cases the elytra are described as having more or less clearly annulated papillae, typical of the *P. baltica*.

As pointed by PETERSEN (1998), *Pholoe baltica* is closely related to *P. longa* (O.F. Müller 1776), from SW Greenland and redescribed by PETTIBONE (1992*b*), and both species might be synonymous. For the moment they are both retained here as valid species.

## ***Pholoe fauveli*** Kirkegaard 1983

*Pholoe fauveli* KIRKEGAARD, 1983*b*: 598-599, fig. 1.
**TYPE LOCALITY:** Shamrock Canyon, off Brittany and SW British Isles, 47º48.9'N, 8º09.1'W, at 1170-1350 meters, on soft mud and sand.
**SELECTED REFERENCES:** *Pholoë synophthalmica* [not Claparède 1868] — FAUVEL, 1914*f*: 82; FAUVEL, 1923*c*: 120, fig. 44*i-l*.

**DISTRIBUTION:** Northeast Atlantic Ocean (Azores and Bay of Biscay), between 880 and 1350 meters, in rocks , soft mud, and sand; [?] Aegean Sea.
**REMARKS:** KIRKEGAARD (1983*b*) examined the specimen collected at 880 meters from off the Azores and described briefly by FAUVEL (1914*f*), and found that it agreed in all characters with the two specimens from Shamrock Canyon. According to KIRKEGAARD (1983*b*), this specimen was described again by Fauvel, in more detail, in Faune de France (FAUVEL, 1923*c*). I agree with Kirkegaard, as the papillae of the elytra is quite characteristic and agrees between the two descriptions [compare KIRKEGAARD (1983*b*: fig. 1*B*), with FAUVEL (1923*c*: fig. 44*k-l*).

## ***Pholoe inornata*** Johnston 1839

*Pholoë inornata* JOHNSTON, 1839*a*: 437-438, pl. 23 figs. 1-5.
**TYPE LOCALITY:** Berwick Bay, North Berwick, East Scotland, intertidal.
**SYNONYMS:** [?] *Pholoë eximia* Dyster *in* Johnston 1865; *Pholoe synophthalmica* Claparède 1868; *Pholoe synophthalmica* var. *dinardensis* Saint-Joseph 1888.
**SELECTED REFERENCES:** *Pholoë inornata* — JOHNSTON, 1865: 121-122, pl. 13 figs. 1-5. *Pholoe inornata* — PETERSEN, 1998: 1374, fig. 1*A-D*. *Pholoë synophthalmica* — CLAPARÈDE, 1868: 389-391, pl. 3 fig. 1. *Pholoe synophthalmica* — CHAMBERS & MUIR, 1997: 168, fig. 55. *Pholoë synophthalmica* var. *dinardensis* — SAINT-JOSEPH, 1888: 186. *Pholoë minuta* [not (Fabricius 1780)] — MCINTOSH, 1900*a*: 437-442, pl. 34 figs. 16-17 [text in part; in part = *Pholoe minuta* (Fabricius 1780); in part = *Pholoe baltica* Ørsted 1843]; FAUVEL, 1923*c*: 120-122, 44*d*, *f* [in part; in part = *Pholoe baltica* Ørsted 1843]; GILLANDT, 1979: 23-24, fig. 3. [?] *Pholoë eximia* — DYSTER *in* JOHNSTON, 1865: 122, pl. 6 figs. 1-5. *Pholoë minuta* var. *eximia* — FAUVEL, 1923*c*: 122. Not *Pholoe inornata* — CHAMBERS, 1985: 19-20, figs. 2*b*, 13*a-b*, 18*a-d*, plates *A*1-2, *B*1-2 [= *Pholoe baltica* Ørsted 1843].
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Pholoë synophthalmica*; previous records: Sado Estuary); BOAVENTURA *et al.*, 2006 (as *Pholoe synophtalmica*; Ancão, Algarve).
**DISTRIBUTION:** Northern Europe; English Channel; European Atlantic; Mediterranean Sea; Aegean Sea; Black Sea. Common intertidally, on rock pools, and in fjords, on sandy bottoms.
**REMARKS:** *Pholoë eximia* Dyster *in* Jonhston 1865 was described from Tenby (England), and was later considered to be a junior synonym of *P. minuta*. As this later species is not present in Europe, this synonymy is not suitable. *P. eximia* seems to be a junior synonym of *P. inornata*, but a final statement can't be made without a careful examination of topotype material or the type specimens, if existent.

*Pholoe eximia* was described as having the scales covering the back, with "*the second and the twelfth, inclusive marked with a dark irregular spot about the centre, reniform, armed with from six to ten stout hairs* [papillae]*, which, from the twelfth pair of scales to tail, extend towards the middle of the back, and give the worm a spinous appearance*" (JOHNSTON, 1865: 122). Nothing is said about the presence of distinct papillae in the dorsal tentacular cirri. The description of the elytral papillae seems to refer the species to *P. inornata*, but the fact that the elytra cover the dorsum and that no papillae is described as being present in the tentacular cirri, could also point to *P. assimilis*. In the figure of the worm (JOHNSTON, 1865: pl. 6 fig. 1) it is possible to see that the elytra don't cover completely the dorsum along the whole worm, but it is difficult to know if this is an illustrator's error or not. I consider here *P. eximia* as a possible junior synonymy of *P. inornata*, but with some doubts.

## ***Pholoe pallida*** Chambers 1985

*Pholoe pallida* CHAMBERS, 1985: 21, figs. 13*c-d*, 18*e-h*, plates *A*3-4, *B*3-4.
**TYPE LOCALITY:** Off St. Abbs, Berwickshire, SE Scotland.
**SELECTED REFERENCES:** *Pholoe pallida* — KIRKEGAARD, 1992: 92-93, fig. 39; HARTMANN-SCHRÖDER, 1996: 75-76; CHAMBERS & MUIR, 1997: 166, fig. 54; PETERSEN, 1998: 1375-1376. *Pholoe* cf. *anoculata* [not *Pholoe anoculata* Hartman 1965] — CHRISTIE, 1982: 284-290, figs. 1, 3-5.
**DISTRIBUTION:** North Sea, including coasts of Scotland, England and Denmark; Kattegat; northern Øresund. Sub-littoral to 50 meters.

## *GENUS ***Pholoides*** Pruvot 1895

*Pholoides* PRUVOT, 1895: 655.
**TYPE SPECIES:** *Pholoe dorsipapillata* Marenzeller 1893.
**SYNONYMS:** *Peisidice* Johnson 1897; *Pareupholoe* Hartmann-Schröder 1962; *Parapholoe* Hartmann-Schröder 1965.

**REMARKS:** PRUVOT (1895) designated *Pholoe dorsipapillata* Marenzeller 1893 as *Pholoides* in a paper on the distribution of invertebrates in the region of Bayuls-sur-Mer. However, the new generic name was used without any justification or explanation, and in the context of a list of the found species. In my oppinion it is not clear if Pruvot's name was intentioned, or if it was the consequence of a lapsus.

In the meantime, JOHNSON (1897) created the new genus *Peisidice* to include his new species, *Peisidice aspera*, from California. Shortly after DARBOUX (1899) formed the new tribe Peisidicinae, in the Aphroditidae to include this species, and later HARTMAN & FAUCHALD (1971) raised it to the family status, as Peisidicidae. FAUCHALD (1977*a*) considered *Pholoides* Pruvot 1895, with *Pholoides dorsipapillata*, as a valid generic name, predating *Peisidice* Johnson 1897, and changed the family name from Peisidicidae to Pholoididae. Finally, PETTIBONE (1982) used the family name Pholoidae Kinberg 1858 for the type genus *Pholoe* Johnston 1839, and for *Pholoides* Pruvot 1895 (which included *Peisidice* Johnson 1897). Even if the generic name *Pholoides* Pruvot 1895 is considered to be not valid, it will be not necessary to change the family name Pholoidae, as Johnston's *Pholoe* has priority over Johnson's *Peisidice*.

## ****Pholoides dorsipapillatus*** (Marenzeller 1893)

*Pholoe dorsipapillata* MARENZELLER, 1893: 30-31, pl. 1 figs. 3*A-D*.

**TYPE LOCALITY:** Mediterranean Sea: off north Benghazi, Lybia (19º58'30"E, 32º46'40"N), at 680 meters, in sand and mud, and at the harbour of Santorin (25º24'10"E, 36º25'30"N), at 381 meters, in pumices and some mud.

**SYNONYMS:** *Peisidice bermudensis* Hartman & Fauchald 1971.

**SELECTED REFERENCES:** *Pholoides dorsipapillatus* — PETTIBONE, 1992*b*: 16-18, figs. 8-9. *Pholoë dorsipapillata* — FAUVEL, 1914*f*: 82-83; FAUVEL, 1923*c*: 119-120, fig. 44*n-q*. *Pholoe dorsipapillata* — DAY, 1963*b*: 389-390; DAY, 1967: 100, fig. 1.18*g-i*; AMOUREUX, 1972*b*: 71; CAMPOY, 1982: 92-93. *Pholoë dorsopapillata* — RULLIER, 1964: 137-138. *Peisidice dorsipapillata* — KATZMANN, 1973*f*: 111; LAUBIER, 1975: 678; HARTMAN, 1974*a*: 210. *Peisidice bermudensis* — HARTMAN & FAUCHALD, 1971: 30-31, pl. 2 figs. *a-e*; HARTMANN-SCHRÖDER, 1977*a*: 81-82, figs. 10-16; HARTMANN-SCHRÖDER, 1979*a*: 71, figs. 15-16; HARTMANN-SCHRÖDER, 1981: 26. *Pholoides bermudensis* — UEBELACKER, 1984*c*: 23.3-23.4, figs. 23.1-23.2; SAN MARTÍN, AGUIRRE & BARATECH, 1986: 9, fig. 6*A-C*. *Peisidice aspera* [not Johnson 1897] — ROSENFELDT, 1989: 217-219, table 1. *Psammolyce fijiensis* [not McIntosh 1885] — RULLIER, 1964: 138.

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (as *Pholoe dorsipapillata*; off Aveiro); HARTMANN-SCHRÖDER, 1977*a* (as *Peisidice bermudensis*; off Cape Sardão); CAMPOY, 1982 (as *Pholoe dorsipapillata*; previous records: Aveiro); AMOUREUX, 1987 (as *Pholoe dorsipapillata*; off Porto); MONTEIRO-MARQUES, 1987 (as *Pholoe dorsipapillata*; continental shelf of Algarve); DEXTER, 1992 (as *Pholoë dorsipapillata*; previous records: continental shelf of Algarve).

**MATERIAL: FAUNA 1 — St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 2 specimens, with about 26 and 30 chaetigers; parapodia with a neuropodial preacicular lobe with a somewhat long papilla distally, and apparently also with a postacicular lobe. **[?] St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 5 specimens, with 25-31 chaetigers; biggest specimen 5 mm long; body depressed, middorsum not covered by elytra, with globular tubercles; ventral surface minutely papillated; elytra large, thick, subtriangular, with faint concentric rings on surface, numerous long papillae on border, and few on surface; antennae and tentacular cirri with long styles, enlarged subdistally, with long papillae and filiform clavate tips; tentaculophores with bundle of long capillary notochaetae; tentaculophores do not seem to have a projecting acicular lobe, but with a prominent papilla on ventral side, which is not described by PETTIBONE (1992*b*); stout palps lateral and ventral to tentaculophores; second or buccal segments with biramous parapodia and long, papillate, ventral buccal cirri on cirrophores lateral to mouth; notochaetae numerous capillary, neurochaetae compound with long spinose blades and spinose stems; lower lip of mouth papillated; parapodia as described in PETTIBONE (1992*b*); ventral cirri short, subulate, with few papillae.

**DISTRIBUTION:** Mid-Atlantic, from Bermuda, Cuba, and Gulf of Mexico to Azores, Canary Islands and Iberian Peninsula; Mediterranean Sea; Adriatic Sea; Aegean Sea; Red Sea; Cape Verde Islands; North and South Africa. On bottoms of coarse sand, sand or mud. Between 35-1153 meters.

# *FAMILY **PHYLLODOCIDAE** Ørsted 1843

**AS:** *PHYLLODOCEÆ* ØRSTED, 1843*a*: 25.
**TYPE GENUS:** *Phyllodoce* Savigny *in* Lamarck 1818.
**SYNONYMS:** *ALCIOPEA* Ehlers 1864.
**REMARKS:** Some of the diagnostic characters to differentiate taxa in Phyllodocidae, at least at the generic level, are the number, shape and distribution of the tentacular cirri in the first three segments of the body, and the degree of fusion of these segments, as well as the presence or absence of chaetae in the same segments. To summarise and describe these characters, BERGSTRÖM (1914: 50) created a formula normally known as "*tentacular formula*", which has been widely used and adapted by posterior authors. In the *tentacular formula*, the symbol **1** represents an elongate tentacular cirrus, **N** a normal lamellar tentacular cirrus, **S** or **0** the presence or absence of chaetae, and **a** or **o** that an aciculum is present or absent. Due to the difficulty in observing the presence of acicula without damaging the specimens, these are normally omitted in the formula. The normal **N** tentacular cirri can be also represented by **D**, when dorsal, or **V**, when ventral. Parenthesis around the formula or part of it indicate that those segments are fused, and the symbol + separates the different segments. The absence of tentacular cirrus in some of these segments can also be indicated by **0**. Chaetae are never present in the first segment, and for this reason they are never mentioned for it. Finally, the degree of fusion of the segments can be difficult to establish due, for instance, to the contraction of the specimens, and this character is seldom included in the formula.

This way, the genus *Eulalia* would be represented by the following formulas:

1 + 01/1 + S1/N or 1 + S1/1 + S1/N

The family of holopelagic worms Alciopidae Ehlers 1864 was related with the phyllodocids by many authors, as forms derived from benthic phyllodocids (PLEIJEL, 1991*b*), and have been often considered as a subgroup or subfamily of Phyllodocidae (*e.g.*: FAUVEL, 1923*c*; USCHAKOV, 1955*a*; DAY, 1967; PLEIJEL, 1991*b*). FAUCHALD & ROUSE (1997) considered that the Phyllodocidae was probably paraphyletic without the inclusion of the Alciopidae, which main diagnosting feature was the presence of very large and conspicuous eyes which distort the whole anterior region of the body. ROUSE & FAUCHALD (1997) scored the Alciopidae identically to the Phyllodocidae in their cladistic analysis of Polychaeta, and finally PLEIJEL (2001*g*) formally treated the name Alciopidae as a junior synonym of Phyllodocidae, refering to the group as 'Alciopini'. Alciopid species, however, are not treated below.

The phylogeny of phyllodocids was recently studied by PLEIJEL (1991*b*), EIBYE-JACOBSEN (1993), and ORRHAGE & EIBYE-JACOBSEN (1998), all three publications without considering the alciopids, which phylogeny was studied by WU & LU (1993). PLEIJEL (2001*g*) considered Alciopini as part of Eteoninae *sensu* Pleijel 1991, with the closest relatives being probably *Pterocirrus*, *Sige* or *Pirakia*. Besides, the possibility that Alciopini is nested within one of these taxa was not excluded (PLEIJEL, 2001*g*).

Important recent taxonomic publications on the family, mainly for the European waters, include PLEIJEL (1991*b*, 1993*a*) and PLEIJEL & DALES (1991). Recently revised genera of Phyllodocidae include *Eteone*, *Mysta* and *Hypereteone* (WILSON, 1988*a*, with dichotomic keys for each genera), *Sige* (PLEIJEL, 1990), *Eumida* (EIBYE-JACOBSEN, 1991), *Notophyllum* (KATO & PLEIJEL, 2002), and *Paranaitis* (KATO & PLEIJEL, 2003), both with comparative tables for all the known species. Comparative tables of all the hitherto known species can be also found for the genera *Mystides* (HARTMANN-SCHRÖDER, 1979*a*, 1983*b*) and *Mysta* (KATO, PLEIJEL & MAWATARI, 2001), a genus sometimes considered as being synonymous with *Eteone*. Alciopids were treated by DALES & PETER (1972), USCHAKOV (1972), and RICE (1987). A key for the British and North European alciopids can be found in PLEIJEL & DALES (1991). The phylogeny of the benthic Phyllodocidae was analysed with base on morphological and molecular data by EKLÖF, PLEIJEL & SUNDBERG (2007).

Phyllodocidae include about 28 genera and 390 species worldwide (HUTCHINGS *et al*, 2000), but an exact number of the known genera and species is difficult to establish, as the number of synonymies and dubious species is very big, especially among the benthic species. In the European and nearby waters are known to occur 24 genera, with 94 species (four of which unnamed) and 2 subspecies. From these, 8 genera, 14 species and one subspecies are alciopids. Nine species belonging to 6 genera were found in the present study.

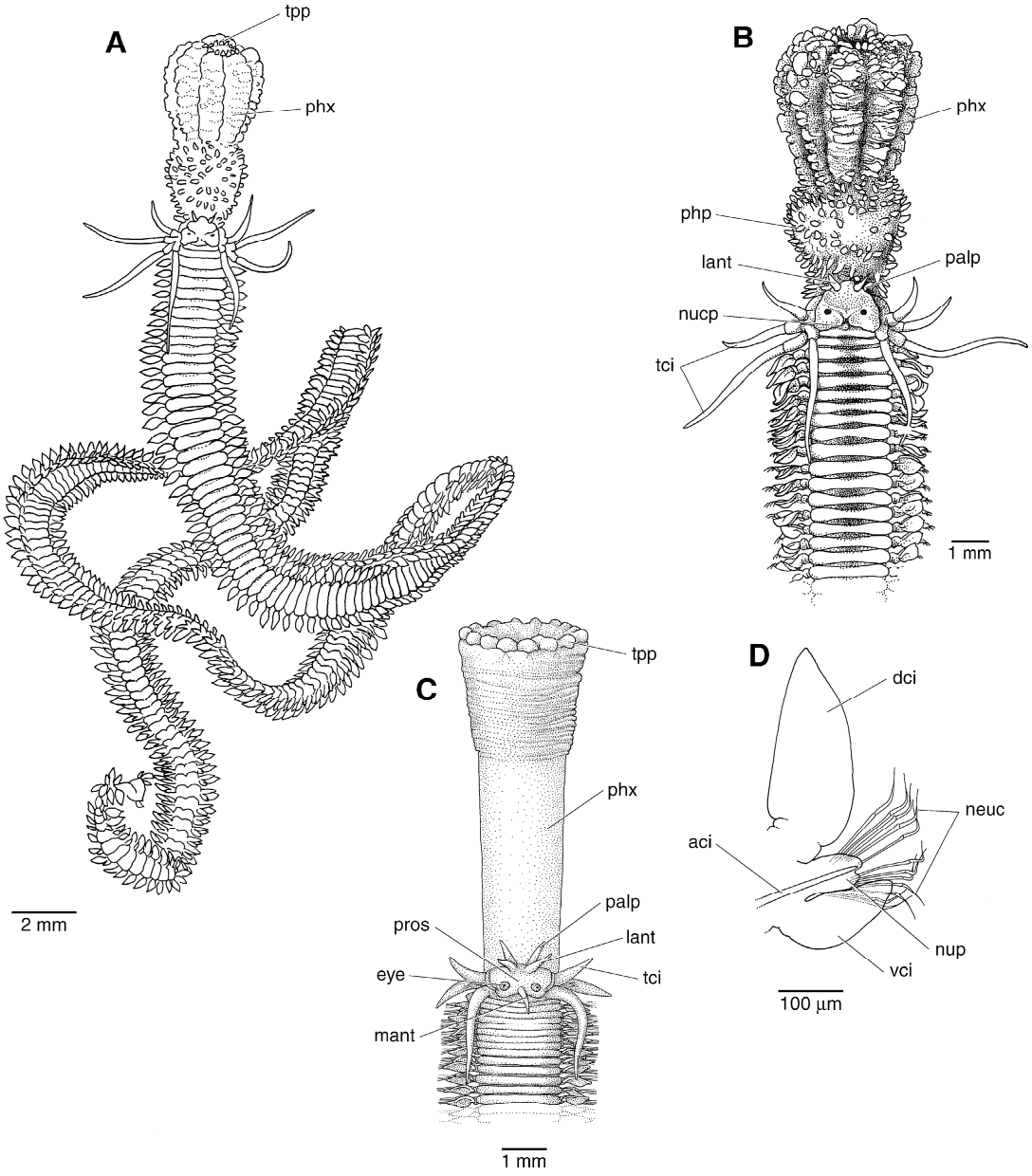


**Figure legend:** Family Phyllodocidae. **A**, **B**, *Phyllodoce* specimen: **A**, entire animal with pharynx everted, dorsal view; **B**, anterior end with pharynx everted, dorsal view. **C**, anterior end of *Eumida* specimen with pharynx everted, dorsal view. **D**, median parapodium of *Phyllodoce* specimen. **aci**, acicula; **dci**, dorsal cirrus; **eye**, eye; **lant**, lateral antennae; **mant**, median antenna; **neuc**, neurochaetae; **nucp**, nuchal papilla; **nup**, neuropodium; **palp**, palp; **php**, pharyngeal papilla; **phx**, pharynx, everted; **pros**, prostomium; **tci**, tentacular cirri; **tpp**, terminal pharyngeal papilla; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## KEY TO GENERA:
(adapted from: FAUCHALD, 1977*a*; PLEIJEL, 1993*a*)

**REMARKS:** Genera represented by alciopids are included in the following key, in spite of being holopelagic. These genera and their species, however, are not treated in the subsequent text. This is the case of the genera *Alciopa* Audouin & Milne-Edwards 1833, *Alciopina* Claparède & Panceri 1867,

*Krohnia* Quatrefages 1866, *Naiades* Delle Chiaje 1830, *Plotohelmis* Chamberlin 1919, *Rhynchonereella* Costa 1862, *Torrea* Quatrefages 1866, and *Vanadis* Claparède 1863.

**1a.** Pelagic forms; compound spinigers with shafts not inflated/spinose distally; capillary chaetae usually present; very big eyes with large camera-type lenses.....**2**
**1b.** Mainly benthic forms; all chaetae compound spinigers with shafts distally spinose and inflated; capillary chaetae normally absent; eyes subepithelial or eyes absent.....**9**

**2a (1a).** Several anterior segments with rudimentary parapodia.....**3**
**2b (1a).** Anterior segments with fully developed parapodia.....**5**

**3a (2a).** All chaetae simple capillaries.....***Naiades***
**3b (2a).** Chaetae composite spinigers.....**4**

**4a (3b).** Parapodia with a cirriform appendage distally.....***Vanadis***
**4b (3b).** Parapodia without a cirriform appendage distally.....***Torrea***

**5a (2b).** Parapodia with two distal cirriform appendages; nearly all chaetae composite spinigers....***Alciopa***
**5b (2b).** Parapodia without cirriform appendages, or with a single of such appendages; simple or acicular chaetae present.....**6**

**6a (5b).** All chaetae simple.....**7**
**6b (5b).** At least some composite chaetae present.....**8**

**7a (6a).** Parapodia with a cirriform appendage.....***Krohnia***
**7b (6a).** Parapodia without cirriform appendages.....***Alciopina***

**8a (6b).** Parapodia with cirriform appendages; acicula barely extending beyond the tip of the parapodia.....***Rhynchonereella***
**8b (6b).** Parapodia without cirriform appendages.....***Plotohelmis***

**9a (1b).** Two or three pairs of tentacular cirri (2+0 or 1+2+0).....**10**
**9b (1b).** Four pairs of tentacular cirri (1+2+1).....**14**

**10a (9a).** Two pairs of tentacular cirri on first visible segment; following segment lacking dorsal cirri; nuchal papilla present.....***Eteone***
**10b (9a).** Three pairs of tentacular cirri: one pair on segment 1 and two pairs on segment 2.....**11**

**11a (10b).** Third segment with dorsal cirri.....***Lugia***
**11b (10b).** Third segment lacking dorsal cirri; median antenna present or absent.....**12**

**12a (11b).** Small median antenna present (may be difficult to detect).....***Pseudomystides****
**12b (11b).** Median antenna absent.....**13**

**13a (12b).** Tentacular cirri usually bottle-shaped; prostomium rounded, about as long as wide, or oval, longer than wider; dorsal and ventral cirri ovoid, dorsal ones slightly larger; chaetae from segment 2.....***Mystides***
**13b (12b).** Tentacular cirri evenly tapering; prostomium much longer than wide; dorsal and ventral cirri cylindrical, ventral ones much longer; chaetae from segment 3.....***Hesionura***

**14a (9b).** Parapodia biramous; nuchal organs large, dorsally extended.....***Notophyllum****
**14b (9b).** Parapodia uniramous; nuchal organs either inconspicuous or lateral.....**15**

**15a (14b).** Segments 2-4 with large protruding stout chaetae ventro-laterally.....***Chaetoparia***
**15b (14b).** Anterior specialized chaetae absent.....**16**

**16a (15b).** Segments 1 and 2 forming a collar covering posterior part of prostomium.....***Paranaitis***
**16b (15b).** Anterior segments visible or reduced, but not forming a collar.....**17**

**17a (16b).** Median antenna absent; nuchal papilla present or absent.....**18**
**17b (16b).** Median antenna present (may be small).....**20**

**18a (17a).** Nuchal papilla present, located in posterior dorsal incision of prostomium; proboscis with distinct proximal and distal parts; posterior sides of dorsal cirri with ciliated furrow.....***Phyllodoce****
**18b (17a).** Nuchal papilla absent; proboscis not subdivided; posterior side of dorsal cirri without ciliated furrow.....**19**

**19a (18b).** No eyes; segment 1 dorsally visible and well delineated from segment 2; dorsal and ventral cirri swollen, ovoid; ventral cirri horizontally oriented.....***Protomystides***
**19b (18b).** Large eyes; segment 1 fused to segment 2; dorsal and ventral cirri flattened; dorsal cirri cordiform; ventral cirri obliquely oriented.....***Nereiphylla****

**20a (17b).** Segment 1 dorsally visible.....***Eulalia****
**20b (17b).** Segment 1 partly or completely reduced dorsally.....**21**

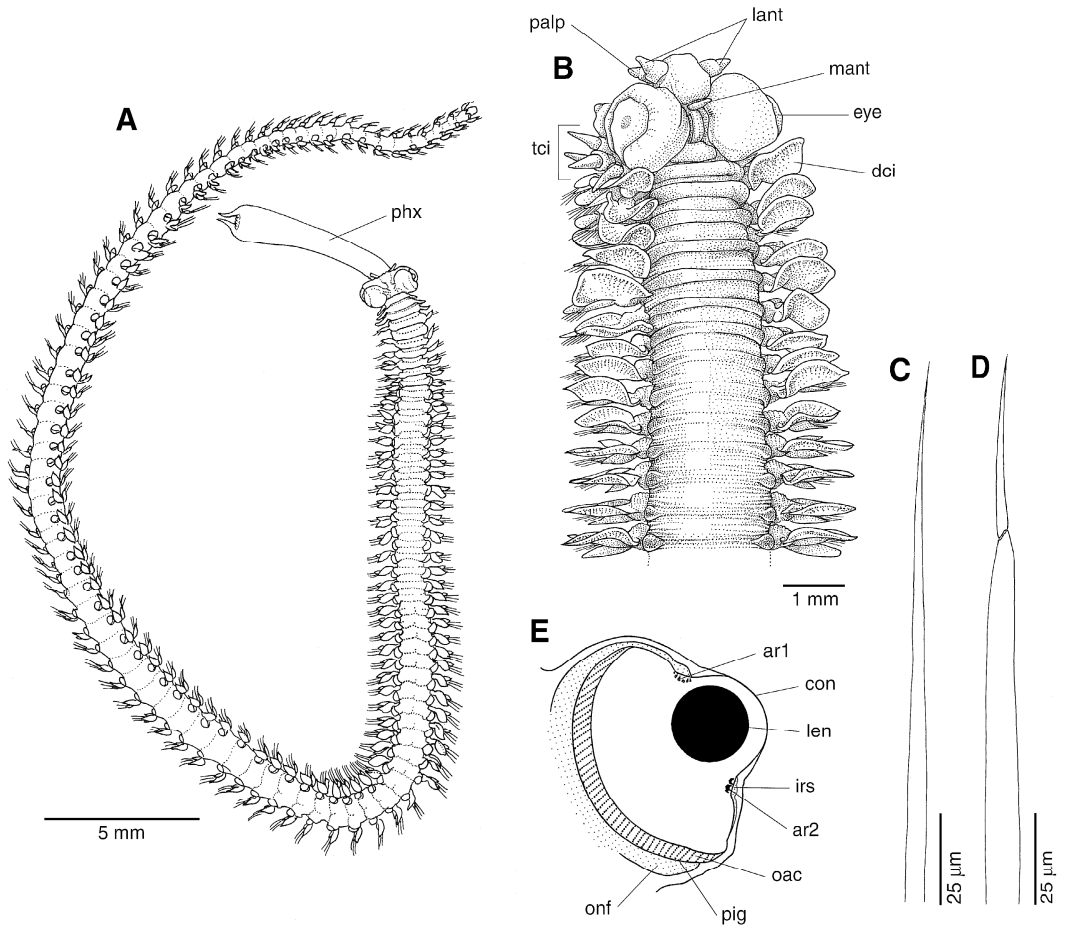


**Figure legend:** Family Phyllodocidae. Alciopini (formerly family Alciopidae). **A**, *Torrea candida*, entire animal with pharynx everted, dorsal view; specimen from the Bay of Naples Aquarium, Italy. **B**-**D**, *Torrea* specimen: **B**, anterior end, dorsal view; **C**, simple chaeta; **D**, compound chaeta. **E**, cross-section of eye of *Torrea candida*. The cornea consists in two layers, the outer continuous with the skin and the inner continuous with the iris and retina. Accessory retinas are visible on each side of the lens. Main retina comprises a single layer of photoreceptor and auxiliary cells stratified into three layers: a distal layer of receptor elements or outer auxiliary cells, a thin layer of orange-red pigment which continues anteriorly to form the iris and a thick layer of cell bodies ending in optic-nerve fibres. **ar1**, accessory retina 1; **ar2**, accessory retina 2; **con**, cornea; **dci**, dorsal cirrus; **eye**, eye; **irs**, iris; **lant**, lateral antennae; **len**, lens; **mant**, medium antenna; **oac**, outer auxiliary cells; **onf**, optic-nerve fibres; **palp**, palp; **phx**, pharynx; **pig**, pigmented layer; **tci**, tentacular cirri (4 pairs). (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan; E, after WALD & RAYPORT, 1977).

**21a (20b).** Median antenna inserted anteriorly on prostomium; proboscis densely covered with long thread-like papillae; ventral tentacular cirri of segment 2 conspicuously flattened and enlarged.....***Pterocirrus****
**21b (20b).** Median antenna inserted centrally on prostomium; proboscis smooth or with rounded papillae; ventral tentacular cirri cylindrical or slightly flattened.....**22**

**22a (21b).** Proboscis densely covered with distinct rounded papillae; prechaetal lobes distinctly cleft; dark spots present dorsally anterior to eyes and as transverse rows of about six on each segment....***Pirakia***
**22b (21b).** Proboscis with micropapillae only; prechaetal lobes either entire and symmetrical, or distinctly asymmetrical with prolonged upper part.....**23**

**23a (22b).** Segment 1 completly reduced; prechaetal lobes symmetrical.....***Eumida***
**23b (22b).** Segment 1 partly reduced; prechaetal lobes with prolonged upper part.....***Sige***

## GENUS ***Chaetoparia*** Malmgren 1867

*Chaetoparia* MALMGREN, 1867*a*: 29-30.
**TYPE SPECIES:** *Chaetoparia nilssoni* Malmgren 1867.

### ***Chaetoparia nilssoni*** Malmgren 1867

*Chaetoparia Nilssoni* MALMGREN, 1867*a*: 30, pl. 2 fig. 5.
**TYPE LOCALITY:** Bohüslan and Koster, Sweden, between 70-130 fathoms (128-237.7 meters).
**SELECTED REFERENCES:** *Chaetoparia nilssoni* — BERGSTRÖM, 1914: 169-172, fig. 60, pl. 2 fig. 2, pl. 3 fig. 3; LAUBIER, 1974*b*: 256-259, fig. 1; USCHAKOV, 1972: 143-145, pl. 14 figs. 5-10; PLEIJEL, 1991*b*: fig. 8; PLEIJEL & DALES, 1991: 128, fig. 43; KIRKEGAARD, 1992: 108-110, fig. 46; PLEIJEL, 1993*a*: 20-23, figs. 10-12, map 6; HARTMANN-SCHRÖDER, 1996: 90; ALÓS, 2004: 165-167, fig. 56.
**DISTRIBUTION:** Skagerrak; Kattegat; North Sea; western Norway; Faroes; Iceland; Biscay Bay; Western Mediterranean (West Corsica and off Monaco). On mud substrates. Recorded between 14 (BERGSTRÖM, 1914) and 1110 meters (LAUBIER, 1974*b*), but found mainly between 70-500 meters (PLEIJEL, 1993*a*).

## GENUS ***Eteone*** Savigny 1822

*Eteone* SAVIGNY, 1822: 46.
**TYPE SPECIES:** *Nereis flava* Fabricius 1780.
**SYNONYMS:** *Eteonella* McIntosh 1874; *Hypereteone* Bergström 1914; *Mysta* Malmgren 1865.
**REMARKS:** WILSON (1988*a*), following BERGSTRÖM (1914), considered all three genera *Eteone* Savigny 1822, *Mysta* Malmgren 1865, and *Hypereteone* Bergström 1914, as valid in his revision. HARTMANN-SCHRÖDER (1971*a*, 1996) considered only one genus, *Eteone*, divided into three subgenera named from each of the above genera. PLEIJEL (1991*b*) rejected both *Mysta* and *Hypereteone*, arguing that recognizing them would render the genus *Eteone* paraphyletic. Both genera were considered as synonymies of *Eteone*. EIBYE-JACOBSEN (1993) agreed with Pleijel's decision, and the same will be followed here, without considering the subdivision of the genus on subgenera.

PLEIJEL (1993*a*) discussed the problem of the Scandinavian species of *Eteone*. According to him, species descrimination and synonymies in this region is very problematic, and requires further study, especially in what concerns the species *E. flava*, *E. longa*, and *E. spetsbergensis*. Besides, the number of species in the area would be greatly underestimated, and probably the same is true for other geographic regions.

**KEY TO SPECIES:**
(adapted from WILSON, 1988*a*; PLEIJEL, 1993*a*; HARTMANN-SCHRÖDER, 1996; KATO, PLEIJEL & MAWATARI, 2001)

**1a.** Anal or pygidial cirri at least 5 times as long as wide at base, tapering to a pointed tip; proboscis with 3 or more longitudinal rugose ridges or rows of low tuberculate papillae; segment 3 (second visible

segment) without chaetigerous lobes or chaetae (a few chaetae may occur in smaller specimens), only with ventral cirri; ventral pair of tentacular cirri distinctly longer than dorsal pair; live animals cream-white with eyes dark red, preserved animals white, eyes blackish.....***E. foliosa***
**1b.** Anal cirri digitiform or nearly spherical with blunt rounded tip, no more than 4 times as long as wide; proboscis otherwise.....**2**

**2a (1b).** Proboscis with 2 lateral longitudinal rows of foliose papillae and a dorsal band of very small denticulate papillae.....**3**
**2b (1b).** Proboscis usually smooth basally, rugose distally, without longitudinal rows of papillae or numerous longitudinal rugose ridges (in the retracted position the proboscis may invert to produce a single longitudinal fold which is however absent when preserved in the everted position).....**5**

**3a (2a).** Dorsal pair of tentacular cirri more than twice as long as ventral pair; dark pigment forming three distinct longitudinal lines on dorsum; proboscis with 35-70 large papillae on each side, distributed in 2-3 indistinct rows; live animals yellowish white with three distinct brown longitudinal bands on dorsum (median line not always distinct in smaller specimens), and eyes red brown, pigmentation retained in preserved specimens, eyes blackish.....***E. barbata***
**3b (2a).** Dorsal pair of tentacular cirri as long as ventral pair, or slighter longer or shorter.....**4**

**4a (3b).** Dorsal cirri oval to cordiform, wider than longer; dorsal cirri supported by a short cirrophore; proboscis with about 30 large papillae on each side, distributed in a single row; body violet blueish, with cirri sulfur-yellow coloured (live animals), or yellow reddish coloured, with blueish iridiscent reflexes (alcohol preserved animals).....***E. syphodonta***
**4b (3b).** Dorsal cirri lanceolate, longer than wider; dorsal cirri supported by a long cirrophore; proboscis with fewer than 10 large papillae on each side; rust-reddish pigment present on anterior sides of cirrophores and segmentally as two lateral and two median squares across dorsum, giving animal a chequered appearance.....***E. picta***

**5a (2b).** Prostomium and first segment wholly or partly fused; tentacular cirri narrow, threadlike, equal in length; segments 1 and 2 strongly constricted; holotype without pigment patterns.....***E. robertianae***
**5b (2b).** Prostomium and first segment clearly delineated; tentacular cirri stout basally, tapering and narrower distally.....**6**

**6a (5b).** Dorsal cirri of the mid-region clearly asymmetrical, up to 2.5 times wider than longer; segment 2 with few or no chaetae at all; colour in alcohol pale yellow.....***E. spetsbergensis***
**6b (5b).** Dorsal cirri of the mid-region symmetrical, or only slightly asymmetrical, being a little wider than long, as wide as long, or a little longer than wider; segment 2 with numerous chaetae.....**7**

**7a (6b).** Dorsal cirri of the mid-region slightly longer than wider or as long as wide; ventral cirri a little shorter or as long as the parapodial lobes, blunt or slightly pointed; colour in alcohol pale yellow; PLEIJEL (1993*a*) identified as *E.* cf. *longa* some specimens from the Swedish west coast and Faroes, which in life are transparent yellowish white, with eyes dark red, and preserved varying from yellow to brownish green, with three faint darker longitudinal lines that may be present, one median and two lateral, and dorsal and ventral cirri dark.....***E. longa***
**7b (6b).** Dorsal cirri of the mid-region slightly wider than longer; ventral cirri longer than the parapodial lobes.....**8**

**8a (7b).** Ventral cirri with distinctly pointed tips and much longer than the parapodial lobes; articulations of the compound chaetae distally perpendicular, symmetrical, with one middle long tooth plus several shorter teeth on each side; live animals yellowish white with rich olive-green pigment on dorsum and as small spots on cirrophores and dorsal cirri, eyes brownish black, preserved animals dark greenish brown, strongly iridescent, and after a couple of years of storage faint orange.....***E. suecica***
**8b (7b).** Ventral cirri with slightly pointed to rounded tips and a little longer than the parapodial lobes; articulations of the compound chaetae distally oblique, slightly asymmetrical, with the large teeth slightly bigger in one side than in the other, with or without small teeth.....**9**

**9a (8b).** Dorsal cirri of the mid-region slightly asymmetrical; articulation of compound chaetae smooth, without small teeth; colour in alcohol pale yellow, no markings.....***E. fucata***

**9b (8b).** Dorsal cirri of the mid-region symmetrical; articulation of compound chaetae with small teeth; colour in alcohol pale brown, no markings; PLEIJEL (1993*a*) identified as *E.* cf. *flava* some specimens from Kattegat, Skagerrak, the North Sea, and the Norwegian Sea, which live are rose-red to orange, with eyes dark red, and preserved vary from yellow to brownish green, often with darker pigment medially and laterally on prostomium, laterally on segment 2 and unevenly distributed on body.....***E. flava***

## ***Eteone barbata*** (Malmgren 1865)

*Mysta barbata* MALMGREN, 1865: 101, pl. 15 fig. 34.

**TYPE LOCALITY:** Gullmarsfjorden, Bohuslän, Swedish west coast, between 30-60 fathoms (54.9-109.7 meters).

**SYNONYMS:** *Mysta papillifera* Théel 1879; *Eteone striata* Levinsen 1883.

**SELECTED REFERENCES:** *Mysta barbata* — BERGSTRÖM, 1914: 207-208, fig. 79; WILSON, 1988*a*: 421-422, figs. 12*a-d*, 14*l*. *Eteone (Mysta) barbata* — FAUVEL, 1923*c*: 176; USCHAKOV, 1972: 179-181, pl. 17 figs. 6-10; HARTMANN-SCHRÖDER, 1996: 110-111, fig. 42. *Eteone barbata* — PLEIJEL & DALES, 1991: 52-53, fig. 5; KIRKEGAARD, 1992: 111-112, fig. 47; PLEIJEL, 1993*a*: 134-136, fig. 93-94, map 46; ALÓS, 2004: 169-170, fig. 57. *Mysta papillifera* — THÉEL, 1879: 33-34, pl. 2 figs. 25-28; BERGSTRÖM, 1914: 208-209, fig. 80. *Eteone striata* — LEVINSEN, 1883: 207, 212, pl. 7 fig. 6.

**DISTRIBUTION:** Iceland; Lille Baelt, Denmark; Øresund; Kattegat; Swedish west coast; western Baltic Sea; western Norway, North Sea; Ireland; eastern part of English Channel; Galicia, Spain; Novaya Zemlya; Barents Sea; White Sea; East Siberian coast; Chukchi Sea; Bering Sea; Sea of Okhotsk; Sea of Japan. Muddy sand and sand. Between 10-420 meters.

## ***Eteone flava*** (Fabricius 1780)

*Nereis flava* FABRICIUS, 1780: 299-300.

**TYPE LOCALITY:** West Greenland, probably vicinity of Fedrikshåb.

**SYNONYMS:** [?] *Eteone Sarsii* Ørsted 1843 [junior synonym of *E. flava*, according to HARTMAN (1959*a*); synonymy not clear, according to WILSON (1988*a*); *nomen dubium*, according to PLEIJEL (1991*b*; 1993*a*)]; *Eteone depressa* Malmgren 1865; *Eteone lentigera* Malmgren 1867.

**SELECTED REFERENCES:** *Eteone flava* — BERGSTRÖM, 1914: 196-199, fig. 74, pl. 2 fig. 3; USCHAKOV, 1972: 174-175, pl. 15 figs. 4-7; WILSON, 1988*a*: 395-397, fig. 3*a-e*, pl. 1*c*; PLEIJEL, 1991*b*: fig. 21; PLEIJEL & DALES, 1991: 54, fig. 6; KIRKEGAARD, 1992: 112-113, fig. 48; ALÓS, 2004: 176-177, fig. 61. *Eteone (Eteone) flava* — FAUVEL, 1923*c*: 173-174, fig. 62*e-f*; HARTMANN-SCHRÖDER, 1996: 105-106, fig. 38. *Eteone* cf. *flava* — PLEIJEL, 1993*a*: 137-140, figs. 95-97, map 47. *Eteone depressa* — MALMGREN, 1865: 103, pl. 15 fig. 36. *Eteone lentigera* — MALMGREN, 1867*a*: 29, pl. 2 fig. 13.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Sado Estuary).

**DISTRIBUTION:** Swedish west coast; western and northern Norway; Faroes; Kattegat; Skagerrak; North Sea; Norwegian Sea; Galicia, Northern Spain. It has been widely recorded from Arctic and boreal areas of the northern hemisphere, but several close but different species could be involved (PLEIJEL, 1993*a*). On shell gravel, muddy sand, or mud. Between 15-750 meters.

## ***Eteone foliosa*** Quatrefages 1866

*Eteone foliosa* QUATREFAGES, 1866*b*: 146-147.

**TYPE LOCALITY:** St. Vaast-la-Hougue, Normandy, France.

**SYNONYMS:** *Eteone lactea* Claparède 1868; [?] *Eteone caeca* Ehlers 1874; *Eteone malmgreni* Michaelsen 1897.

**SELECTED REFERENCES:** *Eteone (Eteone) foliosa* — FAUVEL, 1923*c*: 174-175, fig. 62*g-k*. *Eteone foliosa* — SAINT-JOSEPH, 1888: 306-307, pl. 12 fig. 180, pl. 13 figs. 181-182; SAINT-JOSEPH, 1895: 226-229, pl. 13 figs. 42-44; PLEIJEL & DALES, 1991: 56, fig. 7; KIRKEGAARD, 1992: 113-114, fig. 49; PLEIJEL, 1993*a*: 140-142, figs. 98-99, map 48; ALÓS, 2004: 170-172, fig. 58. *Eteone (Hypereteone) foliosa* — HARTMANN-SCHRÖDER, 1996: 109-110, fig. 41. *Hypereteone foliosa* — WILSON, 1988*a*: 414-415, fig. 9*f-I*, pl. 2*d*. *Eteone lactea* — CLAPARÈDE, 1868: 553-554, pl. 18 fig. 2; USCHAKOV, 1972: 179, pl. 18 figs. 8-10 [in part?; at least the European material]. *Hypereteone lactea* — BERGSTRÖM, 1914: 209-211, fig. 81, pl. 2 fig. 4. *Eteone (Eteone) lactea* — FAUVEL, 1923*c*: 175-176, 63*a-d*. Not *Eteone foliosa* — DAY, 1967: 141, fig. 5.1*j-m* [= *Hypereteone* sp., according to WILSON (1988*a*)].

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Eteone lactea*; continental shelf of Algarve); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (some as *Eteone lactea*; previous records: Ria de

Alvor; continental shelf of Algarve; Lagoon of Albufeira; Lagoon of Óbidos; Figueira da Foz); CANCELA DA FONSECA *et al.*, 2006 (as *Eteone lactea*; Aljezur).

**DISTRIBUTION:** Øresund; western Baltic Sea; Swedish west coast; western Norway; Shetland; Faroes; British Isles; Ireland; North Sea; Atlantic coast of France; Gibraltar; Western Mediterranean Sea; Adriatic Sea; Morocco. On sand, muddy sand, and mud. Intertidal to about 200 meters.

**REMARKS:** According to WILSON (1988*a*), it is not clear that the record by PETTIBONE (1963*a*) of *Eteone lactea* from the Atlantic coast of USA is correct, and the same author stated that this material should be compared with his redescription of the species, as well as with the related species from the USA described or redescribed in the same paper. For this reason, records and references of *Eteone foliosa* (as *Eteone lactea*) from the Eastern coast of USA and Gulf of Mexico are not included here.

One specimen collected near Agde (Southern France, Mediterranean Sea) and identified as *Eteone foliosa*, presented a very small dorsal lobe on segment 3 (personal observation).

## ***Eteone fucata*** M. Sars *in* G.O. Sars 1872

*Eteone fucata* M. SARS *in* G.O. SARS, 1872*a*: 407.

**TYPE LOCALITY:** Drøbak, Christianafjord (Oslofjord, Norway), in 60 fathoms (109.7 meters).

**SELECTED REFERENCES:** *Eteone fucata* — WILSON, 1988*a*: 397, figs. 4*a*, 14*c*. *Eteone (Eteone) fucata* — HARTMANN-SCHRÖDER, 1996: 106.

**DISTRIBUTION:** Oslofjord, Skagerrak (Norway).

**REMARKS:** HARTMAN (1959*a*), HARTMANN-SCHRÖDER (1971*a*), and PLEIJEL (1993*a*) considered *Eteone fucata* M. Sars *in* G.O Sars 1872 as a possible junior synonym of *Eteone flava* (Fabricius 1780). WILSON (1988*a*), on the contrary, considered it as being a valid species, different fom *E. flava*, with base on the distinctly asymmetrical dorsal cirri, and absence of rows of small teeth in the articulation of the chaetae (against asymmetrical ovoid to circular dorsal cirri, and chaetae with 12-15 smaller teeth in 3 or 4 tiers in the articulations, in *E. flava*). Besides, the anal cirri of *E. fucata* are equal to four or five segments in length, which further distinguishes it from related species.

## ***Eteone longa*** (Fabricius 1780)

*Nereis longa* FABRICIUS, 1780: 300.

**TYPE LOCALITY:** West Greenland, probably vicinity of Fedrikshåb, littoral, in mud with sand.

**SYNONYMS:** [?] *Eteone arctica* Malmgrem 1867; *Eteone islandica* Malmgren 1867; *Eteone Leuckarti* Malmgren 1867; *Eteone Lilljeborgi* Malmgren 1867; [?] *Eteone robusta* Verrill 1874; [?] *Eteone villosa* Levinsen 1883.

**SELECTED REFERENCES:** *Eteone longa* — BERGSTRÖM, 1914: 192-195, fig. 72; USCHAKOV, 1972: 175-176, pl. 15 figs. 8-10; WILSON, 1988*a*: 399-400, figs. 4*e-h*, pl. 1 fig. *d*; PLEIJEL & DALES, 1991: 58, fig. 8; KIRKEGAARD, 1992: 114-116, fig. 50; ALÓS, 2004: 178-179, fig. 62. *Eteone (Eteone) longa* — FAUVEL, 1923*c*: 172-173, fig. 62*a-d*; HARTMANN-SCHRÖDER, 1996: 106-107, fig. 39. *Eteone* cf. *longa* — PLEIJEL, 1993*a*: 143-144, figs. 100-101, map 49. *Eteone Lilljeborgi* — MALMGREN, 1867*a*: 26-27, pl. 3 fig. 22. *Eteone islandica* — MALMGREN, 1867*a*: 27, pl. 3 fig. 23. [?] *Eteone arctica* — MALMGREN, 1867*a*: 27-28, pl. 2 fig. 12. *Eteone Leuckarti* — MALMGREN, 1867*a*: 28, pl. 2 fig. 15. [?] *Eteone robusta* — VERRILL, 1874*c*: 588. [?] *Eteone villosa* — LEVINSEN, 1883: 208-209, 212-213, pl. 7 fig. 7 [WILSON (1988*a*) tentatively attributes this species to *E. longa*; PLEIJEL (1993*a*) attributes it to either *E. longa* or *E. flava*]

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1977*a* (as *Eteone (Eteone) longa*; Bay of Setúbal); CAMPOY, 1982 (previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (Ponta do Surdão); DEXTER, 1992 (previous records: Ria de Aveiro); SALDANHA, 1995 (Portugal).

**DISTRIBUTION:** Swedish west coast; Faroes; west coast of Scotland and Wales; Portugal; [?] Western Mediterranean; [?] Adriatic Sea. Widely recorded in the literature from Arctic and boreal areas of the northern hemisphere, but these records need confirmation (PLEIJEL, 1993*a*). On muddy sand and mud. Intertidal to at least 120 meters.

## ***Eteone picta*** Quatrefages 1866

*Eteone picta* QUATREFAGES, 1866*b*: 147-148, pl. 18 figs. 18-23.

**TYPE LOCALITY:** Bréhat, Brittany, Northern France.

**SYNONYMS:** *Eteone armata* Claparède 1868; *Eteone incisa* Saint-Joseph 1888.

**SELECTED REFERENCES:** *Eteone picta* — PLEIJEL & DALES, 1991: 60, fig. 9; PLEIJEL, 1993*a*: 145-147, figs. 102-103, map 50; ALÓS, 2004: 174-175, fig. 60. *Eteone (Mysta) picta* — FAUVEL, 1923*c*: 176-177,

fig. 64; HARTMANN-SCHRÖDER, 1996: 111. *Mysta picta* — WILSON, 1988*a*: 424. *Eteone armata* — CLAPARÈDE, 1868: 550-551, pl. 17 fig. 5. *Eteone incisa* — SAINT-JOSEPH, 1888: 304-306, pl. 12 figs. 175-179.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Eteone (Mista) picta*; Setúbal Canyon); MONTEIRO-MARQUES, 1984 (Praia da Falésia); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); QUINTINO & GENTIL, 1987 (as *Mysta picta*; Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (as *Mysta picta*; Lagoon of Óbidos); DEXTER, 1992 (some as *Mysta picta*; previous records: Ria de Alvor; continental shelf of Algarve; Sado Estuary; Lagoon of Albufeira; Lagoon of Óbidos; Figueira da Foz; Mondego Estuary); PARDAL, MARQUES & BELLAN, 1993 (Mondego Estuary); PLEIJEL, 1993*a* (southwestern Portugal); RAVARA, 1997 (off Aveiro); CANCELA DA FONSECA *et al.*, 2006 (Aljezur).

**DISTRIBUTION:** British Isles; Ireland; northern Bretagne and Arcachon; from the Atlantic coast of France to southern Portugal; Western Mediterranean; Adriatic Sea; Aegean Sea; Black Sea; [?] Ghana. In crevices among rocks and shells, in shell gravel and among kelp holdfasts. Intertidal to at least 25 meters.

## ***Eteone robertianae*** (McIntosh 1874)

*Eteonella Robertianae* MCINTOSH, 1874*b*: 197.

**TYPE LOCALITY:** St. Andrews, Scotland.

**SYNONYMS:** *Eteone arctica* var. *robertiana* McIntosh 1908.

**SELECTED REFERENCES:** *Eteone arctica* var. *Robertiana* — MCINTOSH, 1908*c*: 103-104, pl. 69 figs. 8-9. *Eteone robertianae* — WILSON, 1988*a*: 402-403, fig. 5*f-i*.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** PLEIJEL (1991*b*) treated this species as a *nomen dubium*, considering the available material insufficient for a further study, and requiring a redescription (PLEIJEL, 1993*a*). WILSON (1988*a*) did a redescription of the species with base on the holotype.

## ***Eteone siphodonta*** (Delle Chiaje 1830)

*Lumbrinerus siphodonta* DELLE CHIAJE, 1830: pl. 80 figs. 3, 7-8.

**TYPE LOCALITY:** Naples.

**SELECTED REFERENCES:** *Mysta siphonodonta* — BERGSTRÖM, 1914: 205-207, fig. 78. *Eteone (Mysta) siphonodonta* — FAUVEL, 1923*c*: 178, fig. 63*e-h*. *Eteone siphonodonta* — CLAPARÈDE, 1868: 551-552, pl. 17 fig. 4. *Eteone siphodonta* — ALÓS, 2004: 175-176. *Mysta syphodonta* — WILSON, 1988*a*: 425.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Mysta siphonodonta*; previous records: Sado Estuary); CANCELA DA FONSECA *et al.*, 2006 (Aljezur; Odeceixe).

**DISTRIBUTION:** Mediterranean Sea (Naples, Monaco); Adriatic Sea; Aegean Sea; Black Sea; Galicia, Northern Spain. Shallow water, on sand.

**REMARKS:** The publication dates of the works of Delle Chiaje are quite confused and have been treated in several papers (*e.g.* ZIBROWIUS, 1972*c*; MUIR, 1989; ALÓS *et al.*, 2004).

The publication date of *Lumbrinerus siphodonta* has been considered normally as being 1822, but according to ALÓS (2004), it should be 1830, publication date of the plates 70 to 109 (MUIR, 1989; ALÓS *et al.*, 2004), which included the plate corresponding to this species.

The number of the plate and figures where *Eteone siphodonta* is described differes also according to the authors. CLAPARÈDE (1868) states that it is plate 82 and figures 3, 7, and 8, while BERGSTRÖM (1914), quoting Claparède, indicates them as being plate 82 and figures 37, 8. Finally ALÓS (2004) refers to plate 80, without giving any indication of numeration of the figures. The original work by Stefano delle Chiaje, is available online at the Biodiversity Heritage Library (www.biodiversitylibrary.org), and the species is pictured in plate 80, figures 3, 7 and 8 (indication of figure 7 was added in handwriting at the figure captions, but seems to be correct). Besides, the same plate includes the reference "*Inc. 1830*", which seems to reinforce the year 1830 as the publication year of the plate.

## ***Eteone spetsbergensis*** Malmgren 1865

*Eteone spetsbergensis* MALMGREN, 1865: 102, pl. 15 fig. 38.

**TYPE LOCALITY:** Shoal-point, Spitsbergen, on mud, between 36.6-73.2 meters (20-40 fathoms).

**SYNONYMS:** [?] *Eteone (Mysta) bistriata* Uschakov 1953.

**SELECTED REFERENCES:** *Eteone spetsbergensis* — WILSON, 1988*a*: 403-405, fig. 6*d-g*, pl. 2*a*; ALÓS, 2004: 172-175, fig. 59. *Eteone spetsbergensis spetsbergensis* — USCHAKOV, 1972: 177. *Eteone (Eteone) spetsbergensis* — HARTMANN-SCHRÖDER, 1996: 108, fig. 40. *Eteone spitzbergensis* — BERGSTRÖM,

1914: 202-205, fig. 77. [?] *Eteone (Mysta) bistriata* — USCHAKOV, 1953: 208, fig. 2. *Eteone* sp. Gruppe A and Gruppe B — ELIASON, 1962*a*: 22-27, figs. 1*b-e*, 2*a-c*.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Figueira da Foz).
**DISTRIBUTION:** Arctic; North Pacific; North Atlantic; North Sea; Skagerrak; Kattegat; Øresund; [?] Cantabrian Sea, Northern Spain; [?] Sea of Okhotsk. On sand, mud, clay, and on *Zostera* holdfasts. Bathyal to about 400 meters. The biggest part of the records of this species require confirmation.
**REMARKS:** According to PLEIJEL (1993*a*), this species needs to be redescribed.

### ***Eteone suecica*** Bergström 1914

*Eteone suecica* BERGSTRÖM, 1914: 199-201, fig. 75.
**TYPE LOCALITY:** Gullmarsfjorden, Bohuslän, Swedish west coast.
**SELECTED REFERENCES:** *Eteone suecica* — WILSON, 1988*a*: 407; PLEIJEL & DALES, 1991: 62, fig. 10; KIRKEGAARD, 1992: 116-117, fig. 51; PLEIJEL, 1993*a*: 147-148, fig. 104, map 51. *Eteone (Eteone) suecica* — HARTMANN-SCHRÖDER, 1996: 109.
**DISTRIBUTION:** Off River Tyne, NE England; Sullom Voe, Shetland; Koster and Gullmarsfjorden, Bohuslän, Sweden. On muddy bottoms. Between 40-54 meters.

## *GENUS ***Eulalia*** Savigny 1822

*Eulalia* SAVIGNY, 1822: 45.
**TYPE SPECIES:** *Nereis viridis* Linnaeus 1767.
**SYNONYMS:** *Hypoeulalia* Bergström 1914; *Notalia* Bergström 1914; *Steggoa* Bergström 1914.
**REMARKS:** *Eulalia fuscescens* Saint-Joseph 1888, *Eulalia trilineata* Saint-Joseph 1888, and *Eulalia venusta* Saint-Joseph 1888, all described from Brittany (France) are not considered below. There is no type material of the last two species, and all of them were considered as *nomina dubia* by PLEIJEL (1991*b*, 1993*a*). *Eulalia venusta* was however included by ALÓS (2004) in her revision of the Iberian Phyllodocidae, with base on one record from Galicia, identified as *Eulalia* cf. *venusta* by PARAPAR, BESTEIRO & URGORRI (1995: 116-117, fig. 6*A-B*).

*Eulalia (Eumida) parva* Saint-Joseph 1888, described from Brittany (France), is also not considered below. There is no type material of the species, and it was considered as being a *nomen dubium* by PLEIJEL (1991*b*). ALÓS (2004) considered it, under the genus *Eulalia*. Due to the ambiguity of some of the identifications attributed to this species, and the absence of a redescription based on topotype material, the species is not included here.

*Eulalia rubiginosa* Saint-Joseph 1888, also described from Brittany (France), is not considered as well, as its generic location is not clear. PLEIJEL (1991*b*) studied the type material, and refers the species as belonging probably to *Nereiphylla*, and being possibly a *nomen dubium*.

**KEY TO SPECIES:**
(adapted from PLEIJEL, 1993*a*)

**1a.** Dorsal cirri pointed.....**2**
**1b.** Dorsal cirri rounded.....**6**

**2a (1a).** Animal with distinct pigmentation pattern, forming lines or spots.....**3**
**2b (1a).** Animal without distinct pigmentation pattern.....**4**

**3a (2a).** Live animals yellowish with two red lines middorsally, and two more lateral darker lines; red lines disappear in alcohol, but lateral lines are retained.....***E. aurea***
**3b (2a).** Animals yellowish with two pairs of transverse olive-green bands across segments and with dark brown spots in the middle.....***E. ornata***

**4a (2b).** Eyes kidney-shaped, distinctly black; chaetae first present in segment two, in a large number; live animals violet.....***E. hanssoni***
**4b (2b).** Eyes round, red in live animals, brownish in preserved ones; chaetae normally first present in segment three, but when present in segment two, usually is in a small number; live animals green.....**5**

**5a (4b).** Ventral cirri as long as neuropodial lobe on middle segments, clearly longer on anterior and posterior segments; ratio between venter width (distance between the base of the two neuropodia of segment 50) and the greatest length of the dorsal cirri from that segment (removed from the body and lying completely flat) between 1.2 and 1.5 (some specimens with values up to 1.77); ratio between length (extended length) and thickness (as opposed to width, perpendicular to the plane of flattening of the cirrus, and measured just above the base of the cirrus, at its maximum value) of midbody dorsal cirri between 4.9 and 5.9; papillae on the proximal part of the proboscis with a maximum diameter of 40 μm, and in the distal part with a maximum diameter of 60 μm.....***E. viridis***
**5b (4b).** Ventral cirri usually clearly shorter than neuropodial lobe; ratio between venter width (distance between the base of the two neuropodia of segment 50) and the greatest length of the dorsal cirri from that segment (removed from the body and lying completely flat) between 1.8 and 2.0 in most animals (some specimens with values up to 2.5); ratio between length (extended length) and thickness (as opposed to width, perpendicular to the plane of flattening of the cirrus, and measured just above the base of the cirrus, at its maximum value) of midbody dorsal cirri between 3.0 and 3.5; papillae on the proximal part of the proboscis with a minimum diameter of 45 μm, and in the distal part with a minimum diameter of 65 μm.....***E. clavigera***

**6a (1b).** Dorsal and ventral cirri large, long and flattened; eyes hardly visible.....***E. microoculata***
**6b (1b).** Dorsal and ventral cirri smaller and swollen; eyes distinct.....**7**

**7a (6b).** Eyes absent.....***E. anoculata***
**7b (6b).** Eyes present.....**8**

**8a (7b).** Median antenna minute, hardly visible (best seen in profile).....**9**
**8b (7b).** Median antenna larger; eyes larger; pygidial cirri with rounded ends.....**10**

**9a (8a).** Eyes small; pygidial cirri with distinct tips; live animal emerald green; preserved animals yellowish to dark brown; rostrum of chaetal shaft with one or two large, slightly bent teeth and numerous smaller ones on either side, decreasing in size proximally.....***E. mustela***
**9b (8a).** Eyes large; pygidial cirri unknown; live animal coloration unknown; preserved animals brown, in form of granules covering almost all of the body, except the anterior region of the prostomium, antennae, tentacular cirri, and central region of the first segment; rostrum of chaetal shaft with numerous small teeth, decreasing in size proximally.....***E. brunnea***

**10a (8b).** Animal without distinct pigmentation pattern.....***E. tjalfiensis***
**10b (8b).** Animal with distinct pigmentation pattern.....**11**

**11a (10b).** Animals with a dark, continuous mid-dorsal longitudinal line, pygidial cirri similar to dorsal cirri.....***E. expusilla****
**11b (10b).** Pigmentation otherwise, pygidial cirri more elongated than dorsal cirri.....**12**

**12a (11b).** Animals with one dark longitudinal band on each side of dorsum.....***E. bilineata***
**12b (11b).** Distinct dark spots on every segment, one medial, and one lateral on each side of the body.....***E. tripunctata***

## ***Eulalia anoculata*** Hartman & Fauchald 1971

*Eulalia anoculata* HARTMAN & FAUCHALD, 1971: 41-42, pl. 6.
**TYPE LOCALITY:** Off New England (39º48.7'N, 70º40.8'W), at 1102 meters.
**SELECTED REFERENCES:** *Eulalia anoculata* — AMOUREUX, 1982*a*: 37-38, fig. 5.
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1987 (off Porto).
**DISTRIBUTION:** Between New England and Bermuda, between 530-5000 meters; continental slope from Bretagne to Ireland, between 650-1400 meters.
**REMARKS:** HARTMAN & FAUCHALD (1971) described this blind species as lacking median antenna, which would place the species in the genus *Protomystides* Czerniavsky 1882, as it is defined today. Later AMOUREUX (1982*a*) attributed to this species 15 specimens collected along the NW European continental slope. Of these, 12 specimens lacked median antenna, but the other 3 did have a median small antenna, one of them at the occipital limit of the prostomium, and the other two close to the center of the prostomium. The figure presented by AMOUREUX (1982*a*: fig. 5) is based in HARTMAN & FAUCHALD

(1971: pl. 6 fig. *a*), with a median antenna added to the previous figure. The type material was revised by PLEIJEL (1991*b*), who kept the species in the genus *Eulalia*, which seems to indicate that a small median antenna is normally present, but can be overlooked.

The species *Protomystides exigua* (Eliason 1962), originally described as the type species of the genus *Pseudeulalia*, is very similar to *Eulalia anoculata*. However, type and other material of *P. exigua* was revised by PLEIJEL (1991*b*), and no median antenna was found to be present.

## ***Eulalia aurea*** Gravier 1896

*Eulalia aurea* GRAVIER, 1896: 309-310, pl. 16 figs. 2-6.

**TYPE LOCALITY:** St. Vaast-la-Hougue, Normandy, NW France.

**SYNONYMS:** [?] *Eulalia brevisetis* Saint-Joseph 1899.

**SELECTED REFERENCES:** *Eulalia aurea* — PLEIJEL & DALES, 1991: 98, fig. 28; PLEIJEL, 1993*a*: 86-88, figs. 59-61, map 29; ALÓS, 2004: 196-198, fig. 70. *Eulalia (Eulalia) viridis* Var. *aurea* — FAUVEL, 1923*c*: 160, fig. 57*f*. [?] *Eulalia brevisetis* — SAINT-JOSEPH, 1899*b*: 172-173, pl. 6 figs. 6-9.

**REFERENCES FOR PORTUGAL:** PLEIJEL, 1993*a* (southwestern Portugal).

**DISTRIBUTION:** British Isles; Ireland; English Channel; Atlantic coast of France; Galicia, Northern Spain; southern Portugal; Gibraltar Strait; Western Mediterranean Sea. Intertidal, in rock pools, and subtidal, on bottoms with stones and large shells, and in shell gravel.

## ***Eulalia bilineata*** (Johnston 1840)

*Phyllodoce bilineata* JOHNSTON, 1840*a*: 227-228, pl. 6 figs 7-10.

**TYPE LOCALITY:** Berwick Bay (presumabely Berwick-upon-Tweed, NE England), or Prestonpans, Firth of Forth, Scotland.

**SYNONYMS:** *Eulalia problema* Malmgren 1865; *Protomystides bilineata* La Greca 1947.

**SELECTED REFERENCES:** *Eulalia bilineata* — USCHAKOV, 1972: 148-149, pl. 8 figs. 5-8; GATHOF, 1984*a*: 19.14, figs. 19.9-19.10; NÚÑEZ, BRITO & OCAÑA, 1991*b*: 16, fig. 5; PLEIJEL, 1991*b*: fig. 15*F*; PLEIJEL & DALES, 1991: 100, fig. 29; KIRKEGAARD, 1992: 118-119, fig. 52; PLEIJEL, 1993*a*: 89-90, figs. 62-63, map 30; HARTMANN-SCHRÖDER, 1996: 112-113, fig. 43; ALÓS, 2004: 2004: 205-206, fig. 74. *Eulalia (Eulalia) bilineata* — FAUVEL, 1923*c*: 162-163, fig. 58*a-e*. *Hypoeulalia bilineata* — BERGSTRÖM, 1914: 165-167, fig. 57, pl. 1 fig. 4. *Protomystides bilineata* — LA GRECA, 1947: 270-273, figs. 1-3 [SECONDARY HOMONYM]; HARTMANN-SCHRÖDER, 1963: 232, figs. 46-47. *Eulalia problema* — MALMGREN, 1865: 99-100, pl. 14 fig. 29. Not *Eulalia bilineata* — BLAKE, 1994*b*: 144-145, fig. 4.16 [= *Eulalia californiensis* (Hartman 1936) (see BLAKE, 1997*a*: 144-145)].

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); SALDANHA, 1995 (Portugal); ALÓS, 2004 (previous records: coasts of Portugal).

**DISTRIBUTION:** Øresund; Kattegat; west coast of Sweden; western Norway; British Isles; Shetland; Faroes; Iceland; Atlantic coast of France; Canary Islands; Galicia, Northern Spain; Josephine Seamount, off Portugal; Italy; Adriatic Sea; besides, reported to be present all over the Northern Hemisphere and South Africa. On muddy sand, sand, shell gravel, crevices in stones and among kelp holdfasts. Intertidal and subtidal, to at least 200 meters.

## ***Eulalia brunnea*** (Hartmann-Schröder 1963)

*Protomystides brunnea* HARTMANN-SCHRÖDER, 1963: 238-239, fig. 60.

**TYPE LOCALITY:** Banyuls-sur-Mer (France, Western Mediterranean), on *Amphioxus*-sand, at 20 meters.

**SELECTED REFERENCES:** *Eulalia brunnea* — ALÓS, 2004: 202-203, fig. 72.

**DISTRIBUTION:** Western Mediterranean Sea; Guipúzcoa, Northern Spain. On bottoms of *Amphioxus* sand (around 0-30 meters).

## ****Eulalia clavigera*** (Audouin & Milne-Edwards 1833)

*Phyllodoce clavigera* AUDOUIN & MILNE-EDWARDS, 1833*b*: 248-250, 1 plate figs. 9-13.

**TYPE LOCALITY:** Coasts of Vendée (NW France) and French coast of the English Channel. Neotype from "Roche Rouge" at Saint-Efflam, Bretagne, France, in clumps of *Mytilus edulis*, eulittoral (BONSE *et al.*, 2006).

**SYNONYMS:** [?] *Phyllodoce Gervilleii* Audouin & Milne-Edwards 1833; [?] *Eulalia (Phyllotethys) kosswigi* La Greca 1949.

**SELECTED REFERENCES:** *Eulalia clavigera* — AUDOUIN & MILNE-EDWARDS, 1834: 226-228, pl. 5*A* figs. 9-13; BONSE *et al.*, 2006: 40-45, figs. 1, 14-15; ALÓS, 2004: 193-196, fig. 69. *Eulalia (Eulalia) viridis* [not Linnaeus 1767] — FAUVEL, 1923*c*: 160, fig. 57*a-h*. *Eulalia viridis* [not Linnaeus 1767] —

BERGSTRÖM, 1914: 123-127, fig. 32; PLEIJEL & DALES, 1991: 110, fig. 34 [in part]; PLEIJEL, 1993*a*: 110-112, figs. 79, 81, map 38 [in part; not fig. 80]; HARTMANN-SCHRÖDER, 1996: 114-115, fig. 44 [in part]. [?] *Phyllodoce Gervilleii* — AUDOUIN & MILNE-EDWARDS, 1833*b*: 250. [?] *Eulalia (Phyllotethys) kosswigi* — LA GRECA, 1949*a*: 160-161, figs. 5-9.

**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 255 (A.3878)**, off Cape Sardão, 30 m, rock: 1 incomplete specimen, with about 152 chaetigers; chaetae on segment 3; ventral cirri of segment 2 long. **FAUNA 1 — St. 18*A***, Alborán Sea, Alborán Island, 45-52 m, stones: 1 specimen with about 224 chaetigers; ventral cirrus of chaetiger 2 longer than the other tentacular cirri; chaetae on 3rd segment (visible on the left side, where ventral cirrus is missing). **St. 32*A***, Alborán Sea, Alborán Island, 28 m, laminarians on rocks: 1 complete specimen, in good condition and with 128 segments; everted proboscis, with distal region covered by numerous small round papillae, proximal region smooth; first bundle of chaete on segment 3; anal cirri fusiform; posterior cirri with a darker pigmentation. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 2 specimens; (1) complete, with about 220 chaetigers, anal cirri missing; some posterior parapodia inflated; dark spots on the posterior region of the segments, at first only in the lateral regions, and then through the whole separation line between the segments; there are also dark spots at the base of the parapodia and cirri (dorsal and ventral); second ventral cirrus very long; epythelium covered by small brownish spots; (2) incomplete, with 34 chaetigers, posterior region missing; chaetae from third segment; parapodia with 2 lobes, being the superior bigger.

**DISTRIBUTION:** According to BONSE *et al.* (2006), *Eulalia clavigera* has been recorded with certainty only from Northern France and Great Britain, but its range probably includes the Atlantic coast of the Iberian Peninsula and Madeira Island, and at least some of the Mediterranean records of *E. viridis* may refer to this species. However, another species of *Eulalia*, probably undescribed, seems to be present also in the Mediterranean (BONSE *et al.*, 2006). The species occurs in shallow depths, in hard substrates covered with bivalves, barnacles, or serpulid tubes, as well as in rock crevices.

**REMARKS:** PLEIJEL (1993*a*), taking into account the wide distribution of *Eulalia viridis*, stated that it wasn't unconceivable that a species complex was involved, and recommended further investigation. The same author stated that in the area covered by his study (PLEIJEL, 1993*a*), some differences were found between populations of *E. viridis*, in particular between intertidal populations around the British Isles and more northern ones from the Swedish and Norwegian coasts. Some obvious differences were related to colour and proportions between dorsal cirri and segmental width. Differences in the time of reproduction were also observed, being 4 to 6 weeks earlier in the west coast of Sweden than in the coast of the United Kingdom and France (OLIVE, 1975; PLEIJEL, 1993*a*).

BONSE *et al.* (1996) used electrophoretic methods to test the hypothesis that different species existed along the northern Europe coasts, and reexamined the morphology of the different populations from tidal and subtidal stations along that area. As a result, they found that two species were present in the studied area, *Eulalia clavigera*, in northern France (Bretagne) and east coast of Great Britain, and *E. viridis*, present in the German coast of the North Sea, Denmark (Øresund), and Sweden (Skagerrak).

*Eulalia (Phyllotethys)* was created by LA GRECA (1949*a*), to include the species *E. (P.) kosswigi* from the Bosphorus, which was mainly characterized by a proboscis with several longitudinal rows of big papillae, with many smaller papillae scattered in the spaces between each row. The subgenus was considered by PLEIJEL (1991*b*) as being a *nomen dubium*, and the species' generic placement as being uncertin. *E. (P.) kosswigi* is here considered as being a possible junior synonym of *Eulalia clavigera*, as described by BONSE *et al.* (1996). The main difference found is in the distribution of the proboscideal papillae, but otherwise the similarity between the two taxa is quite big [compare figs. 5-9 in LA GRECA (1949*a*) with fig. 14 in BONSE *et al.* (1996)]. A definitive statement on this synonymy will depend, however, on the rexamination of the type or topotype material of *E. kosswigi* and its comparison with specimens of *E. clavigera* from the region of the English Channel or Northern France.

## ****Eulalia expusilla*** Pleijel 1987

*Eulalia expusilla* PLEIJEL, 1987*a*: 400-402, fig. 1.

**TYPE LOCALITY:** Asia Shoal, The Sound, Plymouth, England, at 10-15 meters depth.

**SELECTED REFERENCES:** *Eulalia expusilla* — PLEIJEL & DALES, 1991: 102, fig. 30; PLEIJEL, 1993*a*: 92-94, figs. 64-65, map 31; HARTMANN-SCHRÖDER, 1996: 113; ALÓS, 2004: 203-205, fig. 73. *Eulalia pusilla* [not *Eulalia pusilla* Ørsted 1843 = *nomen dubium* (PLEIJEL, 1991*b*)] — SAINT-JOSEPH, 1888: 287-288, pl. 11 figs. 149-150. *Eulalia (Eulalia) pusilla* [not *Eulalia pusilla* Ørsted 1843 = *nomen dubium* (PLEIJEL, 1991*b*)] — FAUVEL, 1923*c*: 160-161, fig. 57*i*.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Eulalia pusilla*; coast of Arrábida); DEXTER, 1992 (as *Eulalia pusilla*; Sines).

**MATERIAL: FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 incomplete specimen with 20 chaetigers, 0.2 mm wide, without chaetae and cirri; colour pattern as the described by PLEIJEL (1987*a*).
**DISTRIBUTION:** South-east England; Faroes; Wales; from the English Channel to Galicia, Northeastern Spain; Portugal; Gibraltar Strait; Western Mediterranean. On rocky substrata, among kelp holdfasts and coarse shell gravel. Intertidal to 280 meters.

## ***Eulalia hanssoni*** Pleijel, 1987

*Eulalia hanssoni* PLEIJEL, 1987*b*: 25-27, figs. 1-6.
**TYPE LOCALITY:** Rödberg (63º28'N, 10º00'E), Trondheimsfjorden, Norway, 300-500 meters, in a *Lophelia pertusa* reef.
**SELECTED REFERENCES:** *Eulalia hanssoni* — PLEIJEL & DALES, 1991: 130; PLEIJEL, 1993*a*: 94-96, figs. 66-68, map 32; HARTMANN-SCHRÖDER, 1996: 113-114.
**DISTRIBUTION:** Norwegian coast, from Bergen to Tromsø; Jan Mayen; Faroes; Iceland-Faroe Ridge. On rocky bottoms. Between 75-1250 meters.

## ***Eulalia microoculata*** Pleijel 1987

*Eulalia microoculata* PLEIJEL, 1987*b*: 28, figs. 7-10.
**TYPE LOCALITY:** Rödberg (63º28'N, 10º00'E), Trondheimsfjorden, Norway, at 300-500 meters, in a *Lophelia pertusa* reef.
**SELECTED REFERENCES:** *Eulalia microoculata* — PLEIJEL & DALES, 1991: 130; PLEIJEL, 1993*a*: 98-99, fig. 69, map 33.
**DISTRIBUTION:** Western Norway; Josephine Seamount, off Portugal; Galicia Bank, off NW Spain. On rocky bottoms, on *Lophelia pertusa* reefs. Between 120-1100 meters.
**REMARKS:** According to PLEIJEL (1993*a*) the generic affinity of this species is somewhat uncertain, as the anterior insertion of the median antenna is shared with members of the genus *Ptericirrus*, but when considering other characters, the species appears to be closer to *Eulalia*.

## ***Eulalia mustela*** Pleijel 1987

*Eulalia mustela* PLEIJEL, 1987*a*: 402-405, fig. 2.
**TYPE LOCALITY:** Koster, west of Yttre Vattenholmen (58º52'5"N, 11º06'5"E), northern part of the Swedish west-coast, at 20-40 meters.
**SELECTED REFERENCES:** *Eulalia mustela* — PLEIJEL & DALES, 1991: 104, fig. 31; PLEIJEL, 1993*a*: 101-103, figs. 70-72, map 34; HARTMANN-SCHRÖDER, 1996: 114; MOREIRA, TRONCOSO & TRONCOSO, 2000: 73-74, fig. 4; ALÓS, 2004: 200-201, fig. 71. *Mystides (Protomystides) bidentata* [not *Mystides bidentata* Langerhans 1880 = *nomen dubium* (PLEIJEL, 1991*b*)] — SAINT-JOSEPH, 1888: 308-309, pl. 13 figs. 183-185; SOUTHERN, 1914: 71-72, pl. 8 figs. 17*A-B*; FAUVEL, 1923*c*: 179, fig. 65*e-h*.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** Northern part of Swedish west coast; Skagerrak; western Norway; Shetland; Faroes; British Isles; English Channel; Galicia, Northern Spain; Seamounts off Portugal; Gibraltar; Western Mediterranean Sea (Spain, France and Italy). On rocky bottoms or shell gravel and sand. Between 15-140 meters.

## ***Eulalia ornata*** Saint-Joseph 1888

*Eulalia ornata* SAINT-JOSEPH, 1888: 291-292, pl. 12 figs. 158-161.
**TYPE LOCALITY:** Dinard, Bretagne, Northern France.
**SELECTED REFERENCES:** *Eulalia ornata* — PLEIJEL & DALES, 1991: 106, fig. 32; PLEIJEL, 1993*a*: 103-104, figs. 73-74, map 35; IMAJIMA, 2003: 78-79, fig. 47. *Eulalia (Eulalia) viridis* Var. *ornata* — FAUVEL, 1923*c*: 160, fig. 57*g-h*.
**DISTRIBUTION:** East coast of Scotland; English Channel; Ireland; Atlantic coast of France; Kasajima, Japan. In crevices on stony substrata, and in *Sabellaria alveolata* reefs. Intertidal.

## ***Eulalia tjalfiensis*** Ditlevsen 1917

*Eulalia tjalfiensis* DITLEVSEN, 1917: 54-55, pl. 4 figs. 1, 13, 17.
**TYPE LOCALITY:** Davis Strait (62º58'N, 50º62'W), at about 25 fathoms (45.7 meters).
**SELECTED REFERENCES:** *Eulalia tjalfiensis* — PLEIJEL, 1993*a*: 105-106, figs. 75-76, map 36; HARTMANN-SCHRÖDER, 1996: 114.

**DISTRIBUTION:** Northern part of the Swedish west coast; Norwegian west coast; Faroes; Iceland; Davis Strait. On rocky substrata, often on *Lophelia pertusa* reefs. Between 45-1100 meters.

### ***Eulalia tripunctata*** McIntosh 1874

*Eulalia tripunctata* MCINTOSH, 1874*b*: 197.
**TYPE LOCALITY:** St. Andrews Bay, Scotland.
**SYNONYMS:** *Eulalia pulchra* Langerhans 1884; *Eulalia Claparedii* Saint-Joseph 1888.
**SELECTED REFERENCES:** *Eulalia (Eulalia) tripunctata* — FAUVEL, 1923*c*: 163-164, fig. 58*k-m*. *Eulalia tripunctata* — PLEIJEL & DALES, 1991: 108, fig. 33; PARAPAR, BESTEIRO & URGORRI, 1992*b*: 112-113, fig. 3; PLEIJEL, 1993*a*: 108-110, figs. 77-78, map 37; ALÓS, 2004: 207-208, fig. 75. *Eulalia pulchra* — LANGERHANS, 1884: 258, pl. 15 fig. 17. *Eulalia Claparedii* — SAINT-JOSEPH, 1888: 285-287, pl 11 figs. 144-148.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); ALÓS, 2004 (previous records: Arrábida).
**DISTRIBUTION:** British Isles; Ireland; Atlantic coast of France; Galicia; Gorringe Ridge, and Josephine and Seine Seamounts, off Portugal; Madeira Island; Western Mediterranean Sea; Adriatic Sea; Aegean Sea. In shell gravel, in crevices among stones and in kelp holdfasts. Intertidal to 285 meters.

### ***Eulalia viridis*** (Linnaeus 1767)

*Nereis viridis* LINNAEUS, 1767: 1086.
**TYPE LOCALITY:** In the Northern Atlantic Ocean ("*Habitat in Oceano septentrionali*"). Neotype from Klinken (narrow sound between islands of Råssö and Saltö), south of Tjärnö, West Sweden, among tubes of *Pomatoceros triqueter*, 7 meters (BONSE *et al.*, 2006).
**SYNONYMS:** [?] *Eumidia papillosa* Verrill 1874.
**SELECTED REFERENCES:** *Eulalia viridis* — USCHAKOV, 1972: 146-147, pl. 7 figs. 1-4 [?in part]; PLEIJEL, 1991*b*: fig. 15*A-E*; PLEIJEL & DALES, 1991: 110 [in part; not fig. 34]; KIRKEGAARD, 1992: 119-121, fig. 53; PLEIJEL, 1993*a*: 110-112, figs. 80-81, map 38 [in part; not fig. 79]; HARTMANN-SCHRÖDER, 1996: 114-115, fig. 44 [in part]; BONSE *et al.*, 2006: 36-40, figs. 1, 13, 15. [?] *Eumidia papillosa* — VERRILL, 1874*c*: 584.
**REFERENCES FOR PORTUGAL:** NOBRE, 1903*a* (Mouth of Douro; Leixões; Leça da Palmeira); FAUVEL, 1913*a* (Cape Sagres); FAUVEL, 1914*f* (Cape Sagres); RIOJA, 1918*b* (previous records: Cape Sagres); CARVALHO, 1929 (Sines; Buarcos); NOBRE, 1937 (S. Pedro de Muel); MACHADO, 1942 (northern coast of Portugal); NOBRE & BRAGA, 1942 (Berlenga); SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); CASTRO & VIEGAS, 1981 (Tagus Estuary); CAMPOY, 1982 (previous records: Cape Sagres; Sines; Arrábida; Berlengas; S. Pedro de Muel; Buarcos; Leça da Palmeira; Mouth of Douro; Leixões; northern coast of Portugal); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); SOUSA-REIS *et al.*, 1982 (Peniche region); QUINTINO & GENTIL, 1987 (Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Sines; Lagoon of Albufeira; Peniche); PLEIJEL, 1993*a* (western coast of Portugal); SALDANHA, 1995 (Portugal); [?] RAVARA, 1997 (as *Eulalia* cf. *viridis*; off Aveiro), CANCELA DA FONSECA *et al.*, 2006 (Aljezur).
**DISTRIBUTION:** West coast of Sweden; Denmark; Germany; Norway; Faroe Islands; Iceland; West Greenland to Godhavn (Disko Island). All the other records require confirmation, including the records from the Mediterranean, Adriatic, Aegean and Black seas. The species is known to occur in shallow water, from 5 to 150 meters (uncommon at depths below 40 meters), among serpulid tubes, empty bivalve shells and other hard substrates (BONSE *et al.*, 2006).
**REMARKS:** See the *REMARKS* section under *Eulalia clavigera*.

## GENUS ***Eumida*** Malmgren 1865

*Eumida* MALMGREN, 1865: 97.
**TYPE SPECIES:** *Eulalia sanguinea* Ørsted 1843.
**SYNONYMS:** *Eumidia* Verrill 1874; *Vitiaziphyllum* Uschakov 1972.
**REMARKS:** NYGREN & PLEIJEL (2011) studied European lineages of *Eumida sanguinea*, a species normally referred to have a wide distribution, using mitochondrial COI and nuclear ITS, demonstrating that it is a species complex, with the existence of at least 10 cryptic species. Morphologically all species are very similar, being the only reliable differences the six different white pigmentation patterns found

(types *A*-*F*; see NYGREN & PLEIJEL, 2011: table 1), only three of which are unique for a single species. However, the white pigmentation patterns disappear with fixation and preservation, making them useless with preserved specimens. All the other morphological characters examined, like length and shape of the prolonged anterior cirri, the dorsal and ventral cirri, and the chaetigerous lobes, did not provide consistent differences that could be used to identify the species. Some slight differences were detected in shapes of dorsal cirri, but the intraspecific variation and the size-dependant variation require the application of quantitative morphometrics (NYGREN & PLEIJEL, 2011). Seven of the lineages were named as new species, the available name *Eumida sanguinea* was applied to the eigth lineage, and two lineages, from Bohuslän (Sweden) and Banyuls-sur-Mer (South France) with a single representative each one remained unnamed. Besides, the species *E. notata* was also included in the *E. sanguinea* complex by NYGREN & PLEIJEL (2011), a possibility already suggested by EIBYE-JACOBSEN (1991).

For further comments, see the *REMARKS* section under *Eumida sanguinea*.

**KEY TO SPECIES:**
(adapted from: EIBYE-JACOBSEN, 1991; NYGREN & PLEIJEL, 2011)

**1a.** Eyes absent; found at abyssal depths.....***E. longicirrata***
**1b.** Eyes present; found at depths above 3000 meters.....**2**

**2a (1b).** Dorsal and pygidial cirri oblong, swollen, with rounded ends.....***E. arctica***
**2b (1b).** Dorsal cirri cordiform or triangular, pygidial cirri cylindrical, pointed.....**3**

**3a (2b).** Dorsal cirri of middle segments lanceolate, at least 1½ times as long as broad (almost 2½ times on living specimens); cirrophores indistinct; pygidium with small papilla; animals no longer than 1 cm.....***E. ockelmanni***
**3b (2b).** Dorsal cirri of middle segments cordiform, no more than 1½ times as long as broad; pygidial papilla absent (in cases where pygidium is known).....**4**

**4a (3b).** Dorsal cirri of middle segments longer than broad.....**5**
**4b (3b).** Dorsal cirri of middle segments broader than long, being more than 1½ times as broad as long, with pronounced tips.....***E. bahusiensis***

**5a (4a).** Prostomium about as long as broad or longer; frontal antennae as long as prostomium or longer.....***E. venustissima***
**5b (4a).** Prostomium slightly broader than long; frontal antennae shorter than prostomium.....***Eumida sanguinea* species complex**.....**6**

**6a (5b).** Living specimens without white pigmentation (type *B* pigmentation pattern).....**7**
**6b (5b).** Living specimens with white pigmentation.....**8**

**7a (6a).** Known distribution: South France.....***E. asterope***
**7b (6a).** Known distribution: Norway.....***E. elektra***

**8a (6b).** White pigmentation in living specimens only dorsally on prostomium (type *E* pigmentation pattern); known distribution: Madeira Island.....***E. notata***
**8b (6b).** White pigmentation absent in prostomium.....**9**

**9a (8b).** White pigmentation in living speciemsn only forming a longitudinal mid-dorsal stripe (type *F* pigmentation pattern); known distribution: Sweden.....***Eumida* sp. 1**
**9b (8b).** White pigmentation otherwise.....**10**

**10a (9b).** White pigmentation in living specimens dorsally on segment 2 and anterior cirri, and as a longitudinal mid-dorsal line (type *C* pigmentation pattern); known distribution: Sweden.....***E. kelaino***
**10b (9b).** White pigmentation in living specimens otherwise.....**11**

**11a (10b).** White pigmentation in living specimens dorsally on segment 2, anterior cirri, and as transverse dorsal lines on most segments (type *A* pigmentation pattern).....**12**
**11b (10b).** White pigmentation in living specimens dorsally on segment 2 and anterior cirri (type *D* pigmentation pattern).....**13**

**12a (11a).** Known distribution: Norway and Sweden.....***E. alkyone***
**12b (11a).** Known distribution: South France.....***E. maia***
**12c (11a).** Known distribution: South France and Croatia; in some specimens the transverse dorsal lines are very short, approaching spots.....***E. merope* [in part; type B]**

**13a (11b).** Known distribution: South France.....***E. merope* [in part; type A]**
**13b (11b).** Known distribution: Kattegat, Skagerrak and south coast of England.....***E. sanguinea***
**13c (11b).** Known distribution: South France and Croatia.....***E. taygete***
**13d (11b).** Known distribution: South France.....***Eumida* sp. 2**

## ***Eumida alkyone*** Nygren & Pleijel 2011

*Eumida alkyone* NYGREN & PLEIJEL, 2011: 8, figs. 1*B*, S1*B*, table 1.
**TYPE LOCALITY:** Sweden, Koster area, Hällsöarna, collected by dredge.
**DISTRIBUTION:** Skagerrak coast of Norway and Sweden. In shell sand and dead *Lophelia pertusa*. Between 66-120 meters.

## ***Eumida arctica*** (Annenkova 1946)

*Eulalia arctica* ANNENKOVA, 1946: 185, fig. 1.
**TYPE LOCALITY:** Laptev Sea, 77º16'N, 143º24'E, at 45 meters.
**SYNONYMS:** *Eulalia minuta* Ditlevsen 1917 [not *Phyllodoce (Eulalia) minuta* Grube 1880].
**SELECTED REFERENCES:** *Eumida arctica* — EIBYE-JACOBSEN, 1991: 97-99; PLEIJEL, 1993*a*: 69-70, figs. 46-47, map 23; HARTMANN-SCHRÖDER, 1996: 116. *Eulalia minuta* [not *Phyllodoce (Eulalia) minuta* Grube 1880] — DITLEVSEN, 1917: 56, pl. 4 figs. 10, 12, 14. *Eumida minuta* [not *Phyllodoce (Eulalia) minuta* Grube 1880] — PETTIBONE, 1954: 238-239, fig. 27*c*; USCHAKOV, 1972: 156, pl. 11 figs. 4-5; PLEIJEL & DALES, 1991: 118, fig. 38; KIRKEGAARD, 1992: 124-125, fig. 55.
**DISTRIBUTION:** Øresund; Norwegian Sea; Faroes; Bear Island; Iceland; Jan Mayen; Spitsbergen; Franz Joseph Land; West Greenland; Davis Strait; off Point Arrow, Alaska; Laptev Sea. On muddy sand, sand, gravel, and among algae. Between 10-800 meters.
**REMARKS:** The transfer of *Phyllodoce (Eulalia) minuta* Grube 1880 to the genus *Eumida* by EIBYE-JACOBSEN (1991), rendered *Eumida minuta* (Ditlevsen 1917) a junior secondary homonym. The next available name for Ditlevsen's species is *Eulalia arctica* Annenkova 1946.

## ***Eumida asterope*** Nygren & Pleijel 2011

*Eumida asterope* NYGREN & PLEIJEL, 2011: 8, figs. 4*A*, S1*C*, table 1.
**TYPE LOCALITY:** Mediterranean Sea: South France, Banyuls-sur-Mer, 42º29.94'N, 03º08.46'E, 25 meters, in hard bottom and coralligène.
**DISTRIBUTION:** Known from the type locality.

## ***Eumida bahusiensis*** Bergström 1914

*Eumida bahusiensis* BERGSTRÖM, 1914: 133-134, fig. 38.
**TYPE LOCALITY:** Several locations at Bohuslän, West coast of Sweden: Lågegap-Fiskebäckskil; Strömmarna, Hällevik; Gåsöränna, Gröderhamn-Smalsund; Flatholmen; Gåsöränna, off Blåbergsholmen.
**SELECTED REFERENCES:** *Eumida (Eumida) bahusiensis* — HARTMANN-SCHRÖDER & STRIPP, 1968: 8-9, fig. 4*g-i*. *Eumida bahusiensis* — HARTMANN-SCHRÖDER, 1974*d*: 186-187, figs. 7-9; EIBYE-JACOBSEN, 1991: 99-100; PLEIJEL & DALES, 1991: 116, fig. 37; KIRKEGAARD, 1992: 122-123, fig. 54; PLEIJEL, 1993*a*: 71-74, figs. 48-49, map 24; HARTMANN-SCHRÖDER, 1996: 116-117, fig. 45.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** Skagerrak; Kattegat; Øresund; west coast of Norway; British Isles; Ireland; Shetland; Faroes; North Sea. On muddy and sandy bottoms. Between 7-135 meters.

## ***Eumida elektra*** Nygren & Pleijel 2011

*Eumida elektra* NYGREN & PLEIJEL, 2011: 8, figs. 1*C*, S1*D*, table 1.
**TYPE LOCALITY:** Norway, Bergen area, Raunefjord, west of Tangen lighthouse, 60º17.64'—60º17.26'N, 05º08.49'—05º11.92'E, between 37-100 meters, in sand, gravel and stones.
**DISTRIBUTION:** Western Norway, at the Bergen area. In sand, gravel and stones. Between 20-100 meters.

## ***Eumida kelaino*** Nygren & Pleijel 2011

*Eumida kelaino* NYGREN & PLEIJEL, 2011: 8, figs. 1*D*, S1*E*, table 1.
**TYPE LOCALITY:** Sweden, Koster area, Hällsöarna, collected by dredge.
**DISTRIBUTION:** Skagerrak coast of Sweden. In shell sand and dead *Lophelia pertusa*. Between 66-120 meters. In shell sand and gravel. Between 20-66 meters.

## ***Eumida longicirrata*** Hartmann-Schröder 1975

*Eumida (Eumida) longicirrata* HARTMANN-SCHRÖDER, 1975: 55-57, figs. 16-18.
**TYPE LOCALITY:** NE Atlantic, Iberian Basin (45º55.4'N, 14º07.9'W), at 5260 meters.
**SELECTED REFERENCES:** *Eumida longicirrata* — EIBYE-JACOBSEN, 1991: 107-108; ALÓS, 2004: 136-138, fig. 43.
**DISTRIBUTION:** Known from the type locality.

## ***Eumida maia*** Nygren & Pleijel 2011

*Eumida maia* NYGREN & PLEIJEL, 2011: 9, figs. 4*B*, S1*F*, table 1.
**TYPE LOCALITY:** Mediterranean Sea: South France, off Banyuls-sur-Mer, 42º29.94'N, 03º08.46'E, at 25 meters, in hard bottom and coralligène.
**DISTRIBUTION:** South France. In hard bottoms, coralligène, and among mussels or hydroids. Between 2-25 meters.

## ***Eumida merope*** Nygren & Pleijel 2011

*Eumida merope* NYGREN & PLEIJEL, 2011: 9, figs. 4*C*, S1*G*, table 1.
**TYPE LOCALITY:** Mediterranean Sea: South France, off Banyuls-sur-Mer, 42º29.94'N, 03º08.46'E, at 25 meters, in hard bottom and coralligène.
**DISTRIBUTION:** Mediterranean Sea: South France, in hard bottoms, coralligène, among blue mussels and hydroids, between 2-25 meters; Adriatic Sea: Croatia, Istra, off Rovinj, in coralligène, between 10-14 meters.

## ***Eumida notata*** (Langerhans 1880)

*Eulalia (Eumida) notata* LANGERHANS, 1880*a*: 309-310, pl. 17 fig. 45.
**TYPE LOCALITY:** Madeira Island, along rocky shores.
**SELECTED REFERENCES:** *Eumida notata* — EIBYE-JACOBSEN, 1991: 112-113; NYGREN & PLEIJEL, 2011: 9, figs. 4*D*, S1*I*, table 1.
**DISTRIBUTION:** Madeira Island. In rocks and boulders, corals, and balanids. Between 5-30 meters. It was reported in the original description as being common.
**REMARKS:** This species had not been recorded since its original description and the type material is apparently lost. In spite of this EIBYE-JACOBSEN (1991) considered the species as valid, due to its characteristic features. These included the elongated prostomium, the very long antennae, and the dorsal spot of violet pigment on the prostomium and segment 2 (all probably observed by Langerhans in living specimens) (EIBYE-JACOBSEN, 1991). The insertion of the median antenna between the eyes was also considered to be a distinctive character of *E. notata* in relation to the biggest part of the other species of *Eumida*. NÚÑEZ & TALAVERA (1995), in their Catalogue of the polychaetous annelids of Madeira, also considered the species as valid.

NYGREN & PLEIJEL (2011) studied newly collected material of *Eumida notata* from Madeira, and determined that it was identical to *E. sanguinea sensu stricto*, except for the pigmentation type, already specified in the original description of Langerhans, which is unique. Langerhans' types are lost or never existed, but in spite of this the specimens recently collected in Madeira were considered to belong to *E. notata*, as no other species is known to exist in Madeira. For the same reason, no neotype was designated. As highlighted by NYGREN & PLEIJEL (2011), if it turns that more than one species is present in Madeira, then their material is available for a designation.

## ***Eumida ockelmanni*** Eibye-Jacobsen 1987

*Eumida ockelmanni* EIBYE-JACOBSEN, 1987: 44-49, figs. 1-8.
**TYPE LOCALITY:** Denmark, North of Ellekilde Hage, Øresund (56º06'2"N, 12º29'5"E), 20-23 meters, in mud with sand, shells and red algae.

**SELECTED REFERENCES:** *Eumida ockelmanni* — EIBYE-JACOBSEN, 1991: 115-116; PLEIJEL & DALES, 1991: 120, fig. 39; KIRKEGAARD, 1992: 125-126, fig. 56; PLEIJEL, 1993*a*: 74-76, figs. 50-51, map 25; HARTMANN-SCHRÖDER, 1996: 117-118, fig. 46.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** Øresund; northern part of the Swedish western coast; northern part of the North Sea; northeast England; Ireland; Faroes; Iceland. On mud, muddy sand, and shell gravel. Between 10-108 meters.

## ***Eumida sanguinea*** (Ørsted 1843)

*Eulalia sanguinea* ØRSTED, 1843*a*: 28, pl. 5 figs. 80, 82.
**TYPE LOCALITY:** Near Skagen and Hellebæk, Denmark. Neotype designated by EIBYE-JACOBSEN (1991), from off Helsingør, 2¼ Km NNE Hellebæk, North Øresund (56º05'3"N, 12º33'9"E), Denmark, at 26 meters, in mud.
**SELECTED REFERENCES:** *Eumida sanguinea* — BERGSTRÖM, 1914: 131-133, fig. 37, pl. 4 figs. 1-12; USCHAKOV, 1972: 153-154, pl. 10 figs. 4-5; GATHOF, 1984*a*: 19.18-19.20, figs. 19.13-19.14; EIBYE-JACOBSEN, 1991: 87-93, figs. 1*A*, 2; PLEIJEL, 1991*b*: fig. 13; PLEIJEL & DALES, 1991: 122, fig. 40; KIRKEGAARD, 1992: 126-128, fig. 57; PLEIJEL, 1993*a*: 76-78, figs. 52-54, map 26; HARTMANN-SCHRÖDER, 1996: 118-119, fig. 47; ALÓS, 2004: 138-140, fig. 44; NYGREN & PLEIJEL, 2011: 7-8, figs. 1*A*, S1*A*, table 1. *Eulalia (Eumida) sanguinea* — FAUVEL, 1923*c*: 166-167, fig. 59*f-k*. *Eumida (Pirakia) punctifera* [not Grube 1860] — HARTMANN-SCHRÖDER & STRIPP, 1968: 9-10, fig. 4*d-f*. [?] *Phyllodoce cordifolia* — JOHNSTON, 1865: 180-181 [considered to be a *nomen dubium* by PLEIJEL (1991*b*)]. [?] *Eulalia flavescens* — BOBRETZKY, 1868: 153, pl. 2 figs. 41-43 [considered to be a *nomen dubium* by PLEIJEL (1991*b*)]. [?] *Eulalia granulosa* — VERRILL, 1874*c*: 585. *Eulalia pistacia* — VERRILL, 1874*c*: 584-585. [?] *Eumidia Americana* — VERRILL, 1874*c*: 584. *Eumidia vivida* — VERRILL, 1874*c*: 584. *Eumida maculosa* — WEBSTER, 1879*a*: 215, pl. 4 figs. 38-41. [?] *Eulalia fuscescens* — SAINT-JOSEPH, 1888: 296-297, pl. 12 figs. 163-165 [considered as *nomen dubium* by PLEIJEL (1991*b*)]. [?] *Eumida communis* — GRAVIER, 1896: 310-311, pl. 19 figs. 7-10. *Eulalia eos* — MICHAELSEN, 1896: 30-32, pl. 1 figs. 12-13.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Eulalia sanguinea*; coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); [?] MONTEIRO-MARQUES *et al.*, 1982 (as *Eulalia sanguinea?*; Ponta do Surdão); QUINTINO & GENTIL, 1987 (Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (as *Eulalia (Eumida) sanguinea*, some as *Eulalia fucescens*; previous records: Sado Estuary; Lagoon of Albufeira; Ria de Aveiro); PLEIJEL, 1993*a* (northern Portugal); SALDANHA, 1995 (Portugal); MUCHA & COSTA, 1999 (as *Eulalia sanguínea*; Ria de Aveiro and/or Sado Estuary).
**DISTRIBUTION:** Confirmed records from: Kattegat; Skagerrak; south coast of England; Scilly Islands. In mud, silty mud, sand, shells, gravel, stones, dead *Lophelia pertusa*, lumps of *Pomatoceros triqueter* and kelp. Intertidal to 120 meters. The species has been recorded worldwide, but not only these records need confirmation, but also most of them belong quite probably to different species: Norway north to Tromsø; Shetland; British Isles; Faroes; Iceland; North Sea; Atlantic coast of France and Spain; Portugal; Mediterranean Sea; Sicily; Northern Adriatic Sea; Aegean Sea; Black Sea; Gulf of St. Lawrence; from Massachusetts to Florida; Gulf of Mexico; Barents Sea; White Sea; Sea of Okhotsk; Sea of Japan; Yellow Sea.
**REMARKS:** EIBYE-JACOBSEN (1991) considered that the definition of the species was too broad, and that the future use of different techniques could make necessary the further subdivision of the species. This would result in the reduction of the area of distribution of the species, and the possible resurrection of several of the synonymised species, as well as the description of new ones. In order to enable an easier definition of the species, EIBYE-JACOBSEN (1991) designated a neotype, collected in one of the two localities mentioned by ØRSTED (1843*a*) in the original description.

NYGREN & PLEIJEL (2011) performed the study claimed by Eibye-Jacobsen using mitochondrial COI and nuclear ITS, and the number of sibling species in a relatively small area such as Europe raised from one to ten, with seven of these species being described as new and *Eumida notata* Langerhans 1880, from Madeira, being added to the *Eumida sanguinea* species complex.

NYGREN & PLEIJEL (2011) also commented the fact that with base on the deposited specimens and descriptions it is not possible to state exactly which species of *Eumida* is the type of the genus created by MALMGREN (1865) for the single species *Eulalia sanguinea*. However, this is not problematic, as the species described by ØRSTED (1843) remains the type. The neotype selected by EIBYE-JACOBSEN (1991) presented white pigmentation dorsally on chaetiger 2 and anterior cirri in live condition, but no transverse or longitudinal stripes (EIBYE-JACOBSEN, personal communication *in* NYGREN & PLEIJEL,

2011). To study this species, NYGREN & PLEIJEL (2011) failed to amplify the formaldehyde-preserved specimen, but instead collected a new specimen from the type locality with identical pigmentation.

Besides the molecular differences between the sibling species, the only reliable morphological distinctions found by NYGREN & PLEIJEL (2011) were six different white pigmentation patterns, only three of which were unique for a single species. These pigmentation patterns disappear with the fixation and preservation of the specimens, and for this reason it can be very difficult to associate preserved material, like type material of synonymized species, with newly collected material for molecular analyses and observation of pigmentation patterns. Unless other techniques can be used, like quantitative morphometrics or methyl green staining patterns, it will be very difficult, if not impossible, to relate existing species names to living organims, moreover when some of these sibling species are sympatric. As a consequence, at least some of the species previously considered to be synonymous with *Eumida sanguinea* probably will have to be considered as *incertae sedis*, even when type material still exists.

The status of *Eulalia fuscescens* Saint-Joseph 1888 was already considered to be uncertain by EIBYE-JACOBSEN (1991), while PLEIJEL (1993*a*) considered it to be a dubious species. EIBYE-JACOBSEN (1991) studied what seemed to be the type, from Dinard, but it was damaged by desiccation, although a second specimen, that could could be authoritative, was found to belong to *Eumida sanguinea*. The species was created with base on the presence of numerous small round papillae on the proboscis. However, EIBYE-JACOBSEN (*op. cit.*) underlines the fact that this observation was probably done with base on a dissected specimen, and that subsequent descriptions were not original. This way, the proboscis of *E. fuscescens* probably was never observed everted, and the presence of the papillae are not confirmed.

*Eumida eos* (Michaelsen 1896), originally described from the harbor of Wilhemshaven, near Bremen (Germany) as *Eulalia*, is another species normally regarded as a synonym of *Eumida sanguinea*. The types of the species were examined by NYGREN & PLEIJEL (2011), who found them to be in a very poor condition. This, together with the fact that the original description is not detailed enough to allow for species identification within the *Eumida sanguinea* species complex, led those authors to regard the species as a *nomen nudum*.

Other species that have been regarded as junior synonyms of *Eumida sanguinea* and which status needs to be re-examined in face of the new information are: *Phyllodoce cordifolia* Johnston 1865 (type locality not specified, probably England); *Eulalia flavescens* Bobretzky 1868 (Black Sea); *Eulalia granulosa* Verrill 1874 (Connecticut); *Eulalia pistacia* Verrill 1874 (Massachusetts or Connecticut); *Eumidia Americana* Verrill 1874 (Massachusetts); *Eumidia vivida* Verrill 1874 (Massachusetts); *Eumida maculosa* Webster 1879 (New Jersey and Massachusetts); *Eulalia fuscescens* Saint-Joseph 1888 (Brittany, France); and *Eumida communis* Gravier 1896 (Normandy, France).

## *Eumida taygete* Nygren & Pleijel 2011

*Eumida taygete* NYGREN & PLEIJEL, 2011: 9, figs. 4*E*, S1*H*, table 1.

**TYPE LOCALITY:** Adriatic Sea, Croatia, East Istra, off Rovinj, Sveni Ivan na Pucini (45º02.76'N, 13º37.42'E), 10-17 meters, in lime rock with epifauna.

**DISTRIBUTION:** Adriatic Sea: Croatia, in lime rock with epifauna, between 10-17 meters; Mediterranean Sea: South France, off Banyuls, in hard bottom with coralligène, at 25 meters.

## *Eumida venustissima* (Banse 1959)

*Eulalia (Sige) venustissima* BANSE, 1959*d*: 296-298, fig. 1.

**TYPE LOCALITY:** North of Rovinj, Croatia (Adriatic Sea), among *Microcosmus sulcatus* on mud, at 30 meters.

**SELECTED REFERENCES:** *Eumida venustissima* — EIBYE-JACOBSEN, 1991: 126-127.

**DISTRIBUTION:** Adriatic Sea; Gulf of Naples. As epifauna among tunicates, gorgonians, and hydroids. Between 1-30 meters.

**REMARKS:** *Eulalia (Sige) venustissima* Banse 1959 was described from near Rovinj, in the Adriatic Sea. PLEIJEL (1991*b*) studied the type material and considered that its generic position was uncertain. EIBYE-JACOBSEN (1991) also studied the type material, as well as further material from Naples, and determined that it belonged to *Eumida*. However, the same author stated that the species appeared to be based on juvenile specimens, and that future work was necessary to clarify whether it is a valid species or not.

## *Eumida* sp. 1

*Eumida unnamed species S21* NYGREN & PLEIJEL, 2011: 9, fig. S1*J*, table 1.

**DISTRIBUTION:** Sweden, Koster area, S Yttre Vattenholmen, 58º52'N, 11º06'E, 20-40 meters, in gravel.

### *Eumida* sp. 2

*Eumida unnamed species F22* NYGREN & PLEIJEL, 2011: 9, fig. S1*K*, table 1.
**DISTRIBUTION:** Mediterranean Sea, South France, off Banyuls-sur-Mer, 42º29.94'N, 03º08.46'E, 25 meters, in hard bottom and coralligène.

## GENUS *Hesionura* Hartmann-Schröder 1958

*Hesionura* HARTMANN-SCHRÖDER, 1958: 233.
**TYPE SPECIES:** *Hesionura fragilis* Hartmann-Schröder 1958.
**SYNONYMS:** *Eteonides* Hartmann-Schröder 1960.

**KEY TO SPECIES:**

**1a.** The second dorsalmost chaeta with shaft and blade appearing fused, with several teeth in the fusion zone.....***H. elongata***
**1b.** All chaetae clearly compound, with shaft and blade not fused.....**2**

**2a (1b).** Tips of shaft of all chaetae bifid.....***H. serrata***
**2b (1b).** Tips of shaft of the dorsalmost chaetae trifid.....***H. coineaui***

### *Hesionura coineaui* (Laubier 1962)

*Mystides (Pseudomystides) coineaui* LAUBIER, 1962*b*: 461-463, fig. 1.
**TYPE LOCALITY:** Plage du Racou, near Argelès-sur-Mer (Mediterranean coast of France), interstitial, in sand, collected between the coast and the lagoon, at one salinity of 6‰.
**SELECTED REFERENCES:** *Eteonides coineaui* — HARTMANN-SCHRÖDER, 1963: 222-223, figs. 30-32. *Hesionura coineaui* — CAMPOY, 1982: 176-178; CAPACCIONI, VILLORA & TORRES, 1989: 14-15, figs. 2-3; ALÓS, 2004: 184-185, fig. 65.
**DISTRIBUTION:** Western Atlantic, from Massachusetts to the Gulf of Mexico; Western Mediterranean Sea (south France and Spain); Guipúzcoa (Northern Spain, Gulf of Biscay); Adriatic Sea; Black Sea. On sand, euryhaline. Intertidal to 30 meters.

### *Hesionura elongata* (Southern 1914)

*Mystides (Mesomystides) elongata* SOUTHERN, 1914: 74-75, pl. 5 fig. 12.
**TYPE LOCALITY:** Western Ireland: Clew Bay, at 24 fathoms (43.9 meters), on a bottom of sand and shells, and Dingle Bay, at 20 fathoms (36.6 meters), on a bottom of fine gravel.
**SYNONYMS:** *Mystides augeneri* Friedrich 1937.
**SELECTED REFERENCES:** *Mystides (Pseudomystides) elongata* — FAUVEL, 1923*c*: 182-183, fig. 66*d-g*. *Eteonides elongata* — HARTMANN-SCHRÖDER, 1963: 216-218, figs. 21-23. *Hesionura elongata* — DAY, 1973: 19-20, fig. 3*k-m*; GARDINER, 1976: 106-107, 6*b-d*; BLAKE, 1988: 248-249, fig. 2; PLEIJEL, 1991*b*: fig. 18; PLEIJEL & DALES, 1991: 66-67, fig. 12; PLEIJEL, 1993*a*: 125-126, fig. 88, map. 42; HARTMANN-SCHRÖDER, 1996: 120-121, fig. 48; ALÓS, 2004: 180-182, fig. 63. *Mystides augeneri* — FRIEDRICH, 1937: 349-351, figs. 8-10. *Eteonides augeneri* — HARTMANN-SCHRÖDER, 1963: 218-220, figs. 24-26. *Hesionura augeneri* — KIRKEGAARD, 1992. 128-130, fig. 58.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1984 (as *Pseudomystides elongata*; Praia da Falésia); MONTEIRO-MARQUES, 1987 (as *Pseudomystides elongata*; continental shelf of Algarve); DEXTER, 1992 (as *Pseudomystides (Mystides) elongata*; previous records: continental shelf of Algarve; Figueira da Foz); RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** Skagerrak; North Sea (Helgoland, Germany; East England; Netherlands); SW Ireland; Guipúzcoa, Northern Spain; Portugal; [?] Adriatic Sea; [?] Aegean Sea; [?] Bahamas; North Carolina; off Massachusetts. In fine and coarse sand. Sublittoral to 120 meters.

### *Hesionura serrata* (Hartmann-Schröder 1960)

*Eteonides serrata* HARTMANN-SCHRÖDER, 1960*b*: 72-73, pl. 1 figs. 7-8, pl. 3 fig. 9.
**TYPE LOCALITY:** Abomingar (Egypt), Mangrove Island, Red Sea, at 1.5-2.5 meters, in coral sand.
**SELECTED REFERENCES:** *Eteonides serrata* — HARTMANN-SCHRÖDER, 1963: 215-216, figs. 18-20; CARDELL & MÉNDEZ, 1996: 425-426, fig. 1. *Hesionura serrata* — ALÓS, 2004: 182, fig. 64.

**DISTRIBUTION:** Red Sea and Suez Channel, between 1.5-2.5 meters, in coral sand; Western Mediterranean Sea (Spain), between 5-70 meters, from coarse sand to clayey silt.

## GENUS ***Lugia*** Quatrefages 1866

*Lugia* QUATREFAGES, 1866*b*: 152.
**TYPE SPECIES:** *Eteone pterophora* Ehlers 1864.
**REMARKS:** Of the six species referred to the genus, PLEIJEL (1991*b*) assigned four to other genera, including *Lugia incognita* Campoy & Alquézar 1982, and *L. atlantica* Villalba & Viéitez 1988, two species described from the Iberian Peninsula. A fifth one, *L. abyssicola* Uschakov 1972, differs from the generic diagnosis by presenting a small median antenna, overlooked in the original description, and could be, according to him, a neotenous species of *Eulalia* or a related genus. The sixth one, and type species of the genus, *L. pterophora* (Ehlers 1864), lacks type material. The original description refers a very small specimen, 5.5 mm long for 38 segments, and PLEIJEL (1991*b*) considers the possibility that the description is based on juveniles of, for instance, *Eulalia*. This way, the genus *Lugia* Quatrefages 1866 was considered to be a *nomen dubium*. Nevertheless, EIBYE-JACOBSEN (1993) considered the genus as being valid, as the tentacular formula as defined by BERGSTRÖM (1914), 1+1/N+N/N (or 1+1/1+N/N) is quite diagnostic, being characteristic of the genus (other genera with one pair of tentacular cirri on segment 1, having in segment 3 either a dorsal tentacular cirri or none; see EIBYE-JACOBSEN, 1993: 176). Besides, EIBYE-JACOBSEN (1993) regarded the original descriptions of *L. pterophora* and *L. abyssicola* as sufficiently detailed to warrant the acceptance of the genus as valid until further research is done on the problem, or more material collected. The same author noted that *Lugia* specimens can be separated from juveniles of *Eulalia* in that in the second case, the dorsal cirri on segment three are either absent, or short and cirriform, never foliose as in *L. pterophora* or *L. abyssicola*. In what concerns the presence/absence of 5 antennae on *Lugia*, there is the possibility that *L. pterophora* does present a small median antenna, overlooked in the original description, like happened with *L. abyssicola*.

The genus is included here while waiting for future research on the problem.

PLEIJEL (1991*b*) revised the type material of *Lugia atlantica* Villalba & Viéitez 1988, described with base on specimens from Ría de Pontevedra (Galicia, Spain) (VILLALBA & VIÉITEZ, 1988), and found it to be a juvenile form of *Eulalia*, either of *E. aurea*, *E. ornata* or *E. viridis*. According to him, in *Eulalia*, as well as in some other genera, both median antenna and tentacular cirri of segment 3 develop late in the ontogeny. In one of the paratypes of *Lugia atlantica*, with 28 segments, the median antenna was found to be present; besides, the capillaries noted in the original description of *L. atlantica* are present in juveniles of *Eulalia viridis* (PLEIJEL, 1991*b*). PLEIJEL (1991*b*) also revised the type material of *Lugia incognita* Campoy & Alquézar 1982, from Murcia (Spain, Western Mediterranean) (CAMPOY & ALQUÉZAR, 1982), and found it to be a juvenile form, probably of *Eulalia* Savigny 1822. The two species are not considered below.

### ***Lugia pterophora*** (Ehlers 1864)

*Eteone pterophora* EHLERS, 1864: 173-176, pl. 6 figs. 22-25.
**TYPE LOCALITY:** Kvarner (= Quarnero), Croatia, Adriatic Sea, among green algae.
**SELECTED REFERENCES:** *Lugia pterophora* — BERGSTRÖM, 1914: 184-185; FAUVEL, 1923*c*: 178-179, fig. 63*i*; ALÓS, 2004: 209.
**DISTRIBUTION:** Adriatic Sea: Kvarner and Gulf of Trieste. In shallow water.

## GENUS ***Mystides*** Théel 1879

*Mystides* THÉEL, 1879: 35.
**TYPE SPECIES:** *Mystides borealis* Théel 1879.
**SYNONYMS:** *Mystides (Mesomystides)* Czerniavsky 1882.
**REMARKS:** *Mystides (Pseudomystides) southerni* Banse 1954, described with base on specimens from the Kieler Bight, is not included in the key below, as it represents a benthic larval form (USCHAKOV, 1972). PLEIJEL (1991*b*, 1993*a*) confirmed that the species is confused, the original description based on juveniles, and considered it as a *nomen dubium*.

**KEY TO SPECIES:**

**1a.** Tentacular cirri distinctly widened at the base, with long, thin, threadlike ends (bottle-shaped); prostomium rounded, about as long as wide.....**2**
**1b.** Tentacular cirri not bottle-shaped; prostomium oval, longer than wider, with a protuberance at the insertion of the paired antennae.....**3**

**2a (1a).** Large prostomial eyes present.....***M. borealis***
**2b (1a).** Prostomial eyes absent.....***M. caeca***

**3a (1b).** Protuberance at the insertion of the paired antennae well defined; dorsal tentacular cirri of segment 2 shorter than width of same segment; dorsal cirri oval shaped.....***M. bathysiphonicola***
**3b (1b).** Protuberance at the insertion of the paired antennae poorly defined (only one specimen known); dorsal tentacular cirri of segment 2 much longer than width of same segment; dorsal cirri lanceolated.....***M. uschakovi***

## ***Mystides bathysiphonicola*** Hartmann-Schröder 1983

*Mystides bathysiphonicola* HARTMANN-SCHRÖDER, 1983*b*: 169-171, figs. 1-7, table 1.
**TYPE LOCALITY:** Porcupine Seabight, off southwest Ireland (50º26'N, 13º18'W), at 2640-2660 meters.
**SELECTED REFERENCES:** *Mystides bathysiphonicola* — PLEIJEL & DALES, 1991: 130; PLEIJEL, 1993*a*: 131-132, fig. 92, map 45.
**DISTRIBUTION:** Porcupine Sea Bight, off southwest Ireland, between 2640-2958 meters, some specimens in foraminiferan or *Myriochele* tubes.
**REMARKS:** This species was considered by PLEIJEL (1993*a*) as *incertae sedis*, differing in several aspects from the other members of the genus (e.g. presence of protuberance at insertion of paired antennae, and cylindrical tentacular cirri rather than bottleshaped). Probably it doesn't belong to the genus *Mystides*. Besides, the same author stated that the paratypes belong to several different species, one of which, at least, being undescribed.

## ***Mystides borealis*** Théel 1879

*Mystides borealis* THÉEL, 1879: 35-37, pl. 2 figs. 29-32.
**TYPE LOCALITY:** West region of Matotchkin Shar, Novaya Zemlya, Arctic Ocean, 73º19'N, 7-34 meters, on sand, muddy sand, and mud.
**SELECTED REFERENCES:** *Mystides borealis* — BERGSTRÖM, 1914: 176-177, fig. 64; HARTMANN-SCHRÖDER, 1963: 207-209, figs. 1-6 [in part]; USCHAKOV, 1972: 120, pl. 2 figs. 1-4; GATHOF, 1984*a*: 19.10, figs. 19.5-19.6; BLAKE, 1988: 251, fig. 3*A-B*; PLEIJEL & DALES, 1991: 130; PLEIJEL, 1993*a*: 127-129, fig. 89, map 43; BLAKE, 1997*a*: 132-133, fig. 4.9; ALÓS, 2004: 186, fig. 66. *Mystides (Mystides) borealis* — FAUVEL, 1923*c*: 181, fig. 65*d* [in part].
**DISTRIBUTION:** Known with confidence only from the type locality. Other records include the Kuril Islands, Alaska, Spitsbergen, the Kola Gulf, the west coast of Greenland, from Gulf of St. Lawrence to the Gulf of Maine, Gulf of Mexico, off the northern parts of the US east coast, Belize [PLEIJEL (1993*a*), and records therein], and Adriatic Sea. [?] Intertidal to 1500 meters, on bottoms of mud, sand, coarse sand, and rocks.
**REMARKS:** According to PLEIJEL (1993*a*), a redescription of the species based on topotype material is highly desirable. This would enable to clarify the correct distribution of the species. The holotype was studied by PLEIJEL (1993*a*), and stated to be in poor condition and as having been dried, and the eyes described by Théel could not been discerned. The pygidial cirri, an important character to separate different species of *Mystides*, were absent at the time of the original description.

## ***Mystides caeca*** Langerhans 1880

*Mystides caeca* LANGERHANS, 1880*a*: 310, pl. 16 fig. 42.
**TYPE LOCALITY:** Madeira Island, on rocky shores.
**SELECTED REFERENCES:** *Mystides caeca* — BLAKE, 1988: 251-252, fig. 3*C-D*; PLEIJEL, 1991*b*: fig. 19; PLEIJEL & DALES, 1991: 64-65, fig. 11; PLEIJEL, 1993*a*: 129-131, fig. 90-91, map 44; HARTMANN-SCHRÖDER, 1996: 121; BLAKE, 1997*a*: 133-134, fig. 4.10. *Mystides coeca* — KIRKEGAARD, 1992: 130-131, fig. 59. *Mystides (Mesomystides) borealis* [not Théel 1879] — SOUTHERN, 1914: 72-73, pl. 8 figs. 19*A-D*. *Mystides (Mystides) borealis* [not Théel 1879] — FAUVEL, 1923*c*: 181, fig. 65*a-c* [in part].

**DISTRIBUTION:** Skagerrak; Kattegat; western Norway; off Shetland; Ireland; English Channel; Madeira Island; Gibraltar; Western Mediterranean Sea (France and Italy); Aegean Sea; northern part of the US east coast; California. On mud, sand, shell gravel and rocky bottoms. Between 5-2180 meters.
**REMARKS:** This species is very similar to *Mystides borealis* Théel 1879, from which it can be easily separated by the absence of eyes. For this reason, *M. caeca* has been treated as a subspecies of *M. borealis* by many authors (*e.g.*: HARTMAN, 1959*a*; USCHAKOV, 1972; see PLEIJEL, 1993*a*). However, as stated by PLEIJEL (1993*a*), material from transitional zones between the two forms is necessary for a definitive statement. Both species are considered here as valid, following PLEIJEL (1993*a*).

## ***Mystides uschakovi*** Hartmann-Schröder 1979

*Mystides uschakovi* HARTMANN-SCHRÖDER, 1979*a*: 74, figs. 27-31.
**TYPE LOCALITY:** Josephine Seamount (36º40.7'N, 14º15.5'W), off SW Portugal, between 211-241 meters.
**DISTRIBUTION:** Josephine Seamount (off SW Portugal), and Great Meteor Bank (off south Azores), between 211-316 meters.
**REMARKS:** PLEIJEL (1991*b*) revised the type material of this species, and considered it as being *insertae sedis*. As in the above case of *Mystides bathysiphonicola* the species differs in several aspects from the other members of the genus (e.g. presence of protuberance at insertion of paired antennae, and cylindrical tentacular cirri rather than bottleshaped).

## *GENUS ***Nereiphylla*** Blainville 1828

*Nereiphylla* BLAINVILLE, 1828: 465-466.
**TYPE SPECIES:** *Nereiphylla paretti* Blainville 1828.
**SYNONYMS:** *Genetyllis* Malmgren 1865.
**REMARKS:** The genus *Genetyllis* was considered as a junior synonym of *Nereiphylla* by PLEIJEL (1991*b*), based in type material.

*Phyllodoce albovittata* Grube 1860, described from the Adriatic Sea, is not considered here. The type material was studied by PLEIJEL (1991*b*) and the generic position was considered to be uncertain. FAUVEL (1923*c*) refers the species to the subgenus *Phyllodoce (Nereiphylla)*. A similar situation occurs with *Phyllodoce vittata* Ehlers 1864, also described from the Adriatic Sea. FAUVEL (1923*c*) refers to this species as belonging to *Phyllodoce (Nereiphylla)*, and PLEIJEL (1991*b*) refers to it as having an uncertain generic position, considering the species as a *nomen dubium*.

**KEY TO SPECIES:**
(adapted from PLEIJEL, 1993*a*)

**NOT INCLUDED IN THE KEY:** *Nereiphylla dohrnii* (Langerhans 1880).

**1a.** Prostomium deeply notched posteriorly; eyes big, encircled by a wide ring of pigment; dorsal cirri oval and oblong to cordiform, with blunt tips, some clearly longer than wider; big size at maturity (14.5 mm, for 85 chaetigers).....***N. macrophthalma***
**1b.** Prostomium oval to round, not notched posteriorly; eyes not encircled by a ring of pigment.....**2**

**2a (1b).** Dorsal cirri rounded, swollen; pygidial cirri short ovoid; small size at maturity (3-5 mm, for 30-40 chaetigers).....***N. pusilla***
**2b (1b).** Dorsal cirri cordiform, flattened; pygidial cirri long subulate; big size at maturity (35-300 mm, for 125 to several hundred chaetigers).....**3**

**3a (2b).** Dorsal cirri broader than long (broadly cordiform).....***N. lutea***
**3b (2b).** Dorsal cirri as long as broad, or longer than broad (oblong cordiform).....**4**

**4a (3b).** Dorsum with two dark, longitudinal lines, usually visible in preserved animals; preserved animals usually brick-red with much darker dorsal and ventral cirri; some proboscis papillae subapically hooked.....***N. rubiginosa****
**4b (3b).** Dorsum without longitudinal dark lines; papillae of proboscis without hooks.....**5**

**5a (4b).** Preserved animals yellowish to brown, dorsum of larger specimens iridiscent; dorsal cirri darker with distinct yellow edges; rostrum of chaetal shaft with one bigger tooth and smaller teeth, which decrease in size proximally.....***N. paretti***
**5b (4b).** Preserved animals dark red or orange, with transversal bands across the dorsum, on each segment, described both as dark orange-brown or as yellowish; dorsal cirri orange-brown; rostrum of chaetal shaft only with small teeth.....***N. castanea***

## ***Nereiphylla castanea*** (Marenzeller 1879)

*Carobia castanea* MARENZELLER, 1879: 127, pl. 3 fig. 2.
**TYPE LOCALITY:** East coast of Enoshima Island, Honshu, Japan, Pacific Ocean.
**SELECTED REFERENCES:** *Carobia castanea* — IZUKA, 1912: 199-200, pl. 21 fig. 3. *Genetyllis castanea* — BERGSTRÖM, 1914: 158-160, fig. 53, pl. 3 fig. 4. *Phyllodoce (Genetyllis) castanea* — DAY, 1967: 149, fig. 5.3*d-f*. *Nereiphylla castanea* — USCHAKOV, 1972: 127-128; GARDINER, 1976: 113, fig. 7*h-k*; GATHOF, 1984*a*: 19.29-19-31, figs. 19.25-19.26; NÚÑEZ, BRITO & OCAÑA, 1991: 14, fig. 3; BLAKE, 1997*a*: 158-159, fig. 4.23; SALAZAR-VALLEJO, 1996*b*: 109, figs. 1, 10; IMAJIMA, 2003: 89-91, fig. 54; ALÓS, 2004: 127-129, fig. 40.
**DISTRIBUTION:** Mainly in tropical and subtropical regions of the Atlantic, Indian, and Pacific Oceans; Canary Islands; Gulf of Mexico. On rocky or hard bottoms, but also recorded on sand. Intertidal to 500 meters, but mainly in shallow water.

## ***Nereiphylla dohrnii*** (Langerhans 1880)

*Phyllodoce (Carobia) Dohrnii* LANGERHANS, 1880*a*: 307, pl. 17 fig. 43.
**TYPE LOCALITY:** Madeira Island, 20 fathoms (36.6 meters).
**SELECTED REFERENCES:** *Nereiphylla dohrnii* — NÚÑEZ & TALAVERA, 1995: 512.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** *Phyllodoce (Carobia) Dohrnii* Langerhans 1880, was described from Madeira. No type material seems to exist, and was considered by PLEIJEL (1991*b*) as being possibly a *Nereiphylla*. NÚÑEZ & TALAVERA (1995) considered it as a valid species, belonging to *Nereiphylla*, but the species wasn't recorded again since its description. It isn't included in the above key, but it is recorded here in the species list, as it would be interesting to study new *Nereiphylla* material from Madeira and try to determine the validity of the species.

## ***Nereiphylla lutea*** (Malmgren 1865)

*Genetyllis lutea* MALMGREN, 1865: 93-94, pl. 14 fig. 32.
**TYPE LOCALITY:** Gullmarsfjorden, Väderöarna or Koster (not specified), Bohuslän, Swedish west coast.
**SELECTED REFERENCES:** *Genetyllis lutea* — BERGSTRÖM, 1914: 160-161, fig. 54, pl. 1 figs. 2-3; USCHAKOV, 1972: 127, pl. 3 figs. 10-12. *Nereiphylla lutea* — PLEIJEL, 1991*b*: fig. 7; PLEIJEL & DALES, 1991: 72-73, fig. 15; KIRKEGAARD, 1992: 131-133, fig. 60; PLEIJEL, 1993*a*: 13-15, figs. 5-6, map 3; HARTMANN-SCHRÖDER, 1996: 102.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Nereiophylla lutea*; off Aveiro).
**DISTRIBUTION:** Øresund; Kattegat; Skagerrak; Norwegian Trough; Trondheimsfjorden, Norway; Shetland; Iceland; Irish Sea; Portugal. In mixed bottoms with mud, sand, gravel, shells and stones. Between 25-300 meters.

## ***Nereiphylla macrophthalma*** (Hartmann-Schröder 1979)

*Genetyllis macrophthalma* HARTMANN-SCHRÖDER, 1979*a*: 72, figs. 19-25.
**TYPE LOCALITY:** Josephine Seamount (36º40.7'N, 14º15.5'W), off SW Portugal, between 211-241 meters.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** PLEIJEL (1991*b*), after the examination of the type material, considered the species as being probably a *Nereiphylla*, which is accepted here.

## ***Nereiphylla paretti*** Blainville 1828

*Nereiphylla Paretti* BLAINVILLE, 1828: 466, pl. 13 fig. 1.
**TYPE LOCALITY:** France.
**SYNONYMS:** *Phyllodoce Kinbergii* Quatrefages 1866; *Phyllodoce Pancerina* Claparède 1870; *Phyllodoce (Carobia) splendens* Saint-Joseph 1888; *Genetyllis citrina* McIntosh 1907.

**SELECTED REFERENCES:** *Nereiphylla paretti* — BERGSTRÖM, 1914: 163-165, fig. 56; NÚÑEZ, BRITO & OCAÑA, 1991: 14-15, fig. 4; PLEIJEL & DALES, 1991: 74, fig. 75; PLEIJEL, 1993*a*: 15-17, fig. 7, map 4; ALÓS, 2004: 126-127, figs. 39*A-B*. *Phyllodoce (Nereiphylla) Paretti* — FAUVEL, 1923*c*: 154-155, fig. 55*a-c*. *Phyllodoce Kinbergii* — QUATREFAGES, 1866*b*: 128. *Phyllodoce (Carobia) splendens* — SAINT-JOSEPH, 1888: 278-281, pl. 11 fig. 138. *Phyllodoce Pancerina* — CLAPARÈDE, 1870: 456-457, pl. 9 fig. 1. *Genetyllis citrina* — MCINTOSH, 1907: 175-176.

**DISTRIBUTION:** Northwestern Scotland; western Ireland; English Channel; Atlantic coast of France; western Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Canary Islands. Intertidal to about 50 meters. In crevices among rocks and shells and under stones.

## ***Nereiphylla pusilla*** (Claparède 1870)

*Anaitis pusilla* CLAPARÈDE, 1870: 460-461, pl. 9 fig. 5.

**TYPE LOCALITY:** Gulf of Naples, Italy.

**SYNONYMS:** *Phyllodoce nana* Saint-Joseph 1906.

**SELECTED REFERENCES:** *Phyllodoce (Nereiphylla) pusilla* — FAUVEL, 1923*c*: 157, fig. 56*f*. *Nereiphylla pusilla* — PLEIJEL & MACKIE, 1993: 156-159, figs. 1-3, table 1; ALÓS, 2004: 123-126, figs. 39*C-F*. *Genetyllis* cf. *pusilla* — CAMPOY, 1982: 144-146. *Phyllodoce nana* — SAINT-JOSEPH, 1906: 223-224, pl. 5 figs. 96-98. *Phyllodoce (Nereiphylla) nana* — FAUVEL, 1923*c*: 156, fig. 55*h-i*. *Genetyllis nana* — CAMPOY, 1982: 143-144. *Nereiphylla nana* — NÚÑEZ, BRITO & OCAÑA, 1991: 12-13, fig. 2*F-J*. Not *Phyllodoce pusilla* — CAZAUX, 1965: 4-7, pls. 2-5 [= *Nereiphylla rubiginosa* (Saint-Joseph 1888)].

**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Gibraltar Straits; northeast Spain; Atlantic coast of France; Canary Islands (El Hierro); Senegal; Ivory Coast. Mainly on hard bottoms, usually with encrusting organisms (e.g. bryozoans, sponges, ascidians), crevices, and algae; when collected on soft bottoms, it occurs with sea-grasses or algae. Also recorded to occur among tubes of *Sabellaria alveolata*. Between 1-40 meters.

**REMARKS:** PLEIJEL & MACKIE (1993) studied the holotype of *Phyllodoce nana* Saint-Joseph 1906. It was in poor condition, but examination of both the specimen and the original description suggested that it was a junior synonym of *N. pusilla*. The same authors drew the attention to the fact that Saint-Joseph reported 400 µm eggs in an animal 480 µm wide, including cirri. Eggs of this size are not known from any kind of Phyllodocidae.

## ****Nereiphylla rubiginosa*** (Saint-Joseph 1888)

*Phyllodoce (Carobia) rubiginosa* SAINT-JOSEPH, 1888: 282-283, pl. 11 figs. 141-143.

**TYPE LOCALITY:** Dinard, Brittany, France.

**SYNONYMS:** *Phyllodoce breviremis* Quatrefages 1866 [suppressed for the Principle of Priority by Opinion 1589 of the ICZN (ICZN, 1990: 144)]; [?] *Phyllodoce tuberculata* Bobretzky 1868; *Genetyllis hibernica* McIntosh 1908.

**SELECTED REFERENCES:** *Phyllodoce rubiginosa* — SOUTHERN, 1914: 69-70. *Nereiphylla rubiginosa* — PLEIJEL & DALES, 1991: 76, fig. 17; PLEIJEL, 1993*a*: 17-19, figs. 8-9, map 5; NÚÑEZ, BRITO & OCAÑA, 1991: 13, fig. 2*A-E*; ALÓS, 2004: 121-123, fig. 38. *Phyllodoce (Nereiphylla) rubiginosa* — FAUVEL, 1923*c*: 155-156, fig. 55*d-g*. *Phyllodoce breviremis* — QUATREFAGES, 1866*b*: 132. [?] *Phyllodoce tuberculata* — BOBRETZKY, 1868: 150 [this species was considered as being a *nomen dubium* by PLEIJEL (1991*b*)]. *Genetyllis hibernica* — MCINTOSH, 1908*c*: 97. *Phylodoce pusilla* [not *Anatis pusilla* Claparède 1870] — CAZAUX, 1965: 4-7, pls. 2-5.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Phyllodoce rubiginosa*; Cape Espichel); SALDANHA, 1974 (as *Phyllodoce rubiginosa* and *Eulalia rubiginosa*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (as *Genetyllis rubiginosa*; Peniche); CAMPOY, 1982 (as *Pirakia rubiginosa*; previous records: Arrábida); SALDANHA, 1995 (Portugal); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 43 (A.4064)**, north Sines, 39 m, sand: 1 complete specimen with about 62 chaetigers; only one antenna remaining (inferior of left side), as well as the inferior tentacular cirri of the left side, which are foliaceous, but short and a little wide; one fusiform anal cirri remained, lost during manipulation; biggest part of dorsal cirri missing; ciliated pads referred by CAZAUX (1965) not seen; it was inside an empty tube of *Ditrupa arietina*; at about segment 35 there is an internal structure that continues for about 6 segments, which seems to be some kind of internal parasite.

**DISTRIBUTION:** Southern parts of British Isles; western Ireland; Atlantic coasts of France and Spain; Sicily; Adriatic Sea; Aegean Sea; Black Sea; Greece; Canary Islands. In shell gravel, stone crevices and among *Laminaria* holdfasts. Intertidal to at least 100 meters.

**REMARKS:** In Portuguese waters, the species has been referred either as *Genetyllis rubiginosa* or *Phyllodoce rubiginosa*. FAUVEL (1923*c*) considered *Nereiphylla rubiginosa* as being a possible juvenile form or variety of *N. paretti*, but both species are considered today as being valid. PLEIJEL (1993*a*) reported two specimens (from Galicia Bank, off north-western Spain, and from eastern Sicily), as lacking the dorsal longitudinal lines generally present in the species.

*Phyllodoce breviremis* Quatrefages 1866 represents a senior synonym to *Nereiphylla rubiginosa*, but was supressed for the Principle of Priority, ICZN, Opinion 1589, to avoid nomenclatural changes.

## *GENUS ***Notophyllum*** Ørsted 1843

*Notophyllum* ØRSTED, 1843*a*: 25.

**TYPE SPECIES:** *Phyllodoce foliosum* Sars 1835.

**SYNONYMS:** *Phyllodoce (Macrophyllum)* Schmarda 1861; *Eunotophyllum* Czerniavsky 1882; *Pseudonotophyllum* Czerniavsky 1882; *Pareulalia* Czerniavsky 1882; *Trachelophyllum* Levinsen 1883; *Hesperophyllum* Chamberlin 1919; *Nipponophyllum* Imajima & Hartman 1964.

**REMARKS:** *Notophyllum cæcum* Fauvel 1913 was described from off Azores, at 5005 meters (FAUVEL, 1913*a*: 52-53, fig. 9). KATO & PLEIJEL (2002) studied all the available material (two slides with several mounted parapodia), and determined that the lanceolate shape of the dorsal and ventral cirri was unusual for *Notophyllum*, while the observed dorsal aciculae and chaetae also occur in *Austrophyllum*. Besides, according to the original description (FAUVEL, 1913*a*), there are no nuchal organs. For this reason, KATO & PLEIJEL (2002) referred to the species as Notophyllinae *incertae sedis*. The species will be not considered below.

**KEY TO SPECIES:**
(from PLEIJEL, 1993*a*)

**1a.** Nuchal organs with 1-2 lobes.....***N. foliosum****
**1b.** Nuchal organs with 6-10 lobes.....***N. americanum***

## ***Notophyllum americanum*** Verrill 1885

*Notophyllum americanum* VERRILL, 1885*a*: 432-433.

**TYPE LOCALITY:** Off Martha's Vineyard, Massachusetts, USA, 100 fathoms (182.9 meters).

*Notophyllum americanum* — PETTIBONE, 1963*a*: 84, fig. 17*b*; HARTMANN-SCHRÖDER, 1996: 103; KATO & PLEIJEL, 2002: 1150-1152, fig. 6, table 1. *Notophyllum* cf. *americanum* — PLEIJEL, 1993*a*: 7-8, fig. 1, map 1.

**DISTRIBUTION:** Off Martha's Vineyard, Massachusetts, USA, 182.9 meters; Säcken (59º00'1"N, 11º07'0"E), northern part of Swedish west coast, on a *Lophelia pertusa* reef, at 65-80 meters.

**REMARKS:** PLEIJEL (1993*a*) identified a Swedish specimen as *N.* cf. *americanum*, a species only known from Verrill's type. According to PLEIJEL (1993*a*) the type material corresponds well to the Swedish specimen, but the same author considered that further material would be desirable before making a confident identification. The tentacular cirri appear much more narrow in PETTIBONE's (1963*a*) drawing than on either the holotype or the Swedish specimen (PLEIJEL, 1993*a*). KATO & PLEIJEL (2002) tentatively treated both the holotype and the Swedish specimens as conspecific.

## ****Notophyllum foliosum*** (M. Sars 1835)

*Phyllodoce foliosa* SARS, 1835: 60-61, pl. 9 fig. 26*a-e*.

**TYPE LOCALITY:** Bergenfjord, Western Norway.

**SYNONYMS:** *Notophyllum longum* Ørsted 1843; *Notophyllum viride* Ørsted 1843; *Notophyllum polynoide* Ørsted 1845; [?] *Eulalia obtecta* Ehlers 1864; *Notophyllum alatum* Langerhans 1880; *Notophyllum frontale* Langerhans 1880; *Trachelophyllum Lütkeni* Levinsen 1883.

**SELECTED REFERENCES:** *Notophyllum foliosum* — BERGSTRÖM, 1914: 120-123, fig. 31; FAUVEL, 1923*c*: 170-171, fig. 61*a-e*; PETTIBONE, 1963*a*: 83-84, fig. 17*e*; PLEIJEL, 1991*b*: fig. 4; PLEIJEL & DALES, 1991: 126-127, fig. 42; KIRKEGAARD, 1992: 133-135, fig. 61; PLEIJEL, 1993*a*: 9-12, figs. 2-4, map 2; HARTMANN-SCHRÖDER, 1996: 103-104, fig. 37; KATO & PLEIJEL, 2002: 1145-1150, figs. 1, 3-5, table 1; ALÓS, 2004: 119-120, fig. 37. *Notophyllum longum* — ØRSTED, 1843*a*: 26, pl. 5 fig. 78. *Notophyllum*

*polynoide* — ØRSTED, 1845*b*: 409-410, pl. 5 fig. 12. [?] *Eulalia obtecta* — EHLERS, 1864: 169-173, pl. 7 figs. 11-17. *Notophyllum alatum* — LANGERHANS, 1880*a*: 311, pl. 17 fig. 47. *Notophyllum frontale* — LANGERHANS, 1880*a*: 311, pl. 17 fig. 48. *Trachelophyllum Lütkeni* — LEVINSEN, 1883: 204, 209-211, pl. 7 figs. 1-5. Not *Notophyllum foliosum* — USCHAKOV, 1972: 169, pl. 13 fig. 10 [= *Notophyllum* sp. (KATO & PLEIJEL, 2002)].

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); SALDANHA, 1995 (Portugal).

**MATERIAL: FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 incomplete specimen, with about 18 chaetigers; 5 antennae present; chaetae on segment 2 not visible; biramous parapodia, with a notoacicula and one capillary chaeta; ventral chaetae compound, about 16 per neuropodium; dorsal cirri and biggest part of ventral cirri missing; nuchal organs clearly visible, simple.

**DISTRIBUTION:** Atlantic coast of Europe and Mediterranean Sea; Øresund; Kattegat; Skagerrak; Norwegian coast up to 70ºN; North Sea; English Channel; Faroes; Madeira; Galicia Bank, off northwestern Spain; Portugal; Sicily; Adriatic Sea; Aegean Sea. On bottoms with shell gravel and stones. Subtidally, and between 10-1280 meters.

**REMARKS:** KATO & PLEIJEL (2002) found that specimens from Norway and Sweden showed a wide range of variability, with worms from deeper localities (300-500 meters) having less bright coloration, longer antennae, palps and tentacular cirri, more elaborated nuchal organs, and larger dorsal cirri than specimens from the same area and more shallow waters. The authors were unable to conclude if the differences were related to phenotypic plasticity associated with depth, or if different taxa were present (KATO & PLEIJEL, 2002).

## GENUS ***Paranaitis*** Southern 1914

*Paranaitis* SOUTHERN, 1914: 66-67.

**TYPE SPECIES:** *Anaitis wahlbergi* Malmgren 1865.

**SYNONYMS:** *Anaitis* Malmgren 1865 [not Duponchel 1829 (Insecta, Lepidoptera); not Römer 1857 (Mollusca)]; *Eulalia (Euphylla)* Knox 1960; *Pareteone* Hartmann-Schröder 1975; *Compsanaitis* Hutchings & Murray 1984.

**REMARKS:** PLEIJEL (1993*a*) noted that several undescribed (or, at least, unnamed) species occur in Northern Europe. Two of these forms were described by him and are included below, as *Paranaitis* near *polynoides*, and *Paranaitis* near *uschakovi*. They resemble the respective stem species, but several differences both in morphology and ecology point to the possibility that they represent undescribed species. These specimens were not included in the revision of the genus performed by KATO & PLEIJEL (2003).

*Eulalia imbricata* Ehlers 1874 was described from the North Atlantic, at 56º9'N, 14º10'W, from a depth of 1214.3 meters (EHLERS, 1874, 1875). KATO & PLEIJEL (2003) stated that the species appears to belong to the genus *Paranaitis*, judging from the original description, as it shows a posteriorly inserted papilla in the prostomium (described and pictured originally as an antenna), broadly ovoid dorsal cirri, and the first segment partly covering the prostomium (according to the drawing). However, as no type or other material seems to exit, the species was considered by KATO & PLEIJEL (2003) as *insertae sedis*.

**KEY TO SPECIES:**

(adapted from PLEIJEL, 1993*a*; KATO & PLEIJEL, 2003)

**1a.** Nuchal papillae indistinct; ligula shallow.....***P. wahlbergi***
**1b.** Nuchal papilla present, rounded, situated in a deep, distinct ligula.....**2**

**2a (1b).** Eyes absent.....**3**
**2b (1b).** Eyes present.....**4**

**3a (2a).** Dorsal cirri reniform, wider than long; dorsal cirrophore large, dorsally broaden .....***P.* near *uschakovi***
**3b (2a).** Dorsal cirri almost circular; dorsal cirrophore large, symmetrical.....***P. abyssalis***

**4a (2b).** Dorsal cirri longer than wide; ventral cirri with longitudinal axis vertically oriented; chaetae from segment 3.....***P. kosteriensis***

**4b (2b).** Dorsal cirri wider than long; ventral cirri with longitudinal axis obliquely oriented; chaetae from segment 2.....***P.* near *polynoides***

## ***Paranaitis abyssalis*** (Hartmann-Schröder 1975)

*Pareteone abyssalis* HARTMANN-SCHRÖDER, 1975: 57-59, figs. 19-21.
**TYPE LOCALITY:** Off the Iberian Peninsula (42º55.4'N, 14º07.9'W), at 5260 meters.
**SELECTED REFERENCES:** *Paranaitis abyssalis* — PLEIJEL, 1991*b*: 258; PLEIJEL & KATO, 2003: 388-389, table 1, fig. 4; ALÓS, 2004: 164.
**DISTRIBUTION:** Known from the type locality.

## ***Paranaitis kosteriensis*** (Malmgren 1867)

*Anaïtis kosteriensis* MALMGREN, 1867*a*: 20.
**TYPE LOCALITY:** Koster, Bohuslän, Sweden, 130 fathoms (237.7 meters).
**SYNONYMS:** *Mystides Lizziæ* McIntosh 1908.
**SELECTED REFERENCES:** *Paranaitis kosteriensis* — BERGSTRÖM, 1914: 156-158, fig. 52, pl. 1 fig. 1; ELIASON, 1962*b*: 234-235; PLEIJEL & DALES, 1991: 94, fig. 26; KIRKEGAARD, 1992: 135-137, fig. 62; PLEIJEL, 1993*a*: 24-25, figs. 13-14, map 7; HARTMANN-SCHRÖDER, 1996: 91; KATO & PLEIJEL, 2003: 399-402, table 1, figs. 16-17, 37*C-D*; ALÓS, 2004: 162-164, fig. 55. *Phyllodoce (Anaitis) kosteriensis* — FAUVEL, 1923*c*: 157-158, fig. 56*a-c*. *Mystides Lizziæ* — MCINTOSH, 1908*c*: 110. Not *Paranaitis kosteriensis* — PETTIBONE, 1963*a*: 77, fig. 17*d* [= *Paranaitis* sp. (KATO & PLEIJEL, 1993)].
**REFERENCES FOR PORTUGAL:** MCINTOSH, 1908*c* (publication not seen; as *Mystides Lizziæ*; Cape Sagres); RIOJA, 1918*b* (previous records: Cape Sagres); CAMPOY, 1982 (previous records: Cape Sagres); RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** West coast of Sweden; Denmark; western Norway; North Sea; all around the British Isles; Ireland; Galicia, Spain; southern Portugal; Gibraltar Strait; Sicily; Adriatic Sea; Aegean Sea. On muddy sand or mixed sediments with mud, sand shells and stones. Between 10-230 meters.
**REMARKS:** This species was recorded from off Cabo Sagres (southern Portugal) by MCINTOSH (1908*c*), as *Mystides Lizziæ*.

PETTIBONE (1963*a*) recorded the species from the North Atlantic, between 1765-2359 meters, but according to PLEIJEL (1993*a*) these records need confirmation, considering their depth distribution.

## ***Paranaitis* near *polynoides*** (Moore 1909)

*Paranaitis* near *polynoides* PLEIJEL, 1993*a*: 26-28, fig. 15, map 8.
**STEM SPECIES:** *Anaitis polynoides* MOORE, 1909*a*: 339-342, pl.16 figs. 19-21.
**TYPE LOCALITY OF STEM SPECIES:** Monterey Bay, California, USA, 46 fathoms (84.1 meters).
**DISTRIBUTION:** Jan Mayen, 70º40'N, 07º38'W, at 1236-1243 meters (1 specimen), and Selvogsbanki, southwestern Iceland, at 150-200 meters (1 specimen).
**REMARKS:** The two specimens examined by PLEIJEL (1993*a*) appear morphologically close to *Paranaitis polynoides* (Moore 1909), but present differences in the orientation of the longitudinal axis of the ventral cirri, which is oblique rather than horizontal. Besides, the different distribution also points to the fact that the North Atlantic and the Californian populations represent different species.

## ***Paranaitis* near *uschakovi*** Eibye-Jacobsen 1991

*Paranaitis* near *uschakovi* PLEIJEL, 1993*a*: 28-30, fig. 16, map 9.
**STEM SPECIES:** *Paranaitis uschakovi* EIBYE-JACOBSEN, 1991: 129.
**SELECTED REFERENCES:** *Paranaitis caecum* [not Moore 1903] — USCHAKOV, 1972: 142-143, pl. 7, figs. 5-7.
**TYPE LOCALITY OF STEM SPECIES:** East of Honshu (Japan), 38º38'N, 141º53'E, 239 meters.
**DISTRIBUTION:** Iceland Basin, 61º38'2"N, 16º27'7"W, at 2355 meters (1 specimen).
**REMARKS:** *Paranaitis uschakovi* Eibye-Jacobsen 1991 is the replacement name for *Paranaitis caecum* Uschakov 1972, which was a secondary homonym of *Paranaitis caeca* (Moore 1903).

PLEIJEL (1993*a*) states that the specimen studied by him from the Iceland Basin is in good condition and fits well the holotype except for the pigmentation, having the later the inner parts of the dorsal cirri pigmented and forming dark longitudinal dorsal lines, against not having any marked pigmentation. Besides, the differences in distribution and depth of both specimens demands further investigation.

## ***Paranaitis wahlbergi*** (Malmgren 1865)

*Anaitis wahlbergi* MALMGREN, 1865: 94, pl. 14 fig. 31.

**TYPE LOCALITY:** Treurenberg Bay, Spitsbergen, between 20-30 fathoms (36.6-54.7 meters).

**SELECTED REFERENCES:** *Anaitis wahlbergi* — BERGSTRÖM, 1914: 155-156, fig. 51. *Paranaitis Wahlbergi* — SOUTHERN, 1914: 67, pl. 8 fig. 16. *Paranaitis wahlbergi* — USCHAKOV, 1972: 140-141, pl. 7 figs. 8-9; PLEIJEL, 1991*b*: fig. 9; PLEIJEL & DALES, 1991: 96, fig. 27; PLEIJEL, 1993*a*: 30-32, figs. 17-19, map 10; HARTMANN-SCHRÖDER, 1996: 91; KATO & PLEIJEL, 2003: 385-388, figs. 1-3, 37*A*, table 1; ALÓS, 2004: 160-162, fig. 54.

**DISTRIBUTION:** Arctic Basin to Chukchi Sea; Canada; Kara Sea; Swedish west coast; Skagerrak; Kattegat; Norway; Norwegian Sea; Faroes; Iceland; Spitsbergen; East Greenland; British Isles; North Sea; both sides of Gibraltar Straits; Balearic Islands. In muddy sediments. Between 10-1200 meters.

**REMARKS:** PLEIJEL (1993*a*) and KATO & PLEIJEL (2003) found size differences between Arctic specimens and boreal and Mediterranean ones, with Arctic specimens attaining sizes of 10 cm long for 1 cm wide, against sizes not longer than 2 cm and a more slender appearance in more southerly specimens. Besides, Swedish specimens tended to show longer digitate cirri on the anterior-most segments and less numerous chaetae (KATO & PLEIJEL, 2003). As both characters are size-related, all specimens were considered to be conspecific by those authors.

## *GENUS ***Phyllodoce*** Savigny *in* Lamarck 1818

*Phyllodoce* SAVIGNY *in* LAMARCK, 1818: 316-317 [name conserved; not *Phyllodoce* Ranzani 1817 = *Polyodontes* Renieri *in* Blainville 1828; see PLEIJEL (1991*a*), and Opinion 1692 of the ICZN (1992)].

**TYPE SPECIES:** *Phyllodoce laminosa* Savigny *in* Lamarck 1818.

**SYNONYMS:** *Lepadorhynchus* Schmarda 1861 [error for *Lopadorhynchus*]; *Anaitides* Czerniavsky 1882; *Carobia (Paracarobia)* Czerniavsky 1882 [in part]; *Carobia (Protocarobia)* Czerniavsky 1882 [in part]; *Globidoce* Bergström 1914 [error for *Sphaerodoce* Bergström 1914]; *Sphaerodoce* Bergström 1914; [?] *Prophyllodoce* Hartman 1966; *Zverlinum* Averincev 1972; *Phyllodoce (Aponaitides)* McCammon & Montagne 1979; *Phyllouschakovius* Blake 1988.

**REMARKS:** The genus *Phyllodoce* is considered by many authors (*e.g.* HARTMANN-SCHRÖDER, 1996) as being divided in two subgenera, *Phyllodoce* Savigny *in* Lamarck 1818, and *Anaitides* Czerniavsky 1882. The two subgenera can be separated by the presence of longitudinal rows of papillae in the basal region of the proboscis in *Anaitides*, and by the presence of diffused and dispersed papillae in the basal region of the proboscis in *Phyllodoce*. PLEIJEL (1988) treated *Anaitides* Czerniavsky 1882 as a junior synonym of *Phyllodoce* Savigny *in* Lamarck 1818, in order to avoid the risk of creating artificial of paraphyletic groups, and this decision will be followed here.

The following species, normally attributed to the genus *Phyllodoce* and reported or described from the area considered for this study, are not included: *Nereis lamellifera* Pallas 1788 [a *nomen dubium*, according to PLEIJEL (1991*b*)]; *Phyllodoce macrophthalma* Schmarda 1861 [junior homonym of *P. macrophthalma* Grube 1857 and a *nomen dubium*, according to PLEIJEL (1991*b*)]; *Phyllodoce tuberculata* Bobretzky 1868 [a *nomen dubium*, according to PLEIJEL (1991*b*), and a possible synonymy of *Nereiphylla rubiginosa* (Saint-Joseph 1888), according to LA GRECA (1949*a*)].

### KEY TO SPECIES:

(adapted from: PLEIJEL, 1988; PLEIJEL, 1993*a*)

**1a.** Ventral cirri of median segments slender, subulate, much longer than chaetigerous lobes; proboscis with two kinds of papillae: six proximal longitudinal rows of soft rounded papillae on each side; distal papillae of mid-lateral rows as large, hard, tooth-like papillae arranged in two rows of four either side, triangular in cross-section, pointing backwards; live animals anteriorly with longitudinal red bands laterally on each side of dorsum.....***P. rosea***

**1b.** Ventral cirri shorter and broader; proboscis without hard papillae.....**2**

**2a (1b).** Prechaetal lobes strongly asymmetrical, with long and pointed upper part; chaetae from segment 4; dorsal cirri of median segments oval.....***P. longipes****

**2b (1b).** Prechaetal lobes symmetrical or slightly asymmetrical, rounded, never with long and pointed upper part; chaetae from segment 3 (usual case) or 4 (*P. madeirensis*); dorsal cirri of median segments rectangular, pointed or lanceolate (*P. madeirensis*).....**3**

**3a (2b).** Proximal parts of proboscis with six longitudinal rows of papillae on each side.....**4**
**3b (2b).** Proximal part of proboscis otherwise.....**7**

**4a (3a).** Chaetae from segment 3; dorsal cirri of median segments rectangular.....**5**
**4b (3a).** Chaetae from segment 4; dorsal cirri of median segments lanceolate.....***P. madeirensis****

**5a (4a).** Ventral cirri of median segments pointing downwards; proboscis with more than 11 papillae in mid-lateral rows; dorsum with metallic hue; dark transverse bands on every segment.....***P. groenlandica***
**5b (4a).** Tips of ventral cirri not directed downwards; proboscis with no more than 11 papillae in mid-lateral rows; dorsum with conspicuous spots mid-dorsally, laterally and on dorsal cirri, giving a checkered appearance.....**6**

**6a (5b).** Ventral cirri pointed; proboscis with 10-11 papillae in longest rows; prostomium darkly pigmented in front of eyes; dorsum of segments three and four not specially darkly pigmented..***P. mucosa***
**6b (5b).** Ventral cirri oval; proboscis with 8-9 papillae in longest rows; prostomium not conspicuously darkly pigmented in front of eyes (some lateral pigmentation may be present); dorsum of segments three and four darkly pigmented.....***P. maculata***

**7a (3b).** Proximal part of proboscis with 25-30 rows of about 15 papillae each, arranged in more or less distinct rows; dorsal tentacular cirri reaching at least segment 15; dark pigmentation on prostomium anterior to eyes; dorsum dark except for two longitudinal unpigmented lines; darker spots present on pseudosegments; dorsal cirri with pigmented proximal part; ventral pigmentation much lighter.....***P. lineata****
**7b (3b).** Proximal part of proboscis otherwise; dorsal tentacular cirri not reaching further than segment 14.....**8**

**8a (7b).** Proximal part of proboscis with four more or (usually) less well defined rows of three to six papillae on each side; mid-dorsal spots forming a dark longitudinal line; preserved specimens with a conspicuous dark, longitudinal mid-dorsal band; in live specimens this line should be violet, according to MALMGREN (1865).....***P. citrina***
**8b (7b).** Proximal part of proboscis densely covered with small diffusely distributed papillae; no dark longitudinal line on dorsum; animals light green with darker pigment on prostomium and as transverse bands across dorsum, 3 dark spots per segment posteriorly, 1 medial and 2 lateral; less distinct spots mid-ventrally and at bases of parapodia; dorsal cirri more or less pigmented; larger specimens much darker; body strongly iridescent.....***P. laminosa***

## ***Phyllodoce citrina*** Malmgren 1865

*Phyllodoce citrina* MALMGREN, 1865: 95-96, pl. 13 fig. 24.
**TYPE LOCALITY:** Hornsund, Storfjorden, and Whalerspoint, all in Spitsbergen, on mud, between 20-40 fathoms (36.6-73.2 meters), and Greenland (not specified).
**SYNONYMS:** *Phyllodoce badia* Malmgren 1867.
**SELECTED REFERENCES:** *Phyllodoce (Anaitides) citrina* — FAUVEL, 1923*c*: 150, fig. 52*k-l*; USCHAKOV, 1972: 136-137, pl. 5 figs. 5-6; HARTMANN-SCHRÖDER, 1996: 92, fig. 30. *Phyllodoce citrina* — PLEIJEL, 1988: 143, fig. 2; PLEIJEL & DALES, 1991: 78-79, fig. 18; KIRKEGAARD, 1992: 139-140, fig. 63; PLEIJEL, 1993*a*: 35-37, figs. 20-21, map 11. *Anaitides citrina* — BERGSTRÖM, 1914: 140-141, fig. 41. *Phyllodoce badia* — MALMGREN, 1867: 22, pl. 2 fig. 6.
**DISTRIBUTION:** Circum-arctic and circum-boreal; North Pacific to Bering Sea; Sea of Okhotsk; Sea of Japan; Gulf of Alaska; west Canada; North Atlantic to the North Sea, Irish Sea and Davis Strait; Swedish western coast; Helgoland, Germany; western and northern Norway; Faroes; Iceland; Spitsbergen. Substrate only known in one case, from Faroes, where the species was found in *Laminaria* holdfasts and coarse shell gravel. Between 15-270 meters.

## ***Phyllodoce groenlandica*** Ørsted 1842

*Phyllodoce groenlandica* ØRSTED, 1842: 121.
**TYPE LOCALITY:** Greenland.
**SYNONYMS:** *Phyllodoce Luetkeni* Malmgren 1867; *Phyllodoce arctica* Hansen 1880.

**SELECTED REFERENCES:** *Phyllodoce (Anaitides) groenlandica* — FAUVEL, 1923*c*: 153-154, fig. 54*f-i*; USCHAKOV, 1972: 133-134, pl. 5 figs. 1-4; MCCAMMON & MONTAGNE, 1979: 359-361, fig. 4; HARTMANN-SCHRÖDER, 1996: 93-94, fig. 31. *Phyllodoce groenlandica* — MCCAMMON & MONTAGNE, 1979: 359-361, fig. 4; PLEIJEL, 1988: 144-145, fig. 3; PLEIJEL, 1991*b*: fig. 10*C*; PLEIJEL & DALES, 1991: 80, fig. 19; KIRKEGAARD, 1992: 140-142, fig. 64; PLEIJEL, 1993*a*: 37-40, figs. 22-23, map 12; BLAKE, 1997*a*: 162-163, fig. 4.25; ALÓS, 2004: 150-152, fig. 49. *Anaitides groenlandica* — BERGSTRÖM, 1914: 141-143, fig. 42. *Phyllodoce Luetkeni* — MALMGREN, 1867: 24, pl. 2 fig. 10. *Phyllodoce arctica* — HANSEN, 1880: 228, pl. 4 figs. 1-3; HANSEN, 1882: 31, pl. 3 figs. 21-23.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Sagres); SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (as *Anaitides groenlandica*; previous records: Arrábida; Portugal); [?] QUINTINO & GENTIL, 1987 (as *Anaitides* cf. *groenlandica*; Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (as *Anaitides groenlandica*; Lagoon of Óbidos); [?] DEXTER, 1992 (as *Anaïtides* cf. *groenlandica*; previous records: Lagoon of Albufeira; Lagoon of Óbidos); MUCHA & COSTA, 1999 (Ria de Aveiro and/or Sado Estuary); ALÓS, 2004 (previous records: coasts of Portugal).
**DISTRIBUTION:** Circum-arctic and circum-boreal; North Atlantic Ocean, extending south to the English Channel and English Isles, and from the Gulf of St. Lawrence, Nova Scotia and Newfoundland to North Carolina; North Pacific Ocean, from the Sea of Okhotsk to California. On sandy mud, or mud. Intertidal to 800 meters.

## ***Phyllodoce laminosa*** Savigny *in* Lamarck 1818

*Phyllodoce laminosa* SAVIGNY *in* LAMARCK, 1818: 317.
**TYPE LOCALITY:** Coasts of Nice, France.
**SYNONYMS:** *Phyllodoce Saxicola* Quatrefages 1843; *Phyllodoce bimaculata* Saint-Joseph 1898.
**SELECTED REFERENCES:** *Phyllodoce (Carobia) laminosa* — SAINT-JOSEPH, 1888: 274-275, pl. 11 figs. 133-136; *Phyllodoce laminosa* — BERGSTRÖM, 1914: 150-152, fig. 48; PLEIJEL, 1988: 142-143, fig. 1; PLEIJEL, 1991*b*: fig. 10*A-B*, *D-E*; PLEIJEL & DALES, 1991: 82, fig. 83; PLEIJEL, 1993*a*: 40-42, figs. 24-26, map 13; ALÓS, 2004: 158, fig. 53. *Phyllodoce (Phyllodoce) laminosa* — FAUVEL, 1923*c*: 145-146, fig. 51*a-e*; HARTMANN-SCHRÖDER, 1996: 100, fig. 36. *Phyllodoce (Phyllodoce) laminosa laminosa* — USCHAKOV, 1972: 130-131. *Phyllodoce Saxicola* — QUATREFAGES, 1843: 1-4, pl. 1 figs. 1-6. *Phyllodoce bimaculata* — SAINT-JOSEPH, 1898: 323-325, pl. 18 figs. 123*A*, 123*B*. *Phyllodoce (Anaitides) bimaculata* — FAUVEL, 1923*c*: 148-149, fig. 52*f-g*.
**REFERENCES FOR PORTUGAL:** NOBRE, 1903*a* (Leça da Palmeira); CARVALHO, 1929 (Sines; Buarcos); SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida; Buarcos; Leça da Palmeira); SOUSA-REIS *et al.*, 1982 (Peniche region); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: Ria Formosa; continental shelf of Algarve; Sado Estuary; Peniche; Figueira da Foz); PLEIJEL, 1993*a* (northern Portugal); SALDANHA, 1995 (Portugal); RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** British Isles; Western English Channel; Atlantic coast of France, northwestern Spain and Portugal; Mediterranean coast of France; Adriatic Sea; Aegean Sea; Black Sea. Intertidally under stones, in crevices, and mussel beds, and subtidally to about 30 meters, on rocky substrata or bottoms with stones and large shells.
**REMARKS:** PLEIJEL (1993*a*) points the fact that LAMARCK (1818) assigned the authorship of *Phyllodoce laminosa* to "*Savigny (mss)*", but since this referred to Savigny's work "*Description de l'Égypte*", which, according to the ICNZ (1987) was not published until 1822, the authorship of the species should be assigned to Lamarck. However, as Lamarck refers the authorship of the species directly to Savigny, this authorship is considered here (as in many other cases published in the same work) as being Savigny *in* Lamarck 1818.

## ****Phyllodoce lineata*** (Claparède 1870)

*Anaitis lineata* CLAPARÈDE, 1870: 458-459, pl. 9 fig. 4.
**TYPE LOCALITY:** Gulf of Naples, Italy.
**SYNONYMS:** *Phyllodoce callirhynchus* Michaelsen 1896; *Phyllodoce papulosa* Saint-Joseph 1898.
**SELECTED REFERENCES:** *Phyllodoce (Anaitides) lineata* — FAUVEL, 1923*c*: 147, fig. 51*h-l*; HARTMANN-SCHRÖDER, 1996: 95-96, fig. 32. *Phyllodoce lineata* — PLEIJEL, 1988: 145, fig. 4; PLEIJEL & DALES, 1991: 84, fig. 21; PLEIJEL, 1993*a*: 43-44, fig. 27, map 14; ALÓS, 2004: 156-158, fig. 52. *Phyllodoce callirhynchus* — MICHAELSEN, 1896: 33-36, pl. 1 figs. 14-15. *Phyllodoce papulosa* — SAINT-JOSEPH, 1898: 320-322, pl. 18 figs. 117-121.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape São Vicente); CAMPOY, 1982 (as *Anaitides lineata*; previous records: Portugal); AMOUREUX, 1987 (as *Anaitides lineata*; off Aveiro; off Porto); PLEIJEL, 1993*a* (southwestern Portugal); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 178 (A.3933)**, off Sines, 130 m, sand: 1 incomplete specimen in good condition, with about 70 segments; 4 antennae present, as well as the nuchal organs and papilla; proboscis partially everted, with the proximal region with about 25 rows of papillae; chaetae from segment 3; coloration as referred in PLEIJEL (1988): darks spots anterior to the eyes, dark dorsum, with 2 longitudinal lines not pigmented.

**DISTRIBUTION:** North Sea; English Channel; from the British Isles to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea. In sand, muddy sand, and mud. Intertidal to about 150 meters.

## ****Phyllodoce longipes*** Kinberg 1866

*Phyllodoce longipes* KINBERG, 1866*b*: 241.

**TYPE LOCALITY:** Valparaiso, Chile, among rhizomes ("*inter radices fucorum*"), at 1-2 fathoms (1.8-3.6 meters).

**SYNONYMS:** [?] *Phyllodoce macropapillosa* Saint-Joseph 1895; [?] *Anaitis Jeffreysii* McIntosh 1908.

**SELECTED REFERENCES:** *Phyllodoce longipes* — PLEIJEL, 1988: 146-147, fig. 5; PLEIJEL & DALES, 1991: 86, fig. 22; KIRKEGAARD, 1992: 142-143, fig. 65; BLAKE, 1997*a*: 168-169, fig. 4.28; ALÓS, 2004: 145-147, fig. 47. *Phyllodoce (Anaitides) longipes* — WESENBERG-LUND, 1962: 42-44, figs. 11*a*, 12; DAY, 1963*b*: 394-395, fig. 3*d-f*; DAY, 1967: 144, fig. 5.2*a-c*; HARTMANN-SCHRÖDER, 1996: 96. *Anaitides longipes* — GATHOF, 1984*a*: 19.37, figs. 19.31-19.32; PARKER, 1987: 193; SALAZAR-VALLEJO, 1996*b*: 112, fig. 4. *Phyllodoce* cf. *longipes* — PLEIJEL, 1993*a*: 45-48, figs. 28-30, map 15; MOREIRA, TRONCOSO & TRONCOSO, 2000: 70-71, fig. 2. *Phyllodoce macropapillosa* — SAINT-JOSEPH, 1895: 224-225, pl. 13 fig. 41. *Phyllodoce (Anaitides) macropapillosa* — FAUVEL, 1923*c*: 149-150, fig. 52*m*. [?] *Anaitis Jeffreysii* — MCINTOSH, 1908*c*: 73.

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (as *Phyllodoce* cf. *longipes*; southwestern continental shelf); RAVARA, 1997 (as *Phyllodoce* cf. *longipes*; off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 77 (A.2561)**, off Carrapateira, 98 m, gravelly sand: 1 incomplete specimen with 59 chaetigers, plus one posterior fragment with 27 chaetigers, pygidium missing; only two tentacular cirri remaining (the two V2); nuchal papilla and nuchal organs visible; all cirri missing, except 1 dorsal cirrus, egg-shaped, and 2 pointed ventral cirri; parapodia with 2 lobes, being the superior longer and more pointed than the inferior one; chaetae from segment 4; brown coloration in segments 4 and 5, following ones with spots on the central region of the pseudosegments. **SEPLAT 7 (2nd part) — St. 185 (A.3926)**, near Sines, 37 m, sandy mud: 1 specimen in a very poor condition, with about 28 segments; chaetae from segment 4; parapodia with superior lobes pointed. **St. 187 (A.3924)**, south Sines, 17 m, sand: 1 specimen with the posterior region apparently regenerated; anterior region with 22 chaetigers, posterior region with about 13; chaetae from segment 4; inverted proboscis; coloration as in PLEIJEL (1988), with the posterior region of the prostomium and the 3rd segment with some pigment; segments 4 and 5 very pigmented; posteriorly there are spots at the pseudosegments, darker at the center; dorsal cirri with the center pigmented; the first chaetiger is pigmented.

**DISTRIBUTION:** West coast of Sweden; North Sea; Ireland; Shetland; east coast of Scotland; English Channel; Atlantic coast of France; Mediterranean Sea; Adriatic Sea; Chile; California; North Carolina; Gulf of Mexico; South Africa. On bottoms with shell gravel and sand. Between 15-40 meters, but can be found down to at least 150 meters.

**REMARKS:** *Phyllodoce longipes* was first described from specimens collected at Valparaiso (Chile). The European species *Phyllodoce macropapillosa* Saint-Joseph 1895, from the coast of Dinard (France), was synonymised with *P. longipes* by PLEIJEL (1988). In the absence of type material of *P. macropapillosa*, this synonymy was based on the original description. The geographic distribution of *P. longipes* suggested that several different species might be involved, but they could not be separated morphologically with base on the available material (PLEIJEL, 1988; PLEIJEL & DALES, 1991). For this reason the synonymy was later questioned (PLEIJEL, 1993*a*) and the true identity of the European specimens remains currently unsolved.

Our material agrees with the description given for the European specimens (PLEIJEL, 1988, 1993*a*). The main diagnostic features of the species are the strongly asymmetrical chaetigerous lobes, with the upper lobe longer and pointed, the beginning of the chaetae at the fourth segment, the large distal papillae on the proboscis and the dark brown pigment on dorsum of segments 4 and 5, very conspicuous even in fixed material.

## ***Phyllodoce maculata*** (Linnaeus 1767)

*Nereis maculata* LINNAEUS, 1767: 1086.

**TYPE LOCALITY:** In the Northern Atlantic Ocean ("*Habitat in Oceano septentrionali*").

**SYNONYMS:** *Phyllodoce teres* Malmgren 1865; *Phyllodoce pulchella* Malmgren 1867; *Phyllodoce Rinki* Malmgren 1867.

**SELECTED REFERENCES:** *Anaitides maculata* — BERGSTRÖM, 1914: 145-147, fig. 45. *Phyllodoce maculata* — PLEIJEL, 1988: 147-149, fig. 6, table 1; PLEIJEL & DALES, 1991: 88, fig. 23; KIRKEGAARD, 1992: 143-145, fig. 66; PLEIJEL, 1993*a*: 48-51, figs. 31-32, map 16; ALÓS, 2004: 154-156, fig. 51. *Phyllodoce (Anaitides) maculata* — FAUVEL, 1923*c*: 152, fig. 53*a-c*; USCHAKOV, 1972: 134-135, pl. 5 fig. 7; HARTMANN-SCHRÖDER, 1996: 96-97, fig. 33. *Phyllodoce teres* — MALMGREN, 1865: 97, pl. 14 fig. 30. *Phyllodoce pulchella* — MALMGREN, 1867: 21-22, pl. 2 fig. 8. *Phyllodoce Rinki* — MALMGREN, 1867: 23-24, pl. 2 fig. 11.

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Buarcos); SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (as *Anaitides maculata*; previous records: Buarcos; Arrábida); DEXTER, 1992 (previous records: Ria de Aveiro); SALDANHA, 1995 (Portugal); ALÓS, 2004 (previous records: coasts of Portugal).

**DISTRIBUTION:** Denmark; Kattegat; Skagerrak; Øresund; west Baltic Sea; Swedish west coast; British Isles; English Channel; [?] Black Sea; Iceland; Faroes; Norway; SW Greenland; Franz Joseph Land; Sea of Okhotsk; Sea of Japan. On rocks, kelp holdfasts, shell gravel, and sand. From shore to 400 meters.

**REMARKS:** According to PLEIJEL (1988), and in the absence of type material, either *Phyllodoce maculata* or *P. mucosa* could represent the species described by Linnaeus from the North Atlantic Ocean as *Nereis maculata*. For stability PLEIJEL (*op. cit.*) decided to retain the name *P. maculata* for Linnaeus species, and this way minimize contradictions with other authors. Both species are quite similar and several characters should always be checked for a correct identification (PLEIJEL & DALES, 1991).

## ****Phyllodoce madeirensis*** Langerhans 1880

*Phyllodoce (Anaitis) madeirensis* LANGERHANS, 1880*a*: 307-308, pl. 17 fig. 44.

**TYPE LOCALITY:** Madeira Island, near the shore.

**SYNONYMS:** [?] *Phyllodoce (Anaitis?) sanctæ vincentis* McIntosh 1885; *Phyllodoce oculata* Ehlers 1887; *Phyllodoce bruneoviridis* Saint-Joseph 1898.

**SELECTED REFERENCES:** *Phyllodoce (Anaitides) madeirensis* — FAUVEL, 1923*c*: 150-152, fig. 53*d-h*; DAY, 1967: 145, fig. 5.2*d-g*; USCHAKOV, 1972: 138, pl. 6 figs. 7-8; GARDINER, 1976: 115, figs. 7*q*, 8*a-c*; SOSA, NÚÑEZ & BACALLADO, 1977: 236-237, pl. 7. *Phyllodoce (Anaitis) madeirensis* — PLEIJEL & DALES, 1991: 130. *Phyllodoce madeirensis* — MOUNTFORD, 1991: 161-166, figs. 2, 3*A-C*; IMAJIMA, 2003: 103-107, fig. 63; ALÓS, 2004: 147-150, fig. 48. *Anaitides madeirensis* — HARTMANN-SCHRÖDER, 1979*a*: 71, fig. 17; GATHOF, 1984*a*: 19.39-19.41, figs. 19.33-19.34. [?] *Phyllodoce (Anaitis?) sanctæ vincentis* — MCINTOSH, 1885*a*: 166-167, pl. 27 fig. 9, pl. 32 fig. 8, pl. 14*A* figs. 14-15. *Phyllodoce oculata* — EHLERS, 1887: 135-140, pl. 40 figs. 4-6. *Phyllodoce bruneoviridis* — SAINT-JOSEPH, 1898: 322-323, pl. 18 figs. 122-123. *Phyllodoce (Anaitides) bruneo-viridis* — FAUVEL, 1923*c*: 148, fig. 52*h-i*.

**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (off Lagos); FAUVEL, 1914*f* (off Lagos); BELLAN, 1960*a* (Setúbal Canyon; Cape São Vicente; Cape Sagres); AMOUREUX, 1974*b* (as *Phyllodoce (Anaitides) madeirensis*; off Aveiro; off Porto); SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (as *Anaitides madeirensis*; previous records: southern coast of Portugal; Aveiro; Porto); AMOUREUX, 1987 (as *Anaitides madeirensis*; off Aveiro); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Sado Estuary); SALDANHA, 1995 (Portugal); ALÓS, 2004 (previous records: southern coast of Portugal; Arrábida); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 175 (A.3935)**, off Sines, 205 m, gravelly sand: 1 incomplete specimen with inverted proboscis, with about 34 segments; nuchal organs and papilla visible; chaetae from segment 4; coloration as dark dorsum, with one middorsal line which includes the pseudosegments. **St. 211 (A.3901)**, south Sines, 140 m, muddy sand: 1 specimen, apparently complete, with 68 chaetigers, but in poor condition; all cirri missing, with the exception of 2 ventral cirri; chaetae from segment 4; segments 2 and 3 with aciculae at the dorsal and ventral lobes; dorsum greenish, forming a more marked longitudinal band. **FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 3 specimens; (1) complete with about 67 chaetigers; everted proboscis; some cirri missing; chaetae from segment 4; (2) incomplete with about 44 chaetigers; proboscis slightly everted, being visible the basal papillae; nuchal organs and papilla visible; (3) incomplete, with about 28 chaetigers; everted proboscis; chaetae from segment 4. **St. 37*A***, Alborán Sea, off Punta de la Chullera,

95-100 m, coarse gravel: 1 incomplete specimen with about 60 segments; chaetae from segment 4; nuchal organs and papilla visible; all tentacular cirri missing, except the left D2, and also many of the ventral cirri; ventral cirri pointed; parapodia with 2 round lobes, being the superior slightly longer than the inferior. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 3 specimens; (1) incomplete, with 33 chaetigers; everted proboscis; right side with all tentacular cirri remaining; nuchal organs visible, as well as the papilla; basal region of proboscis with six longitudinal rows of papillae on each side, distal region rugose; 17 big papillae surrounding the opening of the proboscis; with one longitudinal middorsal brown strip, and two other, lateral and lighter; chaetae from 4th segment; (2) incomplete, with 40 chaetigers; only one tentacular cirri remaining, the first in the left side; all dorsal cirri missing; nuchal organs visible; nuchal papilla hardly visible, being partially covered by the prostomium; everted proboscis, as described in the other specimens; chaetae from the 4th segment; coloration as described for other specimens; (3) incomplete, with 39 chaetigers; proboscis as other specimens, everted; all cirri missing; nuchal organs and papilla visible; chaetae from segment 4. **St. 43*A***, Gulf of Cádiz, near Rota, 20-24 m, rocks with white coral: 1 specimen with 77 segments, in good condition; everted proboscis, as described in other specimens; papilla and nuchal organs visible; chaetae from segment 4. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 complete specimen with about 160 segments; all antennae and tentacular cirri present; many dorsal and ventral cirri missing, as well as the anal cirri; nuchal organs clearly visible; everted proboscis with six longitudinal rows of papillae on each side of the proximal region, distal region with about 6 longitudinal rugose ridges; proboscideal opening surrounded by 17 big papillae; green-yellowish coloration; with eggs. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 2 specimens; (1) complete with about 80 segments; everted proboscis, with six longitudinal rows of papillae on each side of the proximal region, and 6 rows of tubercles in the distal region; nuchal organs and papilla visible; anal cirri fusiform (only one remaining); colourless; (2) complete specimen with about 125 chaetigers; everted proboscis as in the anterior specimen; nuchal organs and papilla visible; chaetae from segment 4; anal cirri as in the anterior specimen; pygidium broken, almost detaching from the rest of the body; with eggs; colour patterns absent.

**DISTRIBUTION:** Mainly circum-tropical: Atlantic coast of France and Spain; Bay of Biscay; Portugal; Madeira Island; Western Mediterranean; Adriatic Sea; Aegean Sea; West to South Africa; Madagascar; Indian Ocean; Japan; China; Gulf of Tonkin; Australia; New Caledonia; Galapagos Islands; California; Atlantic coast of USA, from North Carolina to Florida; Gulf of Mexico; Caribbean Sea. In mud, coarse sand, shell fragments, coral, coral rubble, and rocks. Between 8-760 meters.

## ***Phyllodoce mucosa*** Ørsted 1843

*Phyllodoce mucosa* ØRSTED, 1843*a*: 31, pl. 1 fig. 25, pl. 5 figs. 79, 83, 89.

**TYPE LOCALITY:** Denmark.

**SELECTED REFERENCES:** *Anaitides mucosa* — BERGSTRÖM, 1914: 143-144, fig. 43. *Phyllodoce (Anaitides) mucosa* — FAUVEL, 1923*c*: 152-153, fig. 54*a-e*; USCHAKOV, 1972: 135-136, pl. 6 fig. 1; HARTMANN-SCHRÖDER, 1996: 98-99, fig. 34. *Anaitides mucosa* — GATHOF, 1984*a*: 19.33-19-35, figs. 19.27-19.28. *Phyllodoce mucosa* — PLEIJEL, 1988: 149-151, fig. 7, table 1; NÚÑEZ, BRITO & OCAÑA, 1991*b*: 12, fig. 1; PLEIJEL & DALES, 1991: 90, fig. 24; KIRKEGAARD, 1992: 145-147, fig. 67; PLEIJEL, 1993*a*: 51-53, figs. 33-34, map 17; ALÓS, 2004: 152-154, fig. 50.

**REFERENCES FOR PORTUGAL:** HARTMANN-SCHRÖDER, 1977*a* (as *Anaitides mucosa*; off Cape Sardão); DEXTER, 1992 (as *Phyllodoce (Anaïtides) mucosa*; previous records: Ria de Alvor; Sado Estuary); PLEIJEL, 1993*a* (western coast of Portugal).

**DISTRIBUTION:** Arctic Ocean; Øresund; Kattegat; Swedish west coast; Denmark; western Norway; British Isles; from the Atlantic coast of France to the Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; White Sea; Canary Islands; Gulf of Mexico. Intertidal to 20 meters, mainly on bottoms of sand and mud, but also on bottoms with stones and shell gravel.

**REMARKS:** See the *REMARKS* section under *Phyllodoce maculata*.

## ***Phyllodoce rosea*** (McIntosh 1877)

*Anaitis rosea* MCINTOSH, 1877: 215-216.

**TYPE LOCALITY:** St. Andrews Bay, Scotland.

**SYNONYMS:** *Anaitides subulifera* Eliason 1962.

**SELECTED REFERENCES:** *Anaitides rosea* — O'CONNOR, 1987*a*: 311-313, fig. 1, pl. 7. *Phyllodoce rosea* — PLEIJEL, 1988: 151-152, figs. 8-9; PLEIJEL & DALES, 1991: 92, fig. 25; KIRKEGAARD, 1992: 147-148, fig. 68; PLEIJEL, 1993*a*: 54-57, figs. 35-37, map 18; MOREIRA, TRONCOSO & TRONCOSO, 2000: 71-72, fig. 3; ALÓS, 2004: 143-145, fig. 46. *Phyllodoce (Anaitides) rosea* — HARTMANN-SCHRÖDER, 1996: 99-

100, fig. 35. *Anaitides subulifera* — ELIASON, 1962*b*: 230-232, fig. 6; HARTMANN-SCHRÖDER & STRIPP, 1968: 7-8, fig. 4*a-c*.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** Kattegat; Skagerrak; North Sea; British Isles; Ireland; south off Faroes; English Channel; Western Mediterranean; [?] Adriatic Sea. On muddy bottoms. Intertidal to 478 meters.

## GENUS ***Pirakia*** Bergström 1914

*Pirakia* BERGSTRÖM, 1914: 108, 134.
**TYPE SPECIES:** *Phyllodoce (Eulalia) punctifera* Grube 1860.
**REMARKS:** EIBYE-JACOBSEN (1991, 1993), following BANSE (1973), considered the genus *Pirakia* Bergström 1914 as a junior synonym of *Eumida* Malmgren 1865, as the diagnostic characters of the genus (papillation of the proboscis and prechaetal lobes distinctly divided with pointed tips) are found separately in other species of *Eumida*. PLEIJEL (1991*b*, 1993*a*), however, considered it as valid and monotypic, at least until further information is available. In the phylogenetic study performed by PLEIJEL (1991*b*), the genera *Pirakia* and *Eumida* were placed under the same subgroup, but don't seem to be closely related, and *Pirakia* will be also considered here as a valid genus. It can be easily separated from *Eumida* by presenting the proboscis densely covered with distinct round macropapillae (instead of only micropapillae), and prechaetal lobes distinctly cleft (against entire and symmetrical).

### ***Pirakia punctifera*** (Grube 1860)

*Phyllodoce (Eulalia) punctifera* GRUBE, 1860: 83-84, pl. 3 fig. 5.
**TYPE LOCALITY:** Cherso (= Cres), Croatia.
**SYNONYMS:** *Eulalia splendens* Saint-Joseph 1888; *Eulalia nebulosa* Montagu *in* McIntosh 1908.
**SELECTED REFERENCES:** *Pirakia punctifera* — BERGSTRÖM, 1914: 134-136, fig. 39; PLEIJEL, 1991*b*: fig. 11; PLEIJEL & DALES, 1991: 112-113, fig. 35; PLEIJEL, 1993*a*: 57-60, figs. 38-39, map 19; HARTMANN-SCHRÖDER, 1996: 122-123. *Eulalia punctifera* — SAINT-JOSEPH, 1888: 289-291, pl. 12 figs. 155-157. *Eulalia (Eulalia) punctifera* — FAUVEL, 1923*c*: 165, fig. 59*a-d*. *Eumida punctifera* — EIBYE-JACOBSEN, 1991: 116-118; ALÓS, 2004: 140-142, fig. 45. *Eulalia splendens* — SAINT-JOSEPH, 1888: 288-289, pl. 11 figs. 151-153. *Eulalia (Eulalia) splendens* — FAUVEL, 1923*c*: 162, fig. 58*f-g*. *Eulalia nebulosa* — MONTAGU *in* MCINTOSH 1908: 53. Not *Eumida (Pirakia) punctifera* — HARTMANN-SCHRÖDER & STRIPP, 1968: 9-10, fig. 4*d-f*; HARTMANN-SCHRÖDER, 1971*a*: 113 [= *Eumida sanguinea* (Ørsted 1843)].
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Eulalia punctifera*; Cape Espichel); SALDANHA, 1974 (as *Eulalia punctifera*; coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); PLEIJEL, 1993*a* (southwestern Portugal); SALDANHA, 1995 (Portugal); ALÓS, 2004 (as *Eumida punctifera*; previous records: coast of Portugal).
**DISTRIBUTION:** From Ireland and the English Channel to the Mediterranean Sea and the northern Adriatic Sea; Aegean Sea. Among kelp holdfasts, in crevices among stones and in shell gravel. Intertidal and subtidal.

## GENUS ***Protomystides*** Czerniavsky 1882

*Protomystides* CZERNIAVSKY, 1882: 147.
**TYPE SPECIES:** *Mystides bidentata* Langerhans 1880.
**SYNONYMS:** [?] *Pseudeulalia* Eliason 1962; *Protomystidella* Hartmann-Schröder 1983.
**REMARKS:** This genus was considered by PLEIJEL (1991*b*) as being doubtful. No type material is known from the type species, *Mystides bidentata* Langerhans 1880, and it is possible that this species was described with base on juveniles of *Eulalia* species, for instance, where the median antenna develops late during the ontogeny (PLEIJEL, 1991*b*). The study of topotype material, the designation of a new type species, after a proposition to the ICZN, or the selection of the following available generic name, could be ways to solve this problem. Besides, and as presently defined, the genus could be paraphyletic (PLEIJEL, 1991*b*). However, *Mystides bidentata* has been widely recorded by numerous authors (as *Protomystides*), and it is included here as it is currently known.

**KEY TO SPECIES:**

**1a.** Prostomium oval, longer than wider; eyes present; dorsal tentacular cirri of segments 2 and 3 about as long as segment width; pygidial cirri long, with basal region slightly broader; chaetal shaft with two big teeth, accompanied by smaller teeth.....***P. bidentata***
**1b.** Prostomium rounded, about as long as wide; eyes absent; dorsal tentacular cirri of segments 2 and 3 much longer than segment width; pygidial cirri oval and swollen; chaetal shaft with small number of equal-sized teeth.....***P. exigua***

## ***Protomystides bidentata*** (Langerhans 1880)

*Mystides bidentata* LANGERHANS, 1880*a*: 310-311, pl. 17 fig. 46.
**TYPE LOCALITY:** Madeira Island, at 40 fathoms (73.1 meters).
**SELECTED REFERENCES:** *Protomystides bidentata* — HARTMANN-SCHRÖDER, 1963: 230-231, figs. 43-45; DAY, 1973: 19, fig. 3*a-f*; GARDINER, 1976: 106, fig. 6*a*; HARTMANN-SCHRÖDER, 1979*a*: 72, fig. 26; GATHOF, 1984*a*: 19.20-19.21, figs. 19.15-19.16; ALÓS, 2004: 191-192, fig. 68.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Figueira da Foz).
**DISTRIBUTION:** NE Atlantic, from Ireland to Northern Spain (Galicia); Western Mediterranean Sea; Adriatic Sea; Madeira Island; NW Atlantic, from New England to North Carolina; Gulf of Mexico. The biggest part of these records require confirmation. On detritic bottoms, muddy sand, among rhizomes of *Posidonia oceanica*, and on coralligenous biocenosis. Intertidal to 4950 meters.

## ***Protomystides exigua*** (Eliason 1962)

*Pseudeulalia exigua* ELIASON, 1962*b*: 232-234, figs. 7*a-d*.
**TYPE LOCALITY:** Skagerrak, 58º05'N, 08º32'E, at 460 meters, on grey mud.
**SELECTED REFERENCES:** *Pseudeulalia exigua* — PLEIJEL & DALES, 1991: 70, fig. 71; KIRKEGAARD, 1992: 148-149, fig. 69. *Protomystides exigua* — PLEIJEL, 1991*b*: fig. 16; PLEIJEL, 1993*a*: 114-115, fig. 82, map 82; HARTMANN-SCHRÖDER, 1996: 123.
**DISTRIBUTION:** Skagerrak; Northern North Sea; Norwegian Trough. On muddy bottoms. Between 75-460 meters.

# *GENUS ***Pseudomystides*** Bergström 1914

*Pseudomystides* BERGSTRÖM, 1914: 110, 185.
**TYPE SPECIES:** *Mystides (Mesomystides) limbata* Saint-Joseph 1888.
**SYNONYMS:** *Dubiomystides* Bergström 1914 [Error for *Pseudomystides*].

**KEY TO SPECIES:**
(adapted from PLEIJEL, 1993*a*)

**1a.** Ventral tentacular cirri long and distinctly pointed.....**2**
**1b.** Ventral tentacular cirri short and rounded, similar to ventral cirri but larger; live animals with dense green spots.....***P. spinachia***

**2a (1b).** Live animals yellow, often with small dark spots present dorsally and ventrally, near parapodial bases of median and posterior segments; spots also occasionally present midventrally on each segment.....***P. limbata****
**2b (1b).** Live animals like *P. limbata*, but with a dark middorsal line along the body, and some scattered dark spots.....***P. limbata nigrolineata***

## ****Pseudomystides limbata*** (Saint-Joseph 1888)

*Mystides (Mesomystides) limbata* SAINT-JOSEPH, 1888: 310-312, pl. 13 figs. 186-192.
**TYPE LOCALITY:** East of La Plate, at 11 meters, and Buharats, at 14 meters, Dinard, Bretagne (Northern France).
**SYNONYMS:** *Eteonides mystidoides* Hartmann-Schröder 1963.
**SELECTED REFERENCES:** *Mystides (Mesomystides) limbata* — SOUTHERN, 1914: 72, pl. 8 figs. 18*A-B*. *Pseudomystides limbata* — BERGSTRÖM, 1914: 186; PLEIJEL, 1991*b*: fig. 17*A*; PLEIJEL & DALES, 1991:

68-69, fig. 13; KIRKEGAARD, 1992: 150-151, fig. 70; PLEIJEL, 1993*a*: 116-118, figs. 83-84, map 40; HARTMANN-SCHRÖDER, 1996: 123-124; ALÓS, 2004: 188-190, fig. 67. *Mystides (Pseudomystides) limbata* — FAUVEL, 1923*c*: 181-182, fig. 66*a-c*; LAUBIER, 1962*d*: 388-390. *Mystides limbata* — HARTMANN-SCHRÖDER, 1963: 209-211, fig. 7 [in part]. *Eteonides mystidoides* — HARTMANN-SCHRÖDER, 1963: 225-228, figs. 36-39.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Mystides limbata*; previous records: Sado Estuary); RAVARA, 1997 (off Aveiro).

**MATERIAL: FAUNA 1 — St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 1 specimen about 1.1 mm long, 150 µm wide, with 16 chaetigers; all cirri missing; chaetae as described for the species; in spite fo the small size and being incomplete, it seems to belong to this species.

**DISTRIBUTION:** Northern part of the Swedish west coast; North Sea; English Channel; Ireland; northwest Spain; Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea. Sand, shell gravel, kelp holdfasts, among stones and shells. Intertidal to at least 50 meters.

### ***Pseudomystides limbata nigrolineata*** Rioja 1925

*Pseudomystides limbata* var. *nigrolineata* RIOJA, 1925*b*: 16-18, figs. 3-7.

**TYPE LOCALITY:** Ensenada de la Liñera, San Vicente de la Barquera, northern Spain, among algae.

**SELECTED REFERENCES:** *Mystides (Pseudomystides) limbata nigrolineata* — FAUVEL, 1927*a*: 407, fig. 138*f-g*. *Mystides limbata nigrolineata* — HARTMANN-SCHRÖDER, 1963: 211-212, figs. 10-11. *Pseudomystides limbata nigrolineata* — PLEIJEL & DALES, 1991: 130; ALÓS, 2004: 189.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** The subspecies *Pseudomystides limbata nigrolineata* differs from the stem species mainly by its different coloration, stated in the above key. Other differences pointed by RIOJA (1925*b*) are the prostomium, which is shorter and broader in *P. limbata nigrolineata*, the shorter tentacular cirri, and the smaller teeth in the articulation of the compound chaetae. Nevertheless, ALÓS (2004) pointed that the typical coloration of this subspecies is described as being possible in some descriptions of *P. limbata*.

### ***Pseudomystides spinachia*** Petersen & Pleijel *in* Pleijel 1993

*Pseudomystides spinachia* PETERSEN & PLEIJEL *in* PLEIJEL, 1993*a*: 118-123, figs. 85-87, map 41.

**TYPE LOCALITY:** Gulbrandsøyosen, western Norway, 60º32'30"N, 4º58º20"E, on soft mud with some sand, at 110 meters.

**SELECTED REFERENCES:** *Pseudomystides spinachia* — HARTMANN-SCHRÖDER, 1996: 124.

**DISTRIBUTION:** Western Mediterranean Sea; northern North Sea; Skagerrak; Kattegat; northern Øresund. Mainly on muddy or mixed bottoms. Between 15-150 meters.

**REMARKS:** The intense light green colour that the species presents in living or freshly preserved specimens disappears with the storage in alcohol.

## *GENUS ***Pterocirrus*** Claparède 1868

**AS:** *Eulalia (Pterocirrus)* CLAPARÈDE, 1868: 558.

**TYPE SPECIES:** *Phyllodoce (Eulalia) macroceros* Grube 1860.

**REMARKS:** In the key and species list below, the species *Eulalia (Pterocirrus) limbata* Claparède 1868, *Eulalia (Pterocirrus) marginata* Claparède 1868, and *Eulalia (Pterocirrus) microcephala* Claparède 1870, all with the type locality in Naples, are not included. According to PLEIJEL (1991*b*), these species could be *nomina dubia*, and besides, the generic assignement of the last one is uncertain. ALÓS (2004) revised several specimens from the Iberian-Balearic region, previously identifid as *Pterocirrus limbatus*, and all of them proved to be misidentifications, being specimens of *Eumida sanguinea*, *Eulalia aurea*, or *Pterocirrus macroceros*.

**KEY TO SPECIES:**
(from PLEIJEL, 1993*a*)

**1a.** Eyes, if visible, poorly delineated, kidneyshaped.....***P. slastnikovi***
**1b.** Eyes distinct, rounded.....**2**

**2a (1b).** Dorsal cirri almost as wide as long; ventral cirri with distinct tips.....***P. nidarosiensis***

**2b (1b).** Dorsal cirri much longer than wide; ventral cirri without distinct tips.....***P. macroceros****

## ******Pterocirrus macroceros*** (Grube 1860)

*Phyllodoce (Eulalia) macroceros* GRUBE, 1860: 82-83, pl. 3 fig. 4.
**TYPE LOCALITY:** Cherso (= Cres), Croatia, Adriatic Sea.
**SYNONYMS:** *Eulalia (Pterocirrus) velifera* Claparède 1868.
**SELECTED REFERENCES:** *Eulalia (Pterocirrus) macroceros* — SAINT-JOSEPH, 1888: 300-303, pl. 12 figs. 170-174; FAUVEL, 1923*c*: 167-168, fig. 60*d-g* [in part]. *Sige macroceros* — BERGSTRÖM, 1914: 136-138 [in part]. *Eulalia Pterocirrus macroceros* — USCHAKOV, 1972: 160-161, pl. 11 figs. 6-9; GATHOF, 1984*a*: 19.16, figs. 19.11-19.12; PLEIJEL, 1991*b*: fig. 12; PLEIJEL & DALES, 1991: 114, fig. 36; PLEIJEL, 1993*a*: 61-63, figs. 40-42, map 20; ALÓS, 2004: 132-134, fig. 42. *Eulalia (Pterocirrus) velifera* — CLAPARÈDE, 1868: 560-562, pl. 17 fig. 2.
**REFERENCES FOR PORTUGAL:** [?] SALDANHA, 1974 (as *Eulalia macroceros?*; coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); SALDANHA, 1995 (Portugal).
**MATERIAL: FAUNA 1 — St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 2 specimens, plus 7 middle, and 2 posterior fragments with different numbers of chaetigers, some with eggs; (1) incomplete specimen with 52 segments, with 5 antennae; only 1 tentacular cirrus remaining (V2 of the right side, which is clearly foliaceous); almost all dorsal cirri missing; characteristic shape of eyes and prostomium; parapodia as described, with 2 lobes, being the superior longer than the inferior; brown-greenish colour; (2) incomplete specimen with 33 chaetigers, with 5 antennae and only the left V2 tentacular cirrus remaining, being clearly foliaceous; almost all the dorsal and ventral cirri missing.
**DISTRIBUTION:** English Channel; western Ireland; Atlantic coast of France; from northern Spain to Italy; northern Adriatic Sea; Aegean Sea; Black Sea; Gulf of Mexico; Sea of Japan. In sand and shell gravel, in crevices in stones, empty shells and old tubes of serpulids. From shallow water to about 50 meters.

## ***Pterocirrus nidarosiensis*** Pleijel 1987

*Pterocirrus nidarosiensis* PLEIJEL, 1987*b*: 30-31, figs. 13-16.
**TYPE LOCALITY:** Rödberg (63º28'N, 10º00'E), Trondheimsfjorden, Norway, 300-500 meters, in a *Lophelia pertusa* reef.
**SELECTED REFERENCES:** *Pterocirrus nidarosiensis* — PLEIJEL & DALES, 1991: 130; PLEIJEL, 1993*a*: 64-66, figs. 43-44, map 21.
**DISTRIBUTION:** Sognefjorden, Trondheimsfjorden, and Lofoten, in Norway; Faroes. Rocky bottoms, especially on *Lophelia* reefs. Between 200-650 meters.

## ***Pterocirrus slastnikovi*** (Annenkova 1946)

*Eulalia (Pterocirrus) slastnikovi* ANNENKOVA, 1946: 186, fig. 2.
**TYPE LOCALITY:** Laptev Sea, 77º20'N, 111º56'5"E, at 60 meters.
**SELECTED REFERENCES:** *Pterocirrus slastnikovi* — USCHAKOV, 1972: 161, pl. 12 figs. 6-11; PLEIJEL & DALES, 1991: 130; PLEIJEL, 1993*a*: 66-68, fig. 45, map 22.
**DISTRIBUTION:** Norwegian Sea; south and east off Faroes; Laptev Sea. Between 60-900 meters.

# GENUS ***Sige*** Malmgren 1865

*Sige* MALMGREN, 1865: 100.
**TYPE SPECIES:** *Sige fusigera* Malmgren 1865.
**SYNONYMS:** *Vitiazia* Uschakov 1953.

### KEY TO SPECIES:

**1a.** Eyes present; ventral tentacular cirri of segment 2 cylindrical or slightly flattened.....***S. fusigera***
**1b.** Eyes absent; ventral tentacular cirri of segment 2 varying from slightly to distinctly flattened.....***S. oliveri***

## ***Sige fusigera*** Malmgren 1865

*Sige fusigera* MALMGREN, 1865: 100, pl. 14 figs. 27.

**TYPE LOCALITY:** Koster, Bohuslän on the Swedish west coast or Drøbak in Oslofjorden, Norway (not specified).
**SELECTED REFERENCES:** *Eumida fusigera* — USCHAKOV, 1972: 156-157, pl. 10 figs. 8-10. *Sige fusigera* — PLEIJEL, 1990: 165-167, figs. 1-2; PLEIJEL, 1991*b*: fig. 14; PLEIJEL & DALES, 1991: 124, fig. 41; KIRKEGAARD, 1992: 151-153, fig. 71; PLEIJEL, 1993*a*: 80-83, figs. 55-57, map 27; HARTMANN-SCHRÖDER, 1996: 124-125; ALÓS, 2004: 129-131, fig. 41. *Sige macroceros* [not *Phyllodoce (Eulalia) macroceros* Grube 1860] — BERGSTRÖM, 1914: 136-138, fig. 40 [in part]; FAUVEL, 1923*c*: 167-168 [in part].
**DISTRIBUTION:** Barents Sea; Kattegat; Øresund; northern part of Swedish west coast; western Norway; northern North Sea; Faroes; Western Mediterranean (Gibraltar; Banyuls-sur-Mer, France; Sicily, Italy). On mud, sandy mud, and mixed bottoms. Between 20-350 meters.

## ***Sige oliveri*** Pleijel 1990

*Sige oliveri* PLEIJEL, 1990: 174-177, fig. 8.
**TYPE LOCALITY:** Brattholmen, Bergen area, Norway, 60º24'5"N, 05º06'8"E, 120-130 meters.
**SELECTED REFERENCES:** *Sige oliveri* — PLEIJEL, 1993*a*: 83-85, fig. 58, map 28; HARTMANN-SCHRÖDER, 1996: 125.
**DISTRIBUTION:** Western Norway, northern part of the Norwegian Trench and the Swedish west-coast. Specimens from the Norwegian fjords found on reefs of *Lophelia pertusa*. Between 70-500 meters.

# *FAMILY **PILARGIDAE** Saint-Joseph 1899

**AS:** *PILARGIDIENS* SAINT-JOSEPH, 1899*a*: 41-42.

**TYPE GENUS:** *Pilargis* Saint-Joseph 1899.

**SYNONYMS:** *AMYTIDEA* F. Müller 1858; *OTOPSIDAE* Ditlevsen 1917; *KYNEPHORIDAE* Ehlers 1920; *ANTONBRUUNIDAE* Fauchald 1977; *TALEHSAPIIDAE* Misra 1999.

**REMARKS:** This family includes at present 15 genera, with 102 species and 2 subspecies: *Ancistrosyllis* McIntosh 1878 (13 species); *Antonbrunnia* Hartman & Boss 1965 (1 species); *Cabira* Webster 1879 (5 species, 1 subspecies); *Glyphohesione* Friedrich 1950 (3 species); *Litocorsa* Pearson 1970 (7 species); *Loandalia* Monro 1936 (15 species); *Otopsis* Ditlevsen 1917 (2 species, 1 subspecies); *Paracabira* Britayev & Saphronova 1981 (1 species); *Pilargis* Saint-Joseph 1899 (12 species); *Pseudexogone* Augener 1922 (5 species); *Santelma* Blake 1993 (1 species); *Sigambra* F. Müller 1858 (19 species); *Sigatargis* Misra 1999 (1 species); *Synelmis* Chamberlin 1919 (16 species); and *Talehsapia* Fauvel 1932 (1 species).

The species *Santelma mirasetis* (Fauchald 1972), collected from off Punta San Telmo, Western Mexico, at 2295.1 meters, was originally described in the Pilargidae, as *Pilargis mirasetis* (FAUCHALD, 1972*a*). The species was placed in *Pilargis* according to the definition of the genus given by PETTIBONE (1966*b*), as it had a flattened body with large palpophores and short palpostyles, short antennae, and lack of notochaetae, but it was also stated that it differed from all the other known species in the genus by the presence of a large sub-distal boss in each neurochaetae (FAUCHALD, 1972*a*). Later BLAKE (1993) removed it from the Pilargidae, because palps were absent, and placed it in a new genus, *Santelma*, in the Nautiliniellidae. However this placement was preliminary, pending in further reviews of the family, as the species presents a medial antenna or papilla, which would be the single case in the Nautiliniellidae. Besides, a very large and conspicuous neuropodial acicula is also present, accompanying the minute bidentate chaetae (BLAKE, 1993). GLASBY (1993) doubted of the placement of *S. mirabilis* in the Nautiliniellidae, stating that the absence of palps could be the result of a secondary reduction, like it occurs in other Pilargidae, and that the presence of simple capillary-like neurochaetae (against the simple hooked spines of Nautiliniellidae), a medial antenna, and of two pairs of peristomial cirri should be considered with care before expanding the definition of the family Nautiliniellidae, in order to include *Santelma mirasetis*. MIURA & HASHIMOTO (1996) also disagreed from Blake's decision to place the species in the Nautiliniellidae. According to them, the presence of a median antenna, or its trace, and the conspicuous neuropodial extruded aciculae, as well as the lack of parapodial cirri, neuropodial hooks and a strongly muscularized foregut, agreed well with the family Pilargidae, but not with the Nautiliniellidae, and referred the genus and its only species again to Pilargidae (MIURA & HASHIMOTO, 1996). The absence of palps was not considered as being a good character to remove the species from the Pilargidae, as at least one other genus in the family (*Litocorsa*) also lacks palps in some species. The placement of the species in the Pilargidae was also accepted by DREYER, MIURA & VAN DOVER (2004), and is followed here.

The family Pilargidae was divided by SALAZAR-VALLEJO (1986) in two subfamilies, according mainly to their body shape, development of anterior sensorial organs like antennae, and mode of life. This way, the Sigambrinae would be formed by species with flattened or ribbonlike body, developed antennae, and living in the epibenthos, and would include genera like *Ancistrosyllis*, *Antonbruunia*, *Cabira*, *Otopsis*, *Paracabira*, *Pilargis*, or *Sigambra*, while the Synelminae would gather species with the body nearly cylindrical, many times with inflated anterior ends, antennae reduced or absent, and living as burrowers into the sediment, and would include genera like *Litocorsa*, *Loandalia*, *Synelmis* or *Telehsapia*. Later MISRA (1999) created the new family Talehsapiidae Misra 1999, in order to include the monospecific genus *Talehsapia* Fauvel 1932 and the genus *Loandalia*. The erection of this new family to include these two genera by MISRA (1999) doesn't seem justified, and besides the name Synelminae Salazar-Vallejo 1986 would have priority to designated such taxon. *Talehsapia* was recently revised by SALAZAR-VALLEJO, NISHI & ANGUSPANICH (2001), and *Litocorsa* partially by DARBYSHIRE & MACKIE (2003), and in both cases it was suggested that these genera do not belong to Pilargidae. However, for the moment being, they are maintained here under Pilargidae.

The previous works on Pilargidae were resumed by HARTMAN (1947*b*) and PETTIBONE (1966*b*). Recent taxonomic publications on Pilargidae are numerous and include the revisions (or description) of the genera *Cabira* by BRITAYEV & SAPHRONOVA (1981), with a key of species, *Parandalia* by EMERSON & FAUCHALD (1971), SALAZAR-VALLEJO (1990) and SALAZAR-VALLEJO & REYES-BARRAGÁN (1990), the first two with keys of species, *Loandalia* by EMERSON & FAUCHALD (1971), *Sigambra* by LICHER & WESTHEIDE (1997), also with a key and a table of morphological characters of species, *Sigatargis* by MISRA (1999), *Synelmis* by SALAZAR-VALLEJO (2003), with a dichotomic key for all known species, and complemented by GLASBY (2003), *Talehsapia* by SALAZAR-VALLEJO, NISHI & ANGUSPANICH (2001), the

resurrection of the genus *Glyphohesione* by LICHER (1994), and the revisons of the genus *Pilargis* by SALAZAR-VALLEJO & HARRIS (2006), and *Pseudexogone* by SALAZAR-VALLEJO, BAILEY-BROCK & DREYER (2007), both with keys of species. FIEGE & BÖGGEMANN (1999) described a new species of *Ancistrosyllis*, and presented a dichotomic key and a comparative table for the hitherto known species, while DARBYSHIRE & MACKIE (2003) described three species of *Litocorsa* from the Indian Ocean and South China Sea, one of which new, and presented a table with the morphological features of all the described species in the genus.

Other recent papers on the family include the reinstatements of *Sigambra parva* by MOREIRA & PARAPAR (2002), and *Sigambra hanaokai* by NISHI *et al*. (2007), the last one with a comparative table of species, the descriptions of *Sigambra magnuncus* by PATERSON & GLOVER (2000), *Sigambra healyae* by GAGAEV (2008), and *Sigambra papagayu* by BAMBER *in* MUIR & BAMBER (2008), the description of *Glyphohesione nicoyensis* by DEAN (1998), the description of *Cabira rangarajani* by MANDAL, HARKANTRA & SALAZAR-VALLEJO (2007), with a key of species, the descriptions of two new species of *Loandalia* by MARKS & HOCKNULL (2006), with a table of characters of species, and the description of one new species of *Synelmis* by MOREIRA & PARAPAR (2007*b*). The phylogenetic position of the Pilargidae was analysed in LICHER & WESTHEIDE (1994), while the genus *Ancistargis* Jones 1961 was synonymized with *Ancistrosyllis* by FIEGE & BÖGGEMANN (1999). SALAZAR-VALLEJO (1998), synonymized *Parandalia* Emerson & Fauchald 1971 with *Loandalia*, a decision that was later reconsidered and presently is being investigated (S.I. SALAZAR-VALLEJO, pers. com. July 2008). However, as this synonymy is at present accepted and used (*e.g.* MARKS & HOCKNULL, 2006), I maintain it here.

Important studies of regional faunas of Pilargidae, include California (BLAKE, 1997*d*), Gulf of Mexico (WOLF, 1984*d*, 1986*a*), Iberian Peninsula (PARAPAR, BESTEIRO & MOREIRA, 2004*b*), Japan and Sea of Japan (BRITAYEV & SAPHRONOVA, 1981; IMAJIMA, 1987), Mediterranean Sea (KATZMANN, LAUBIER & RAMOS, 1974*b*), Mexico (SALAZAR-VALLEJO, 1986; LÉON-GONZÁLEZ, 1991), Scotland (PEARSON, 1970), and South America (SALAZAR-VALLEJO & ORENSANZ, 1991; ROZBACZYLO & QUIROGA, 2000). Some of these studies include the description of new taxa, and almost all of them keys for the local faunas.

In the European waters, 8 genera of Pilargidae occur, including 13 valid species. Other species or morphotypes have been recorded, but they could be the result of misidentifications. Two species belonging to two genera were found in the studied material.

**KEY TO GENERA:**
(adapted from PETTIBONE, 1966*b*; BLAKE, 1997*d*)

**1a.** Notopodia with stout spines, straight or recurved, forming notopodial hooks, in addition to internal notoaciculae.....**2**
**1b.** Notopodia with internal notoaciculae only, generally without emergent notochaetae (fine capillary notochaetae may be present).....**7**

**2a (1a).** Stout emergent notochaetae hooked.....**3**
**2b (1a).** Stout emergent notochaetae straight, not hooked.....**4**

**3a (2a).** Prostomium reduced, inconspicuous, antennae shorter than palps; tentacular cirri short; dorsal cirri short, with those of chaetiger 1 similar to or slightly longer than those following; integument normally covered by small papillae.....***Ancistrosyllis****
**3b (2a).** Prostomium larger, antennae longer than palps; tentacular cirri long; dorsal cirri long and slender, with those of chaetiger 1 unusually long; integument smooth.....***Sigambra****

**4a (2b).** Body dorsoventrally flattened, with some anterior segments distinctly wider, appearing somewhat inflated; notopodial spines located below the dorsal cirri; notopodia with one stout emergent spine-like notochaeta, in median and posterior segments only; neurochaetae as simple capillary chaetae only.....***Glyphohesione***
**4b (2b).** Body cylindrical; notopodial spines located above the dorsal cirri, appearing at the anterior segments.....**5**

**5a (4b).** Notopodia with one single bidentate curved (sigmoid) notospine; neurochaetae include furcate chaetae only at the anterior chaetigers, and capillary chaetae.....***Pseudexogone***
**5b (4b).** Notopodia with one single emergent straight or slightly curved spine.....**6**

**6a (5b).** Neuropodia with furcate chaetae, besides the capillary chaetae; neuropodial acicular spines absent.....***Synelmis***
**6b (5b).** Neuropodia without furcate chaetae; besides the capillary chaetae, the neuropodia has emergent stout spines or hooks (may be absent), slender smooth spines, serrate spines, or aristate chaetae.....***Litocorsa***

**7a (1b).** Two small lateral antennae, without median antenna; palps biarticulate, with small palpostyles; ventral cirri short, conical; integument minutely papillated.....***Pilargis***
**7b (1b).** Three small antennae, median and lateral; palps indistinct, without palpostyles; ventral cirri lamelliform or cirriform; integument smooth, not papillated.....***Otopsis***

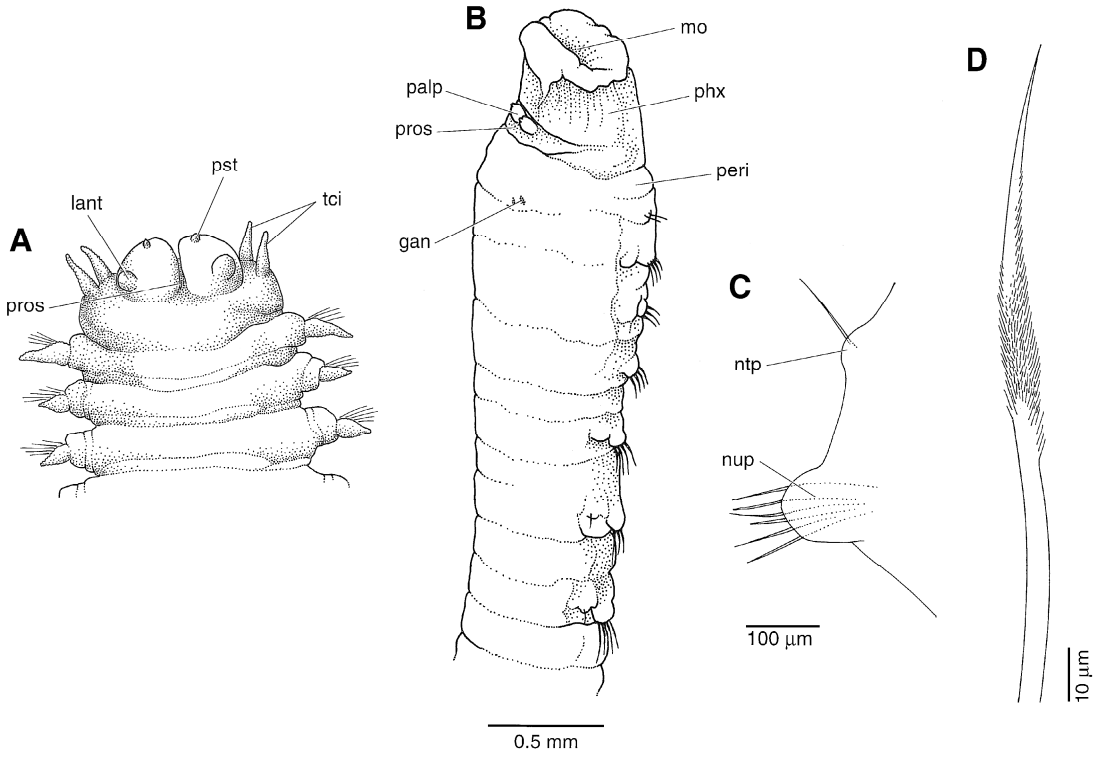


**Figure legend:** Family Pilargidae. **A**, *Pilargis* specimen, dorsal view of anterior end. **B**-**D**, *Loandalia* specimen: **B**, anterior end with pharynx everted, dorso-lateral view; **C**, parapodium, ventral cirrus not shown; **D**, capillary neurochaeta from parapodium of chaetiger 45. **gan**, pigmented nerve ganglion; **lant**, lateral antenna; **mo**, mouth; **ntp**, notopodium; **nup**, neuropodium; **palp**, palp; **peri**, peristomium; **phx**, pharynx, everted; **pros**, prostomium; **pst**, palpostyle; **tci**, tentacular cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## *GENUS ***Ancistrosyllis*** McIntosh 1878

*Ancistrosyllis* MCINTOSH, 1878*a*: 502.
**TYPE SPECIES:** *Ancistrosyllis groenlandica* McIntosh 1878.
**SYNONYMS:** *Phronia* Webster 1879; *Harpochaeta* Korschelt 1893; *Kynephorus* Ehlers 1920; *Ancistargis* Jones 1961.

**KEY TO SPECIES:**
(adapted from FIEGE & BÖGGEMANN, 1999)

**1a.** Two lateral antennae only; notopodial hooks from chaetiger 4-7; ventral cirri from chaetiger 3; integument and body appendages (antennae; dorsal, ventral, tentacular and anal cirri) covered with scattered minute papillae; first dorsal cirri slightly longer than following; notopodia short, rounded; neuropodia short, truncate, longer than notopodia.....***A. hamata***
**1b.** Median and two lateral antennae; ventral cirri appearing before chaetiger 3; integument and body appendages (antennae; dorsal, ventral, tentacular and anal cirri) covered with numerous small conical to globular papillae.....**2**

**2a (1b).** Notopodial hooks from chaetiger 3; ventral cirri from chaetiger 1 (?) or 2 (holotype damaged); first dorsal cirri as long as following; notopodia reduced; neuropodia truncate, poorly developed.....***A. fioroni***
**2b (1b).** Notopodial hooks from chaetiger 4-6; ventral cirri from chaetiger 1; first dorsal cirri twice as long as following; notopodia somewhat inflated; neuropodia conical.....***A. groenlandica****

## *Ancistrosyllis fioroni* Fiege & Böggemann 1999

*Ancistrosyllis fioroni* FIEGE & BÖGGEMANN, 1999: 136-138, figs. 1-2, table 1.
**TYPE LOCALITY:** North Sea, Borkum Reef, 54º04.20'N, 6º23.80'E, at 32 meters, on fine sand.
**DISTRIBUTION:** Known from the type locality.

## **Ancistrosyllis groenlandica* McIntosh 1878

*Ancistrosyllis groenlandica* MCINTOSH, 1878*a*: 502-503, pl. 65 figs. 3, 20.
**TYPE LOCALITY:** Davis Strait, West Greenland, 64º5'N, 56º47'W, in 410 fathoms (749.8 meters), on a bottom of sandy mud.
**SELECTED REFERENCES:** *Ancistrosyllis groenlandica* — FAUVEL, 1920: 209; SOUTHWARD, 1956: 260-261, fig. 1*E-J*; [?] RULLIER, 1960*a*: 236-239, fig. 1; PETTIBONE, 1963*a*: 110-111, fig. 30; BELLAN, 1965: 4; HARTMAN, 1965*b*: 71; PETTIBONE, 1966*b*: 166-168, fig. 3; BHAUD, 1974: 264-268, figs. 1-3; KATZMANN, LAUBIER & RAMOS, 1974*b*: 3-7, figs. 1-2; SALAZAR-VALLEJO, 1986: 199-200, pl. 1 figs. 5-6; IMAJIMA, 1987: 153-155, fig. 2; SALAZAR-VALLEJO & ORENSANZ, 1991: 271-272, fig. 2*A-D*; BLAKE, 1997*d*: 265-267, fig. 10.1; ROZBACZYLO & QUIROGA, 2000: 644-646, fig. 1*A-C*; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 272-274, fig. 98.
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1987 (off Aveiro; off Porto); RAVARA, 1997 (off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); PARAPAR, BESTEIRO & MOREIRA, 2004*b* (previous records: Portugal); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (1st part) — St. 260 (A.3162)**, southwestern Pessegueiro Island, 127 m, muddy sand: 1 posterior fragment, with 44 chaetigers and pygidium; identified with base on the parapodial structure and chaetae. **SEPLAT 7 (2nd part) —St. 305 (A.3848)**, NW Arrifana, 120 m, sand: 1 posterior fragment, with 32 chaetigers and pygidium; last 16 chaetigers with 2 hooks per parapodium, besides the notoacicula, one of which is embedded in the parapodium; there is also an acicular chaeta, smooth and ending in a simple tip, as referred in KATZMANN, LAUBIER & RAMOS (1974*b*).
**DISTRIBUTION:** Davis Strait; Gulf of St. Lawrence; West Atlantic, from New England to Uruguay and Argentina; East Atlantic, from off Iceland and Scotland to Nigeria; Western Mediterranean Sea (9-165 meters; 560-2946 meters); Adriatic Sea; Aegean Sea; California to Mexico; Japan (17-830 meters). On muddy and sandy bottoms. Between 10-2950 meters.
**REMARKS:** Morphological differences have been reported for different populations of this species. Particularly evident is the distribution of the curved notopodial hooks in adults (BLAKE, 1997*d*). These have been described as starting at chaetiger 4-5 (PETTIBONE, 1963*a*), 4-6 (PETTIBONE, 1966*b*; SALAZAR-VALLEJO, 1986; BLAKE, 1997*d*), 4-7 (HARTMAN, 1965*b*), 3-5 (KATZMANN, LAUBIER & RAMOS, 1974*b*; IMAJIMA, 1987), or invariable at 5 (SALAZAR-VALLEJO & ORENSANZ, 1991).

WOLF (1984*d*) described *Ancistrosyllis* sp. A from the Gulf of Mexico, differentiating it from *A. groenlandica* on the occurrence of the notopodial hooks, which start at chaetiger 3 instead of chaetigers 4-6. As noted above, the notopodial hooks in this species have been reported to start between chaetigers 3-7, but it is not clear how many of these reports refer to the real *A. groenlandica* and not to similar species. The rest of the description given by WOLF (*op. cit.*) fits the descriptions of what is considered to be *A. groenlandica*, but the geographical and bathymetrical range of its distribution, as well as the

variations in morphology, point to the possibility that different species could be present under the same name.

### ***Ancistrosyllis hamata*** (Hartman 1960)

*Pilargis hamatus* HARTMAN, 1960: 88-89, pl. 7 figs. 4-6.
**TYPE LOCALITY:** Santa Catalina Basin, California.
**SELECTED REFERENCES:** *Ancistrosyllis hamata* — PETTIBONE, 1966*b*: 168-169, fig. 5; KATZMANN, LAUBIER & RAMOS, 1974*b*: 8-12, figs. 3-4; BLAKE, 1997*d*: 269, fig. 10.3; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 274-276, fig. 99. *Ancistargis hamata* — SALAZAR-VALLEJO, 1986: 198, pl. 1 figs. 1-2.
**DISTRIBUTION:** Southern California to Pacific coast of Mexico and Costa Rica (20-1320 meters); Western Mediterranean Sea (20-50 meters); Aegean Sea. On muddy bottoms.

## GENUS ***Glyphohesione*** Friedrich 1950

*Glyphohesione* FRIEDRICH, 1950: 171-173.
**TYPE SPECIES:** *Glyphohesione Klatti* 1950.

### ***Glyphohesione klatti*** Friedrich 1950

*Glyphohesione Klatti* FRIEDRICH, 1950: 171-173, figs. 1-2.
**TYPE LOCALITY:** Off Helgoland, North Sea, in deep grooves.
**SELECTED REFERENCES:** *Glyphohesione klatti* — LICHER, 1994: 602-604, figs. 1-2. *Ancistrosyllis klatti* — ELIASON, 1962*a*: 29-32, fig. 3. *Synelmis klatti* — PETTIBONE, 1966*b*: 190-191; PEARSON, 1970: 74-75, fig. 2*B*-*C*; KATZMANN, LAUBIER & RAMOS**,** 1974*b*: 27-28; KIRKEGAARD, 1992: 219-221, fig. 107; HARTMANN-SCHRÖDER, 1996: 148-149, fig. 64; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 277-279, fig. 100. Not *Synelmis klatti* — WOLF, 1984*d*: 29.32-29-35, figs. 29.29-29.30; FITZHUGH & WOLF, 1990: 4-5, 7-8, 11-12, 16 [= *Glyphohesione longicirrata* Licher 1994].
**DISTRIBUTION:** Öresund, Kattegat, Skagerrak, German Bight, North Sea, Scotland, English Channel, (20-680 meters); Northern Spain; Western Mediterranean Sea (10-185 meters). On muddy bottoms.

## GENUS ***Litocorsa*** Pearson 1970

*Litocorsa* PEARSON, 1970: 69.
**TYPE SPECIES:** *Litocorsa stremma* Pearson 1970.

### ***Litocorsa stremma*** Pearson 1970

*Litocorsa stremma* PEARSON, 1970: 69-74, figs. 1, 2*A*.
**TYPE LOCALITY:** Northern Loch Linnhe, west coast of Scotland, in depths between 6-12 fathoms (11-22 meters), on silty bottoms.
**SELECTED REFERENCES:** *Litocorsa stremma* — KATZMANN, LAUBIER & RAMOS, 1974*b*: 12-16, fig. 5; DARBYSHIRE & MACKIE, 2003: table 1; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 289-291, fig. 105.
**DISTRIBUTION:** Western Scotland (11-22 meters), on muddy bottoms; Basque Country, North Spain; Gulf of Rosas, Western Mediterranean Sea (20-207 meters); Adriatic Sea.

## GENUS ***Otopsis*** Ditlevsen 1917

*Otopsis* DITLEVSEN, 1917: 67.
**TYPE SPECIES:** *Otopsis longipes* Ditlevsen 1917.

#### KEY TO SPECIES:

**1a.** Chaetae present on the second segment; dorsal chaetae with mucronated tips, ventral chaetae with bidentated tips; shallow water (around 70 meters).....***O. chardyi***

**1b.** Chaetae absent on the second segment; all chaetae fine and hairy; deep water (around 1534 meters).....***O. longipes***

### ***Otopsis chardyi*** Katzmann, Laubier & Ramos 1974

*Otopsis chardyi* KATZMANN, LAUBIER & RAMOS, 1974*b*: 32-35, fig. 12.
**TYPE LOCALITY:** Adriatic Sea, 12 miles off Šibenik (Dalmatia, Croatia), at 70 meters.
**DISTRIBUTION:** Adriatic Sea; Aegean Sea. At about 70 meters.

### ***Otopsis longipes*** Ditlevsen 1917

*Otopsis longipes* DITLEVSEN, 1917: 67-69, pl. 6 figs. 1-12.
**TYPE LOCALITY:** South-west Iceland, 62º06'N, 22º30'W, at 843 fathoms (1541.7 meters).
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Pilargis*** Saint-Joseph 1899

*Pilargis* SAINT-JOSEPH, 1899*a*: 42.
**TYPE SPECIES:** *Pilargis verrucosa* Saint-Joseph 1899.
**SYNONYMS:** *Phronia* Webster 1879 [not Winnertz 1863 (Diptera)].

**KEY TO SPECIES:**
(adapted from K.J.F. RASMUSSEN, 1973)

**1a.** All neurochaetae bifid or slightly bifid; deep water (occurs below 400 meters).....***P. papillata***
**1b.** Some neurochaetae furcate or with simple points; normally, in shallow water.....***P. verrucosa***

### ***Pilargis papillata*** K.J.F. Rasmussen 1973

*Pilargis papillata* K.J.F. RASMUSSEN, 1973: 20-22, fig. 2.
**TYPE LOCALITY:** Fensfjorden, NE of Gardsendflu (Norway), 60º49'00"N, 05º03'42"E, 412 meters, in a soft bottom.
**SELECTED REFERENCES:** *Pilargis papillata* — SALAZAR-VALLEJO & HARRIS, 2006: 148-149, fig. 11.
**DISTRIBUTION:** Known from the type locality, Fensfjorden (Norway), between 412-580 meters, on soft bottoms.

### ***Pilargis verrucosa*** Saint-Joseph 1899

*Pilargis verrucosa* SAINT-JOSEPH, 1899*a*: 42.
**TYPE LOCALITY:** Point of Moulin-Blanc, near Brest (Northern France), at the coast, in muddy sand.
**SYNONYMS:** *Pilargis Perezii* Charrier 1924.
**SELECTED REFERENCES:** *Pilargis verrucosa* — SAINT-JOSEPH, 1899*b*: 175-180, pl. 6 figs. 10-17; FAUVEL, 1920: 206-207, 212-213, fig. 1; FAUVEL, 1923*c*: 252, fig. 94*a-e*; FAUVEL, 1925*a*: 88-90; FAUVEL, 1927*a*: 408; FAUVEL, 1934: 22; FAUVEL, 1936*c*: 25-26; KATZMANN, LAUBIER & RAMOS**,** 1974*b*: 16-21, figs. 6-7; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 280-282, fig. 101; SALAZAR-VALLEJO & HARRIS, 2006: 126-132, figs. 1-3. *Pilargis Perezii* — CHARRIER, 1924: 11-17, figs. 1-2. *Pilargis* sp. — HARMELIN, 1964: 72, pl. 1.
**REFERENCES FOR PORTUGAL:** [?] AMOUREUX & CALVÁRIO, 1981 (as *Pilargis verrucosa?*; Tagus Estuary); CALVÁRIO, 1984 (Tagus Estuary); AMOUREUX, 1987 (off Aveiro; off Porto); DEXTER, 1992 (previous records: Tagus Estuary); PARAPAR, BESTEIRO & MOREIRA, 2004*b* (previous records: Portuguese coast).
**DISTRIBUTION:** From the Atlantic coast of France to the Western Mediterranean Sea (8-308 meters); Adriatic Sea; Aegean Sea; Morocco. On muddy and sandy bottoms, between 2-300 meters, but recorded to occur down to 3500 meters.
**REMARKS:** According to KATZMANN, LAUBIER & RAMOS (1974*b*), the Mediterranean population of this species presents a great variability in what concerns the presence of papillae on the surface of the body. One morphotype presents numerous papillae scattered all over the body, while in the other these papillae are rare.

## GENUS ***Pseudexogone*** Augener 1922

*Pseudexogone* AUGENER, 1922*c*: 191.
**TYPE SPECIES:** *Pseudoexogone backströmi* Augener 1922.
**REMARKS:** RUÍZ-RAMÍREZ & SALAZAR-VALLEJO (2001) determined that the genus *Pseudexogone* Augener 1922, with the type species *P. backstromi* Augener 1922, belonged to the family Pilargidae instead of Syllidae, being close to *Synelmis*. Later, as a consequence of the revision of the genus *Synelmis*, SALAZAR-VALLEJO (2003) transferred the species *Synelmis dineti* Katzmann, Laubier & Ramos 1974 to *Pseudexogone*, together with a similar species recorded from Japan as *S. dineti* by IMAJIMA (1987). In a following paper, SALAZAR-VALLEJO, BAILEY-BROCK & DREYER (2007) revised the genus, redescribing *P. backstromi* with base on non-type material, being the holotype lost, redescribed *Synelmis dineti* as *Pseudexogone*, and described three new species, *P. helmuti*, *P. williamsae*, and *P. imajimai*, this last species with base on the material previously studied by IMAJIMA (1987). A key for all the known species is also provided by SALAZAR-VALLEJO, BAILEY-BROCK & DREYER (2007).

### ***Pseudexogone dineti*** (Katzmann, Laubier & Ramos 1974)

*Synelmis dineti* KATZMANN, LAUBIER & RAMOS, 1974*b*: 28-31, fig. 11.
**TYPE LOCALITY:** Adriatic Sea, off Dubrovnik, 42º27'N, 17º01.8'E, at 275 meters, on muddy sand.
**SELECTED REFERENCES:** *Pseudexogone dineti* — SALAZAR-VALLEJO, BAILEY-BROCK & DREYER, 2007: 542-544, figs. 3-4. Not *Synelmis dineti* — IMAJIMA, 1987: 158, fig. 5 [= *Pseudexogone imajimai* Salazar-Vallejo 2007; see SALAZAR-VALLEJO, BAILEY-BROCK & DREYER, 2007: 547].
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1987 (as *Synelmis dineti*; off Aveiro).
**DISTRIBUTION:** Adriatic Sea, off Croatia (120-275 meters); Aegean Sea; Portugal (435 meters). On muddy sand bottoms.

## *GENUS ***Sigambra*** F. Müller 1858

*Sigambra* F. MÜLLER, 1858: 214.
**TYPE SPECIES:** *Sigambra grubii* F. Müller 1858.

**KEY TO SPECIES:**
(adapted from LICHER & WESTHEIDE, 1997):

**1a.** Pharynx with 8 papillae; notopodial hooks from chaetiger 3.....***S. magnuncus***
**1b.** Pharynx with more than 8 papillae.....**2**

**2a (1b).** Pharynx with 11 papillae; two pairs of eyes present; notopodial hooks from chaetiger 4.....***Sigambra* sp.**
**2b (1b).** Pharynx with 14 papillae; eyes absent.....**3**

**3a (1b).** Notopodial hooks from chaetigers 30-40; body may be constricted at chaetiger 4.....***S. constricta***
**3b (1b).** Notopodial hooks from chaetigers 4-5.....**4**

**4a (3b).** Five tooth-like papillae in the proboscis surface (one mediodorsal and two pairs of lateral ones); numerous pointed papillae across the proximal surface of the proboscis, accompanying the dorsal and lateral tooth-like papillae.....***S. tentaculata***
**4b (3b).** Three tooth-like papillae in the proboscis surface (one mediodorsal and two lateral ones); pointed papillae lacking across the proximal surface of the proboscis.....***S. parva****

### ***Sigambra constricta*** (Southern 1921)

*Ancistrosyllis constricta* SOUTHERN, 1921: 573-576, pl. 19 fig. 1*a-g*.
**TYPE LOCALITY:** Chilka Lake (India), mud, in crevices of oyster shells.
**SELECTED REFERENCES:** *Sigambra constricta* — FAUVEL, 1953*c*: 111-112, fig. 54; LÉON-GONZÁLEZ, 1991: 313-314; LICHER & WESTHEIDE, 1997: 4.

**DISTRIBUTION:** India; Baja California Sur, Mexico, at 59-60 meters, on sandy mud; [?] Bosphorus; [?] Aegean Sea.

**REMARKS:** *Sigambra constricta* (Southern 1921) was recorded to be present in the Bosphorus (Istanbul Strait), by RULLIER (1963*b*), as *Ancistrosyllis*. The specimens were described as having a well distinct head and poorly recurved dorsal hooks. This last character would separate these specimens from *Sigambra parva*, a species known to occur in the Mediterranean Sea, but according to the figures by SOUTHERN (1921), the hooks are curved like in other species of *Sigambra*. However, there is the possibility that RULLIER (1963*b*) based his identification in the presence of the dorsal hooks from a chaetiger in a much more posterior position than the described for *S. constricta*. For this reason, and in spite of being doubtful, the record of the species is maintained here.

LICHER & WESTHEIDE (1997) revised the holotype of the species, and found that the constriction at the fourth segment, described in the original account, was very inconspicuous and questionable, and therefore not useful to characterize the species.

## ***Sigambra magnuncus*** Paterson & Glove 2000

*Sigambra magnuncus* PATERSON & GLOVE, 2000: 167-170, figs. 1-5.

**TYPE LOCALITY:** Porcupine Abyssal Plain (Atlantic Ocean), 48º51.5'N, 16º29.6'W, 4844 meters.

**DISTRIBUTION:** Abyssal plains of the NE Atlantic Ocean (Porcupine, Tagus, Madeira and Cabo Verde Abyssal Plains), at depths from 4000 to 5085 meters.

## ****Sigambra parva*** (Day 1963)

*Ancistrosyllis parva* DAY, 1963*b*: 395-396, figs. 3*g-k*.

**TYPE LOCALITY:** South coast of Cape Province, South Africa (34º10'S, 23º32'E), at 97 meters, in green mud.

**SELECTED REFERENCES:** *Ancistrosyllis parva* — DAY, 1967: 216-218, fig. 10.1*f-j*. *Sigambra parva* — MOREIRA & PARAPAR, 2002: 104-109, figs. 4-7; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 285-288, figs. 103-104. *Sigambra* cf. *tentaculata* — KATZMANN, LAUBIER & RAMOS, 1974*b*: 21-27, figs. 8-10*A*, *C*, *D*.

**REFERENCES FOR PORTUGAL:** [?] DEXTER, 1992 (as *Sigamba* cf. *tentaculata*; previous records: Ria de Alvor); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 22 (A.4082)**, north Sines, 122 m, sand: 1 complete specimen, in good condition, with about 80 chaetigers; median antenna clearly longer than lateral ones; in some notopodia it is possible to see the capillary notochaeta, besides the hook; hooks from chaetiger 4. **St. 254 (A.3877)**, off Cape Sardão, 74 m, sand: 1 incomplete specimen, with 31 chaetigers; median antenna reaching chaetiger 5.

**DISTRIBUTION:** South Africa, on muddy bottoms down to 100 meters; Iberian Peninsula: Galicia to Western Mediterranean Sea, between 2-122 meters, in shelly sand, fine sand with mats of *Zostera marina* L., and mud; Aegean Sea.

**REMARKS:** See *REMARKS* section under *Sigambra tentaculata*.

## ***Sigambra tentaculata*** (Treadwell 1941)

*Ancistrosyllis tentaculata* TREADWELL, 1941: 1-3, figs. 1-3.

**TYPE LOCALITY:** Crab Meadow State Park, Long Island, New York, USA.

**SELECTED REFERENCES:** *Sigambra tentaculata* — PETTIBONE, 1966*b*: 182-186, figs. 14-15; GARDINER, 1976: 121, fig. 9*c*; WOLF, 1984*d*: 29.8-29.10, fig. 29.5-29.6; SALAZAR-VALLEJO, 1986: 202, pl. 4 figs. 17-18; SALAZAR-VALLEJO & ORENSANZ, 1991: 275-277, fig. 3*F-G*; BLAKE, 1997*d*: 275-277, fig. 10.6; LICHER & WESTHEIDE, 1997: 4-6, table 1 [in part; not *Sigambra parva* Day 1963 in the synonymy list; (see MOREIRA & PARAPAR, 2002)]; MOREIRA & PARAPAR, 2002: 100-104, figs. 1-3; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 283-285, fig. 102.

**DISTRIBUTION:** East Coast of USA (Long Island, Virginia, Chesapeake Bay, North Carolina). Other geographical records include Eastern Pacific, Northern Gulf of Mexico, British Isles, Mediterranean Sea, Adriatic Sea, Black Sea, South Africa, Caribbean Sea, South Atlantic (Argentina and Uruguay), Red Sea, Mozambique, California, and Pacific coast of Costa Rica, from intertidal to 5000 meters, in all kinds of bottoms. According to MOREIRA & PARAPAR (2002), this extremely wide geographical and ecological distribution should be taken carefully, as a species complex, involving different but close species, could be present.

**REMARKS:** This species was cited in Europe, in the Black Sea and the Iberian Peninsula (as *Ancistrosyllis tentaculata*, *Sigambra tentaculata*, or *Sigambra* cf. *tentaculata*), but due to its similarity

with *Sigambra parva* it is possible that at least some, if not all, of these records refer in reallity to this last species (PARAPAR, BESTEIRO & MOREIRA, 2004*b*).

### *Sigambra* sp.

*Ancistrosyllis* cf. *parva* [not *Ancistrosyllis parva* Day 1963] — HARMELIN, 1964: 72-74, pl. 2.

**DISTRIBUTION:** Gulf of Marseille: near Île Gaby, at 21 meters, among "*matte morte*" of *Posidonia oceanica*, in a bottom of coarse sand with some mud; SE Pomègues, at 29 meters, in a meadow of *Posidonia oceanica* in a bottom of coarse sand.

**REMARKS:** The specimens described by HARMELIN (1964) are very close to *Sigambra parva* (Day 1963), but there are some morphological differences that distinguish both forms. If these differences are the result of intraspecific morphological variation or not, is a question that requires further research, and for the moment the form is here maintained as being distinct from *S. parva*.

HARMELIN (1964) described his specimens has having two pairs of eyes (while *S. parva* is described as lacking them), and 11 papillae in the distal region of the proboscis (against 14 in *S. parva*). MOREIRA & PARAPAR (2002) described the distal papillae of *S. parva* as being of different sizes, and some of these could have been overlooked by HARMELIN (1964). On the other hand, the presence of eyes in the genus *Sigambra* is seldom seen or recorded, probably because they fade in preservative fluid, whenever they are present in living material. However, in some species of *Sigambra* the prostomium can be pigmented, giving the impression that eyes are present.

The presence of a mediodorsal tooth-like papilla with a cusp pointing backwards first described by HARMELIN (1964) in his specimens, was recorded to be present also in *S. tentaculata* and *S. parva* by MOREIRA & PARAPAR (2002), and can be more common and widespread among other species of *Sigambra* than what as been so far described, being probably overlooked due to their location.

## GENUS *Synelmis* Chamberlin 1919

*Synelmis* CHAMBERLIN, 1919*a*: 176-177.

**TYPE SPECIES:** *Synelmis simplex* Chamberlin 1919.

**KEY TO SPECIES:**

**1a.** Parapodial cirri strongly fusiform and swollen, with acuminate tips; furcate chaetae smooth; furcate chaetae with two tines of similar thickness, with the shorter one clearly defined and separate from the main tine.....***S. albini***

**1b.** Parapodial cirri cirriform to conical; furcate chaetae with spinulation, at least in the anterior chaetigers; furcate chaetae with longer tine much thicker, appearing as limbate chaetae with bidentate tips on most anterior parapodia.....***S. urgorrii***

### *Synelmis albini* (Langerhans 1881)

*Ancistrosyllis albini* LANGERHANS, 1881: 106-107, pl. 5 fig. 16.

**TYPE LOCALITY:** Puerto de la Orotava, northern coast of Tenerife, Canary Islands, in littoral rocks.

**SELECTED REFERENCES:** *Synelmis albini* — BRITO *et al.*, 1996: 167-168, fig. 8; GLASBY, 2003: 9-12, fig. 1; SALAZAR-VALLEJO, 2003: 21-22. Not *Synelmis albini* — PETTIBONE, 1966*b*: 191-195, figs. 19-21 [= in part *Synelmis amoureuxi* Salazar-Vallejo 2003; in part *Synelmis rigida* (Fauvel 1919); in part *Synelmis sotoi* Salazar-Vallejo 2003; (see SALAZAR-VALLEJO, 2003)]; IMAJIMA, 1987: 157-158, fig. 4 [= in part *Synelmis* sp., possibly a new species; in part *Litocorsa* sp.; (see SALAZAR-VALLEJO, 2003: 40)]; PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 291-293, fig. 106 [= *Synelmis urgorrii* Moreira & Parapar 2007].

**DISTRIBUTION:** Tenerife and Fuerteventura Islands (Canary Islands), on shallow subtidal rocky reefs, among algae; [?] Eastern Mediterranean.

**REMARKS:** This species was normally considered as having a wide distribution at tropical and subtropical areas, including Western Africa, Indian and Pacific Oceans, but after the redescription of the species and the revision of the genus (GLASBY, 2003; SALAZAR-VALLEJO, 2003), it is considered to be restricted to the East subtropical Atlantic. *Synelmis* specimens collected at other areas were found to belong to different species.

The record of *Ancistrosyllis rigida* Fauvel 1919 by RULLIER (1963*b*), from the Bosphorus (Istanbul Strait) refers probably to this species.

### ***Synelmis urgorrii*** Moreira & Parapar 2007

*Synelmis urgorrii* MOREIRA & PARAPAR, 2007*b*: 1117-1120, figs. 1-3.

**TYPE LOCALITY:** Off Galicia (Northwestern coast of Spain), 43º57.03'N, 08º54.79'W to 43º57.25'N, 08º54.13'W, at 1132-1191 meters, among stones and shells.

**SELECTED REFERENCES:** *Synelmis albini* [not Langerhans 1881] — PARAPAR, BESTEIRO & MOREIRA, 2004*b*: 291-293, fig. 106.

**DISTRIBUTION:** Off Galicia (Northwestern coast of Spain), between 760-1191 meters, among stones and shells.

# *FAMILY **PISIONIDAE** Ehlers 1901

**AS:** *PISIONIDAE* EHLERS, 1901*a*: 60.

**TYPE GENUS:** *Pisione* Grube 1857.

**REMARKS:** As remarked by HUTCHINGS (2000*e*), there is no consensus concerning the correct authority of this family. The authority accepted by HUTCHINGS (*op. cit.*) is Levinsen 1887 (however the paper was already available in 1886, as a reprint; see below), following authors such as FAUVEL (1923*c*), or DAY (1967), while others accept Southern 1914 (*e.g.* FAUCHALD, 1977*a*; KIRKEGAARD, 1992; HARTMANN-SCHRÖDER, 1996; FAUCHALD & ROUSE, 1997; SAN MARTÍN, 2004*c*) or Ehlers 1901 (PLEIJEL, 2001*b*; MARTÍNEZ, AGUIRREZABALAGA & ADARRAGA, 2008) as authority.

PLEIJEL's oppinion (2001*b*) will be followed here, and the authorship of the family Pisionidae attributed to Ehlers 1901. LEVINSEN (1886) suggested that the genus *Pisione* should be removed from the family Phyllodocidae, to which it was referred by GRUBE (1857), and placed in a new family. However, he didn't name or describe this new family. This was done later by EHLERS (1901*a*: 60), as Pisionidae: "*Für die von GRUBE errichtete und zu den Phyllodociden neben Oxydromus gestellte Gattung Pisione hat LEVINSEN mit Recht die Aufstellung einer eigenen Familie gefordert, ohne deren Stellung genauer zu kennzeichnen. Diese Familie enthält zur Zeit nur eine Gattung. Für sie gebe ich nach der Untersuchung des mir zugängig gewesenen Materiales eine neue Diagnose, die zugleich die Charakteristik der Familie enthält und füge daran Bemerkungen über deren Beziehung zu anderen Familien der Borstenwürmer*". The name Pisionidae was used later by SOUTHERN (1914: page 60) who states: "*Levinsen created a new family, the Pisionidae, for its reception* [of *Pisione Oerstedii* Grube 1857, placed by GRUBE (1857) in the Phyllodocidae]*, without defining it*". However, and as stated above, LEVINSEN (1886: 6) suggests the removal of *Pisione* from the Phyllodocidae, and its placement into a new family (among the scale-worms), but in any moment he names this new family: "Pisione*, qvod genus cell. Grube ad* Phyllodocidas *ducit, familiam propriam e ordine* Aphroditaceorum *formare debet, quum et structura pharyngis et lobi cephalici cum* Polynoidis *conveniat*". The fact that SOUTHERN (1914) didn't state clearly that the family was correctly named and defined by EHLERS (1901*a*) helped the confusion concerning its authority.

This way, and in accordance to the Article 11.7 of the 4th Edition of the International Code of Zoological Nomenclature, the authorship of Pisionidae can't be attributed to Levinsen 1886, being its author Ehlers 1901, as the first author to use it, according to the ICZN, and as stated by PLEIJEL (2001*b*).

Finally, Levinsen's work is normally dated as 1887, but I have consulted a reprint of the same work published in 1886, being this apparently the first date available for this paper (LEVINSEN, 1886).

The family includes 4 genera, 44 species, and 3 subspecies. One genus and 5 species are present in the area of study, one of which was present among the studied material .

## *GENUS ***Pisione*** Grube 1857

*Pisione* GRUBE, 1857: 174.

**TYPE SPECIES:** *Pisione oerstedii* Grube 1857.

**SYNONYMS:** *Praegeria* Southern 1914.

**REMARKS:** STORCH (1967) and LAUBIER (1968*b*) presented a key for the species of *Pisione* hitherto known. DE WILDE & GOVAERE (1995) provided a comparative key for 26 species of *Pisione*, while a revised key containing 30 species is present in SAN MARTÍN, LÓPEZ & CAMACHO (1998). In both cases, one of the species is *Pisione sp. A* Wolf 1984, which was later described and named as *Pisione wolfi* San Martín, López & Núñez 1999. Later, YAMANISHI (1998) published a key for 33 species and 3 subspecies, while MARTÍNEZ, AGUIRREZABALAGA & ADARRAGA (2008) published an updated key for 41 species and 3 subspecies of *Pisione*.

### KEY TO SPECIES:

**1a.** Notoacicula clearly protruding from notopodial lobe.....**2**
**1b.** Notoacicula not protruding from notopodial lobe.....**3**

**2a (1a).** Simple acicular chaeta (accessory chaeta) present, unidentate; two (sometimes three) different long-bladed compound chaetae.....***P. inkoi***
**2b (1a).** Simple acicular chaeta (accessory chaeta) absent; all compound chaetae with short blades.....***P. guanche***

**3a (1b).** Simple chaeta unidentate; simple acicular chaeta (accessory simple chaeta) can be present or absent; all compound chaetae with short blades.....**4**
**3b (1b).** Simple chaeta bidentate; without simple acicular chaeta (accessory simple chaeta); one long-bladed compound chaeta on each parapodia, the other compound chaetae are short-bladed falcigers.....***P. parapari***

**4a (3a).** Prechaetal neuropodial lobe divided; simple acicular chaeta (accessory chaeta) present in some parapodia; males with 12-15 sucessive pairs of copulatory organs, normally from chaetigers 33-35 to 44-50.....***P. remota****
**4b (3a).** Prechaetal neuropodial lobe not divided; simple acicular chaeta (accessory chaeta) absent; males with 2-4 successive pairs of copulatory organs, normally from chaetigers 20 to 25.....***P. puzae***

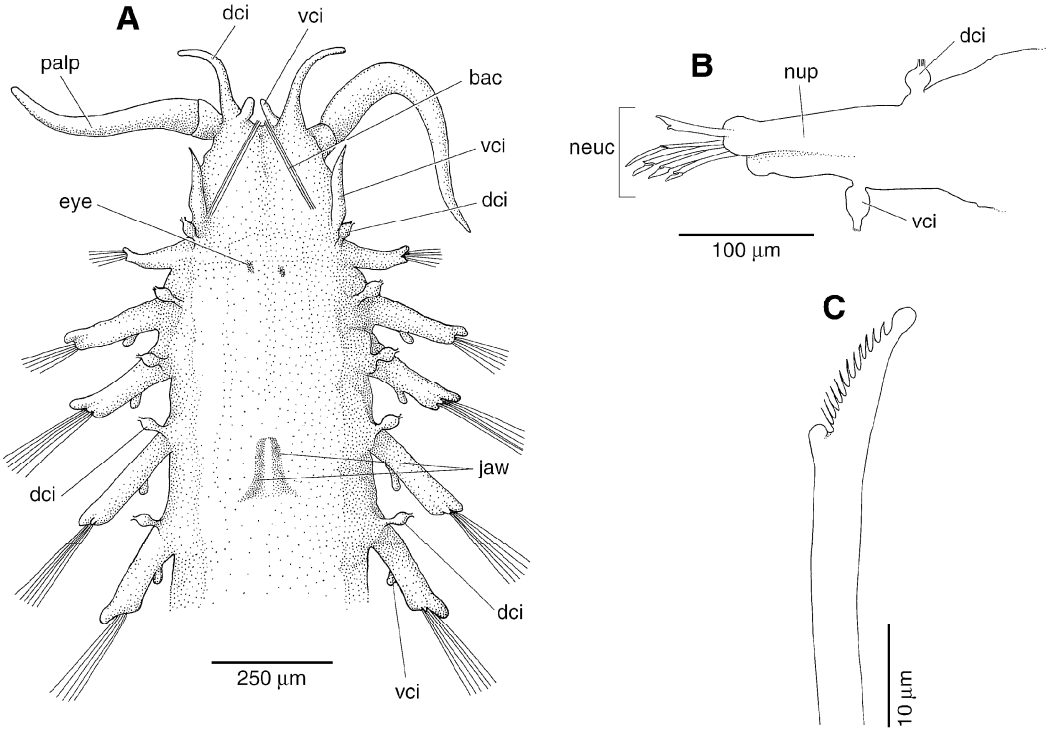


**Figure legend:** Family Pisionidae. **A**, anterior end of *Pisione* specimen, dorsal view. **B**, **C**, *Pisione* specimen, structures of chaetiger 22: **B**, parapodium; **C**, chaeta. **bac**, buccal acicula; **dci**, dorsal cirrus; **eye**, eye; **jaw**, jaws; **neuc**, neurochaetae; **nup**, neuropodium; **palp**, palp; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## ***Pisione guanche*** San Martín, López & Núñez 1999

*Pisione guanche* SAN MARTÍN, LÓPEZ & NÚÑEZ, 1999: 35-38, figs. 2-3.

**TYPE LOCALITY:** East of Gomera (Canary Islands), between Punta Majona and Los Roques, coarse sand, 20-45 meters.

**DISTRIBUTION:** Canary Islands: Gomera, on coarse sand, between 20-45 meters; Tenerife, on sand and meadows of *Cymodocea nodosa*, between 8-14 meters.

## ***Pisione inkoi*** Martínez, Aguirrezablaga & Adarraga 2008

*Pisione inkoi* MARTÍNEZ, AGUIRREZABALAGA & ADARRAGA, 2008: 284-290, figs. 2-6, tables 1-3.

**TYPE LOCALITY:** Elantxobe (Southeast Bay of Biscay, Basque coast), 43º30'800N, 02º38'833W, coarse sand, 117 meters.
**DISTRIBUTION:** Southeast Bay of Biscay, Basque coast (near Bilbao), at the continental shelf between 56-117 meters, in coarse and medium sand, and shell gravel with stones.

### ***Pisione parapari*** Moreira, Quintas & Troncoso 2000

*Pisione parapari* MOREIRA, QUINTAS & TRONCOSO, 2000: 177-182, figs. 1-4.
**TYPE LOCALITY:** Ensenada de Baiona, Galicia, North-West Spain, 42º07'50"N, 08º49'44"W, medium sand, 9 meters.
**SELECTED REFERENCES:** *Pisione parapari* — SAN MARTÍN, 2004*c*: 453-456, figs. 167-168; MARTÍNEZ, AGUIRREZABALAGA & ADARRAGA, 2008: table 1.
**DISTRIBUTION:** Known from the type locality, on coarse and medium sand, between 8-12 meters.

### ***Pisione puzae*** Siewing 1953

*Pisione puzae* SIEWING, 1953: 300-312, figs. 1-6, 8, 10-11, 13-14.
**TYPE LOCALITY:** Banyuls-Sur-Mer (Southern France), Mediterranean Sea, in a slit of the rocky shore, filled with gravel.
**SELECTED REFERENCES:** *Pisione puzae* — TENERELLI, 1965: 306-308, fig. 7.
**DISTRIBUTION:** Western Mediterranean Sea, on coarse sand, at shallow water.

### **Pisione remota*** (Southern 1914)

*Praegeria remota* SOUTHERN, 1914: 61-64, pl. 7 figs. 15*A-H*, pl. 8 figs. 15*I-K*.
**TYPE LOCALITY:** Clew Bay (Ireland), 24-27 fathoms (43.9-49.4 meters), on a bottom of sand and shells, and Dingle Bay (Ireland), 19-20 fathoms (34.7-36.6 meters), on a bottom of fine gravel and sand.
**SYNONYMS:** *Pisione germanica* Augener 1924.
**SELECTED REFERENCES:** *Praegeria remota* — FAUVEL, 1923*c*: 125, fig. 45; MCINTOSH, 1923*a*: 426-427, pl. 134 fig. 3, pl. 138 fig. 1. *Pisione remota* — TENERELLI, 1964: 231-232; TENERELLI, 1965: 293-303, figs. 1-5, pl. 1; HARRIS, 1971: 691-693, figs. 1-2; KIRKEGAARD, 1992: 104-106, fig. 45; HARTMANN-SCHRÖDER, 1996: 87-88, fig. 29; CHAMBERS & MUIR, 1997: 56, fig. 6; SAN MARTÍN, 2004*c*: 449-453, figs. 164-166; MARTÍNEZ, AGUIRREZABALAGA & ADARRAGA, 2008: table 1. *Pisione germanica* — AUGENER, 1924*b*: 300-301.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); SOUSA-REIS *et al.*, 1982 (Peniche region); MONTEIRO-MARQUES, 1984 (as *Praegeria remota*; Praia da Falésia); MONTEIRO-MARQUES, 1987 (as *Praegeria remota*; continental shelf of Algarve); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira); DEXTER, 1992 (some as *Praegeria remota*; previous records: continental shelf of Algarve; Sines; Arrábida; Peniche; Lagoon of Óbidos; Figueira da Foz); RAVARA, 1997 (off Aveiro); SAN MARTÍN, 2004*c* (previous records: Portugal); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 254 (A.3877)**, off Cape Sardão, 74 m, sand: 1 complete specimen, in poor condition, with about 48 chaetigers; subdermical eyes at chaetiger 2/3; ventral cirri of chaetiger 2 long; mandibles at the level of chaetiger 4.
**DISTRIBUTION**: North Atlantic: British Isles, Irish Sea, Kieler Bight, from the North Sea to the Mediterranean Sea, Adriatic Sea, Aegean Sea, Black Sea; North Atlantic coast of America; Caribbean Sea. Interstitial, lives generally on sandy bottoms. Between 1-200 meters.

# *FAMILY **POECILOCHAETIDAE** Hannerz 1956

**AS:** *POECILOCHAETIDAE* HANNERZ, 1956: 7, 136.
**TYPE GENUS:** *Poecilochaetus* Claparède *in* Ehlers 1875.
**SYNONYMS:** *DISOMIDAE* Mesnil 1897 [in part]; *DISOMIDIDAE* Chamberlin 1919 [in part].
**REMARKS:** The family Poecilochaetidae is a small family, including one single genus, with 29 species and one subspecies.

BLAKE & ARNOFSKY (1999) performed a phylogenetic analysis of the spioniform groups (which include the Poecilochaetidae), using reproductive and larval characters of the considered species, and the results obtained suggested that this familly would be a subclade within the Spionidae. This result did not agree with the findings by SIGVALDADÓTTIR, MACKIE & PLEIJEL (1997), who used only morphological characters, and *Poecilochaetus*, *Trochochaeta*, and *Unciospio* as outgroups. These authors found that *Poecilochaetus* did not group within the Spionidae, but did so with *Trochochaeta*, raising again the possibility that both genera should be placed under the same clade/family.

Finally, EIBYE-JACOBSEN (2005) presented a preliminary phylogenetic analysis of the Poecilochaetidae, which included 24 described species of *Poecilochaetus*, together with two unamed ones, and *Apistobranchus* and *Trochochaeta* as outgroups. This study revealed that Trochochaetidae is the sister group of Poecilochaetidae, and that this one is a well defined monophyletic group. Besides, EIBYE-JACOBSEN (2005) found that the Poecilochaetidae is composed by two major subgroups:

1) forms with papillate body surface and lacking a dorsal postchaetal lobe on chaetiger 1;

2) forms with an elongate nuchal organ and a dorsal chitinous tooth on chaetiger 9.

Recent taxonomic papers with the description of species include READ (1986), MIURA (1988, 1989), IMAJIMA (1989*a*), CANTONE (1990*b*), MACKIE (1990*a*), LÉON-GONZÁLEZ (1992), and SANTOS & MACKIE (2008). Worldwide keys for species can be found in PILATO & CANTONE (1976) and READ (1986), and a key for morphological groups in MACKIE (1990*a*). Shorter keys are given in MIURA (1989), for abranchiate species, and in LÉON-GONZÁLEZ (1992), for branchiate species, while CANTONE (1990*b*) presents a key for the Mediterranean species. Synoptic tables with species' diagnostic characters are given in PILATO & CANTONE (1976), MACKIE (1990*a*), and SANTOS & MACKIE (2008). Finally MACKIE (1990*a*) revised the chaetal terminology normally used within the Poecilochaetidae.

In European waters, three species are known to occur, two of which were found among the identified material.

## *GENUS ***Poecilochaetus*** Claparède *in* Ehlers 1875

*Poecilochaetus* CLAPARÈDE *in* EHLERS 1875: 9.
**TYPE SPECIES:** *Poecilochaetus fulgoris* Claparède *in* Ehlers 1875.
**SYNONYMS:** *Elicodasia* Laubier & Ramos 1973.
**REMARKS:** MACKIE (1990*a*) synonymized the genus *Elicodasia* Laubier & Ramos 1973 and an unnamed "Genus A", described by MILLIGAN & GILBERT (1984) from Florida, with *Poecilochaetus*, remaining the Poecilochaetidae a monogeneric family. MACKIE (1990*a*) pointed the fact that the described specimens of these two genera, and also of *Poecilochaetus gallardoi* Pilato & Cantone 1976, represented posterior regions of specimens of *Poecilochaetus*, by the insertion of the postschaetal lobes anterior to the chaetae and the presence of at least three types of chaetae in what would be the anterior podia.

### KEY TO SPECIES:

**1a.** Neurochaetal robust falcate spines in chaetigers 2-4; ampullaceous cirri at chaetigers 7-11; median nuchal lobe vestigial, lateral lobes absent; dorsally and ventrally covered with numerous and conspicuous tubercles, without chitinous plate on chaetiger 9.....***P. fulgoris***
**1b.** Neurochaetal robust falcate spines in chaetigers 2 and 3; ampullaceous cirri at chaetigers 7-13; nuchal organ with 3 lobes (can be reduced); ventral tubercles occur in the anterior region of the body; chitinous plate present in chaetiger 9.....**2**

**2a (1b).** Branchiae present from chaetiger 21; all three nuchal lobes long; aristate and spinose-plumose chaetae present.....***P. serpens****

**2b (1b).** Branchiae absent; median nuchal lobe long, lateral lobes small; aristate and spinose-plumose chaetae absent.....***P. mirabilis****

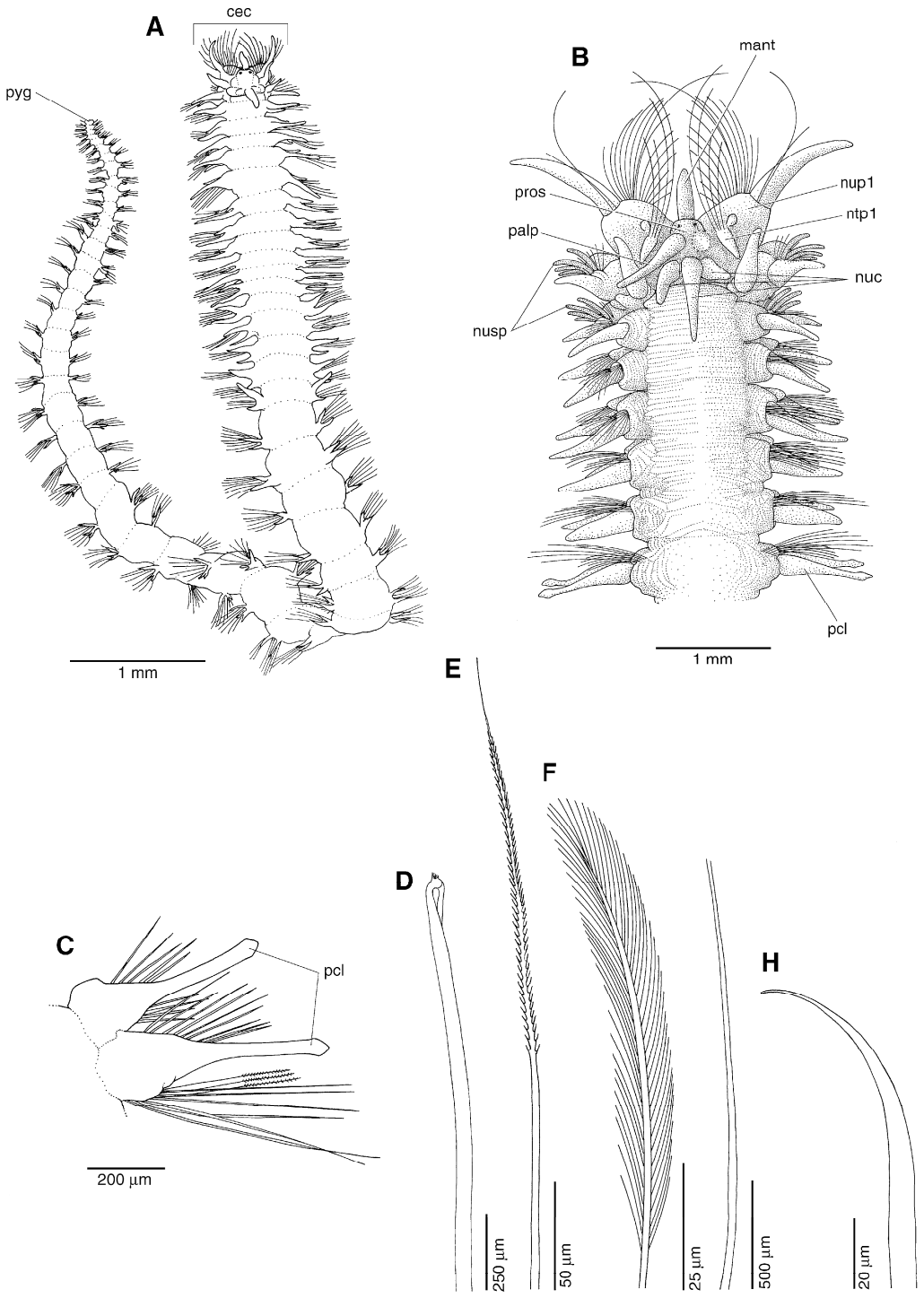


**Figure legend:** Family Poecilochaetidae. *Poecilochaetus* specimen. **A**, entire animal; **B**, anterior end, dorsal view. **C**, medium parapodium, posterior view. **D**-**G**, chaetae from parapodium of chaetiger 12: **D**, falcate spine; **E**, spinose capillary; **F**, plumose capillary; **G**, slender smooth capillary. **H**, spine from parapodium of chaetiger 40. **cec**, cephalic cage; **mant**, median antenna; **ntp1**, notopodium of chaetiger 1; **nup1**, neuropodium of chaetiger 1; **nuc**, nuchal organ complex; **nusp**, neurochaetal spines; **palp**, palp; **pcl**, postchaetal lobe; **pros**, prostomium; **pyg**, pygidium. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## ***Poecilochaetus fulgoris*** Claparède *in* Ehlers 1875

*Poecilochaetus Fulgoris* CLAPARÈDE *in* EHLERS, 1875: 9-13, pl. 1 fig. 1.

**TYPE LOCALITY:** Northeast Atlantic, between Scotland and Faroe Islands, at 1188.7 meters (650 fathoms).

**SELECTED REFERENCES:** *Poecilochaetus fulgoris* — EHLERS, 1875: 62; ALLEN, 1905: 145; FAUVEL, 1927*a*: 69, fig. 23*n*; HARTMAN, 1965*b*: 161-162, pl. 33; PILATO & CANTONE, 1976: 31-36, fig. 1*a-f*, tables 1-2; CANTONE, 1990*b*: 25-26. *Poecilochaetus (fulgoris?)* — BELLAN, 1965: 10-11.

**DISTRIBUTION:** Northeastern Atlantic Ocean: SW British Isles, between Scotland and Faroes, and off Iceland, between 1188.7-2617 meters; northwestern Atlantic Ocean, off New England, between 1000-5000 meters; off northeastern South America, between 770-805 meters; eastern Corsica, Mediterranean Sea, 560 meters; Aegean Sea. On muddy sand.

**REMARKS:** BELLAN (1965) referred to *Poecilochaetus (fulgoris?)* a single damaged specimen collected in eastern Corsica, at 560 meters, in yellow mud. This specimen was described as having "*tégument granuleux; organe nuchal presque invisible; les cirres dorsaux n'existent pas aux 12$^{e}$ et 13$^{e}$ sétigères* (...)*; enfin, les crochets ventraux sont présents à trois segments (2, 3 et 4)*" (BELLAN, 1965: 10-11). These characters fit the description of *Poecilochaetus fulgoris*, and the record is here considered under this species, following CANTONE (1990*b*).

## ****Poecilochaetus mirabilis*** (Laubier & Ramos 1973)

*Elicodasia mirabilis* LAUBIER & RAMOS, 1973: 70-76, figs. 1-3.

**TYPE LOCALITY:** Bay of Roses (42º03'N, 3º15'20"E), Spanish Catalonian coast of the Mediterranean Sea, at 145 meters.

**SYNONYMS:** *Poecilochaetus fauchaldi* Pilato & Cantone 1976.

**SELECTED REFERENCES:** *Elicodasia mirabilis* — PILATO & CANTONE, 1976: tables 1-2. *Poecilochaetus fauchaldi* — PILATO & CANTONE, 1976: 43-48, fig. 2, tables 1-2; CANTONE, 1990*b*: 26.

**MATERIAL: FAUNA 1 — St. 69*A***, Gulf of Cádiz, off mouth of Guadiana, 110-112 m, mud: 1 incomplete specimen, with about 27 chaetigers; triangular chitinous dorsal plate present on chaetiger 9, well visible; anterior ventral region with conspicuous papillae; central lobe of nuchal organs reaching chaetiger 3/4, lateral lobes poorly developed; branchiae absent; spinose capillaries from chaetiger 2; plumose capillaries from chaetiger 18.

**DISTRIBUTION:** Western Mediterranean Sea (Spain anf Italy); Gulf of Cádiz; Adriatic Sea; Aegean Sea. Between 15-200 meters, on detritic and muddy bottoms.

**REMARKS:** When synonymising the genus *Elicodasia* with *Poecilochaetus* MACKIE (1990*a*) noted the resemblance between the description of *E. mirabilis* and the posterior region of *P. fauchaldi*. In fact, the similitude between the drawings of *E. mirabilis* in LAUBIER & RAMOS (1973) and the description of the posterior part of *P. fauchaldi* in PILATO & CANTONE (1976) is striking. These considerations were confirmed by personal observations based on new material collected in Southern France. For these reasons, both species are here considered as being synonymous.

In accordance to Article 23.3.2.1 of the 4th Edition of the International Code of Zoological Nomenclature, the Principle of Priority applies even if any part of an animal is named before the whole animal. This implies that *Poecilochaetus mirabilis* (Laubier & Ramos 1973) has priority over *P. fauchaldi* Pilato & Cantone 1976.

## ****Poecilochaetus serpens*** Allen 1905

*Poecilochaetus serpens* ALLEN, 1905: 81-140, 145, plates 7-12.

**TYPE LOCALITY:** Immediately south of the coastguard station at Mount Batten, on the eastern side of Plymouth Sound, South England, on a patch of sand exposed at low spring tide, between *Zostera* beds (not in the *Zostera* beds).

**SELECTED REFERENCES:** *Poecilochaetus serpens* — MCINTOSH, 1915*b*: 233-237, pl. 92 fig. 4, pl. 94 fig. 15, pl. 101 fig. 3, pl. 107 fig. 17, pl. 111 fig. 11; FAUVEL, 1916*c*: 110-113, pl. 8 fig. 14, pl. 9 figs. 9-14; FAUVEL, 1927*a*: 67-68, fig. 23*a-m*; CANTONE, 1990*b*: 26; HARTMANN-SCHRÖDER, 1996: 348-350, fig. 160; KIRKEGAARD, 1996: 43-45, fig. 17.

**REFERENCES FOR PORTUGAL:** COSTA, GAMITO & OLIVEIRA, 1984 (Sado Estuary); AMOUREUX, 1987 (off Porto); DEXTER, 1992 (previous records: Sado Estuary); RAVARA, 1997 (off Aveiro); MUCHA & COSTA, 1999 (Ria de Aveiro and/or Sado Estuary); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 41 (A.2974)**, off Zambugeira do Mar, 320 m, muddy sand: 1 incomplete specimen, in poor condition, with about 24 chaetigers; central lobe reaching chaetiger 4, one lateral lobe still present, reaching chaetiger 3/4; difficult to be sure if branchiae are present, due to the

poor condition of the specimen; triangular chitinous dorsal plate present on chaetiger 9; epidermal ventral papillae in the anterior region of the body; identified by comparison with other specimens, in better condition. **St. 150 (A.3078)**, off Praia de Almograve, 115 m, sandy mud: 1 posterior fragment, with 40 chaetigers; 2 pairs of branchiae per parapodium; aristate chaetae present; last 3 chaetigers with thick notopodial hooks; parapodial cirri with papillae. **SEPLAT 7 (2nd part) — St. 79 (A.4028)**, near Sines, 110 m, muddy sand: 1 incomplete specimen, with about 41 chaetigers; triangular chitinous dorsal plate present on chaetiger 9; 2 branchial filaments per ramus, from about chaetiger 21, one long and the other short; no curved hooks observed in the posterior notopodia; plumose capillaries from chaetiger 16/17; spinose capillaries from about chaetiger 6/7, but also occurring before; anterior parapodia covered by small epidermal papillae, as well as the ventral region of the body. **St. 306 (A.3847)**, SW Praia de Odeceixe, 105 m, sand: 1 incomplete specimen with 17 chaetigers; lateral lobes of nuchal organ reaching the 4th chaetiger; central lobe of about the same size; plus one middle fragment with 15 chaetigers, with anterior region with 1 pair of branchiae per parapodium, and posterior region with 2 pairs.

**DISTRIBUTION:** Northeastern Atlantic: Irish Sea; British Isles; North Sea; English Channel; Skagerrak; Kattegat; Öresund; Bay of Biscay; Azores; Canary Islands; Portugal; Morocco; Mediterranean Sea; Adriatic Sea; Aegean Sea. On sandy, muddy, and mixed bottoms, at coastal and shallow waters, sometimes intertidal. Also reported from South Africa, the Indian Ocean and Red Sea, down to 1400 meters, but other species could be involved in this distribution.

**REMARKS:** As stated by ALLEN (1905) and FAUVEL (1927*a*), the larval pelagic stage of this species was known since 1855 from Norway, and described before the description of its adult form (*e.g.*, CLAPARÈDE, 1863; MCINTOSH, 1894), and many of its early records refer also to larvae, even after the description of the adults (*e.g.*, FAUVEL, 1916*c*). The best published account on this species is still its original description by ALLEN (1905).

# *FAMILY **POLYGORDIIDAE** Czerniavzky 1881

**AS:** *POLIGORDIDAE* CZERNIAVSKY, 1881*a*: 285.

**TYPE GENUS:** *Polygordius* Schneider 1868.

**REMARKS:** The family Polygordiidae includes nowadays a single genus, *Polygordius* Schneider 1868, with 18 species and 2 subspecies described (ROTA & CARCHINI, 1999; RAMEY, FIEGE & LEANDER, 2006; AVERY, RAMEY & WILSON, 2009). At least another new species is known, but it wasn't so far formally described (see the *REMARKS* section under *Polygordius triestinus*).

*Chaetogordius* Moore 1904, including the single species *C. canaliculatus* Moore 1904 was described with base on fragmentary material collected on Cape Cod, Northeastern USA. According to HERMANS (1969) the species is doubtful, as the fragments could have included the anterior end of a *Polygordius* and the posterior end of a polyophthalminian, and later WESTHEIDE (1990) considered it as being an invalid taxon.

The biggest part of the bibliography on the group is aged, but recent taxonomic publications on the family include JOUIN & RAO (1987), with the description of a new subspecies from the Indian Ocean, ROTA & CARCHINI (1999), with the description of a new species from Terra Nova Bay (Antarctica), and including a table with the main morphological characters for the biggest part of the existing species and subspecies, RAMEY, FIEGE & LEANDER (2006), with the description of a new species from the North American northeastern coast, including also a comparative table with selected characters of taxa morphologically similar to the newly described species, and AVERY, RAMEY & WILSON (2009), with the description of another two new species from Australia and comparative tables between taxa morphologically similar to the new species. The group is currently being investigated by Patricia Ramey, Dieter Fiege, and collaborators.

In the European waters there are presently at most seven described species considered to be valid, but according to some authors this number could be reduced to three: *P. lacteus*, *P. appendiculatus*, and *P. triestinus*.

Among the presently studied material several fragments were present, but only *P. appendiculatus* Fraipont 1887 has been identified, due to the presence of the typical pair of anal cirri.

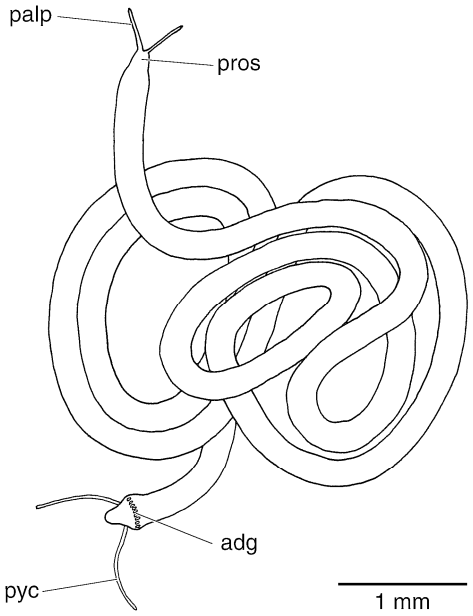


**Figure legend:** Family Polygordiidae. *Polygordius* specimen, entire animal, dorsal view. **adg**, adhesive glands; **palp**, palp; **pros**, prostomium; **pyc**, pygidial cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawing by A. Murray).

## *GENUS ***Polygordius*** Schneider 1868

*Polygordius* SCHNEIDER, 1868: 51.

**TYPE SPECIES:** *Polygordius lacteus* Schneider 1868.

**SYNONYMS:** [?] *Rhamphogordius* Rathke 1843; *Linotrypane* McIntosh 1875; *Pseudogordius* Czerniavsky 1881.

**REMARKS:** The first record of an adult of the genus *Polygordius* seems to be the one by RATHKE (1843), who described as new the species *Rhamphogordius lacteus*. It is impossible to be sure that his imperfect description corresponds to what is nowadays known as the genus *Polygordius*, but it seems likely (HERMANS, 1969). Later SCHNEIDER (1866: 326) attributed to *Rhamphogordius* some specimens that he and Möbius had found in shell gravel, at the west coast of Helgoland, but shortly after (SCHNEIDER, 1868) he included them in the new genus *Polygordius*, and created the new species *P. lacteus* and *P. purpureus* (now *Protodrilus purpureus*). This way, the type species of the genus is *Polygordius lacteus* Schneider 1868, while *Rhamphogordius lacteus* Rathke 1843 is considered to be a *nomen dubium*, due to its poor description, with the generic name designating probably the same genus than the described by Schneider.

In the following years, other species were described for the European and nearby waters, and curiously no new species as been described in Europe since 1907, when Salensky described *Polygordius ponticus*, from the Black Sea.

**KEY TO SPECIES:**

(adapted from FAUVEL, 1927*a*)

**REMARKS:** *Polygordius ponticus* Salensky 1907 is not included in the key. According to ROTA & CARCHINI (1999) it is similar to *P. lacteus*, having a modified endolarva.

**1a.** Bulb-like pygidium pre-terminally swollen, with glandular papillae, with or without appendages.....**2**
**1b.** Pygidium not swollen, and without glandular papillae or appendages; hermaphrodite, with oocytes and sperm in close proximity to each other in the coelom; exolarva.....***P. triestinus***

**2a (1a).** Pygidium with two thread-shaped cirri.....***P. appendiculatus****
**2b (1a).** Pygidium without appendages.....**3**

**3a (2b).** Segments separated by a black line; bright red; blood green; 2 red occular spots.....***P. erythrophthalmus***
**3b (2b).** Rose; blood red or yellow; without eyes.....**4**

**4a (3b).** Blood yellow; without cilia; exolarva.....***P. neapolitanus***
**4b (3b).** Blood red.....**5**

**5a (4b).** Vibrating cilia at the posterior end.....***P. villoti***
**5b (4b).** Without cilia; endolarva.....***P. lacteus***

## **Polygordius appendiculatus* Fraipont 1887

*Polygordius appendiculatus* FRAIPONT, 1887: 88-89, pl. 2 figs. 1-9, pl. 3 fig. 4, pl. 9 figs. 14-15, pl. 10 fig. 1.

**TYPE LOCALITY:** Near Naples (Mediterranean Sea), in coarse sand with *Amphioxus*, at about 3-4 meters.

**SELECTED REFERENCES:** *Polygordius appendiculatus* — FRAIPONT, 1884: 250 [*nomen nudum*]; COWLES, 1903: 125-128, fig.s 1-3; HEMPELMANN, 1906*a*: 587-588, text-fig. 17; SOUTHERN, 1914: 16-17; FAUVEL, 1927*a*: 418, fig. 141*a-f*; REMANE, 1932: 29, fig. 1*C*; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 5; VON NORDHEIM, 1984: 6, 13-14, figs. 3*A*, 5*A*, table 4; WESTHEIDE, 1990: 116, fig. 41; HARTMANN-SCHRÖDER, 1996: 592-593, fig. 292; KIRKEGAARD, 1996: 256-257, fig. 140; ROTA & CARCHINI, 1999: table 1; WESTHEIDE, 2008: 126, fig. 87; AVERY, RAMEY & WILSON, 2009: table 3.

**REFERENCES FOR PORTUGAL:** [?] DEXTER, 1992 (probably as "*Polygordius lacteus* Fraipant, 1887"; previous records: Figueira da Foz); RAVARA, 1997 (off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (soutwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 254 (A.3877)**, off Cape Sardão, 74 m, sand: 4 specimens, one of which complete, with one attached cirrus in the posterior region; very long and ribbon-like, without parapodia or chaetae; other 3 specimens incomplete, without pygidium.

**DISTRIBUTION:** Ireland; North Sea; English Channel; Portugal; Mediterranean Sea; Massachusetts, U.S.A.; Argentina; South Africa. On coarse sand, *Amphioxus*-sand, and shell fragments. Sublittoral to 40 meters.

**REMARKS:** DEXTER (1992) mentioned two species of *Polygordius* in Portuguese waters: *P. lacteus* Schneider 1868 and "*Polygordius lacteus* Fraipant, 1887" [*sic*]. I wasn't able to check the original citation by RODRIGUES & QUINTINO (*in* DEXTER, 1992), but I believe that there is an error and the second species cited is in reality *P. appendiculatus*.

*P. appendiculatus* can be distinguished from *P. lacteus* by its characteristic pygidium with two thread-like cirri. In the absence of that structure, it is very difficult to separate both species only with base on fixed material.

This species has been cited from other locations, sometimes far from its type locality. In at least some of these identifications, the presence of a pair of cirri in the pygidium of the specimens has had more weight than some other characters, that might present variations in relation to the Mediterranean population (*e.g.* JOUIN, 1975). Probably the recorded distribution of the species is the result of the existence of other species, still undescribed, with also a pair of anal cirri.

## ***Polygordius erythrophthalmus*** (Giard 1880)

*Linotrypane erythrophthalma* GIARD, 1880*a*: 341-342.

**TYPE LOCALITY:** Pointe de Beg-Meil, near Concarneau (NW France, Bay of Biscay), in coarse shelly sand.

**SELECTED REFERENCES:** *Polygordius erythrophthalmus* — FRAIPONT, 1887: 88; FAUVEL, 1927*a*: 419; ROTA & CARCHINI, 1999: table 1.

**DISTRIBUTION:** Known from the type locality.

## ***Polygordius lacteus*** Schneider 1868

*Polygordius lacteus* SCHNEIDER, 1868: 52.

**TYPE LOCALITY:** Helgoland, North Sea.

**SYNONYMS:** *Linotrypane apogon* McIntosh 1875.

**SELECTED REFERENCES:** *Polygordius lacteus* — FRAIPONT, 1887: 86-87; HEMPELMANN, 1906*a*: 531-605, pls. 25-28, 29 figs. 52-56, text-figs. 1-16, 18-21; SOUTHERN, 1914: 16; FAUVEL, 1927*a*: 417, fig. 140*g*; REMANE, 1932: 29, figs. 1*A-B*, 6; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 5; VON NORDHEIM, 1984: 6, 14, figs. 3*B*, 5*B*, table 4; WESTHEIDE, 1990: 114, fig. 40; HARTMANN-SCHRÖDER, 1996: 593-594, fig. 293; KIRKEGAARD, 1996: 257-258, fig. 141; ROTA & CARCHINI, 1999: table 1; WESTHEIDE, 2008: 124-125, fig. 86. *Linotrypane apogon* — MCINTOSH, 1875*a*: 386; MCINTOSH, 1875*b*: 369-370, fig. *A*. *Polygordius apogon* — FRAIPONT, 1887: 87.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).

**DISTRIBUTION:** NE Atlantic (Ireland; Shetlands); Kattegat; North Sea; English Channel; Irish Sea; Mediterranean Sea; [?] Black Sea; Argentina. Coarse, clean sand and sandy or shelly gravel, in subtidal areas, and sublittoral to 40 meters.

**REMARKS:** *Linotrypane apogon* McIntosh 1875, described from Bressay Sound, at 8-9 meters, in sand with gravel, was referred as presenting black pigmented eyes by GIARD (1880*a*).

According to HEMPELMANN (1906*a*), *Polygordius neapolitanus* Fraipont 1884 would be identical with *P. lacteus* Schneider 1868, as well as probably all the other European species, with the exception of *P. appendiculatus* and *P. triestinus*. This idea was followed by SOUTHERN (1914), and REMANE (1932), but not by FAUVEL (1927*a*), who considered all these species as being valid. Probably, *Polygordius ponticus* Salensky 1907 is also identical with *P. lacteus*.

## ***Polygordius neapolitanus*** Fraipont 1884

*Polygordius neapolitanus* FRAIPONT, 1884: 255-256, 262-271, 274-277, 278-282, pls. 11-13, 15 figs. 22-23, 28-30.

**TYPE LOCALITY:** Gulf of Naples (Mediterranean Sea), at a few meters deep, in coarse sand with *Amphioxus*, near Naples.

**SELECTED REFERENCES:** *Polygordius neapolitanus* — FRAIPONT, 1887: 89-90, pl. 1, pl. 3 figs. 1-3, 5-8, pls. 4-8, pl. 9 figs. 1-13, pl. 10 figs. 2-9, pls. 11-15; FAUVEL, 1927*a*: 416, fig. 140*a-e*; ROTA & CARCHINI, 1999: table 1.

**DISTRIBUTION:** Known from the type locality.

## ***Polygordius ponticus*** Salensky 1907

*Polygordius ponticus* SALENSKY, 1907: 290-363, pl. 11 figs. 6, 14, 16, pl. 13 fig. 19*E-I*, pl. 14 fig. 27, pl. 15 figs. 31-32, pl. 16 fig. 35-36, 38, 40, pl. 17 figs. 42-43, 44-45, 47, 50-51, pl. 18 fig. 57, pl. 19 figs. 72, 75-76, pls. 20-22.

**TYPE LOCALITY:** Sevastopol' (Crimea, Black Sea).

**DISTRIBUTION:** Known from the type locality.

## ***Polygordius triestinus*** Hempelmann 1906

*Polygordius triestinus* HEMPELMANN, 1906*a*: 605-609, pl. 29 figs. 57-58, text-fig. 22.

**TYPE LOCALITY:** Trieste (Italy), Adriatic Sea, on mud.

**SELECTED REFERENCES:** *Polygordius triestinus* — FAUVEL, 1927*a*: 419, fig. 140*f*; REMANE, 1932: 29; ROTA & CARCHINI, 1999: table 1; RAMEY, FIEGE & LEANDER, 2006: table 1; AVERY, RAMEY & WILSON, 2009: table 2. Not *Polygordius triestinus* — JOUIN, 1970*b*: 150-152, figs. 1-2 [= *Polygordius* spec. nov., according to ROTA & CARCHINI, 1999].

**DISTRIBUTION:** High Adriatic Sea, in muddy bottoms; [?] New Caledonia, between islands Ducos and Hugon, Saint-Vincent Bay, at 6-7 meters, in sand.

**REMARKS:** RAMEY, FIEGE & LEANDER (2006) revised the authorship of this species, normally attributed to Woltereck *in* Hempelmann 1906, but also to Woltereck 1905 or Hempelmann 1906 (RAMEY, FIEGE & LEANDER, 2006). The name *Polygordius triestinus* nov. spec. was first used by Woltereck in 1902 as a *nomen nudum*, with the intention to describe it later. However, the formal description of the new species was made by Hempelmann in 1906, with base on specimens given to him by Woltereck, his thesis advisor. According to RAMEY, FIEGE & LEANDER (2006), there is no published evidence that Woltereck contributed in any way to the description of the species made by Hempelmann, reason why, according to the present edition of ICZN, Hempelmann should be cited as the single author of the species.

*Polygordius triestinus* was recorded from New Caledonia by JOUIN (1970*b*). However, according to ROTA & CARCHINI (1999), this material is clearly different from the Adriatic population in body size, the shape of the mouth, in having several rings of adhesive pads on the pygidium, and in being gonochoristic, as only males were found (JOUIN, 1970*b*; ROTA & CARCHINI, 1999). All these differences were considered by ROTA & CARCHINI (1999) as sufficient justifications for separating the Adriatic and the New Caledonian populations at species level. This oppinion was followed by RAMEY, FIEGE & LEANDER (2006).

## ***Polygordius villoti*** Perrier 1875

*Polygordius Villoti* PERRIER, 1875: 1101-1105.

**TYPE LOCALITY:** Roscoff (Northern France, English Channel), in coarse *Amphioxus*-sand.

**SELECTED REFERENCES:** *Polygordius Villoti* — FRAIPONT, 1887: 87-88; FAUVEL, 1927*a*: 419. *Polygordius villoti* — JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 5; ROTA & CARCHINI, 1999: table 1.

**DISTRIBUTION:** Known only from the type locality.

**REMARKS:** Recorded only once and never found again.

# *FAMILY **POLYNOIDAE** Malmgren 1867

**AS:** *POLYNOIDÆ* MALMGREN, 1867*a*: 4.
**TYPE GENUS:** *Polynoe* Savigny *in* Lamarck 1818.
**SYNONYMS:** *POLYNOINA* Kinberg 1856.
**REMARKS:** With 165 genera and 748 species considered to be valid (HUTCHINGS *et al.*, 2000), the Polynoidae is the biggest family of Polychaeta in number of genera, and the second one in number of species, being only surpassed by the Syllidae. In spite of recently synonymized taxa, the number of described taxa hasn't stopped to increase afterwards.

The family is nowadays divided into 21 subfamilies (WEHE, 2006), some of which are in need of reevaluation (*e.g.* Arctonoinae) or will probably be further divided (*e.g.* Lepidonotinae), while the genus *Cervilia* Frickinger 1916 remains without being assigned to any subfamily.

The taxonomic bibliography on the family is huge, and will not be discussed here. The relevant publications are cited below. Some recent publications should be, however, highlighted. This is the case of the ongoing series of papers been published by Ruth Barnich and Dieter Fiege, mainly on European Polynoidae and cited below, but covering also non European taxa (*e.g.* BARNICH & FIEGE, 2004, with a key and a comparative table for genera of the subfamily Lepidastheniinae). Particularly important is also the publication by WEHE (2006), on the Polynoidae from the Arabian Peninsula and surrounding seas, with a key for all the subfamilies hitherto described, and also with good discussions on the taxonomic history, anatomy, physiology, biology and ecology of the group, as well as a critical discussion of the characters used in its taxonomy. The generic characters of the subfamily Polynoinae were also analysed by MUIR (1982), who presented as well a key of subfamilies, while USCHAKOV (1977) analyzed the phylogenetic relationships in the family. Finally, the influential work by M.H. Pettibone must be referred. Pettibone published a great number of papers on scaleworms in general, and Polynoidae in particular, between 1948 and 1997, which influence in the study of this group has been fundamental.

The position of the three antennae relative to each other and their insertion on the prostomium is one of the main diagnostic characters in order to distinguish between subfamilies, and in some cases, between genera (WEHE, 2006). WEHE (2006) resumed the applied terminology into four different terms, which will be followed here:

**a) terminal insertation** – all the three antennae are inserted on the same horizontal level and the ceratophores of the lateral antennae protrude as anterior prolongations from the prostomial lobes; this antennal arrangement it is also known as *lepidonotid*, as it is typically found in the Lepidonotinae and Lepidastheniinae.

**b) ventral insertation** – the ceratophores of the lateral antennae are inserted on a lower level than the median one and are located below the anterior lobes of the prostomium; this type of prostomium is often known as *harmothoid*, as it is characteristic of Polynoinae.

**c) terminoventral insertation** – the arrangement of the lateral ceratophores is intermediate between the two former ones in that in dorsal view the ceratophores of the lateral antennae appear to protrude from the anterior borders of the prostomial lobes on the same horizontal level as the median ceratophore, but are inserted distinctly below the median antenna as seen in ventral view, where the bases of the ceratophores join midventrally; besides, the lateral ceratophores are usually very wide, occupying more or less the whole width of each lobe, while the styles are often short and distinctly conical; this antennal arrangement is typical of the Acholoinae.

**d) subterminal insertation** – the ceratophores of the lateral antennae protrude anteriorly as distinct prolongations of the prostomial lobes, not on the same level as in the terminal insertation, but clearly more ventrally to the median antenna, in part covered by the median ceratophore in dorsal view; in this type the ceratophores of the lateral antenna are also much more slender, with long slender styles, and confined to the inner part of the prostomial lobes; this antennal arrangement is typical of the genus *Alentia*.

In the present work it is considered that in the European and surrounding waters occur 34 genera, with 96 species and one variety of Polynoidae. However, this number will probably change in the near future, with the reevaluation of many synonymized species and the description of new taxa, as a consequence of the ongoing work by Ruth Barnich and Dieter Fiege on the group. Among the studied material, 15 species belonging to 9 genera were identified.

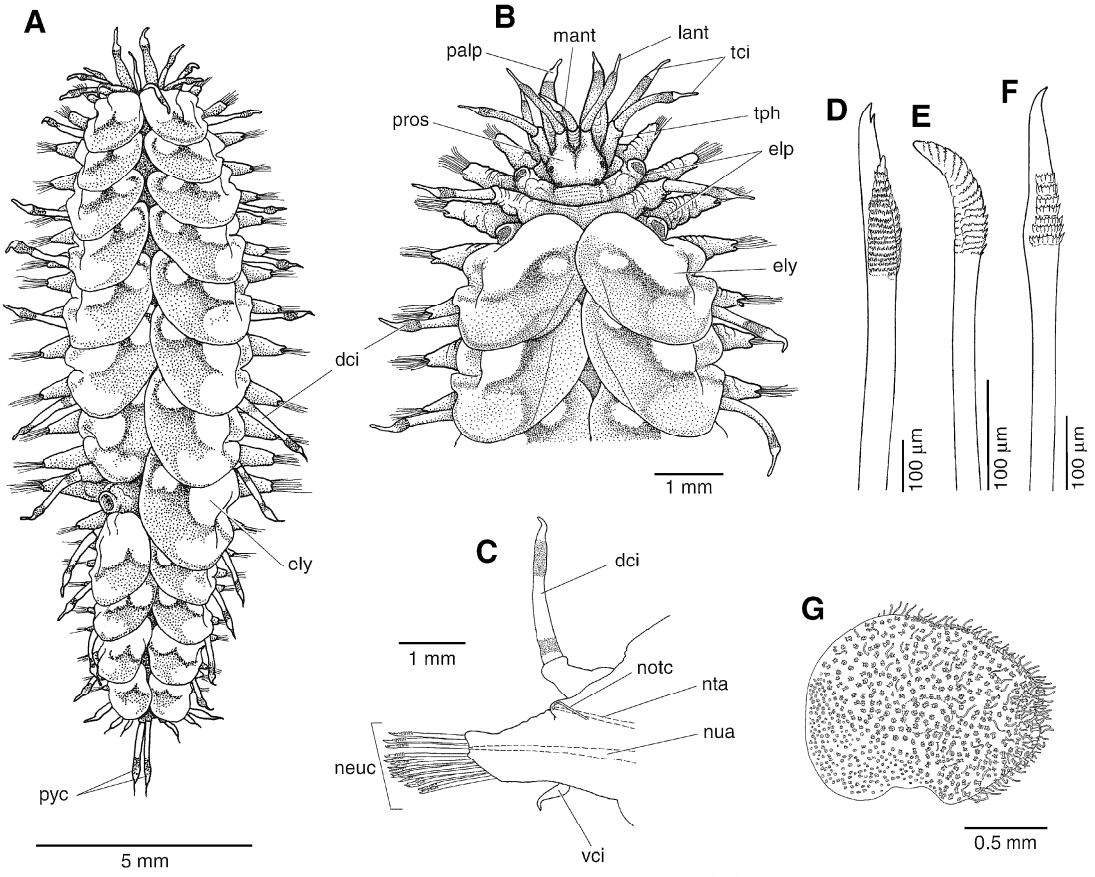


**Figure legend:** Family Polynoidae. **A**-**E**, *Lepidonotus* specimen: **A**, entire animal, dorsal view; **B**, anterior end, dorsal view, first and second elytral pairs removed; **C**, anterior view parapodium from chaetiger 11; **D**, bidentate neurochaeta from parapodium of chaetiger 11; **E**, notochaeta from parapodium of chaetiger 11. **F**, *Gastrolepidia* specimen, unidentate neurochaeta from parapodium of chaetiger 13. **G**, elytron from middle parapodium of *Harmothoe* specimen. **dci**, dorsal cirrus; **elp**, elytrophores; **ely**, elytron; **lant**, lateral antenna; **mant**, median antenna; **neuc**, neurochaetae; **notc**, notochaeta; **nta**, notoacicula; **nua**, neuroacicula; **palp**, palp; **pros**, prostomium; **pyc**, pygidial cirri; **tci**, tentacular cirri; **tph**, tentaculophore; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

## KEY TO SUBFAMILIES AND GENERA:

(adapted from: PETTIBONE, 1969*a*; PETTIBONE, 1976*a*; FAUCHALD, 1977*a*; BARNICH & FIEGE, 2003; WEHE, 2006)

**REMARKS ON THE KEY:** The subfamily Arctonoinae was created by HANLEY (1989) to include species characterized mainly by the presence of lateral antennae inserted terminoventrally, tentaculophores without chaetae, and subbiramous parapodia with neuropodia deeply notched dorsally and ventrally, while in the subfamily Polynoinae these characters would be present as antennae inserted ventrally, tentaculophores usually with chaetae, and biramous parapodia, not deeply incised. HANLEY (1989) included in the subfamily the genera *Adyte* Saint-Joseph 1899, *Arctonoe* Chamberlin 1920, *Asterophilia* Hanley 1989, *Australaugeneria* Pettibone 1969, *Bathynoe* Ditlevsen 1917, *Disconatis* Hanley & Burke 1988, *Gastrolepidia* Schmarda 1861, *Hololepidella* Pettibone 1969, *Minisculisquama* Pettibone 1983, *Neohololepidella* Pettibone 1969, *Paradyte* Pettibone 1969, *Parahololepidella* Pettibone 1969, *Pottsiscalisetosus* Pettibone 1969, and *Subadyte* Pettibone 1969, to which HARTMANN-SCHRÖDER (1996) added *Malmgreniella* Hartman 1967. However, BARNICH & FIEGE (2001, 2003) remarked that some genera that according to HANLEY (1989) should be included in the Arctonoinae, as *Adyte* or *Subadyte*, as

well as *Malmgreniella*, differed in some of the established characters from this subfamily, approaching them to the subfamily Polynoinae. The same had already been stated by HANLEY & BURKE (1991) for *Hololepidella*, a genus initially placed among the Arctonoinae and later transferred to the Polynoinae, after that the examination of additional specimens had revealed the presence of chaetae on the tentaculophores. Besides, according to WEHE (2006), the insertion of the lateral ceratophores is not helpful as a distinguishing character, as a ventral or terminoventral insertion occurs in both subfamilies, while the presence of deeply incised neuropodia is not a distinct character in some genera, and the character subbiramous neuropodia is a subjective one, not useful in order to clearly separate subfamilies. This way, the main difference between both subfamilies would be the presence or absence of chaetae on the tentaculophores, a character that is not unequivocal according to WEHE (2006), as illustrated by the case of the genus *Hololepidella* commented above. BARNICH & FIEGE (2001, 2003) suggested that a revision of the different genera grouped within the Arctonoinae and Polynoinae should be undertaken based on type material, in order to clarify which genera belong to one or another subfamily, and also in order to give a better diagnosis of the two subfamilies. For these reasons, the subfamilies Polynoinae and Arctonoinae are here considered together.

According to WEHE (2006), and following PETTIBONE (pers. comm. *in* HANLEY & BURKE, 1991), the genera *Alentia* Malmgren 1865, *Heteralentia* Burke & Hanley 1991, and *Paralentia* Uschakov 1982, to which WEHE (2006) added the genus *Ophthalmone* Petersen & Britayev 1997, present lateral antennae inserted subterminally instead of terminally, and may constitute a distinct subfamily from Lepidonotinae, in which they are included nowadays.

**1a.** Prostomium without antennae; without palpophores; pharynx with 7 pairs of papillae, jaws without denticled bases.....**SUBFAMILY POLARUSCHAKOVINAE**.....**2**
**1b.** Prostomium with antennae.....**3**

**2a (1a).** Neuropodia with a bulbous papilla on the posterodorsal face of each neuropodium; eleven pairs of elytra present, on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19 and 20.....***Diplaconotum***
**2b (1a).** Neuropodia lacks a bulbous papilla on the posterodorsal face of each neuropodium; nine pairs of elytra on segments 2, 4, 5, 7, 9, 11, 13, 15, and 17.....***Polaruschakov***

**3a (1b).** With one (median) antenna; neuropodia not deeply incised; with notochaetae; noto- and neuropodia with long projecting acicular process; 7-12 pairs of elytra.....**SUBFAMILY MACELLICEPHALINAE**.....**4**
**3b (1b).** With three antennae (one median, two lateral).....**6**

**4a (3a).** Dorsal tubercles on cirrigerous segments forming ciliated branchial structures; segments 19-21; elytra 9 pairs, on segments 2, 4, 5, 7, 9, 11, 13, 15 and 17, with 2-4 posterior segments with dorsal cirri; prostomium bilobed, with frontal filaments (sometimes withdrawn or missing); first or tentacular segment with small projecting acicular lobes and few chaetae; notochaetae stout, spinous, with blunt tips; neurochaetae flattened, transparent, with serrations along lateral borders; pygidium small, subglobular.....***Bathyfauvelia***
**4b (3a).** Dorsal tubercles on cirrigerous segments indistinct or otherwise.....**5**

**5a (4b).** Segments 18; elytra 9 pairs, on segments 2, 4, 5, 7, 9, 11, 13, 15 and 17; prostomium deeply bilobed, with or without paired frontal filaments; first or tentacular segment achaetous, with small or indistinct acicular lobes; notochaetae few to moderate in number, smooth or spinous with blunt tips; neurochaetae very numerous, delicate, transparent, flattened; pygidium bulbous, medial to greatly reduced parapodia of posterior segment. .....***Macellicephala***
**5b (4b).** Segments 17 or 18; elytra 8 pairs, on segments 2, 4, 5, 7, 9, 11, 13 and 15; prostomium bilobed, with frontal filaments; first or tentacular segment with distinct acicular lobes and transverse rows of chaetae; notochaetae stout, with spinous rows, more slender than neurochaetae, with blunt tips; neurochaetae greatly expanded and flattened distally, forming paddle-like swimming chaetae, transparent, with close-set serrations along lateral borders and blunt tips; pygidium elongate, enclosed in large parapodia of posterior segment, with prominent paired depressed areas and pair of subtriangular lobes or cirri.....***Bathyeliasona***

**6a (3b).** With accessory filamentous organs on dorsal cirrophores.....**SUBFAMILY GESIELLINAE**.....***Gesiella***
**6b (3b).** Without accessory filamentous organs on dorsal cirrophores.....**7**

**7a (6b).** Lateral antennae terminally or subterminally inserted; noto- and neuropodia without prominent acicular process; notochaetae moderate, few or absent.....**8**
**7b (6b).** Lateral antennae ventrally or terminoventrally inserted, converging midventrally.....**13**

**8a (7a).** Neuropodia not deeply incised dorsally and ventrally; elytra usually large, covering middorsum, ornamented; dorsal tubercles more or less distinct.....**SUBFAMILY LEPIDONOTINAE**.....**9**
**8b (7a).** Neuropodia deeply incised dorsally and ventrally; elytra usually small, not covering middorsum, smooth (rarely with few micropapillae); dorsal tubercles absent.....**SUBFAMILY LEPIDASTHENIINAE**.....**12**

**9a (8a).** Prostomium anteriorly produced into two large lobes with the small antennae attached distally; more than 15 but less than 30 pairs of elytra; notochaetae thick and finelly serrated; neurochaetae of two kinds, upper slender and smooth, lower thicker, bidentate and vaguely serrated.....***Allmaniella***
**9b (8a).** Prostomium anteriorly tapering into the ceratophores.....**10**

**10a (9b).** Elytra 12 pairs; notochaetae finer than neurochaetae, all tapering with whorls of spines; neurochaetae with rows of coarse teeth, rarely bidentate, usually unidentate.....***Lepidonotus****
**10b (9b).** Elytra 18 pairs or more.....**11**

**11a (10b).** Elytra 18 pairs; 43 segments; notopodia reduced, with a few nearly capillary notochaetae; neurochaetae thin, slender, usually bidentate.....***Alentia****
**11b (10b).** At least 20 pairs of elytrae; numerous segments; notochaetae spinose and capillary; neurochaetae of two kinds: superior ones slender and spiralled, inferior ones acicular and spinose.....***Pseudohalosydna***

**12a (8b).** Seventeen to 20 pairs of elytrae; 36-39 segments; notochaetae absent; neurochaetae unidentate, serrated or smooth.....***Alentiana***
**12b (8b).** Numerous pairs of elytrae and segments; notochaetae few, usually blunt; at least some neurochaetae bidentate; neurochaetae with short, straight or curved tips.....***Lepidasthenia****

**13a (7b).** Cephalic peaks absent; lateral antennae terminoventrally; with or without chaetae on tentaculophores; dorsal tubercles generally bifurcate or bulbous; parapodia biramous, with neuropodia deeply incised dorsally and ventrally; distal border of acicular neuropodial lobes generally distally bifid, with variable development of supraacicular and subacicular processes.....**SUBFAMILY ACHOLOINAE**.....***Acholoe***
**13b (7b).** With or without cephalic peaks; lateral antennae ventrally or terminoventrally; with or without chaetae on tentaculophores; dorsal tubercles nodular or indistinct, but never bifurcate; parapodia biramous, with neuropodia not deeply incised, or subbiramous with neuropodia deeply incised dorsally and ventrally; distal border of acicular neuropodial lobes rounded or pointed, not bifid.....**SUBFAMILIES POLYNOINAE AND ARCTONOINAE**.....**14**

**14a (13b).** Prostomium with distinct cephalic peaks.....**15**
**14b (13b).** Prostomium without or with small, rather indistinct cephalic peaks.....**26**

**15a (14a).** Two kinds of notochaetae.....**16**
**15b (14a).** Notochaetae all similar.....**17**

**16a (15a).** Notochaetae stout with blunt tips, and slender, tapering gradually to capillary tips; neurochaetae are uni- and bidentate; anterior pair of eyes dorsolaterally, on widest part of prostomium.....***Neolagisca***
**16b (15a).** Notochaetae stout with blunt tips, and slender, with sharp, pointed tips, abruptly tapering subdistally to very fine tips; neurochaetae unidentate; anterior pair of eyes ventrolaterally, near cephalic peaks.....***Gattyana***

**17a (15b).** Notochaetae capillaries.....***Enipo***
**17b (15b).** Notochaetae stout.....**18**

**18a (17b).** Neurochaetae distally with bill-shaped tips; without neuropodial supra-acicular process, with neuroacicula not penetrating epidermis.....***Robertianella***

**18b (17b).** Neurochaetae otherwise.....**19**

**19a (18b).** Neurochaetae only with unidentate tips.....**20**
**19b (18b).** Neurochaetae stout, with uni- and bidentate tips.....**23**

**20a (19a).** Neurochaetae distally pencillate.....***Austrolaenilla***
**20b (19a).** Neurochaetae never pencillate.....**21**

**21a (20b).** Neurochaetae stout, tips falcate.....**22**
**21b (20b).** Neurochaetae with capillary tips or some with blunt acicular tips.....***Bylgides***

**22a (21a).** Elytra more or less covering the dorsal region of the worm; body with 35 to 45 segments.....***Eunoe***
**22b (21a).** Elytra not covering the dorsal region of the worm; body with up to 59 segments, maybe more.....***Neopolynoe***

**23a (19b).** Elytra 18 pairs; elytral margin fringed, surface covered by spinous tubercles with simple, bi- or multifid tips.....***Acanthicolepis****
**23b (19b).** Elytra less than 18 pairs.....**24**

**24a (23b).** Elytra 15 pairs.....**25**
**24b (23b).** Elytra 16 pairs.....***Leucia***

**25a (24a).** Some neurochaetae distally split with both parts about equally long and thick, other neurochaetae slender and unidentate.....***Eucranta***
**25b (24a).** Neurochaetae uni- and bidentate, with a smaller secondary tooth.....***Harmothoe****

**26a (14b).** Ventral cirri absent, present only in the buccal segment (segment 2); 18 pairs of elytra.....***Bathynoe***
**26b (14b).** Ventral cirri normally present in all segments; 15 pairs of elytra.....**27**

**27a (26b).** Anterior 1-3 pairs of elytra modified, with amber-colored, translucent, chitinous central area furnished with microtubercles and micropapillae; following elytra smooth, without micropapillae.....***Gorgoniapolynoe***
**27b (26b).** All elytra similar.....**28**

**28a (27b).** Neurochaetae with semilunar pockets.....**29**
**28b (27b).** Neurochaetae without semilunar pockets.....**31**

**29a (28a).** Body elongated, up to 74 segments, with long posterior region (up to 42 segments) lacking elytra; dorsal cirri with styles long, smooth, somewhat inflated below terminal filament; notoacicula penetrating, neuroacicula not penetrating epidermis; neuropodial prechaetal lobes broad, diagonally truncate; notochaetae as stout as, or stouter, than neurochaetae, nearly smooth, with scattered closely appressed spinous rows along convex border; neurochaetae all similar, with long finely spinous regions, tips slightly hooked, minutely bidentate; buccal segment (II) without nuchal fold; nephridial papillae indistinct but with inflated nephridial areas.....***Adyte****
**29b (28a).** Body short, about 40 segments, with short posterior region (12 or less segments) lacking elytra; nephridial papillae distinct.....**30**

**30a (29b).** Dorsal cirri with styles long, smooth; notoacicula penetrating epidermis, neuroacicula may or may not penetrate epidermis; neuropodial prechaetal lobes diagonally truncate, subtriangular to pointed; notochaetae stouter than neurochaetae, curved, sabre-like, smooth except for few spines along convex margin; neurochaetae ot two kinds: supraacicular slender, with elongate spinous areas, tips slightly hooked, bifid; subacicular stouter, smooth tips falcate, entire; buccal segment (II) without nuchal fold.....***Paradyte***
**30b (29b).** Dorsal cirri with styles long, papillate; noto- and neuroacicula penetrating epidermis; neuropodial prechaetal lobes conical; notochaetae subequal to neurochaetae in width, with spinous pouches and blunt tips; neurochaetae all similar (lower ones shorter), with distal spinous regions, tips hooked, bifid; buccal segment (II) with small nuchal fold.....***Subadyte****

**31a (28b).** Numerous segments (45-100); anterior dorsal region of the body barely covered by the elytra; dorsal chaetae thinner than ventral; lateral antennae inserted ventrally; dorsal and midline tubercles present from the anterior region of the body.....***Polynoe****
**31b (28b).** Segments less numerous (up to 59); anterior dorsal region of the body entirely covered by the elytra; dorsal chaetae slightly to clearly thicker than ventral chaetae; dorsal midline tubercles absent.....**32**

**32a (31b).** Notochaetae of two kinds: shorter ones with blunt tips, and longer ones tapering to slender, bifid split tips; lateral antennae inserted terminoventrally.....***Pettibonesia***
**32b (31b).** Notochaetae all similar, short, with tapering entire or notched blunt tips; lateral antennae inserted terminoventrally, subterminally or ventrally (converging midventrally).....**33**

**33a (32b).** Notochaetae smooth or only with very faint transverse striations; neurochaetae of two types: a) numerous, long, slender, finely denticled, with capillary tips, and b) few, shorter, with subequal, diverging, forked, blunt tips (one part of the fork may be longer than the other).....***Melaenis***
**33b (32b).** Notochaetae normally with clear rows of spines; neurochaetae of one or two types: bidentate with secondary tooth subdistally and/or unidentate with pointed or knob-like tip.....***Malmgreniella****

## *GENUS *Acanthicolepis* McIntosh 1900

*Acanthicolepis* MCINTOSH, 1900*a*: 311.
**TYPE SPECIES:** *Polynoë asperrima* M. Sars 1861.
**SYNONYMS:** *Dasylepis* Malmgren 1867 [not Pander 1856 (Pisces)].

### **Acanthicolepis asperrima* (M. Sars 1861)

*Polynoë asperrima* M. SARS, 1861*a*: 59-60.
**TYPE LOCALITY:** 3 miles N of Bergen (Norway), in 20-40 fathoms (36.6-73 meters).
**SYNONYMS:** *Acanthicolepis costeaui* Laubier 1961.
**SELECTED REFERENCES:** *Polynoë asperrima* — M. SARS, 1863: 291. *Dasylepis asperrima* — MALMGREN, 1867*a*: 7; MCINTOSH, 1876*b*: 374-375, pl. 67 figs. 9-11. *Acanthicolepis asperrima* — MCINTOSH, 1900*a*: 311-312, pl. 27 fig. 6, pl. 32 fig. 4, pl. 37 figs. 28-30, pl. 42 fig. 29; EHLERS, 1908: 44; FAUVEL, 1913*a*: 14; [in part]; FAUVEL, 1914*f*: 52-53 [in part]; RIOJA, 1918*b*: 12-13, fig. 2; FAUVEL, 1923*c*: 86, fig. 32*h-m*; LAUBIER, 1961*a*: 8, fig. 3*d*; AMOUREUX, 1977*b*: 407-408; CAMPOY, 1982: 51-52; TEBBLE & CHAMBERS, 1982: 66-68, figs. 22, 58; KIRKEGAARD, 1983*b*: 594; KIRKEGAARD, 1992: 35-37, fig. 8; HARTMANN-SCHRÖDER, 1996: 38-39; CHAMBERS & MUIR, 1997: 74, fig. 11; BARNICH, GIL & FIEGE, 2000: 314-316, figs. 1-2; BARNICH & FIEGE, 2003: 25-27, fig. 7; FIEGE & BARNICH, 2009: 150-152, fig. 1*A-D*. *Harmothoe asperrima* — BIDENKAP, 1895: 57; DITLEVSEN, 1917: 10. *Acanthicolepis asperrima* var. — LAUBIER, 1961*a*: 8, fig. 3*b*, 3*e*. *Acanthicolepis costeaui* — LAUBIER, 1961*a*: 3-7, figs. 1-2, 3*a*, 3*c*; LAUBIER & PARIS, 1962: 8.
**REFERENCES FOR PORTUGAL:** BARNICH, GIL & FIEGE, 2000 (off Sines); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 96 (A.4011)**, near Sines, 118 m, stones: 1 complete specimen with 41 chaetigers, broken in two pieces, 17 mm long for 4 mm wide (without chaetae); anterior fragment with 13 chaetigers, without elytra, prostomium without any antennae, with one glabre palp, one tentacular cirrus with papillae, pointed horns and two pairs of eyes; posterior fragment with 28 chaetigers, lacking the elytra of 15th chaetiger; all other elytra present; two anal cirri, with papillae, lost during manipulation of the specimen.
**DISTRIBUTION:** Northeastern Atlantic, from Iceland and Norway to the Azores, including North Sea, Skagerrak, and Portugal, between 15-1360 meters, on rocky and sandy bottoms, and on *Dendrophilia ramea* and *Avicula*. Western Mediterranean Sea, from the Catalan coast to Monaco, on the coral *Madrepora oculata* (L.) and rocks, between 268-310 meters.

## GENUS *Acholoe* Claparède 1870

*Acholoe* CLAPARÈDE, 1870: 382.
**TYPE SPECIES:** *Polynoe astericola* Delle Chiaje 1841.

### *Acholoe astericola* (Delle Chiaje 1841)

*Polynoe astericola* — DELLE CHIAJE, 1841*b*: 57, 61, 106.
**TYPE LOCALITY:** Ancient Kingdom of Naples region.
**SYNONYMS:** *Polynoë malleata* Grube 1855; *Polynoë asterinae* Carrington 1865.
**SELECTED REFERENCES:** *Polynoe astericola* — DELLE CHIAJE, 1841*d*: pl. 94 fig. 15, pl. 129 fig. 7. *Polynoë asterinae* — CARRINGTON, 1865: 177. *Acholoë astericola* — MARENZELLER, 1874: 420-421; MCINTOSH, 1876*a*: 389, pl. 70 figs. 11-12; MCINTOSH, 1900*a*: 397-399, pl. 27 fig. 17, pl. 31 fig. 4, pl. 33 fig. 15, pl. 41 figs. 13-14. *Acholoe astericola* — CLAPARÈDE, 1870: 382-384, pl. 2 fig. 1; DARBOUX, 1899: 140-142, figs. 32-33; FAUVEL, 1923*c*: 94-95, fig. 36*d-h*; BELLAN, 1964*b*: 31; PETTIBONE, 1996: 635-637, fig. 1; BARNICH & FIEGE, 2003: 78-80, fig. 41. *Acholoë astericola* — CUÉNOT, 1912: 32-33. *Nereis squamosa* [not *Polynoe squamata* Savigny *in* Lamarck 1818] — DELLE CHIAJE, 1827: 368. *Acholoe squamosa* — CAMPOY, 1982: 75-76; CHAMBERS & MUIR, 1997: 76, fig. 12.
**DISTRIBUTION:** North East Atlantic; British Isles; English Channel; Mediterranean Sea; Adriatic Sea; Aegean Sea; West Africa (Ghana, Congo). Symbiontic with *Astropecten irregularis* and *Luidia ciliaris*, where it lives in the ambulacral grooves. Between 6-160 meters.

## *GENUS *Adyte* Saint-Joseph 1899

*Adyte* SAINT-JOSEPH, 1899*b*: 165-167.
**TYPE SPECIES:** *Hermadion assimile* McIntosh 1874 [junior synonym of *Hermadion? hyalinus* G.O. Sars.
**REMARKS:** The genus definition was emended by PETTIBONE (1969*a*).

### **Adyte hyalina* (G.O. Sars 1873)

*Hermadion? hyalinus* G.O. SARS, 1873*a*: 96.
**TYPE LOCALITY:** Storeggen, Norway, 80-100 fathoms (146.3-182.9 meters).
**SYNONYMS:** *Hermadion assimile* McIntosh 1874; *Hermadion echini* Giard 1886.
**SELECTED REFERENCES:** *Adyte hyalina* — BOCK, FIEGE & BARNICH, 2010: 54, fig. 2. *Hermadion assimile* — MCINTOSH, 1874*b*: 194; MCINTOSH, 1875*c*: 117; MCINTOSH, 1876*b*: 387-388, pl. 70 figs. 4-6. *Scalisetosus assimilis* — MCINTOSH, 1900*a*: 377-379, pl. 30 fig. 15, pl. 33 fig. 6, pl 40 figs. 20-22; FAUVEL, 1913*a*: 10-11; FAUVEL, 1914*f*: 48; FAUVEL, 1923*c*: 74-76, fig. 27*g-i*; RIOJA, 1935: 10-12, figs. 7-13; STØP-BOWITZ, 1948*b*: 10, fig. 6; LAUBIER, 1959*a*: 197-199. *Adyte assimilis* — SAINT-JOSEPH, 1899*b*: 167-169, pl. 6 figs. 1-3; PETTIBONE, 1969*a*: 5-8, figs. 2-3; TEBBLE & CHAMBERS, 1982: 62-63, figs. 20*a-b*, 56*a*; CHAMBERS & MUIR, 1997: 78-79, fig. 13; BARNICH & FIEGE, 2003: 27-29, fig. 8. *Subadyte assimilis* — CAMPOY, 1982: 54; BARATECH & SAN MARTÍN, 1987: 39-43, fig. 1. *Hermadion echini* — GIARD, 1886: 8.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Adyte assimilis*; Peniche); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (1st part) — St. 274 (A.3176)**, off Porto Covo, 208 m, muddy sand: 1 incomplete specimen, broken in three pieces; anterior fragment with prostomium, peristomium and 15 chaetigers, middle fragment with 9 chaetigers, posterior fragment without pygidium and with 13 chaetigers, with last elytrum at the 7th chaetiger from the end; eyes visible; elytra without tubercles or fringes of papillae, but with scattered sensory papillae; prostomium bilobed, with lobes rounded anteriorly; tentacular segment without chaetae; it seems to have a dorsal nuchal fold; notochaetae with closely apressed spinous rows along convex side; neurochaetae with basal semilunar cusps and faint distal spinous rows, with tips hooked, minutely bifid; lower neurochaetae shorter; dorsal cirri with cylindrical cirrophores and with long styles, smooth and somewhat inflated below terminal filament.
**DISTRIBUTION:** Northeast Atlantic; North Sea; Scotland; English Channel; Gulf of Gascony; Portugal; Western Mediterranean Sea. Lives associated with *Echinus esculentus* and *E. acutus*, as a facultative commensal. Between 9-293 meters.

## *GENUS *Alentia* Malmgren 1865

*Alentia* MALMGREN, 1865: 80-81.
**TYPE SPECIES:** *Polynoe gelatinosa* M. Sars 1835.

### **Alentia gelatinosa* (M. Sars 1835)

*Polynoë gelatinosa* SARS, 1835: 63-64, pl. 9 fig. 25.
**TYPE LOCALITY:** Söebunden, Bergensfjord, and Floro, Norway.
**SYNONYMS:** *Halosydna (Alentia) jeffreysii* Lankester 1867; [?] *Polynoë foliosa* Savigny 1822.
**SELECTED REFERENCES:** *Halosydna gelatinosa* — SAINT-JOSEPH, 1888: 154-161, pl. 6 figs. 6-21; MCINTOSH, 1900*a*: 384-389, pl. 25 fig. 5, pl. 28 fig. 11, pl. 30 fig. 11, pl. 33 figs. 2, 12, pl. 41 figs. 1-3; FAUVEL, 1913*a*: 4; FAUVEL, 1923*c*: 84-85, fig. 32*a-g*. *Halosydna (Lepidonotus) gelatinosa* — ALAEJOS, 1905: 24-30, text-figs. 4-5, pl. 2 figs. 2-3, pl. 3, pl. 4 figs. 1-6. *Alentia gelatinosa* — FAUCHALD, 1974*b*: 7; CAMPOY, 1982: 74-75; TEBBLE & CHAMBERS, 1982: 65-66, figs. 21, 57*a-d*; KIRKEGAARD, 1992: 39-40, fig. 10; HARTMANN-SCHRÖDER, 1996: 68-69, fig. 22; CHAMBERS & MUIR, 1997: 82, fig. 15; BARNICH & FIEGE, 2003: 80-82, fig. 42. *Halosydna (Alentia) jeffreysii* — LANKESTER, 1867: 377. [?] *Polynoë foliosa* — SAVIGNY, 1822: 23-24; AUDOUIN & MILNE-EDWARDS, 1832: 425-426; GRUBE, 1870*a*: 288-289.
**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (as *Halosydna gelatinosa*; off Faro); FAUVEL, 1914*f* (as *Halosydna gelatinosa*; off Faro); CARVALHO, 1929 (as *Halosydna gelatinosa*; Vila Nova de Milfontes; Sines); CAMPOY, 1982 (previous records: Vila Nova de Milfontes; Sines).
**MATERIAL: FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 5 incomplete specimens; (1) 37 chaetigers for almost 2 cm long; prominent semi-circular nuchal fold covering the posterior part of the prostomium; conical facial tubercle between the palps; without elytra, but possible to see the scars of 16 pairs of elytra; nephridial papillae from chaetiger 6; notopodial chaetae thin, long capillaries, with very fine denticulations, tip rounded; neuropodial chaetae of two kinds, a) upper chaetae unidentate, with the tip hooded and with fine spines along the expanded portion, b) lower chaetae bidentate, with fine spines along the expanded portion; greenish pigmentation on dorsum; (2) 21 chaetigers, pigmented on dorsum, with dark stripes corresponding to segments with dorsal cirri, alternating with light stripes (segments with elytra); (3) 22 chaetigers, facial tubercle well marked, pigmentation not so dark; (4) 34 chaetigers, facial tubercle well marked, pigmentation lighter; (5) 14 chaetigers, one elytra attached, rest as the anterior specimen.
**DISTRIBUTION:** North East Atlantic; Norway; North Sea; Skagerrak; Kattegat; British Isles; English Channel; Mediterranean Sea; Canary Islands; West Africa. In detritic grounds, under stones and among algae. Littoral to about 1950 meters.
**REMARKS:** In case the species *Polynoë foliosa* Savigny 1822 and *Polynoë gelatinosa* Sars 1835 are synonyms, as stated by HARTMAN (1959*a*), the first name would have priority over the second one, unless it is considered as a *nomen oblitum*.

## GENUS *Alentiana* Hartman 1942

*Alentiana* HARTMAN, 1942*a*: 19-20.
**TYPE SPECIES:** *Polynoe aurantiaca* Verrill 1885.

### *Alentiana aurantiaca* (Verrill 1885)

*Polynoë aurantiaca* VERRILL, 1885*a*: 425-426.
**TYPE LOCALITY:** Marthas Vineyard and Vineyard Sound, Massachusetts, eastern coast of the USA, commensal among tentacles of *Bolocera tuediae*, a hexactinellid coral, between 350-1200 meters.
**SELECTED REFERENCES:** *Polynoë aurantiaca* — VERRILL, 1885*b*: 525, pl. 40 fig. 173. *Alentiana aurantiaca* — HARTMAN, 1942*a*: 20-22, figs. 1-6; HARTMAN, 1944*e*: 337, pl. 14 [46]; AMOUREUX, 1973*b*: 48, fig. 2; AMOUREUX, 1977*b*: 407, fig. 5*S-U*.
**DISTRIBUTION:** Off eastern coast of USA; Gulf of Guinea; off the English Channel mouth. Lives as a commensal with deep sea actinians. Between 350-1200 meters.

## GENUS *Allmaniella* McIntosh 1885

*Allmaniella* MCINTOSH, 1885*a*: 102-103.
**TYPE SPECIES:** *Allmaniella setubalensis* McIntosh 1885.

### *Allmaniella setubalensis* McIntosh 1885

*Allmaniella setubalensis* MCINTOSH, 1885*a*: 102-103, pl. 14 fig. 2, pl. 10*A* figs. 3-4.
**TYPE LOCALITY:** Off Setúbal (Portugal), 38º10'N, 9º14'W, at 470 fathoms (859.5 meters), on green mud.
**SELECTED REFERENCES:** *Allmaniella setubalensis* — FAUVEL, 1923*c* 93-94, fig. 36*a-c*; CAMPOY, 1982: 73-74; TEBBLE & CHAMBERS, 1982: 69-70.
**REFERENCES FOR PORTUGAL:** MCINTOSH, 1885*a* (off Setúbal); RIOJA, 1918*b* (as *Almaniella Setubalensis*; previous records: near Setúbal); CAMPOY, 1982 (previous records: 38º10'N – 9º14'W).
**DISTRIBUTION:** Off Setúbal (Portugal), 860 meters, in mud; [?] Shetland Islands.

## GENUS *Austrolaenilla* Bergström 1916

*Austrolaenilla* BERGSTRÖM, 1916: 297.
**TYPE SPECIES:** *Austrolaenilla antarctica* Bergström 1916.
**REMARKS:** The genus definition was emended by PETTIBONE (1955).

**KEY TO SPECIES:**

**1a.** Eyes present; biggest part of neurochaetae clearly bidentate; elytral surface with small and short papillae, being straight and with rounded tips.....***A. mollis***
**1b.** Eyes absent; biggest part of neurochaetae unidentate, few neurochaetae bidentate, with a reduced secondary tooth; elytral surface covered with small papillae, being spiny to blunt conical.....***A. meteorae***

### *Austrolaenilla meteorae* (Hartmann-Schröder 1982)

*Harmothoe (Austrolaenilla) meteorae* HARTMANN-SCHRÖDER, 1982*a*: 3, figs. 1-7.
**TYPE LOCALITY:** Off Western Sahara, 25º30.2'N, 16º00.7'W, at 437 meters.
**DISTRIBUTION:** Known from the type locality.

### *Austrolaenilla mollis* (M. Sars *in* G.O. Sars 1872)

*Lænilla mollis* M. SARS *in* G.O. SARS, 1872*a*: 406-407.
**TYPE LOCALITY:** Drøbak, Christianafjord (Oslofjord), Norway, in 40-50 fathoms (73.2-91.4 meters).
**SELECTED REFERENCES:** *Lænilla? mollis* — G.O. SARS, 1873*b*: 207-214, pl. 14. *Antinoë mollis* — MCINTOSH, 1876*c*: 400-401, pl. 72 fig. 3; MCINTOSH, 1900*a*: 369-370, pl. 28 fig. 14, pl. 33 fig. 9, pl. 40 figs. 12-14. *Harmothoe mollis* — DITLEVSEN, 1917: 25. *Austrolaenilla mollis* — PETTIBONE, 1963*a*: 32-33, fig. 4*d*; KIRKEGAARD, 1992: 44, fig. 12; HARTMANN-SCHRÖDER, 1996: 39. *Harmothoë (Austrolaenilla) mollis* — HARTMANN-SCHRÖDER, 1971*a*: 48. *Harmothoë (Austrolaenilla) mollis* — HARTMANN-SCHRÖDER, 1974*b*: 176. *Antinoe mollis* — AMOUREUX, 1977*b*: 405, fig. 3*I-M*.
**DISTRIBUTION:** North Atlantic, from Norway to Skagerrak; [?] Øresund; off the British Channel, at the continental slope; Off Newfoundland; Gulf of St. Lawrence; Massachusetts. In muddy bottoms. Sublittoral to 1200 meters.

## GENUS *Bathyeliasona* Pettibone 1976

*Bathyeliasona* PETTIBONE, 1976*a*: 23-24.
**TYPE SPECIES:** *Macellicephala abyssicola* Fauvel 1913.

**KEY TO SPECIES:**
(adapted from PETTIBONE, 1976*a*)

**1a.** Segments 17; anterior prostomial filaments slender, filiform; notopodia of posterior segment (17) shorter than neuropodia, as in preceding segments; flattened neurochaetae very wide (more than 0.2 mm in width).....***B. kirkegaardi***
**1b.** Segments 18; anterior prostomial filaments wider, subulate or tapered; notopodia of posterior two segments (17, 18) nearly as long as neuropodia, differing from preceding segments; flattened neurochaetae more slender (about 0.1 mm in width).....***B. abyssicola***

### ***Bathyeliasona abyssicola*** (Fauvel 1913)

*Macellicephala abyssicola* FAUVEL, 1913*a*: 7-8, fig. 2.
**TYPE LOCALITY:** Gulf of Gascony, 46º17'30"N, 5º45'W, at 4380 meters.
**SELECTED REFERENCES:** *Macellicephala abyssicola* — FAUVEL, 1914*f*: 41-43, pl. 1 fig. 9, pl. 3 figs. 4-5, 18-20; FAUVEL, 1923*c*: 44-45, fig. 15*d-g*; ELIASON, 1951: 132; BELLOC, 1953: 2; KNOX, 1959: 106-107; LEVENSTEIN, 1961*b*: 151 [in part; in part (specimens from Java and Bougenville Trenches) doubtful, according to PETTIBONE (1976*a*: 27)]; LEVENSTEIN, 1966: 10 [in part]; REYSS, 1971: 250 [in part]; USCHAKOV, 1971: 38, 40, fig. *F*; LEVENSTEIN, 1972: 172, 174 [in part; in part (specimens from Java and Bougenville Trenches) doubtful, according to PETTIBONE (1976*a*: 27)]. *Macellicephala (Mecellicephala) abyssicola* — HARTMANN-SCHRÖDER, 1974*c*: 76, table 1 [in part]. *Bathyeliasona abyssicola* — PETTIBONE, 1976*a*: 25-27, figs. 13-14. Not *Macellicephala abyssicola* — KIRKEGAARD, 1956: 64 [= *Bathyeliasonia kirkegaardi* (Uschakov 1971); specimen from Banda Trench doubtful (see PETTIBONE, 1976*a*: 26)]. Not *Macellicephala abyssicola* — LEVENSTEIN, 1971: 19 [specimens from Java and Bougenville Trenches doubtful, according to PETTIBONE (1976*a*: 27)].
**DISTRIBUTION:** Gulf of Gascony, 4380 meters; Off Canary Islands, 4255-4267 meters; Off NW Africa, 4867-4872 meters; Bering Sea, 3980 meters; Aleutian Trench. In 3830-7180 meters.

### ***Bathyeliasona kirkegaardi*** (Uschakov 1971)

*Macellicephala kirkegaardi* USCHAKOV, 1971: 37, figs. *A-E*.
**TYPE LOCALITY:** Aleutian Trench, 52º26'N, 170º54'E, 7180 meters.
**SELECTED REFERENCES:** *Macellicephala kirkegaardi* — LEVENSTEIN, 1971: 24, 30, fig. 4*b* [in part]; LEVENSTEIN, 1972: 172 [in part]; REYSS, 1971: 251; LEVENSTEIN, 1973: 129; HARTMANN-SCHRÖDER, 1975: 53-55, figs. 10-15; CAMPOY, 1982: 47. *Macellicephala (Macellicephala) kirkegaardi* — HARTMANN-SCHRÖDER, 1974*c*: 76, table 1. *Bathyeliasona kirkegaardi* — PETTIBONE, 1976*a*: 27-30, figs. 15-17; KIRKEGAARD, 1994: 474, fig. 1. *Macellicephala abyssicola* [not Fauvel 1913] — KIRKEGAARD, 1956: 64 [in part (specimens from Kermadec Trench); in part doubtful (specimen from Banda Trench); specimens from Sunda Trench?].
**DISTRIBUTION:** Aleutian Trench, 7180-7250 meters; Kermadec Trench, 6620 meters; [?] Sunda Trench; off Portugal, 5275 meters. Between 5275-7250 meters.

## GENUS ***Bathyfauvelia*** Pettibone 1976

*Bathyfauvelia* PETTIBONE, 1976*a*: 34-35.
**TYPE SPECIES:** *Macellicephala affinis* Fauvel 1914.

### ***Bathyfauvelia affinis*** (Fauvel 1914)

*Macellicephala affinis* FAUVEL, 1914*c*: 6-8, figs. 3-4.
**TYPE LOCALITY:** North Atlantic, off Madeira, 32º30'30"N, 17º00'W, 0-2380 meters, on mud.
**SYNONYMS:** *Macellicephala annae* Reyss 1971.
**SELECTED REFERENCES:** *Macellicephala affinis* — FAUVEL, 1932*c*: 11-14, pl. 1 figs. 1-7; BELLOC, 1953: 3; USCHAKOV, 1957: 1666, fig. 3*A-D*; KNOX, 1959: 106-107; KHLEBOVICH, 1964: 168; REYSS, 1971: 250; LEVENSTEIN, 1971: 19, fig. 1*a-e* [in part]; LEVENSTEIN, 1972: 171-172, 177 [in part]. *Macellicephala (Macellicephala) affinis* — HARTMANN-SCHRÖDER, 1974*c*: 76, table 1 [in part]. *Bathyfauvelia affinis* — PETTIBONE, 1976*a*: 35-38, figs. 21-22; KIRKEGAARD, 1982: 254; BARNICH & FIEGE, 2003: 90-92. *Macellicephala annae* — REYSS, 1971: 248-250, fig. 3. Not *Macellicephala affinis* — LEVENSTEIN, 1961*a*: 136 (see PETTIBONE, 1976: 38).
**DISTRIBUTION:** North Atlantic, off Madeira Island, 0-2380 meters; Western Mediterranean Sea, off the Gulf of Lions, 2090 meters; Aegean Sea; off Iceland, 2930-2951 meters; North of Jan Mayen, 2400

meters; Franz Josef Land; Arctic Basin, near Wrangel Island, 2245 meters; Kurile-Kamchatka Trench. In muddy sediments. From 0 to 2090-5495 meters. Perhaps bathypelagic.

## GENUS ***Bathynoe*** Ditlevsen 1917

*Bathynoë* DITLEVSEN, 1917: 42-43.
**TYPE SPECIES:** *Bathynoë nodulosus* Ditlevsen 1917.
**SYNONYMS:** *Weberia* Horst 1915 [not Robineau-Desvoidy 1830 (Diptera)].

### ***Bathynoe nodulosa*** Ditlevsen 1917

*Bathynoë nodulosus* DITLEVSEN, 1917: 42-43, text-figs. 18-19, pl. 2 fig. 8, pl. 3 fig. 12, pl. 4 figs. 2, 5.
**TYPE LOCALITY:** North Atlantic, south of Iceland, 61º33'N, 19º00'W, in 1089 fathoms (1991.6 meters).
**SELECTED REFERENCES:** *Bathynoe nodulosa* — HORST, 1918: 178; RUFF, 1991: table 2.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Bylgides*** Chamberlin 1919

*Bylgides* CHAMBERLIN, 1919*a*: 37.
**TYPE SPECIES:** *Bylgia elegans* Théel 1879.
**SYNONYMS:** *Bylgia* Théel 1879 [not G. Münster 1839 (Crustacea)]; *Antinoella* Augener 1928; *Antinoana* Hartman & Fauchald 1971.

**KEY TO SPECIES:**
(adapted from PETTIBONE, 1993*b*)

**1a.** All neurochaetae with capillary tips, acicular neurochaetae absent; without nuchal lobe.....**2**
**1b.** Some acicular neurochaetae present in addition to neurochaetae with capillary tips; with or without nuchal lobe.....**4**

**2a (1a).** Neurochaetae with very short capillary tips; eyes large; number of segments? (incomplete); elytra? (missing).....***B. acutisetis***
**2b (1a).** Neurochaetae with long capillary tips; eyes relatively small; segments 35-37.....**3**

**3a (2b).** Elytral papillae widest basally and heavily chitinized, with bulbous tips; middle neurochaetae without extra-large basal spines.....***B. promamme***
**3b (2b).** Elytral papillae cylindrical, not wider basally, and not heavily chitinized; middle neurochaetae with extra-large basal spines.....***B. groenlandicus***

**4a (1b).** Inflated rectangular nuchal lobe; dorsal tubercles on cirrigerous segments projecting laterally and forming flattened digitiform processes.....***B. annenkovae***
**4b (1b).** Nuchal lobe absent; dorsal tubercles without lateral extensions.....**5**

**5a (4b).** Elytra 15 pairs; anterior pair of eyes about twice as large as posterior pair.....**6**
**5b (4b).** Elytra 14 pairs or less; anterior pair of eyes slightly larger than posterior pair; elytra without microtubercles; neuropodial prechaetal acicular lobe with digitiform supraacicular process.....***B. sarsi***

**6a (5a).** Elytra without microtubercles; neuropodial prechaetal acicular lobe with tapered, conical supraacicular process.....***B. elegans***
**6b (5a).** Elytra with microtubercles; neuropodial prechaetal acicular lobe with slender, digitiform supraacicular process.....***B. sarsi* variety**

### ***Bylgides acutisetis*** Loshamn 1981

*Bylgides acutisetis* LOSHAMN, 1981: 8-9, fig. 3.

**TYPE LOCALITY:** Skåneviksfjorden, SE of Toftekalven (Norway), 59º44'45"N, 05º51'40"E, 345-350 meters, in soft bottoms.
**SYNONYMS:** [?] *Antinoë finmarchica* Malmgren 1867.
**SELECTED REFERENCES:** *Bylgides acutisetis* — PETTIBONE, 1993*b*: 20-21, fig. 12. *Antinoella sarsi* [not Malmgren 1865] — FAUCHALD, 1974*b*: 8 [in part, at least]. *Antinoella plumosa* — FAUCHALD, 1974*b*: 7 [in part; in part *Bylgides groenlandicus* (Malmgren 1867); in part *Bylgides elegans* (Théel 1879)]. *Eunoe nodosa* [not M. Sars 1861] — FAUCHALD, 1974*b*: 8 [in part]. [?] *Antinoë finmarchica* — MALMGREN, 1867*a*: 13. [?] *Antinoe finmarchica* — PETTIBONE, 1993*b*: 3.
**DISTRIBUTION:** Hardangerfjorden, Western Norway, in 345-495 meters. On soft muddy bottoms.
**REMARKS:** *Antinoë finmarchica* was described by MALMGREN (1867*a*: 13) from off Tromsø (Finmark, Norway), in 15 fathoms (27.4 meters), briefly and without figures, as "*Segmenta setigera 35, elytra vix vel non ciliata, setæ rami inferioris validiores et breviores quam in Antinöe Sarsi. Descriptionen extensam dabam cum figura.*" The species was considered as indeterminable by PETTIBONE (1993*b*), who could not find the type material at the Swedish State Museum, in Stockholm. However, it is curious to note that it was described as having the neurochaetae shorter than in *Bylgides sarsi* (Kinberg *in* Malmgren 1865), a character also stated to be present in *Bylgides acutisetis* Loshamn 1981, a species described from the same geographic region than *Antinoë finmarchica*. This way, it is possible that *Antinoë finmarchica* and *Bylgides acutisetis* represent the same species, in which case the first name would have priority, as it is older.

According to PETTIBONE (1993*b*), *Bylgides acutisetis* is also somewhat douftful, due to the absence of complete specimens and lack of elytra in the existing ones. However, it differs from the other known species of *Bylgides* by its short neurochaetae with short spinous regions, ending in sharply tapered capillary tips.

## ***Bylgides annenkovae*** Pettibone 1993

*Bylgides annenkovae* — PETTIBONE, 1993*b*: 11-14, figs. 6-7.
**TYPE LOCALITY:** Bear Island, between Spitsbergen Archipelago and Norway, 27 meters.
**SELECTED REFERENCES:** *Antinoë promamme* — MALMGREN, 1867*a*: 13 [in part; records from Finmark, northern Norway, and Spitsbergen Archipelago]. *Polynoe (Antinoe) Sarsi* [not Malmgren 1865] — HANSEN, 1880: 227. *Polynoe Sarsi* [not Malmgren 1865] — HANSEN, 1882: 15 [in part; record from Bear Island]. *Antinoë badia* [not Théel 1879] — PETTIBONE, 1956: 547-548 [in part; record from Franz Josef Land]. *Antinoella annenkovae* — AVERINCEV, 1977*a*: 145 [*nomen nudum*]. *Bylgides annenkovae* — LEVENSTEIN, 1981: 34 [*nomen nudum*]; USCHAKOV, 1982: 158 [*nomen nudum*].
**DISTRIBUTION:** Eastern Arctic, from Kara Sea to Spitsbergen and northern Norway. In 0-55 meters.

## ***Bylgides elegans*** (Théel 1879)

*Bylgia elegans* THÉEL, 1879: 21-22, pl. 1 figs. 13-16.
**TYPE LOCALITY:** Kara Sea, 73º35'N, 77º30'E, 34 meters, on muddy sand.
**SELECTED REFERENCES:** *Bylgides elegans* — USCHAKOV, 1982: 157; PETTIBONE, 1993*b*: 5-7, figs. 2-3. *Antinoë Sarsi* [not Kinberg *in* Malmgren 1865] — KINBERG *in* MALMGREN, 1865: 75, pl. 9 fig. 6 [in part]. *Antinoë sarsi* [not Kinberg *in* Malmgren 1865] — PETTIBONE, 1954: 215-216; PETTIBONE, 1956: 547. *Antinoëlla sarsi* [not Kinberg *in* Malmgren 1865] — PETTIBONE, 1963*a*: 30, fig. 7*e-j*. *Antinoella sarsi* [not Kinberg *in* Malmgren 1865] — [?] BÖGGEMANN, 1997: 15, fig. 2. *Antinoë promamme* — MALMGREN, 1867*a*: 13 [in part]. *Antinoella plumosa* — FAUCHALD, 1974*b*: 7 [in part; in part *Bylgides acutisetis* Loshamn 1981; in part *Bylgides groenlandicus* (Malmgren 1867)].
**DISTRIBUTION:** Kara Sea; Spitsbergen Archipelago; Norway; Labrador; Alaska to Bering Sea (Circumpolar). On mud, sandy mud, and stony bottoms. Between 9-382 meters.
**REMARKS:** The specimens described by BÖGGEMANN (1997) seem to fit partially the descriptions of *Bylgides elegans* and *B. sarsi* variety. They don't seem to be *B. sarsi* due to the presence of 15 pairs of elytra, against the typical 14 pairs of the species. On the other hand, from Böggemann's drawings it seems that the specimens have conical supraacicular processes and no microtubercles on the elytra (in spite of these microtubercles being referred in the text, the drawings only show the elytral papillae), which would identify them as *B. elegans*. However, the short lower neurochaetae tapering to capillary tips are identical to the described by PETTIBONE (1993*b*) for the variety of *B. sarsi*, while the ones of *B. elgans* show plumose tips. A definitive statement on which form they represent will depend on a revision of Böggemann's material.

## ***Bylgides groenlandicus*** (Malmgren 1867)

*Antinoë grönlandica* MALMGREN, 1867*a*: 13.

**TYPE LOCALITY:** Omenak, in 30 fathoms (55 meters), and Ablartok, in 280 fathoms (512 meters) (Greenland).

**SYNONYMS:** *Antinoë angusta* Verrill 1874; *Polynoë badia* Théel 1879; *Antinoella plumosa* Fauchald 1972.

**SELECTED REFERENCES:** *Bylgides groenlandicus* — LEVENSTEIN, 1981: 32 [footnote]; USCHAKOV, 1982: 153; PETTIBONE, 1993*b*: 16-20, figs. 10-11. *Antinoë Sarsi* [not Kinberg *in* Malmgren 1865] — KINBERG *in* MALMGREN, 1865: 75, pl. 9 fig. 6 [in part]. *Antinoë Sarsii* [not Kinberg *in* Malmgren 1865] — HANSEN, 1878: 1 [in part]; HANSEN, 1882: 44; [in part]. *Antinoe sarsii* forma *occidentalis* — MALM, 1874: 75. *Antinoë angusta* — VERRILL, 1874*d*: 36; HARTMAN, 1942*a*: 23, figs. 13-18. *Antinoëlla angusta* — PETTIBONE, 1963*a*: 31-32, fig. 7*k-m*. *Polynoë badia* — THÉEL, 1879: 20, pl. 1 fig. 11 [in part; *Polynoë badia* variété]. *Antinoella plumosa* — FAUCHALD, 1972*b*: 90-93, fig. 1; FAUCHALD, 1974*b*: 7 [in part, sta. 48 and 65; in part *Bylgides acutisetis* Loshamn 1981; in part *Bylgides elegans* (Théel 1879)]. *Antinoë promamme* [not Malmgren 1967] — MALMGREN, 1867*a*: 13 [in part]. *Harmothoë (Antinoëlla) promamme* [not Malmgren 1867] — ELIASON, 1962*b*: 220-221. *Harmothoë longisetis* [not Grube 1863] — WESENBERG-LUND, 1951: 15 [in part]. *Harmothoë (Antinoëlla) sarsi promamme* [not Malmgren 1867] — HARTMANN-SCHRÖDER, 1974*d*: 176-177.

**DISTRIBUTION:** Greenland; Spitsbergen; Kara Sea; North Atlantic off Norway and west coast of Sweden; Iceland; Skagerrak; off Newfoundland; Gulf of Maine; Massachusetts. On muddy bottoms and very fine sand with few rocks. Between 9-1272 meters.

## ***Bylgides promamme*** (Malmgren 1867)

*Antinoe promamme* MALMGREN, 1867*a*: 13 [in part, *forma major*, records from Spitsbergen].

**TYPE LOCALITY:** Storfjorden (Spitsbergen Archipelago), in 9-33 meters, on fine clay.

**SYNONYMS:** *Polynoe (Lœnilla) glaberrima* Hansen 1880.

**SELECTED REFERENCES:** *Bylgides promamme* — USCHAKOV, 1982: 153; PETTIBONE, 1993*b*: 14-16, figs. 8-9. *Bylgides prommame* — LEVENSTEIN, 1981: 34 [footnote]. *Harmothoe (Antinoella) sarsi promamme* — HARTMANN-SCHRÖDER, 1996: 54. *Antinoë Sarsi* [not Kinberg *in* Malmgren 1865] — KINBERG *in* MALMGREN, 1865: 75, pl. 9 fig. 6 [in part]. *Polynoë badia* — THÉEL, 1879: 18-20, pl. 1 figs. 9-10, 12 [in part; not *Polynoë badia* variété; not fig. 11 (= *Bylgides groenlandicus* (Malmgren 1867)]. *Harmothoë (Antinoëlla) badia* — AUGENER, 1928: 689. *Antinoë badia* — PETTIBONE, 1956: 547-548 [in part; not record from Franz Josef Land]. *Polynoe (Lœnilla) glaberrima* — HANSEN, 1880: 227, pl. 3 figs. 1-5, 8. *Polynoe glaberrima* — HANSEN, 1882: 29-30, pl. 3 figs. 6-11.

**DISTRIBUTION:** Spitsbergen Archipelago; Kara Sea; Arctic Alaska; Baffin Island; Labrador. In clay, clay with stones and mud. Between 9-245 meters.

## ***Bylgides sarsi*** (Kinberg *in* Malmgren 1865)

*Antinoë Sarsi* KINBERG *in* MALMGREN, 1865: 75, pl. 9 fig. 6 [in part, Baltic form].

**TYPE LOCALITY:** Gotland, Östersjön, near St. Anne (Baltic Sea).

**SELECTED REFERENCES:** *Antinoë Sarsi* — MALMGREN, 1867*a*: 13 [in part, *forma minor*]. *Antinoë Sarsi* — MALM, 1874: 75 [in part, forma *balthica*]; MCINTOSH, 1900*a*: 365-368, pl. 28 fig. 10, pl. 31 fig. 2, pl. 33 fig. 17, pl. 40 figs. 7-8. *Antinoe sarsi* — [?] AMOUREUX, 1977*b*: 406, fig. 3*N-O*. *Polynoë Sarsi* — THÉEL, 1879: 16-18. *Harmothoe sarsi* — ELIASON, 1920: 20. *Harmothoe sarsi sarsi* — MEUNIER, 1930: 16 [Baltic form]; MULICKI, 1959: 163-174. *Harmothoë (Antinoëlla) sarsi* — AUGENER, 1928: 687-689; AUGENER, 1939: 134-136; ELIASON, 1962*a*: 14. *Harmothoë (Antinoëlla) sarsi sarsi* — HARTMANN-SCHRÖDER, 1974*d*: 177-178 [in part; in part (at least) *Bylgides sarsi* variety Pettibone 1993]. *Harmothoë (Antinoëlla) sarsi sarsi* — HARTMANN-SCHRÖDER, 1971*a*: 62-65, fig. 18 [in part; in part (at least) *Bylgides sarsi* variety Pettibone 1993]. *Harmothoe (Antinoella) sarsi sarsi* — HARTMANN-SCHRÖDER, 1996: 52-54, fig. 15 [in part; in part (at least) *Bylgides sarsi* variety Pettibone 1993]. *Antinoella sarsi* — KIRKEGAARD, 1992: 40-44, fig. 11 [in part; in part (at least) *Bylgides sarsi* variety Pettibone 1993]. [?] *Antinoella sarsi* — FAUCHALD, 1974*b*: 8 [at least in part = *Bylgides acutisetis* Loshamn 1981]. *Bylgides sarsi* — USCHAKOV, 1982: 153; PETTIBONE, 1993*b*: 7-10, fig. 4; CHAMBERS & MUIR, 1997: 84-85, fig. 16*G*. Not *Antinoella sarsi* — TEBBLE & CHAMBERS, 1982: 25-26, fig. 29 [= *Bylgides finmarchicus* sensu Chambers & Muir 1997].

**DISTRIBUTION:** Baltic Sea, except in inner parts of the Gulf of Finland, Gulf of Bothnia, and shallow gulfs and bays with low salinity and high temperatures; in deeper parts of Gulf of Finland, Åland and Bothnia Seas, in 0.3-80 meters; Swedish east coast from Åland to Karlskrona in 4-110 meters; Gotland

Deep in 150-180 meters; southern Baltic in Gulf of Gdansk in 22-230 meters; Øresund in 12-34 meters; Eastern Kattegat in 2-29 meters; Kiel Bay, Germany; Netherlands, on Isle of Goerce-Overflakkee, with *Arenicola marina* (PETTIBONE, 1993*b*); [?] off the English Channel, at the continental slope, 1250-1400 meters. On sand and clay bottoms.

**REMARKS:** The description of *Bylgides sarsi* specimens in HARTMANN-SCHRÖDER (1971*a*, 1996, and probably 1974, as *Harmothoe sarsi sarsi*) and KIRKEGAARD (1992, as *Antinoella sarsi*) correspond, at least in part, to the variety of *Bylgides sarsi* described by PETTIBONE (1993*b*), as these specimens present 15 pairs of elytra and microtubercles in the elytra (compare PETTIBONE, 1993*b*: fig. 5*B*, with HARTMANN-SCHRÖDER, 1996: fig. 15*c*).

PETTIBONE (1993*b*) did not revise the specimens studied by AMOUREUX (1977*b*). Amoureux did not give much information on his specimens, except for a couple of drawings showing the tips of two neurochaetae, with capillary tips, and that they differed from *Austrolaenilla mollis* (as *Antinoe*), "*par ses élytres à peu près lisses et ses soies beaucoup plus effilées*" (AMOUREUX, 1977*b*: 406). This description seems to indicate that the specimens could belong to *Bylgides sarsi*, but it could also fit other species of *Bylgides* that occur in the same area. The depth where the specimens were collected (1250-1400 meters) approaches the known depth range of *B. groenlandicus* (Malmgren 1867).

### ***Bylgides sarsi*** (Kinberg *in* Malmgren 1865) **variety** Pettibone 1993

*Bylgides sarsi* variety PETTIBONE, 1993*b*: 10-11, fig. 5.

**TYPE LOCALITY:** Östersjön, Gotland, Baltic Sea.

**SELECTED REFERENCES:** *Antinoe sarsi* — LOVÉN, 1863: 468. *Antinoe sarsii* forma *balthica* — MALM, 1874: 75 [in part; in part = *Bylgides sarsi* (Kinberg *in* Malmgren 1865)]. *Harmothoë (Antinoëlla) sarsi sarsi* — HARTMANN-SCHRÖDER, 1971*a*: 62-65, fig. 18 [at least in part]. *Harmothoe (Antinoella) sarsi sarsi* — HARTMANN-SCHRÖDER, 1996: 52-54, fig. 15 [at least in part]. *Antinoella sarsi* — KIRKEGAARD, 1992: 40-44, fig. 11 [at least in part]. [?] *Antinoë finmarchica* [?not Malmgren 1867] — MCINTOSH, 1876*b*: 387; MCINTOSH, 1876*c*: 400, pl. 72 figs. 1-2. [?] *Antinoë finmarchica* — [?not Malmgren 1867] MCINTOSH, 1900*a*: 368-369, pl. 30 fig. 13, pl. 33 fig. 8, pl. 40 figs. 9-11. [?] *Antinoella finmarchica* — [?not Malmgren 1867] — CHAMBERS & MUIR, 1997: 84, fig. 16*A-F*. [?] *Antinoella sarsi* [not *Bylgides sarsi* (Kinberg *in* Malmgren 1865)] — TEBBLE & CHAMBERS, 1982: 25-26, fig. 29.

**DISTRIBUTION:** The variety is known with security from the type locality designated by PETTIBONE (1993), based on the specimen identified by MALM (1874) as *Antinoe sarsii* forma *balthica*, being Östersjön, Gotland, Baltic Sea (depth unknown). Besides, it is possible that the variety (or a similar form) also occurs in Skagerrak, North Sea, Arctic, and North Atlantic, between 30-700 meters.

**REMARKS:** PETTIBONE (1993*b*) studied a single specimen, previously designated by MALM (1874) as *Antinoe sarsii* forma *balthica*, stating that it differed in a few respects from the other specimens referred to *Bylgides sarsi*, but she hesitated to refer it to a new species.

It seems possible that *Antinoella finmarchica* sensu CHAMBERS & MUIR (1997) is the same taxon than the described by PETTIBONE (1993*b*) as *Bylgides sarsi* variety. The neurochaetal types seem to be identical between the two descriptions, and both descriptions refer the presence of microtubercles on the elytra. However, the type described by Chambers & Muir presents rosette tubercles on the elytra that are not present (or at least described) in Pettibone's specimens.

## GENUS ***Diplaconotum*** Loshamn 1981

*Diplaconotum* LOSHAMN, 1981: 11.

**TYPE SPECIES:** *Macellicephala paucidentata* Eliason 1962.

### ***Diplaconotum paucidentatum*** (Eliason 1962)

*Macellicephala paucidentata* ELIASON, 1962*b*: 214-216, fig. 2.

**TYPE LOCALITY:** Skagerrak, 58º02.5'N, 09º29.5'E, 478 meters, on dun coloured mud.

**SELECTED REFERENCES:** *Macellicephala paucidentata* — PETTIBONE, 1976*a*: 66. *Macellicephala (Sinantenna) paucidentata* — HARTMANN-SCHRÖDER, 1974*c*: 80-81, table 1. *Diplaconotum paucidentatum* — LOSHAMN, 1981: 11-12, fig. 5; HARTMANN-SCHRÖDER, 1996: 72. *Diplaconotum paucidentata* — KIRKEGAARD, 1992: 44-46, fig. 13.

**DISTRIBUTION:** Skagerrak. On muddy bottoms. Between 427-478 meters.

**REMARKS:** PETTIBONE (1976*a*) examined the holotype of the species. In spite of its damaged anterior end, PETTIBONE (*op. cit.*) observed what seemed to be the ceratophores of a median antenna and two

ventrally inserted lateral antennae. Being unable to decide on its generic placement, she did however stated that the species did not belong to the genus *Macellicephala*, and considered it as a doubtful species. Later LOSHAMN (1981) examined a second specimen, also from Skagerrak. He redescribed the species, confirmed that it didn't belong to the genus *Macellicephala*, and included it on the new genus *Diplaconotum*, under the subfamily Polaruschakovinae. He also pointed the fact that Eliason's specimen was probably a juvenile.

## GENUS ***Enipo*** Malmgren 1865

*Enipo* MALMGREN, 1865: 83.
**TYPE SPECIES:** *Enipo kinbergi* Malmgren 1865.
**SYNONYMS:** *Nemidia* Malmgren 1865; [?] *Heteropolynoë* Bidenkap 1907.
**REMARKS:** The genera *Enipo* Malmgren 1865 and *Nemidia* Malmgren 1865 were synonymized by LEVINSEN (1883), and followed by DITLEVSEN (1917). This synonymy will be followed here. Both genera were created in the same publication (MALMGREN, 1865), but the genus *Enipo* has priority, as it was published in page 83, against page 84 in the case of *Nemidia*.

**KEY TO SPECIES:**
(adapted from CHAMBERS & MUIR, 1997)

**1a.** Middorsal tubercles present.....**2**
**1b.** Middorsal tubercles absent; all neuropodial chaetae unidentate.....***E. torelli***

**2a (1a).** Chaetae with bidentate tips present on anterior neuropodia.....***E. elisabethae***
**2b (1a).** Neuropodial chaetae all with unidentate tips.....***E. kinbergi***

### ***Enipo elisabethae*** McIntosh 1900

*Enipo elisabethae* MCINTOSH, 1900*a*: 396-396, pl. 41 figs. 9-12.
**TYPE LOCALITY:** In the stomachs of cod and haddock from deep water off St. Andrews Bay, SE Scotland.
**SELECTED REFERENCES:** *Enipo elisabethae* — TEBBLE & CHAMBERS, 1982: 59-60, fig. 19*a*; CHAMBERS & MUIR, 1997: 86, fig. 17. *Enipo Kinbergi?* [not Malmgren 1865] — MCINTOSH, 1876*b*: 388-389, pl. 70 figs. 7-10. *Enipo Kinbergi* [not Malmgren 1865] — MCINTOSH, 1900*a*: 395-396, pl. 41 figs. 9-12. *Polynoe Kinbergi* [not Malmgren 1865] — FAUVEL, 1923*c*: 82-83, fig. 31*i-o*. *Polynœ Kinbergi* [not Malmgren 1865] — MCINTYRE, 1961: 353.
**DISTRIBUTION:** Northern coasts of Britain and Celtic Sea; English Channel. Sub-littoral.

### ***Enipo kinbergi*** Malmgren 1865

*Enipo Kinbergi* MALMGREN, 1865: 83-84, pl. 10 fig. 12.
**TYPE LOCALITY:** Dröbak (Christianiafjorden), Norway.
**SYNONYMS:** [?] *Heteropolynoe Nordgaardi* Bidenkap 1907.
**SELECTED REFERENCES:** *Enipo kinbergi* — TEBBLE & CHAMBERS, 1982: 60-61, figs. 19*b*, 55; KIRKEGAARD, 1992: 46, fig. 14; BÖGGEMANN, 1997: 15, fig. 3; CHAMBERS & MUIR, 1997: 88, fig. 89. *Polynoe (Enipo) kinbergi* — HARTMANN-SCHRÖDER, 1996: 59-61, fig. 18. *Polynoë kinbergi* — CLARK, 1952: 5-6, fig. 2; CLARK, 1960: 13. [?] *Heteropolynoë Nordgaardi* — BIDENKAP, 1907: 9-10, text-fig. 1, pl. 2 figs. 10-13. Not *Enipo Kinbergi* — MCINTOSH, 1900*a*: 395-396, pl. 41 figs. 9-12 [= *Enipo elisabethae* McIntosh 1900]. Not *Polynoe Kinbergi* — FAUVEL, 1923*c*: 82-83, fig. 31*i-o* [= *Enipo elisabethae* McIntosh 1900].
**DISTRIBUTION:** Clyde Sea; North Sea; Skagerrak; Kattegat; Øresund; western Baltic Sea; British Isles; Norway. In soft bottoms, gravel, stones, and among *Zostera*. Sublittoral, 5-100 meters.

### ***Enipo torelli*** (Malmgren 1865)

*Nemidia Torelli* MALMGREN, 1865: 84-85, pl. 13 fig. 22.
**TYPE LOCALITY:** Spitsbergen, in Storfjorden and Whalers Point, in muddy bottoms, 20-30 fathoms (36.6-55 meters).
**SYNONYMS:** *Nemidia (?) Lawrencii* McIntosh 1874.

**SELECTED REFERENCES:** [?] *? Nemidia Torelli* — HANSEN, 1880: 226-227, pl. 1 figs. 6-9 [?] *Nemidia Torelli (?)* — HANSEN, 1882: 30, pl. 3 figs. 12-25. *Nemidia torelli* — AUGENER, 1928: 697; ANNENKOVA, 1937: 154, pl. 3 figs. 20-22; USCHAKOV, 1955: 142, fig. 30*A-B*. *Enipo Torelli* — LEVINSEN, 1883: 196; DITLEVSEN, 1917: 39. *Enipo torelli* — PETTIBONE, 1963*a*: 25, fig. 6*g-i*. *Nemidia (?) Lawrencii* — MCINTOSH, 1874*a*: 266-267, pl. 10 figs. 9-11.
**DISTRIBUTION:** Spitsbergen; White Sea; Barents Sea; West Greenland; Gulf of St. Lawrence; Sea of Japan; Sea of Okhotsk; Bering Sea; Chuckchee Sea. In clay, mixed or not with gravel or stones. Between 10-1624 meters.

## GENUS ***Eucranta*** Malmgren 1865

*Eucranta* MALMGREN, 1865: 79-80.
**TYPE SPECIES:** *Eupolynoë occidentalis* McIntosh 1874 (= *Eucranta villosa* Malmgren 1865).

### ***Eucranta villosa*** Malmgren 1865

*Eucranta villosa* MALMGREN, 1865: 80, pl. 10 fig. 9.
**TYPE LOCALITY:** Bohuslan and Koster Island, in muddy bottoms, at 130 fathoms (237.7 meters).
**SYNONYMS:** *Eupolynoë occidentalis* McIntosh 1874.
**SELECTED REFERENCES:** *Eucranta villosa* — MCINTOSH, 1923*a*: 422-423, pl. 134 fig. 2; PETTIBONE, 1963*a*: 33-34, fig. 4*a-b*; FAUCHALD, 1974*b*: 8; KIRKEGAARD, 1992: 47-49, fig. 15. *Harmothoe (Eucranta) villosa* — HARTMANN-SCHRÖDER, 1996: 54-55. *Eupolynoë occidentalis* — MCINTOSH, 1874*a*: 264, pl. 9 figs. 8-13. *Eucranta occidentalis* — TREADWELL, 1948: 16, fig. 5*c*.
**DISTRIBUTION:** Arctic Ocean; Iceland; North Atlantic, from Norway to the Danish coast of Skagerrak; from Gulf of St. Lawrence to Massachusetts; Bering Sea. In gravel, sand, mud, mixed bottoms, small rocks. Between 20-1200 meters.

## GENUS ***Eunoe*** Malmgren 1865

*Eunoë* MALMGREN, 1865: 61.
**TYPE SPECIES:** *Eunoe oerstedi* Malmgren 1865.

**KEY TO SPECIES:**
(adapted from BARNICH & FIEGE, 2003)

**1a.** Elytral margin smooth.....**2**
**1b.** Elytral margin fringed; palps and styles of antennae, tentacular cirri, and dorsal cirri papillate.....**3**

**2a (1a).** Anterior surface of elytra covered by small conical microtubercles, without macrotubercles; palps and styles of antennae, tentacular cirri, and dorsal and ventral cirri smooth; eyes clearly visible, small, laterally placed, the anterior pair at the middle of the prostomium.....***E. laetmogonensis***
**2b (1a).** Convex edge of elytra with small tubercles, thick, almost dome-shaped or mammiform, some constricted at the base, rendering the shape more ovoid, each of them carrying on the apex a filiform papilla; palps smooth, styles of antennae, tentacular cirri, and dorsal and ventral cirri with few small clavate papillae; eyes very inconspicuous, only slightly pigmented, situated at the edge of the cephalic lobe, the anterior pair almost on the ventral side.....***E. bathydomus***

**3a (1b).** Elytral margin fringed, surface covered by spinous microtubercles with simple, bi- or multifid tips and cylindrical macrotubercles with globulose papillae at tip; styles of ventral cirri smooth.....***E. nodosa***
**3b (1b).** Elytral margin fringed, surface with conical microtubercles, without macrotubercles; styles of ventral cirri papillate.....***E. tuerkayi***

### ***Eunoe bathydomus*** (Ditlevsen 1917)

*Harmothoe (Eunöe) bathydomus* DITLEVSEN, 1917: 25-27, text-fig. 8, pl. 1 figs. 1, 5, 7, pl. 2 figs. 10-11.
**TYPE LOCALITY:** West of South Greenland, 60º17'N, 54º05'W, 1715 fathoms (3136.4 meters).

**SELECTED REFERENCES:** *Harmothoe (Eunöe) bathydomus* — WESENBERG-LUND, 1942: 31-32, fig. 1; DITENOVA, 1985*a*: 99-101.
**DISTRIBUTION:** West of South Greenland and off south Iceland, 2440-3136.4 meters; SW Ireland, 49º23'N, 12º13'W, 1220 meters.

## ***Eunoe laetmogonensis*** Kirkegaard & Billett 1980

*Eunoë laetmogonensis* KIRKEGAARD & BILLETT, 1980: 103-108, figs. 1-3.
**TYPE LOCALITY:** Porcupine Bight, SW Ireland, 49º14.6'N, 12º7.1'W, at 1016-1055 meters, as commensal on the holothurian *Laetmogone violacea* Studer 1876, on which lives in a groove on the ventral side.
**SELECTED REFERENCES:** *Eunoe laetmogonensis* — KIRKEGAARD, 1983*b*: 598.
**DISTRIBUTION:** NE Atlantic: Porcupine Bight, SW Ireland, Shamrock canyon, and NW coast of Africa, between 800-1430 meters.

## ***Eunoe nodosa*** (M. Sars 1861)

*Polynoë nodosa* M. SARS, 1861*a*: 58-59.
**TYPE LOCALITY:** Havøsund (near North Cape), Komagfjord, and Varangerfjord (Norway).
**SYNONYMS:** *Lepidonote scabra* Ørsted 1843 [*nomen oblitum*]; *Lepidonotus pharetratus* Johnston 1865; *Eunoë Oerstedi* Malmgren 1865; *Antinoë zetlandica* Lankester 1867; *Nychia globifera* G.O. Sars 1873; [?] *Eunoa hispanica* McIntosh 1876; *Polynoë (Eunoë) islandica* Hansen 1878; *Polynoë arctica* Hansen 1879; *Polynoe assimilis* Hansen 1880; *Polynoe spinulosa* Hansen 1880; *Polynoe foraminifera* Hansen 1882; [?] *Eunoa tritoni* McIntosh 1900.
**SELECTED REFERENCES:** *Eunoë nodosa* — MALMGREN, 1865: 64, pl. 8 fig. 4; FAUVEL, 1913*a*: 13; FAUVEL, 1914*f*: 51-52; FAUVEL, 1923*c*: 51-52, fig. 18*a-e*. *Eunoa nodosa* — MCINTOSH, 1876*b*: 374, pl. 67 figs. 4-8; MCINTOSH, 1900*a*: 291-296, pl. 27 fig. 9, pl. 32 fig. 3, pl. 37 figs. 20, 22, 24, 26-27, pl. 42 fig. 28. *Eunoe nodosa* — FAUCHALD, 1974*b*: 8 [in part; in part = *Bylgides acutisetis* Loshamn 1981]; TEBBLE & CHAMBERS, 1982: 23-24, figs. 6*a-b*, 28; KIRKEGAARD, 1992: 49-50, fig. 16; BÖGGEMANN, 1997: 15, fig. 4; CHAMBERS & MUIR, 1997: 90-91, fig. 19; BARNICH & FIEGE, 2003: 29, fig. 9. *Harmothoe nodosa* — DITLEVSEN, 1917: 6-8, pl. 2 fig. 1, pl. 3 fig. 10. *Harmothoë (Eunoë) nodosa* — HARTMANN-SCHRÖDER, 1996: 55-56, fig. 16. *Lepidonotus pharetratus* — JOHNSTON, 1865: 113-114, 340, pl. 3 figs. 17-19. *Eunoë Oerstedi* — MALMGREN, 1865: 61-62, pl. 8 fig. 3. *Eunoa Œrstedi* — MCINTOSH, 1900*a*: 292-295, pl. 37 figs. 21, 23, 25. *Eunoë oerstedi* — PETTIBONE, 1953: 46-48, pl. 23 figs. 201-211. *Antinoë zetlandica* — LANKESTER, 1867: 377, pl. 51 figs. 13, 17-18, 22-23. *Lepidonote scabra* — ØRSTED, 1843*b*: 164-166, pl. 1 figs. 2, 7, 10, 12-13, 17-18 [*nomen oblitum*]. *Nychia globifera* — G.O. SARS, 1873*a*: 95. *Polynoe globifera* — HANSEN, 1882: 4-5, pl. 2 figs. 1-9. *Eunoë globifera* — FAUVEL, 1913*a*: 13-14; FAUVEL, 1914*f*: 52. *Lepidonotus globifer* — BIDENKAP, 1895: 61. *Harmothoe globifera* — DITLEVSEN, 1917: 9. [?] *Eunoa hispanica* — MCINTOSH, 1876*c*: 396-397, pl. 71 figs. 5-7. *Polynoë (Eunoë) islandica* — HANSEN, 1878: 2-3, pl. 2. *Polynoë arctica* — HANSEN, 1879: 267-268, pl. 1 figs. 1-5. *Polynoe assimilis* — HANSEN, 1880: 225, pl. 2 figs. 1-5; HANSEN, 1882: 27-28, pl. 1 figs. 22-26. *Polynoe spinulosa* — HANSEN, 1880: 225-226, pl. 2 figs. 6-10; HANSEN, 1882: 28-29, pl.1 figs. 6-10. *Polynoe foraminifera* — HANSEN, 1880: 226, pl. 3 figs. 6-11; HANSEN, 1882: 29, pl. 1 figs. 11-14. [?] *Eunoa tritoni* — MCINTOSH, 1900*a*: 296-298, text-figs. 21-22.
**REFERENCES FOR PORTUGAL:** [?] AMOUREUX & CALVÁRIO, 1981 (as *?Eunoe nodosa*; Tagus Estuary); CALVÁRIO, 1984 (Tagus Estuary); DEXTER, 1992 (as *Eunoë (Harmothoë) nodosa*; previous records: Sines; Sado Estuary; Tagus Estuary).
**DISTRIBUTION:** Arctic Ocean; North Atlantic; Iceland; Scandinavia; British Isles; North Sea; English Channel; Skagerrak; Kattegat; Øresund; Western Mediterranean Sea; Adriatic Sea; West Africa; North Pacific, from the Bering Sea to northern Japan; Off Newfoundland; Davis Strait. On gravel and muddy sand, amongst algae, or on hard bottoms, and also as commensal with pagurids. Sublittoral to 3420 meters.
**REMARKS:** *Nychia globifera* G.O. Sars 1873 was referred to *Harmothoe* by HARTMAN (1959*a*). However, BARNICH, GIL & FIEGE (2000) stated that this generic affiliation was doubtful, as *N. globifera* seemed to have exclusively unidentate neurochaetae, a character of the genus *Eunoe* Malmgren 1865. This generic allocation was confirmed in BARNICH & FIEGE (2009), being *N. globifera* considered as a junior synonym of *Eunoe nodosa* (M. Sars 1861).

## ***Eunoe tuerkayi*** Barnich & Fiege 2003

*Eunoe tuerkayi* BARNICH & FIEGE, 2003: 29-31, fig. 10.

**TYPE LOCALITY:** Rovinj, Limski (Croatia, Adriatic Sea), mud, 32 meters.
**DISTRIBUTION:** Rovinj, Limski (Croatia, Adriatic Sea), in mud, between 31-32 meters.

## GENUS ***Gattyana*** McIntosh 1897

*Gattyana* MCINTOSH, 1897: 167.
**TYPE SPECIES:** *Aphrodita cirrhosa* Pallas 1766.
**SYNONYMS:** *Nychia* Malmgren 1865 [not Stål 1859 (Hemiptera)].
**REMARKS:** The genus definition was emended by PETTIBONE (1953).

**KEY TO SPECIES:**
(adapted from HARTMANN-SCHRÖDER, 1996)

**1a.** Elytra with low-lying conical or cylindrical tubercles, which may have from simple to quinquefid tips; smooth subdistal region of the lower neurochaetae not longer than the spiny region.....***G. cirrhosa***
**1b.** Elytra with slender conical tubercles, which may be distally one or two pointed (seldom three pointed); smooth subdistal region of the lower neurochaetae as long or longer than the spiny region.....***G. amondseni***

### ***Gattyana amondseni*** (Malmgren 1867)

*Nychia Amondseni* MALMGREN, 1867*a*: 5-6, pl. 1 fig. 4.
**TYPE LOCALITY:** Godhavn, Greenland, in 30 fathoms (55 meters).
**SELECTED REFERENCES:** *Gattyana amondseni* — KIRKEGAARD, 1992: 51-52, fig. 17; HARTMANN-SCHRÖDER, 1996: 39-40, fig. 9.
**DISTRIBUTION:** Arctic Ocean; North Pacific; North Atlantic to Skagerrak, Kattegat and Øresund. In muddy and sandy bottoms, but also on stones. Sublittoral to 700 meters.

### ***Gattyana cirrhosa*** (Pallas 1766)

*Aphrodita cirrhosa* PALLAS, 1766: 95-97, pl. 8 figs. 3-6.
**TYPE LOCALITY:** Probably Netherlands, at the North Sea coast.
**SYNONYMS:** *Aphrodita viridis* Montagu 1815; *Lepidonote assimilis* Ørsted 1843; *Polynoë scabriuscula* M. Sars 1861; *Lepidonotus cirratus* var. *parasiticus* Baird 1865; *Nychia cirrosa* var. *chætopteri* Malaquin 1890; *Gattyana cirrosa* var. *Chætopteri* Fauvel 1913; [?] *Gattyana nutti* Pettibone 1955.
**SELECTED REFERENCES:** *Nychia cirrosa* — MALMGREN, 1865: 58, pl. 8 fig. 1; SAINT-JOSEPH, 1895: 198-200. *Gattyana cirrosa* — MCINTOSH, 1900*a*: 285-291, pl. 25 fig. 3, pl. 27 fig. 5, pl. 31 fig. 1, pl. 37 figs. 16-19, pl. 42 fig. 27; FAUVEL, 1913*c*: 12-13; FAUVEL, 1914*f*: 50-51; RIOJA, 1918*b*: 10-12, fig. 1; FAUVEL, 1923*c*: 49-50, fig. 17*a-g*; PETTIBONE, 1953: 41-43, pl. 20 figs. 174-184; GILLANDT, 1979: 22-23, fig. 2; CAMPOY, 1982: 50-51; TEBBLE & CHAMBERS, 1982: 26-28, cover illustration, figs. 2, 5*b*, 6*c-e*; KIRKEGAARD, 1992: 52-54, fig. 18; HARTMANN-SCHRÖDER, 1996: 41-42, fig. 10; BÖGGEMANN, 1997: 15, fig. 5. *Gattyana cirrhosa* — CHAMBERS & MUIR, 1997: 92-93, fig. 20; BARNICH & FIEGE, 2003: 31. *Nychia cirrosa* var. *chætopteri* — MALAQUIN, 1890*b*: 277-280, pl. 6 figs. 1-7. *Gattyana cirrosa* var. *Chætopteri* — FAUVEL, 1913*a*: 13; FAUVEL, 1914*f*: 51. *Gattyana cirrosa* var. *Chaetopteri* — FAUVEL, 1923*c*: 50. *Aphrodita viridis* — MONTAGU, 1815: 18, pl. 4 fig. 1. *Lepidonote assimilis* — ØRSTED, 1843*a*: 13, figs. 3, 6, 14, 32-33, 37-38, 45-46. *Polynoë scabriuscula* — M. SARS, 1861*a*: 61. *Lepidonotus cirratus* var. *parasiticus* — BAIRD, 1865: 161. *Iphione muricata* [not *Polynoe muricata* Savigny *in* Lamarck 1818] — GIBSON, 1886: 150. [?] *Gattyana nutti* — PETTIBONE, 1955: 119-120, fig. 2.
**DISTRIBUTION:** Arctic Ocean; Atlantic Ocean; North Sea; British Isles; English Channel; Skagerrak; Kattegat; Øresund; western Baltic Sea; [?] Mediterranean Sea; [?] Aegean Sea; west Atlantic, from Hudson Bay to South Carolina; North Pacific, south to Japan and to Washington. In many kinds of substrata. Littoral to 1150 meters, often found inside tubes of Terebellidae and Chaetopteridae.

## GENUS ***Gesiella*** Pettibone 1976

*Gesiella* PETTIBONE, 1976*a*: 63-64.
**TYPE SPECIES:** *Macellicephala jameensis* Hartmann-Schröder 1974.

### ***Gesiella jameensis*** (Hartmann-Schröder 1974)

*Macellicephala (Macellicephala) jameensis* HARTMANN-SCHRÖDER, 1974*c*: 76-80, figs. 1-8.

**TYPE LOCALITY:** Jameos del Agua (east coast of Lanzarote, Canary Islands), in a lava tunnel 35 meters wide and 20 meters high, at a water depth of 0.5 to 1 meter, in pebbles.

**SELECTED REFERENCES:** *Gesiella jameensis* — PETTIBONE, 1976*a*: 64-65, fig. 36; PETTIBONE, 1994: 610.

**DISTRIBUTION:** Jameos del Agua, Lanzarote (Canary Islands, Northeastern Atlantic). In lava tunnels, at 2-4 meters.

## GENUS ***Gorgoniapolynoe*** Pettibone 1991

*Gorgoniapolynoe* PETTIBONE, 1991: 688-689.

**TYPE SPECIES:** *Gorgoniapolynoe bayeri* Pettibone 1991.

### ***Gorgoniapolynoe caeciliae*** (Fauvel 1913)

*Polynoë cæciliæ* FAUVEL, 1913*a*: 24-25, fig. 7.

**TYPE LOCALITY:** Five miles NE Maio Island, Cape Verde, 15º17'N, 23º01'45"W, 1311 meters, in greenish muddy sand; Off Portugal, 45º05'N, 9º54'W, 1241 meters, on *Corallium johnsoni* Gray.

**SELECTED REFERENCES:** *Polynoe Caeciliae* — FAUVEL, 1914*f*: 69-70, pl. 4 figs. 1-6, 18-19; FAUVEL, 1923*c*: 82, fig. 31*a-h*; BELLOC, 1953: 4; HARTMANN-SCHRÖDER, 1985*b*: 31-33, 35, figs. 1-5 [in part; not specimens from the Indian Ocean; not figs. 6-11]. *Gorgoniapolynoe caeciliae* — PETTIBONE, 1991: 704-709, figs. 12-14.

**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (as *Polynoë Cæciliæ*; off Figueira da Foz); FAUVEL, 1914*f* (as *Polynoë Cæciliæ*; off Figueira da Foz); HARTMANN-SCHRÖDER, 1985*b* (as *Polynoe caeciliae*; off Aveiro); PETTIBONE, 1991 (off Aveiro).

**DISTRIBUTION:** Eastern North Atlantic Ocean; Gulf of Gascony to off Portugal; Cape Verde; Canary, and Madeira Islands; Western North Atlantic, from Caribbean Sea, Straits of Florida, and off Georgia. On *Corallium johnsoni* Gray, *Corallium niobe* Bayer, *Corallium tricolor* (Johnson), *Candidella imbricata* (Johnson), and *Acanthogorgia aspera* Pourtalès. Between 512-1543 meters.

## *GENUS ***Harmothoe*** Kinberg 1856

*Harmothoë* KINBERG, 1856: 386.

**TYPE SPECIES:** *Harmothoë spinosa* Kinberg 1856.

**SYNONYMS:** *Evarne* Malmgren 1865; *Lænilla* Malmgren 1865; *Lagisca* Malmgren 1865; *Parmenis* Malmgren 1867; *Paranychia* Czerniavsky 1882; *Tricosmochaeta* Morgera 1918; *Evarnella* Chamberlin 1919; *Andresia* Prenant 1924.

**REMARKS:** ALAEJOS (1905) seems to have been the first to synonymize the genus *Lagisca* with *Harmothoe*. Later, PETTIBONE (1953) synonymized the type species of the genus *Lagisca*, *L. rarispina* (M. Sars 1861), with *Harmothoe extenuata* (Grube 1840). The synonymy between both genera was followed by BARNICH & FIEGE (2000*a*), and BARNICH *et al.* (2006), but after the revision of the syntypes, BARNICH & FIEGE (2009) considered *L. rarispina* as being a valid species. This opinion will be followed here.

**KEY TO SPECIES:**
(from BARNICH & FIEGE, 2009)

**REMARKS:** Incomplete specimens of *Harmothoe* can be easily confused with incomplete specimens of similar genera, as *Leucia* or *Acanthicolepis*. For this reason, I maintain here, with just a couple of adaptations, the key provided by BARNICH & FIEGE (2009), which was provided with 5 figures illustrating the main diagnostic characters of the species. For further information, consult the original publication by BARNICH & FIEGE (2009).

**1a.** Without eyes.....**2**

**1b.** With eyes (eye pigment might be faded, but silhouette is normally still visible).....**3**

**2a (1a).** Elytra without macrotubercles; microtubercles elongate conical.....***H. anoculata***
**2b (1a).** Elytra with drop-shaped or cylindrical macrotubercles near posterior margin; microtubercles conical or spine-shaped or cylindrical with bi- or multifid tip.....***H. ingolfiana***

**3a (1b).** Anterior pair of eyes anteroventral, beneath cephalic peaks.....**4**
**3b (1b).** Anterior pair of eyes dorsolateral, at widest part of prostomium.....**7**

**4a (3a).** Elytral surface with polygonal fields; tubercles conical in anterior part, becoming flattened thorn-shaped towards posterior margin, large and small thorns alternating.....***H. areolata***
**4b (3a).** Elytral surface without polygonal fields.....**5**

**5a (4b).** Elytral margin without papillae (except for very short ones on anteriormost elytra), surface covered by scattered, low, conical microtubercles; notochaetae with a small incision on the tip.....***H. spinifera****
**5b (4b).** Elytral margin distinctly papillate; notochaetae without a small incision on the tip.....**6**

**6a (5b).** Elytral margin with long fringing papillae; surface covered by cylindrical microtubercles with bifid to crown-like multifid tip and few scattered papillae; anterior elytra with or without conical to club-shaped macrotubercles near posterior margin.....***H. antilopes****
**6b (5b).** Elytral margin with short fringing papillae; surface covered by conical microtubercles and few scattered papillae, with or without row of conical to drop-like macrotubercles near posterior margin.....***H. imbricata***

**7a (3b).** Elytra with macro- and microtubercles.....**8**
**7b (3b).** Elytra without macrotubercles, only with microtubercles.....**21**

**8a (7a).** Elytral margin without papillae (occasionally few, scattered in anteriormost elytra present).....**9**
**8b (7a).** Elytral margin with distinct papillae.....**10**

**9a (8a).** Anterior half of elytra with numerous conical microtubercles; posterior half with rather indistinct, scattered, soft conical to mamilliform macrotubercles (16 pairs of elytra).....***Leucia violacea***
**9b (8a).** Elytral surface covered by conical microtubercles; conical macrotubercles scattered on surface and near posterior margin.....***H. fraserthomsoni***

**10a (8b).** Macrotubercles spiny or pointed.....**11**
**10b (8b).** Macrotubercles rounded distally, blunt.....**14**

**11a (10a).** Macrotubercles spiny distally, in a row near posterior margin, microtubercles globose, bifid to branched multifid, larger towards posterior margin (16 pairs of elytra).....***Leucia nivea***
**11b (10a).** Macrotubercles and microtubercles otherwise.....**12**

**12a (11b).** Macrotubercles as strong spines near posterior margin; microtubercles covering surface, with simple, bifid, or multifid tip, becoming gradually larger towards posterior margin (18 pairs of elytra).....***Acanthicolepis asperrima***
**12b (11b).** Macrotubercles otherwise.....**13**

**13a (12b).** Macrotubercles large triangular or pyramid-shaped in a row near posterior margin....***H. aspera***
**13b (12b).** Macrotubercles slender thorn-shaped in a row near posterior margin.....***H. serrata***

**14a (10b).** Elytral tubercles often grouped on mounds, others isolated, giving elytron a reticulate appearance (visible on clean elytra!).....***H. impar***
**14b (10b).** All elytral tubercles isolated.....**15**

**15a (14b).** Macrotubercles large club-shaped and distally papillate in a row near posterior margin.....***H. clavigera***
**15b (14b).** Macrotubercles otherwise.....**16**

**16a (15b).** Macrotubercles prominent, stick-shaped in a row near posterior margin and some scattered more centrally.....***H. rarispina***
**16b (15b).** Macrotubercles otherwise.....**17**

**17a (16b).** Macrotubercles rounded, drop-shaped and often darkly pigmented in a row near posterior margin.....***H. extenuata***
**17b (16b).** Macrotubercles otherwise.....**18**

**18a (17b).** Macrotubercles rounded, soft and flattened in a row near posterior margin, giving margin a scallop-shaped appearence.....***H. fragilis***
**18b (17b).** Macrotubercles otherwise.....**19**

**19a (18b).** Macrotubercles conical, blunt, in a dense row near posterior margin; macrotubercles rather small, but still distinctly larger than largest microtubercles.....***H. vesiculosa***
**19b (18b).** Macrotubercles conical to globose scattered near posterior margin.....**20**

**20a (19b).** Elytral margin with short scattered papillae; neurochaetae fragile, smooth or with reduced rows of spines, tips unidentate or minutely bidentate.....***H. abyssicola***
**20b (19b).** Elytra with long papillae at outer lateral margin, becoming shorter towards posterior margin; neurochaetae stout with distinct rows of spines and bi- and unidentate tips.....***H. mariannae***

**21a (7b).** Microtubercles flattened, irregular, consisting of an elevated broad rim surrounding a depressed central area.....***H. pokoui***
**21b (7b).** Microtubercles otherwise.....**22**

**22a (21b).** Microtubercles thorn-shaped.....**23**
**22b (21b).** Microtubercles rounded to conical.....**24**

**23a (22a).** Elytral margin with long papillae; tip of neurochaetae falcate (hooked).....***H. bellani***
**23b (22a).** Elytral margin with scattered, short papillae; tip of neurochaetae rather straight.....***H. evei***

**24a (22b).** Elytral margin without papillae; microtubercles in a patch near anterior margin.....**25**
**24b (22b).** Elytral margin distinctly papillate; microtubercles arranged otherwise.....**26**

**25a (24a).** Noto- and neurochaetae with faint rows of spines; tip of neurochaetae distinctly falcate (hooked); neuropodial supra-acicular process thick, stout.....***H. benthaliana***
**25b (24a).** Noto- and neurochaetae with distinct rows of spines; tip of neurochaetae straight or only slightly falcate; neuropodial supra-acicular process slender, digitiform.....***H. longisetis****

**26a (24b).** Elytral margin and adjacent surface densely papillate.....**27**
**26b (24b).** Elytral margin and surface otherwise.....**28**

**27a (26a).** Microtubercles conical, covering surface, getting larger towards posterior margin; neurochaetae very slender and, except for some uppermost neurochaetae, with reduced rows of spines.....***H. fernandi***
**27b (26a).** Microtubercles conical, in a patch near anterior margin; neurochaetae stout, with distinct rows of spines.....***H. oculinarum***

**28a (26b).** Microtubercles large, conspicuous at low magnification.....**29**
**28b (26b).** Microtubercles small, less distinct.....**30**

**29a (28a).** Microtubercles conical in anterior part, becoming gradually larger and club-shaped towards posterior margin; papillae more or less evenly distributed at outer lateral and posterior margin.....***H. gilchristi***
**29b (28a).** Microtubercles relatively large, rounded to conical with blunt tip; papillae numerous at outer lateral margin, scattered at posterior margin.....***H. aequespina***

**30a (28b).** Microtubercles mainly present in anterior half of elytron, posterior half covered by papillae and some scattered microtubercles; neuropodia with remarkably long, digitiform supra-acicular process.....***H. glabra****

**30b (28b).** Microtubercles covering surface evenly; neuropodia with short, digitiform supra-acicular process.....***H. viridis***

## ***Harmothoe abyssicola*** Bidenkap 1894

*Harmothoe abyssicola* BIDENKAP, 1894: 5-6.

**TYPE LOCALITY:** Norway: Skraaven (Lofoten), 200-300 fathoms (365.8-548.6 meters); Vallø (Oslofjorden), 200-230 fathoms (365.8-420.6 meters).

**SELECTED REFERENCES:** *Harmothoe abyssicola* — BIDENKAP, 1895: 59-60, pl. 2; BARNICH & FIEGE, 2009: 9-15, figs. 3, 6.

**DISTRIBUTION:** Norway, from Oslo to Lofoten; NE Atlantic, between Norway and Shetland Islands (61.39112ºN, 2.07830ºE). Between 283-548.6 meters.

## ***Harmothoe aequespina*** (Langerhans 1884)

*Lagisca aequespina* LANGERHANS, 1884: 252, pl. 15 fig. 8.

**TYPE LOCALITY:** Madeira Island, great depth ("*größerer Tiefe*").

**SYNONYMS:** *Harmothoë goreënsis* Augener 1918; *Harmothoe cascabullicola* Brito, Núñez & Bacallado 1991.

**SELECTED REFERENCES:** *Harmothoe aequespina* — BARNICH & FIEGE, 2009: 15-18, figs. 5, 7. *Harmothoe goreensis* — AUGENER, 1918: 142-146, text-fig. 7, pl. 2 figs. 4-6, pl. 3 fig. 42, text-fig. 7; DAY, 1967: 69, fig. 1.9.*n-r*; INTES & LE LŒUFF, 1975: 275; BRITO, NÚÑEZ & BACALLADO, 1991: 184, fig. 2*C-D*; BARNICH & FIEGE, 2000*a*: 1924-1926, figs. 1, 18; BARNICH & FIEGE, 2003: 45-46, figs. 20-21. *Harmothoe cascabullicola* — BRITO, NÚÑEZ & BACALLADO, 1991: 185-186, figs. 2*A-B*, 3.

**DISTRIBUTION:** North to Southeast Atlantic; Madeira Island; Canary Islands (Tenerife); Western Mediterranean; Adriatic Sea; Aegean Sea; Senegal; Ghana; Angola; South Africa. On different substrata, as coralligène, sand, mud, pebbles, *Dendrophyllia raema*, and amongst algae. Between 8-119 meters.

## ***Harmothoe anoculata*** Hartmann-Schröder 1975

*Harmothoë (Eunoë) anoculata* HARTMANN-SCHRÖDER, 1975: 49-51, figs. 1-4.

**TYPE LOCALITY:** Off Galicia, 45º55.4'N, 14º07.9'W, at 5260 meters, probably in muddy substrate.

**SELECTED REFERENCES:** *Eunoe anoculata* — CAMPOY, 1982: 52. *Harmothoe anoculata* — BARNICH & FIEGE, 2003: 31; BARNICH & FIEGE, 2009: 18, fig. 1.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** BARNICH & FIEGE (2003: 31) revised the paratypes of this species, and found some neurochaetae with bidentate tips, reason why they stated that this species should be placed in the genus *Harmothoe*.

## ****Harmothoe antilopes*** McIntosh 1876

*Harmothoë antilopes* MCINTOSH, 1876*b*: 383-384, pl. 69 figs. 4-6.

**TYPE LOCALITY:** Southwest British Isles, 48º38'N, 10º15'W, at 567 fathoms (1036.9 meters), on sandy mud and stones, and 48º26'N, 9º44'W, at 358 fathoms (654.7 meters), on sandy bottom; off the Hebrides, Scotland; Lochmaddy, North Uist. Possibly also: off Balta, Scotland; and The Minch, Hebrides, Scotland.

**SYNONYMS:** *Polynoë Mazeli* Marion 1877; *Harmothoe norvegica* Bidenkap 1894; *Harmothoe africana* Augener 1918.

**SELECTED REFERENCES:** *Harmothoë antilopis* — MCINTOSH, 1900*a*: 334-336, pl. 28, fig. 13, pl. 29 fig. 14, pl. 32 fig. 16, pl. 38 figs. 24-26. *Harmothoe antilopis* — DITLEVSEN, 1917: 16; BELLAN, 1964*b*: 24. *Harmothoe antilopes* — DAY, 1967: 66, fig. 1.9.*a-e*; FAUCHALD, 1974*b*: 9; CAMPOY, 1982: 58-59; TEBBLE & CHAMBERS, 1982: 32-34, figs. 9*c-e*, 32-33; KIRKEGAARD, 1992: 56-57, fig. 19; PARAPAR, BESTEIRO URGORRI, 1993*b*: 417, fig. 4*A-F*; BÖGGEMANN, 1997: 15, fig. 6; CHAMBERS & MUIR, 1997: 94, fig. 21; BARNICH & FIEGE, 2000*a*: 1901-1902, fig. 6; BARNICH & FIEGE, 2003: 33-34, figs. 11, 12*B-G*, pl. 1 fig. 4; BARNICH & FIEGE, 2009: 18-20, figs. 1, 8. *Harmothoë (Harmothoë) antilopes* — HARTMANN-SCHRÖDER, 1996: 43-44. *Harmothoë Antilopis* — FAUVEL, 1923: 56-57, fig. 19*a-e*. *Evarne Antilopes* — MARION, 1879: 13-15, pl. 15 fig. 1. *Harmothoë norvegica* — BIDENKAP, 1894: 3-4; BIDENKAP, 1895: 57-59, pl. 1. *Harmothoë africana* — AUGENER, 1918: 139-142, text-fig. 6, pl. 2 figs. 15-19. *Harmothoe aequiseta africana* — DAY, 1967: 68, fig. 1.9.*l-m*.

**REFERENCES FOR PORTUGAL:** HARTMANN-SCHRÖDER, 1977*a* (as *Harmothoë (Harmothoë) antilopes*; Bay of Setúbal); MONTEIRO-MARQUES, 1987 (as *Harmothoe antilopis*; continental shelf of Algarve); DEXTER, 1992 (as *Harmothoë antilopis*; previous records: continental shelf of Algarve); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 196 (A.3916)**, off Sines, 125 m, muddy sand: 1 complete specimen, with about 32 chaetigers and about 14 pairs of elytra; prostomium with a weak peak on each lobe; anterior pair of eyes on the outer side of the peaks; lateral antennae very small; all the antennae and dorsal cirri with claviform papillae; elytra fringed with long filamentous papillae; their surfaces are covered with small cylindrical tubercles with rosettes with up to 6 spines on the top.
**DISTRIBUTION:** Northeast Atlantic Ocean, from Norway to the Mediterranean Sea, Adriatic Sea, and Aegean Sea; North Sea; Celtic Sea; Irish Sea; English Channel; West Africa (Senegal, Angola); South Africa. On mud and muddy sand. Between 4-1050 meters.

## ***Harmothoe areolata*** (Grube 1860)

*Polynoe areolata* GRUBE, 1860: 72-74, pl. 3 fig. 2.
**TYPE LOCALITY:** In the original description of the species GRUBE (1860) simply states that the species occurs in the Mediterranean and the Adriatic Sea. BARNICH & FIEGE (2000*a*, 2003) studied syntypes of the species collected at Palermo and Naples (Italy).
**SYNONYMS:** *Antinoë nobilis* Lankester 1867; *Andresia ampullifera* Prenant 1924.
**SELECTED REFERENCES:** *Polynoë areolata* — QUATREFAGES, 1866*b*: 232; CLAPARÈDE, 1868: 381-382, pl. 2 fig. 5. *Harmothoë areolata* — MCINTOSH, 1876*b*: 381-382, pl. 68 figs. 12-14; SAINT-JOSEPH, 1888: 169-171, pl. 7 figs. 41-43; MCINTOSH, 1900*a*: 349-352, pl. 27 fig. 15, pl. 30 fig. 3, pl. 32 fig. 17, pl. 33 fig. 3, pl. 39 figs. 17-19; FAUVEL, 1913*a*: 18-19; FAUVEL, 1923*c*: 62-63, fig. 22*a-e*. *Harmothoe areolata* — SAINT-JOSEPH, 1906: 193-194, pl. 3 figs. 69-70; BELLAN, 1964: 25; SOSA, NÚÑEZ & BACALLADO, 1977: 233-234, pl. 3*A-D*; CAMPOY, 1982: 59; CHAMBERS & MUIR, 1997: 96, fig. 22; BARNICH & FIEGE, 2000*a*: 1897-1898, fig. 4; BARNICH & FIEGE, 2003: 34-36, fig. 13, pl. 1 fig. 5; BARNICH & FIEGE, 2009: 20-21, figs. 1, 9. *Antinoë nobilis* — LANKESTER, 1867: 375, pl. 51 figs. 1-9. *Andresia ampullifera* — PRENANT, 1924: 19-29, figs. 1-7; FAUVEL, 1927: 406-407.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Roca); SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (as *Harmothoë areolata*; western continental shelf of Algarve); CAMPOY, 1982 (previous records: Arrábida; Portuguese coast); SALDANHA, 1995 (Portugal).
**DISTRIBUTION:** Northeast Atlantic; British Isles; English Channel; Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; Cape Verde Islands. On hard bottoms, between stones, algae, *Posidonia* rhizomes, and coralligenous bottoms. Between 1-110 meters.

## ***Harmothoe aspera*** (Hansen 1879)

*Polynoe aspera* HANSEN, 1878: 1-2, pl. 1.
**TYPE LOCALITY:** North Atlantic, between Iceland and Faroes, 64º36'N, 10º22'W, 547 meters, in sand and ooze.
**SELECTED REFERENCES:** *Polynoe aspera* — HANSEN, 1882: 5-24, pl. 2 figs. 10-15. *Harmothoë aspera* — FAUVEL, 1914*f*: 57. *Harmothoe aspera* — DITLEVSEN, 1917: 35-36, pl. 2 fig. 7; CAMPOY, 1982: 59-60; USCHAKOV, 1982: 167; KIRKEGAARD, 1992: 57-58, fig. 20; BARNICH & FIEGE, 2000*a*: 1915-1917, fig. 13; BARNICH & FIEGE, 2003: 37, fig. 14; BARNICH & FIEGE, 2009: 21-24, figs. 1, 9. *Harmothoe (Harmothoe) aspera* — HARTMANN-SCHRÖDER, 1996: 44 [in part; not *Harmothoe multisetosa* (Moore 1902) (see PETTIBONE, 1953: 29)].
**DISTRIBUTION:** Arctic; Davis Strait; Northeast Atlantic to Spain; North Sea; Skagerrak; Kattegat; Galicia; Western Mediterranean; North Pacific. In several types of substrata. Between 20-1000 meters.

## ***Harmothoe bellani*** Barnich & Fiege 2000

*Harmothoe bellani* BARNICH & FIEGE, 2000*a*: 1920-1922, fig. 16.
**TYPE LOCALITY:** Banyuls-sur-Mer (Mediterranean coast of France), near the Laboratoire Arago, in *Posidonia*, at 10 meters.
**SELECTED REFERENCES:** *Harmothoe bellani* — BARNICH & FIEGE, 2003: 38, fig. 15; BARNICH & FIEGE, 2009: 24-26, figs. 4, 11. *Harmothoe reticulata* [not Claparède 1870] — FAUVEL, 1913*a*: 17-18 [in part; in part = *Harmothoe impar* (Johnston 1839)]. *Harmothoe goreensis* [not Augener 1918] — AMOUREUX, RULLIER & FISHELSON, 1978: 64.
**DISTRIBUTION:** Western Mediterranean Sea, between algae and *Posidonia* rhizomes, at 2-10 meters; Red Sea, Gulf of Elat, in a sponge in 25 meters.

## ***Harmothoe benthaliana*** McIntosh 1885

*Harmothoë benthaliana* MCINTOSH, 1885*a*: 95-96, pl. 13 fig. 3, pl. 20 fig. 7, pl. 10*A* figs. 9-10.

**TYPE LOCALITY:** Off the American coast (off New Jersey), 38º34'N, 72º10'W, at 1240 fathoms (2267.7 meters), in blue mud.

**SYNONYMS:** *Harmothoe Joubini* Fauvel 1913; *Harmothoe joubini rosaurae* Monro 1939.

**SELECTED REFERENCES:** *Harmothoe benthaliana* — BARNICH & FIEGE, 2009: 26-28, figs. 4, 12. *Harmothoë Joubini* — FAUVEL, 1913*a*: 15-16, fig. 5; FAUVEL, 1914*f*: 54-56, pl. 3 figs. 6-12; FAUVEL, 1923*c*: 70, fig. 25*f-l*. *Harmothoe joubini* — CAMPOY, 1982: 65. *Harmothoe joubini rosaurae* — MONRO, 1939*a*: 350, text-fig. 281.

**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (as *Harmothoë Joubini*; off Faro); FAUVEL, 1914*f* (as *Harmothoë Joubini*; off Faro); CAMPOY, 1982 (as *Harmothoe joubini*; previous records: Cape São Vicente); BARNICH & FIEGE, 2009 (off Cape São Vicente).

**DISTRIBUTION:** Off the American coast, 38º34'N, 72º10'W, at 1240 fathoms (2267.7 meters), in blue mud; 60 miles SSE off Cape São Vincente, Portugal, at 1473 meters, in mud; between Fuerteventura (Canary Islands) and the African coast, 28º25'N, 13º34'W, at 1300 meters.

## ***Harmothoe clavigera*** (M. Sars 1863)

*Polynoë clavigera* M. SARS, 1863: 294-298.

**TYPE LOCALITY:** Oslofjord (Norway), between 30-40 fathoms (54.9-73.2 meters).

**SYNONYMS:** *Harmothoë impar* var. *Pagenstecheri* Michaelsen 1896.

**SELECTED REFERENCES:** *Harmothoe clavigera* — BARNICH & FIEGE, 2009: 28-30, figs. 3, 13. *Harmothoë impar* var. *Pagenstecheri* — MICHAELSEN, 1896: 7-11, pl. 1 fig. 1. *Harmothoe pagenstecheri* — CHAMBERS & MUIR, 1997: 108, fig. 28; BARNICH & FIEGE, 2000*a*: 1909-1911, fig. 10; BARNICH & FIEGE, 2003: 52-53, fig. 26. *Harmothoe impar* var. *Pagenstecheri* — SAINT-JOSEPH, 1898: 231-233, pl. 13 figs. 14-20. *Evarne impar* [not *Harmothoe impar* (Johnston 1839)] — MCINTOSH, 1900*a*: 353-358, pl. 26 fig. 5, pl. 27 fig. 13, pl. 30 fig. 7, pl. 32 fig. 18, pl. 39 figs. 20-22 [in part]. *Harmothoe impar* [not *Harmothoe impar* (Johnston 1839)] — FAUVEL, 1923*c*: 59-61, fig. 21*a-f* [in part]; BELLAN, 1964*b*: 24 [in part]; CAMPOY, 1982: 63-64 [in part]; TEBBLE & CHAMBERS, 1982: 40-41, figs. 7*b*, 12*b-c*, 38 [in part]; KIRKEGAARD, 1992: 64-66, fig. 25 [in part]. *Harmothoe (Harmothoe) impar* [not *Harmothoe impar* (Johnston 1839)] — HARTMANN-SCHRÖDER, 1996: 48-50, fig. 13 [in part].

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Harmothoe impar*; coast of Arrábida); SALDANHA, 1995 (as *Harmothoe impar*; Portugal).

**DISTRIBUTION:** Southern North Sea; English Channel; Isle of Man; western Scotland; SW Ireland; Western Mediterranean Sea. At the Mediterranean Sea, between rhizomes of *Posidonia*. Littoral to sublittoral.

**REMARKS:** DAUVIN, DEWARUMEZ & GENTIL (2003: 76) considered *H. pagenstecheri* Michaelsen 1896 (with type locality at Helgoland) as being a junior synonym of *H. clavigera* M. Sars 1863 [type locality at Oslofjord (Norway), between 30-40 fathoms (54.9-73.2 meters)]. This synonymy was confirmed by BARNICH & FIEGE (2009), having *H. clavigera* priority.

## ***Harmothoe evei*** Kirkegaard 1980

*Harmothoe evei* KIRKEGAARD, 1980*b*: 82, fig. 1*a-d*.

**TYPE LOCALITY:** Northeast Atlantic, off Brittany, 47º30'N, 9º34'W, 4250-4265 meters.

**SELECTED REFERENCES:** *Harmothoe evei* — BARNICH & FIEGE, 2009: 30-31, figs. 4, 14.

**DISTRIBUTION:** Known from the type locality.

## ***Harmothoe extenuata*** (Grube 1840)

*Polynöe extenuata* GRUBE, 1840: 86.

**TYPE LOCALITY:** Gulf of Naples. Neotype designated by BARNICH & FIEGE (2009), from the Bay of Naples.

**SYNONYMS:** [?] *Lepidonotus semisculptus* Leach *in* Johnston 1865; *Lepidonotus dumetosus* Quatrefages 1866; *Lepidonotus Leachii* Quatrefages 1866; *Harmothoe Sarniensis* Lankester 1867; *Lagisca propinqua* Malmgren 1867; [?] *Lagisca ehlersi pontica* Czerniavsky 1882.

**SELECTED REFERENCES:** *Polynoe extenuata* — CLAPARÈDE, 1868: 380-381, pl. 2 fig. 2. *Lagisca extenuata* — MARENZELLER, 1875: 133-139, pl. 1 fig. 1; SAINT-JOSEPH, 1888: 180-182, pl. 8 figs. 52-54; SAINT-JOSEPH, 1898: 237-238; MCINTOSH, 1900*a*: 307-310, text-fig. 24, pl. 28 fig. 2, pl. 29 fig. 9, pl. 32

fig. 8, pl. 38 figs. 10-13 [in part]; FAUVEL, 1913*a*: 21-22; FAUVEL, 1914*f*: 62-64; FAUVEL, 1923*c*: 76-78, fig. 28*a-k* [in part; not *Polynoe rarispina* M. Sars 1861]; BELLAN, 1964*b*: 30; HARTMANN-SCHRÖDER, 1971*a*: 71-73, fig. 22 [in part]; FAUCHALD, 1974*b*: 9; CAMPOY, 1982: 56-57; HARTMANN-SCHRÖDER, 1996: 57-58, fig. 17. *Harmothoë extenuata* — ALAEJOS, 1905: 55-60, pl. 9 fig. 8, pl. 10 figs. 1-12, pl. 11 fig. 1. *Harmothoe extenuata* — PETTIBONE, 1953: 31-32 [in part; not *Polynoe rarispina* M. Sars 1861]; GARDINER, 1976: 90, fig. 2*l-m*; TEBBLE & CHAMBERS, 1982: 34-36, figs. 10, 34; CHAMBERS & MUIR, 1997: 98-99, fig. 23; BARNICH & FIEGE, 2000*a*: 1912-1915, fig. 12; BARNICH & FIEGE, 2003: 38-41, fig. 16; BARNICH & FIEGE, 2009: 32-34, figs. 3, 15. *Harmothoë (Lagisca) extenuata* — PETTIBONE, 1963*a*: 41-42, fig. 8*a-c* [in part; not *Polynoe rarispina* M. Sars 1861]. *Lagisca propinqua* — MALMGREN, 1867*a*: 9, pl. 1 fig. 3; MCINTOSH, 1876*b*: 375-376, pl. 67 figs. 12-14 [in part]; KIRKEGAARD, 1992: 71-73, fig. 29. *Harmothoe propinqua* — DITLEVSEN, 1917: 14-15, pl. 3 figs. 1, 3. *Harmothoe Sarniensis* — LANKESTER, 1867: 374. *Polynoë floccosa* [not Savigny *in* Lamarck 1818 = indeterminable (see: FAUVEL, 1923*c*: 78; BARNICH & FIEGE, 2009: 69)] — MCINTOSH, 1876*b*: 380-381, pl. 68 figs. 6, 8, 10. *Lagisca floccosa* [not Savigny *in* Lamarck 1818 = indeterminable (see: FAUVEL, 1923*c*: 78; BARNICH & FIEGE, 2009: 69)] — MCINTOSH, 1900*a*: 298-303, text-fig. 23, pl. 26 fig. 2, pl. 27 fig. 14, pl. 29 fig. 10, pl. 32 fig. 5, 9, pl. 34 fig. 2, pl. 37 figs. 31-32, pl. 38 figs. 1-3 [in part]. *Harmothoe floccosa* [not Savigny *in* Lamarck 1818 = indeterminable (see: FAUVEL, 1923*c*: 78; BARNICH & FIEGE, 2009: 69)] — DITLEVSEN, 1917: 8, pl. 3 fig. 14. *Lepidonotus dumetosus* — QUATREFAGES, 1866*b*: 259 [according to FAUVEL (1923*c*) and BARNICH & FIEGE (2009); according to CHAMBERS & MUIR (1997: 175) this species is an unidentifiable *Harmothoe* species]. *Lepidonotus Leachii* — QUATREFAGES, 1866*b*: 258 [according to FAUVEL (1923*c*) and BARNICH & FIEGE (2009); according to CHAMBERS & MUIR (1997: 175) this species is an unidentifiable *Harmothoe* species]. [?] *Lepidonotus semisculptus* — LEACH *in* JOHNSTON, 1865: 116-117, 340. [?] *Lagisca ehlersi pontica* — CZERNIAVSKY, 1882: 183, pl. 3 fig. 10*A-C*, *a-l*.

**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (as *Lagisca extenuata*; off Faro); FAUVEL, 1914*f* (as *Lagisca extenuata*; off Faro); BELLAN, 1960*a* (Cape Espichel); AMOUREUX, 1974*b* (as *Lagisca extenuata*; off Porto); SALDANHA, 1974 (as *Lagisca extenuata*; coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (as *Lagisca extenuata*; western continental shelf of Algarve); AMOUREUX & CALVÁRIO, 1981 (as *Lagisca extenuata*; Peniche; Lagoon of Óbidos); CAMPOY, 1982 (as *Lagisca extenuata*; previous records: Porto; Portuguese coast); CALVÁRIO, 1984 (as *Lagisca extenuata*; Tagus Estuary); DEXTER, 1992 (as *Lagisca (Harmothoë) extenuata*; previous records: Tagus Estuary); SALDANHA, 1995 (Portugal).

**DISTRIBUTION:** Arctic Ocean; from Hudson's Bay to to Chesapeake Bay; Northeast Atlantic, from Iceland to the Faroes; British Isles; North Sea; English Channel; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Madeira Island; Canary Islands; South Africa; North Pacific, from Bering Sea to northern Japan Sea; Southern California. On rocks and under stones, between algae, coralligène, *Posidonia* rhizomes, muddy or sandy bottoms, and sometimes found in the tubes of other polychaetes. Between 0-500 meters.

## ***Harmothoe fernandi*** Barnich & Fiege 2009

*Harmothoe fernandi* BARNICH & FIEGE, 2009: 34-35, figs. 5, 16.

**TYPE LOCALITY:** Northern Norway, 69º35.34'N, 17º54.80'E, at 411 meters.

**SELECTED REFERENCES:** *Evarne Johnstoni* — MCINTOSH, 1900*a*: 358-363, pl. 27 fig. 7, pl. 28 fig. 12, pl. 30 fig. 6, pl. 32 fig. 19, pl. 39 figs. 23-28 [in part; not *Evarne Johnstoni* McIntosh 1876 = indeterminable].

**DISTRIBUTION:** Northern Norway, between 26-411 meters.

## ***Harmothoe fragilis*** Moore 1910

*Harmothoë (Evarne) fragilis* MOORE, 1910: 353-357, pl. 29 figs. 29-30, pl. 30 figs. 31-33.

**TYPE LOCALITY:** Off Santa Catalina Island, Southern California, 152-162 fathoms (278-296 meters), in fine sand.

**SELECTED REFERENCES:** *Harmothoe fragilis* — PETTIBONE, 1963*a*: 39-41, fig. 9*g*; TEBBLE & CHAMBERS, 1982: 38-39, figs. 5*c-d*, 12*a*, 37; KIRKEGAARD, 1992: 59-61, fig. 22; CHAMBERS & MUIR, 1997: 100, fig. 24; BARNICH & FIEGE, 2000*a*: 1911-1912, fig. 11; BARNICH & FIEGE, 2003: 41-42, fig. 17; BARNICH & FIEGE, 2009: 37-39, figs. 3, 17. *Harmothoe (Harmothoe) fragilis* — HARTMANN-SCHRÖDER, 1996: 44. *Evarne impar* [not *Harmothoe impar* (Johnston 1839)] — MALMGREN, 1865: 71-72, pl. 9 fig. 7. *Harmothoe impar* [not *Harmothoe impar* (Johnston 1839)] — DITLEVSEN, 1917: 12-13, text-fig. 1, pl. 2 fig. 16, pl. 3 fig. 2; ELIASON, 1962*b*: 217; PETTIBONE, 1956: 550-551.

**DISTRIBUTION:** Arctic Ocean; North Atlantic; Skagerrak; Kattegat; west coast of Scotland; Isle of Man; English Channel; Western Mediterranean Sea; North Pacific; northern Japan; California; Labrador; Massachusetts. In fine sand and mud. Sublittoral to 2900 meters.

## ***Harmothoe fraserthomsoni*** McIntosh 1896

*Harmothoë Fraser-Thomsoni* MCINTOSH, 1896: 401.
**TYPE LOCALITY:** Off the Butt of Lewis, Færöe Channel, at 93 fathoms (170 meters).
**SYNONYMS:** [?] *Harmothoe Talismani* Roule 1898.
**SELECTED REFERENCES:** *Harmothoë Fraser-Thomsoni* — MCINTOSH, 1900*a*: 337-339, pl. 28 fig. 7, pl. 29 fig. 15, pl. 32 fig. 11, pl. 39 figs. 4-6; FAUVEL, 1914*f*: 56-57, pl. 3 figs. 13, 15-16; FAUVEL, 1923*c*: 68-69, fig. 25*a-e*. *Harmothoe Fraser-Thomsoni* — DITLEVSEN, 1917: 16-17, text-figs. 3-4, pl. 3 figs. 4-5, 9. *Harmothoe fraser-thomsoni* — BELLAN, 1964*b*: 27. *Harmothoe fraserthomsoni* — CAMPOY, 1982: 60-61; TEBBLE & CHAMBERS, 1982: 36-38, figs. 11, 35-36; CHAMBERS & MUIR, 1997: 102, fig. 25; BARNICH & FIEGE, 2000*a*: 1903-1904, fig. 7; BARNICH & FIEGE, 2003: 42-43, fig. 18; BARNICH & FIEGE, 2009: 39, figs. 2, 18. *Harmothoë haliaëti* [not McIntosh 1876 = indeterminable (see TEBBLE & CHAMBERS, 1982: 70)] — MCINTOSH, 1885*a*: 96-97 [in part]. [?] *Polynoe (Harmothoe) Talismani* — ROULE, 1898*a*: 192-193; ROULE, 1906: 29-33, pl. 3 fig. 14, pl. 4 figs. 21-22, pl. 7 figs. 57-58. [?] *Lagisca Talismani* — FAUVEL, 1913*a*: 23; FAUVEL, 1914*f*: 66-67. [?] *Lagisca talismani* — CAMPOY, 1982: 55-56. Not *Harmothoë fraser-thomsoni* — RULLIER, 1964*b*: 125. Not *Harmothoe fraserthomsoni* — DAY, 1967: 74, fig. 1.11.*l-p* [according to TEBBLE & CHAMBERS, 1982].
**DISTRIBUTION:** Northeast Atlantic; British Isles; Ireland; Scotland; English Channel; Mediterranean Sea; Adriatic Sea; Aegean Sea. Hard and detritic bottoms, and coralligenous. Sublittoral to 250 meters. [?] Atlantic Ocean: Gulf of Gascony; off Portugal; Azores; Canary Islands; between 523-1266 meters (as *Harmothoe talismani* or *Lagisca talismani*).

## ***Harmothoe gilchristi*** Day 1960

*Harmothoe gilchristi* DAY, 1960: 275-277, fig. 1*a-f*.
**TYPE LOCALITY:** Agulhas Bank (South Africa), [?] 34º46'S, 23º27'E, [?] 110 meters, on [?] rock.
**SELECTED REFERENCES:** *Harmothoe gilchristi* — DAY, 1967: 68, fig. 1.10.*a-e*; AMOUREUX, RULLIER & FISHELSON, 1978: 65; BRITO, NÚÑEZ & BACALLADO, 1991: 184, fig. 2*E*; BARNICH & FIEGE, 2000*a*: 1922-1924, fig. 17; BARNICH & FIEGE, 2003: 43-45, fig. 19; BARNICH & FIEGE, 2009: 41, figs. 5, 19.
**DISTRIBUTION:** South Africa (Cape Province), 97-188 meters; Canary Islands (Tenerife); Mediterranean Sea; Adriatic Sea; Aegean Sea; Red Sea, Gulf of Elat. On corals (*Isidella* sp., *Cladocora cespitosa*, *Dendrophyllia ramea*), and different substrata. From shallow water to about 845 meters.

## **Harmothoe glabra*** (Malmgren 1865)

*Lænilla glabra* MALMGREN, 1865: 73, pl. 9 fig. 5 [according to BARNICH & FIEGE (2009), the paralectotype belongs to *Malmgreniella andreapolis* McIntosh 1874].
**TYPE LOCALITY:** Bohuslan (Sweden), in Gullmaren and Väderöarne.
**SELECTED REFERENCES:** *Harmothoe glabra* — DITLEVSEN, 1917: 18; TEBBLE & CHAMBERS, 1982: 55-57, figs. 17*c-e*, 51-52 [in part; (?) in part = *Harmothoe longisetis* (Grube 1863)]; KIRKEGAARD, 1992: 68-69 [in part; (?) in part = *Harmothoe longisetis* (Grube 1863)]; BÖGGEMANN, 1997: 15-16, fig. 7; BARNICH & FIEGE, 2009: 41-44, figs. 5, 20. *Harmothoë glabra* — AUGENER, 1928: 680-683, pl. 11 fig. 2. *Malmgreniella glabra* — BARNICH & FIEGE, 2000*a*: 1906. *Malmgrenia glabra* — CHAMBERS & MUIR, 1997: 128, fig. 38 [in part; (?) in part = *Harmothoe longisetis* (Grube 1863)]. *Harmothoe (Harmothoe) glabra* — HARTMANN-SCHRÖDER, 1996: 45-46, fig. 11 [in part; (?) in part = *Harmothoe longisetis* (Grube 1863)]. *Harmothoe longisetis* [not Grube 1863] — SAINT-JOSEPH, 1898: 234-236, pl. 13 fig. 21 [in part]; FAUVEL, 1923*c*: 66-67, fig. 24*a-g* [in part]; CLARK, 1952: 4; CLARK, 1960: 12; BELLAN, 1964*b*: 26 [in part]; CAMPOY, 1982: 68-69 [in part]. *Harmothoë (Harmothoë) longisetis* [not Grube 1863] — HARTMANN-SCHRÖDER, 1971*a*: 58-61, fig. 15 [in part]. [?] *Lænilla setosissima* [not Savigny *in* Lamarck 1818 = indeterminable (see: FAUVEL, 1923*c*: 67; BARNICH & FIEGE, 2009: 70)] — MCINTOSH, 1876*b*: 387; MALAQUIN, 1890*b*: 285. [?] *Harmothoë setosissima* [not Savigny *in* Lamarck 1818 = indeterminable (see: FAUVEL, 1923*c*: 67; BARNICH & FIEGE, 2009: 70)] — MCINTOSH, 1900*a*: 345-348, pl. 25 fig. 4 [caption of figure as *Harmothoë longisetis*], pl. 28 fig. 5, pl. 30 fig. 12, pl. 33 fig. 5, pl. 40 figs. 5-6 [captions of figures as *Lænilla setosissima*]; ALAEJOS, 1905: 52, pls. 8-9, figs. 1-7.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 101 (A.2583)**, off Carrapateira, 84 m, gravelly sand: 1 complete specimen, with 39 chaetigers for about 1.5 cm long; prostomium with prostomial peaks obtuse, weakly marked (difficult to note); elytra with their outer lateral margins and surfaces with small papillae, and their surfaces with numerous small round tubercles; notochaetae in a number of about 60, with horizontal rows of spines extending almost to the end of the blunt tips, which are cleft; neurochaetae of three kinds, a) upper, slender chaetae, almost capillaries with rows of spines and long fine drawn out unidentate tips, b) median chaetae with rows of spines and prominent bidentate tips, c) lower chaetae short, slender and slighly bent terminally, with spines and fine unidentate tips.

**DISTRIBUTION:** Arctic Ocean; North Atlantic; Skagerrak; Kattegat; British Isles; English Channel; Portugal; Canary Islands. On sandy mud, gravel, under stones, on hard grounds, amongst algae, *Dendrophyllia ramea*, and inside sponges. Recorded in tubes of *Chaetopterus* and burrows of *Neoamphitrite edwardsii* (Quatrefages 1866). Littoral to sublittoral, recorded to occur down to 1400 meters.

**REMARKS:** According to PETTIBONE (pers. com. *in* TEBBLE & CHAMBERS, 1982), and after examination of the types, *Harmothoe glabra* (Malmgren 1865) and *Harmothoe longisetis* (Grube 1863) are not synonyms, which was later confirmed by BARNICH & FIEGE (2009), and was already previously stated by AUGENER (1928). *H. glabra* would be a north European species, with 38-39 chaetigers, with small to minute prostomial peaks, numerous notochaetae and both upper and lower neurochaetae unidentate. On the other hand *H. longisetis* would have a meridional distribution, up to 45 segments, distinct prostomial peaks and comparatively few notopodial chaetae (10-14) (TEBBLE & CHAMBERS, 1982). The descriptions given by FAUVEL (1923*c*) and CAMPOY (1982), and probably the previous records of *H. longisetis* for Portugal, should refer to *H. glabra*.

PARAPAR, BESTEIRO & URGORRI (1993*b*) refer to *H. longisetis* a specimen from Galicia with intermediate characters, stating that both species were synonymous. I follow here TEBBLE & CHAMBERS (*op. cit.*) and BARNICH & FIEGE (2009), as the specimen studied by me clearly fits the description of *H. glabra*.

This species has been attributed either to the genus *Malmgreniella* or to *Harmothoe*. BARNICH & FIEGE (2009) examined the lectotype as well as additional material of the species, and determined that it only had small to minute cephalic peaks, but that the lateral antennae were distinctly inserted ventrally, and that it should be considered as belonging to *Harmothoe*.

BARNICH & FIEGE (2009) also stated that *H. glabra* can be confused with anterior fragments or juveniles of *Leucia violacea* (Storm 1879), from which otherwise it can be easily separated by presenting 15 pairs of elytra, against the 16 pairs typical of the genus *Leucia*. Both species present elytra with conical microtubercles and scattered papillae, but in *L. violacea* are also present some low soft macrotubercles, especially in the anteriormost elytra, which are absent in *H. glabra* (BARNICH & FIEGE, 2009).

## ***Harmothoe imbricata*** (Linnaeus 1767)

*Aphrodita imbricata* LINNAEUS, 1767: 1084.

**TYPE LOCALITY:** Arctic Ocean or North Atlantic ("*Oceano septentrionali*"). A neotype was designated by BARNICH & FIEGE (2009), from Iceland, Arnarnäs, 27-46 meters.

**SYNONYMS:** *Aphrodita cirrata* Müller 1776; *Harmothoe unicolor* Baird 1865; [?] *Polynoe incerta* Bobretzky 1882.

**SELECTED REFERENCES:** *Lepidonotus imbricatus* — JOHNSTON, 1865: 118, 340. *Harmothoë imbricata* — MALMGREN, 1865: 66-68, pl. 9 fig. 8; MCINTOSH, 1876*b*: 380-381, pl. 68 figs. 7, 9, 11; SAINT-JOSEPH, 1888: 161-162, pl. 7 fig. 24; MCINTOSH, 1900*a*: 314-327, text-figs. 19, 25-30, pl. 25 fig. 6, pl. 26 figs. 3-4, pl. 26*A* figs. 1, 3-8, pl. 30 fig. 1, pl. 32 fig. 10, pl. 38 figs. 14-16; FAUVEL, 1914*f*: 53; FAUVEL, 1923*c*: 55, fig. 18*f-l*; PETTIBONE, 1953: 32-36, pl. 13 figs. 114-120, pl. 14 figs. 121-131, pl. 15 figs. 132-137, pl. 16 figs. 138-146; RASMUSSEN, 1956: 8-26, figs. 2-6. *Harmothoe imbricata* — DITLEVSEN, 1917: 10-12; BELLAN, 1964*b*: 23-24 [in part]; FAUCHALD, 1974*b*: 9; CAMPOY, 1982: 61-63, pl. 3; TEBBLE & CHAMBERS, 1982: 30-31, figs. 7*a*, 9*a-b*, 31; KIRKEGAARD, 1992: 62-64, fig. 24; CHAMBERS & MUIR, 1997: 104, fig. 26; BARNICH & FIEGE, 2000*a*: 1899-1900, fig. 5; BARNICH & FIEGE, 2003: 47-48, fig. 22; BARNICH & FIEGE, 2009: 45-48, figs. 1, 21-22. *Harmothoë (Harmothoë) imbricata* — HARTMANN-SCHRÖDER, 1974*d*: 175. *Harmothoe (Harmothoe) imbricata* — HARTMANN-SCHRÖDER, 1996: 46-48, fig. 12. *Aphrodita cirrata* — MÜLLER, 1776: 218. *Harmothoe unicolor* — BAIRD, 1865*c*: 196. [?] *Polynoe incerta* — BOBRETZKY, 1882: 187, pl. 6 fig. 1*A-G*. [?] *Harmothoe imbricata incerta* — LA GRECA, 1949*a*: 156. *Polynoë cirrata* — SAVIGNY, 1822: 26; AUDOUIN & MILNE-EDWARDS, 1832: 422-424; JOHNSTON, 1839*a*: 434-436, pl. 22 fig. 2; QUATREFAGES, 1866*b*: 232. *Lepidonotus cirratus* — JOHNSTON, 1865: 114-116, 340, pl. 8 fig. 2.

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (as *Harmothoë imbricata*; Faro; Sines); AMOUREUX, 1974*b* (off Aveiro); CAMPOY, 1982 (previous records: Faro; Sines; Aveiro).
**DISTRIBUTION:** Arctic Ocean; Northeast Atlantic; North Sea; Skagerrak; Kattegat; Øresund; western Baltic Sea; English Channel; [?] Mediterranean Sea; [?] Adriatic Sea; [?] Aegean Sea; [?] Black Sea; Canary Islands; North Pacific. Between stones, rocks, algae, *Posidonia* and laminarian rhizomes, coralligenous bottoms, mud, on broken shells, and inside tubes of Terebellidae and Chaetopteridae. In 1-300 meters, but recorded down to 4000 meters.
**REMARKS:** The breeding biology of *Harmothoe imbricata* was studied by DALY (1972), with base on a population from Northumberland (England).

## ***Harmothoe impar*** (Johnston 1839)

*Polynoe impar* JOHNSTON, 1839*a*: 436-437, pl. 22 figs. 3-9.
**TYPE LOCALITY:** Berwick Bay, NE England, under stones between tide marks. Neotype designated by BARNICH & FIEGE (2009), from Berwick-upon-Tweed (55º46.5'N, 1º59'W), Bucket Rocks, lower shore, under rocks.
**SYNONYMS:** *Polynoe reticulata* Claparède 1870; [?] *Evarne Pentactae* Giard 1886; [?] *Harmothoë cœliaca* Saint-Joseph 1888; *Lagisca Elisabethæ* McIntosh 1900; [?] *Tricosmochaeta trilobocephala* Morgera 1918.
**SELECTED REFERENCES:** *Lepidonotus impar* — JOHNSTON, 1865: 112, pl. 8 figs. 3-9. *Evarne impar* — MCINTOSH, 1876*b*: 386-387, pl. 70 figs. 1-3; MCINTOSH, 1900*a*: 353-358, pl. 26 fig. 5, pl. 27 fig. 13, pl. 30 fig. 7, pl. 32 fig. 18, pl. 39 figs. 20-22. [in part; in part *Harmothoe clavigera* (M. Sars 1863)]. *Harmothoë impar* — FAUVEL, 1913*a*: 20 [in part; in part = *Harmothoe bellani* Barnich & Fiege 2000]; FAUVEL, 1914*f*: 60-61 [in part; in part = *Harmothoe bellani* Barnich & Fiege 2000]; FAUVEL, 1923*c*: 59-61, fig. 21*a-f* [in part; in part *Harmothoe clavigera* (M. Sars 1863); in part *Harmothoe fragilis* Moore 1910 (under the synonymy of *Evarne impar* Malmgren 1865]; RASMUSSEN, 1956: 26-34, figs. 2, 7-9. *Harmothoe impar* — DITLEVSEN, 1917: 12-13, text-fig. 1, pl. 2 fig. 16, pl. 3 fig. 11; BELLAN, 1964: 24 [in part; in part *Harmothoe clavigera* (M. Sars 1863)]; RASMUSSEN, 1973: 63-64; CAMPOY, 1982: 63-64 [in part; in part *Harmothoe clavigera* (M. Sars 1863)]; TEBBLE & CHAMBERS, 1982: 40-41, figs. 7*b*, 12*b-c*, 38 [in part; in part *Harmothoe clavigera* (M. Sars 1863)]; KIRKEGAARD, 1992: 64-66, fig. 25 [in part; in part *Harmothoe clavigera* (M. Sars 1863)]; BÖGGEMANN, 1997: 16, fig. 8; CHAMBERS & MUIR, 1997: 106, fig. 27; BARNICH & FIEGE, 2000*a*: 1906-1909, fig. 9; BARNICH & FIEGE, 2003: 48-49, fig. 23; BARNICH & FIEGE, 2009: 48-50, figs. 3, 23. *Harmothoë (Harmothoë) impar* — HARTMANN-SCHRÖDER, 1971*a*: 53-55, fig. 12*a-d* [in part; in part *Harmothoe clavigera* (M. Sars 1863)]; HARTMANN-SCHRÖDER, 1974*d*: 175-176 [in part; in part *Harmothoe clavigera* (M. Sars 1863)]. *Harmothoe (Harmothoe) impar* — HARTMANN-SCHRÖDER, 1996: 48-50, fig. 13 [in part; in part *Harmothoe clavigera* (M. Sars 1863)]. [?] *Polynoe impar* — CLAPARÈDE, 1863: 60-61, pl. 13 figs. 1-5. [?] *Harmothoë impar* — SAINT-JOSEPH, 1888: 162; SAINT-JOSEPH, 1895: 200-203, pl. 11 figs. 18-20; ALAEJOS, 1905: 60-64, pl. 10 figs. 13-16, pl. 11 figs. 2-16. *Polynoe reticulata* — CLAPARÈDE, 1870: 374-376, pl. 1 fig. 1. *Polynoë reticulata* — MARENZELLER, 1874: 412. *?Harmothoë reticulata* — SAINT-JOSEPH, 1888: 176-177, pl. 8 figs. 48-50. *Harmothoë reticulata* — FAUVEL, 1913*a*: 17-18 [in part; in part *Harmothoe bellani* Barnich & Fiege 2000]; FAUVEL, 1923*c*: 61-62, fig. 22*f-l*. *Harmothoe reticulata* — BELLAN, 1964*b*: 25; CAMPOY, 1982: 70-72, pl. 5. *Lagisca Elisabethæ* — MCINTOSH, 1900*a*: 303-305, pl. 27 fig. 3, pl. 29 fig. 11, pl. 32 fig. 6, pl. 38 figs. 4-6; SOUTHERN, 1914: 51-52 [according to FAUVEL (1923*c*) and BARNICH & FIEGE (2009); TEBBLE & CHAMBERS (1982: 70) examined 2 syntypes of this species and considered it as indeterminable]. [?] *Harmothoe areolata* [not *Harmothoe areolata* (Grube 1860)] — ALAEJOS, 1905: 64-69, pl. 11 figs. 17-18, pl. 12. [?] *Harmothoë cœliaca* — SAINT-JOSEPH, 1888: 163-166, pl. 7 figs. 25-31; FAUVEL, 1923*c*: 57-58, fig. 20*a-f*. [?] *Harmothoë boholensis* [not *Harmothoe boholensis* (Grube 1878) = *Paralepidonotus indicus* (Kinberg 1856)] — RULLIER, 1963*b*: 177 [see BARNICH & FIEGE, 2000*a*: 1908)]. [?] *Tricosmochaeta trilobocephala* — MORGERA, 1918: 1-10, pl. 1 figs. 1-13; FAUVEL, 1927*a*: 406.
**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (*Harmothoë impar*; off Faro); FAUVEL, 1914*f* (as *Harmothoë impar*; off Faro); BELLAN, 1960*a* (Setúbal Canyon; Cape São Vicente); [?] AMOUREUX, 1974*b* (as *Harmothoe? impar*; off Aveiro; off Porto); SALDANHA, 1974 (as *Harmothoe reticulata*; coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (as *Harmothoë impar*; western continental shelf of Algarve); CAMPOY, 1982 (also as *Harmothoe reticulata*; previous records: Arrábida; Aveiro; Porto; Portuguese coast); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira); DEXTER, 1992 (as *Harmothoë impar*; previous records: Lagoon of Óbidos; Ria de Aveiro); SALDANHA, 1995 (as *Harmothoe reticulata*; Portugal).

**DISTRIBUTION:** Arctic Ocean; Northeast Atlantic; British Isles; North Sea; Skagerrak; Kattegat; Øresund; from the English Channel to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Bosphorus; Black Sea; Canary Islands. Littoral on rocky shores; sublittoral to 655 meters, on a variety of bottoms.
**REMARKS:** CHAMBERS & MUIR (1997: 172) noted that the distinctive feature of *Harmothoe coeliaca* Saint-Joseph 1888 was the arrangement of its intestinal caeca, a feature generally not present in polynoid descriptions, being otherwise similar to *Harmothoe impar* (Johnston 1839). According to BARNICH & FIEGE (2000*a*, 2009), due to the confusion of *H. impar* with *H. aspera* (Hansen 1879), *H. bellani* Barnich & Fiege 2000, *H. extenuata* (Grube 1840), *H. aequespina* (Langerhans 1884), and *H clavigera* (M. Sars 1863), all literature records of these species in the Mediterranean and North East Atlantic are doubtful. The same authors also considered *Harmothoe coeliaca* as being an indeterminable *Harmothoe*, due to the poor condition of the syntypes and the insufficient description.

## ***Harmothoe ingolfiana*** Ditlevsen 1917

*Harmothoe ingolfiana* DITLEVSEN, 1917: 32-33, text-figs. 14-15, pl. 1 figs. 12, 14, pl. 2 fig. 15.
**TYPE LOCALITY:** South of Iceland, 61º30'N, 22º30'W, at 1836 meters.
**SELECTED REFERENCES:** *Harmothoë ingolfiana* — WESENBERG-LUND, 1950*a*: 8, map 8. *Harmothoe ingolfiana* — PETTIBONE, 1985: 143-146, fig. 5; BARNICH & FIEGE, 2009: 51, figs. 1, 24.
**DISTRIBUTION:** North Atlantic, from South of Iceland to off New England. In burrows of wood-boring bivalves. Between 1830-3506 meters.

## ****Harmothoe longisetis*** (Grube 1863)

*Polynoë longisetis* GRUBE, 1863: 37-38, pl. 4 fig. 1.
**TYPE LOCALITY:** Veli Lošinj (= Lussin Grande), Mali Lošinj (= Lussin Piccolo), Uvala Krivica (= Crivizza), near Mali Lošinj (Croatia, Adriatic Sea).
**SYNONYMS:** *Polynoë lævigata* Claparède 1870.
**SELECTED REFERENCES:** *Harmothoë longisetis* — FAUVEL, 1913*a*: 17; FAUVEL, 1914*f*: 58; FAUVEL, 1916*c*: 21-22, pl. 9 figs. 6-8; FAUVEL, 1923*c*: 66-68, fig. 24*a-g* [in part; not *Malmgreniella glabra* (Malmgren 1865)]. *Harmothoe longisetis* — SAINT-JOSEPH, 1898: 234-236 [in part; not *Malmgreniella glabra* (Malmgren 1865)]; BELLAN, 1964*b*: 26 [in part; not *Malmgreniella glabra* (Malmgren 1865)]; CAMPOY, 1982: 68-69 [in part; not *Malmgreniella glabra* (Malmgren 1865)]; [?] PARAPAR, BESTEIRO & URGORRI, 1993*b*: 418-419, fig. 4*G-K*; BARNICH & FIEGE, 2000*a*: 1904-1906, fig. 8; BARNICH & FIEGE, 2003: 51-52, fig. 25; BARNICH & FIEGE, 2009: 51-54, figs. 4, 25. *Polynoe lævigata* — CLAPARÈDE, 1870: 378-379, pl. 1 fig. 3. *Harmothoë lævigata* — FAUVEL, 1913*a*: 18. [?] *Harmothoë setosissima* [not *Laenilla setosissima* Savigny *in* Lamarck 1818 = indeterminable (see: FAUVEL, 1923*c*: 67; BARNICH & FIEGE, 2009: 70)] — ALAEJOS, 1905: 52-55, pl. 8, pl. 9 figs. 1-7. [?] *Harmothoe flaccida* [not *Lagisca flaccida* Potts 1910] — BRITO, NÚÑEZ & BACALLADO, 1991: 185.
**REFERENCES FOR PORTUGAL:** FAUVEL, 1914*c* (as *Harmothoë longisetis*; off Faro); FAUVEL, 1916*c* (as *Harmothoë longisetis*; off Faro); SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (as *Harmothoë longisetis*; previous records: continental shelf of Algarve; Arrábida); SALDANHA, 1995 (Portugal).
**MATERIAL: FAUNA 1 — St. 45*A***, Gulf of Cádiz, near Rota, 18 m, rocks with white coral: 1 specimen, broken in two pieces; anterior fragment with 21 chaetigers, anterior pair of eyes located dorsolaterally on the widest part of prostomium; prostomium with cephalic peaks; elytra with the margin smooth, without macrotubercles and with surface covered with several patches of smooth conical microtubercles; posterior fragment with 18 chaetigers; neuropodial lobe with a supracicular projection.
**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Gulf of Cadiz; [?] Santander (Northern Spain); [?] Tenerife (Canary Islands). On hard bottoms, with *Peyssonnelia*. Recorded from the infralittoral to about 1230 meters.
**REMARKS:** As remarked by BARNICH & FIEGE (2000*a*), this species has often been confused or synonymized with *Harmothoe glabra* (Malmgren 1865) (*e.g.*: MCINTOSH, 1900*a*; FAUVEL, 1923*c*; CHAMBERS & MUIR, 1997). BARNICH & FIEGE (2000*a*, 2009) compared the type material from both species, and confirmed AUGENER's (1928) and PETTIBONE' (pers. com. *in* TEBBLE & CHAMBERS, 1982) opinions, observing that the two species are distinct. They can be separated with basis on the following characters: *H. longisetis* presents distinct cephalic peaks, ventrally inserted lateral antennae, and anterior pair of eyes on the widest part of the prostomium, while *H. glabra* shows small to minute cephalic peaks, the lateral antennae are inserted terminoventrally and the posterior pair of eyes are situated in front of the widest part of the prostomium. As a result all records need to be confirmed, as the distribution of the two species is uncertain. TEBBLE & CHAMBERS (1982) didn't find any specimen of *H. longisetis* in the

Scottish waters, and identified as *H. glabra* material previously attributed to *H. longisetis* by CLARK (1960) and to *Harmothoe setosissima* by MCINTOSH (1900*a*). For the moment, it is confirmed the presence of *H. longisetis* outside the Mediterranean, in the Gulf of Cadiz (see: BARNICH & FIEGE, 2000*a*: 1906).

### ***Harmothoe mariannae*** Barnich & Fiege 2009

*Harmothoe mariannae* BARNICH & FIEGE, 2009: 54-56, figs. 3, 26.
**TYPE LOCALITY:** Northern Norway, 69º52.36'N, 30º08.09'E, Varangerfjord, at 251 meters.
**DISTRIBUTION:** Northern Norway. Between 251-280 meters.

### ***Harmothoe oculinarum*** (Storm 1879)

*Lænilla oculinarum* STORM, 1879: 33.
**TYPE LOCALITY:** Off Norway, in 80-200 fathoms (146.3-365.8 meters).
**SELECTED REFERENCES:** *Harmothoë oculinarum* — BIDENKAP, 1895: 47-48. *Harmothoë oculinarum* — DITLEVSEN, 1917: 30-32, text-figs. 12-13, pl. 2 figs. 5, 13, pl. 3 figs. 6, 8 [in part; only specimens from Trondheimfjord, according to BARNICH & FIEGE (2009) and FIEGE & BARNICH (2009)]. *Harmothoe oculinarum* — BARNICH & FIEGE, 2009: 56, figs. 5, 27; FIEGE & BARNICH, 2009: 152-154, fig. 2.
**DISTRIBUTION:** Norway. Living on *Oculina* and *Lophelia pertusa*. Between 50-560 meters.

### ***Harmothoe pokoui*** Intes & Le Loeuff 1975

*Harmothoe pokoui* INTES & LE LOEUFF, 1975: 276-278, fig. 2*a-i*.
**TYPE LOCALITY:** Ivory Coast, off Abidjan, 5º12.7'N, 4º02'W, at 60 meters.
**SELECTED REFERENCES:** *Harmothoe pokoui* — BARNICH & FIEGE, 2000*a*: 1919-1920, fig. 15; BARNICH & FIEGE, 2003: 53, fig. 27; BARNICH & FIEGE, 2009: 58, figs. 4, 28.
**DISTRIBUTION:** Ivory Coast, West Africa; Western Mediterranean Sea. In muddy substrata. Between 50-86 meters.

### ***Harmothoe rarispina*** (M. Sars 1861)

*Polynoë rarispina* M. SARS, 1861*a*: 60-61.
**TYPE LOCALITY:** Norway: Finmark, Varangerfjord, Vadsø, between 30-40 fathoms (55-73 meters).
**SYNONYMS:** *Lagisca rarispina occidentalis* McIntosh 1874.
**SELECTED REFERENCES:** *Lagisca rarispina* — MALMGREN, 1865: 65-66, pl. 8 fig. 2; FAUVEL, 1913*a*: 22-23; FAUVEL, 1914*f*: 65; AVERINCEV, 1977*b*: 187, fig. 1; USCHAKOV, 1982: 161, pl. 58 figs. 1-6. *Harmothoe rarispina* — DITLEVSEN, 1917: 13-14; USCHAKOV, 1955*a*: 155, fig. 37; BARNICH & FIEGE, 2009: 58-60, figs. 3, 29. *Lagisca rarispina occidentalis* — MCINTOSH, 1874*a*: 262-263, pl. 9 figs. 1-4. *Lagisca extenuata* — FAUVEL, 1923*c*: 76-78, fig. 28*a-k* [in part; not *Polynöe extenuata* Grube 1840]. *Harmothoë extenuata* — PETTIBONE, 1953: 31-32 [in part; not *Polynöe extenuata* Grube 1840]; PETTIBONE, 1954: 222-224 [in part; not *Polynöe extenuata* Grube 1840]. *Harmothoë (Lagisca) extenuata* — PETTIBONE, 1963*a*: 41-42, fig. 8*a-c* [in part; not *Polynöe extenuata* Grube 1840].
**DISTRIBUTION:** Siberian, Alaskan, and Canadian Arctic Ocean, and northernmost regions of North Atlantic; Barents Sea; Norway; Iceland; Svalbard; Greenland; Gulf of St. Lawrence (Canada). On sandy or muddy bottoms, on stones and between algae. Between 5-1783 meters. According to BARNICH & FIEGE (2009), records outside the indicated area are due probably to confusion with *H. extenuata* (Grube 1840) or *H. multisetosa* Moore 1902.

### ***Harmothoe serrata*** Day 1963

*Harmothoe lagiscoides serrata* DAY, 1963*b*: 388-389, fig. 1*g-m*.
**TYPE LOCALITY:** West coast of Cape Province, off Saldanha Bay (South Africa), 33º06.4'S, 17º47.2'E, 141 meters, in dark green mud.
**SYNONYMS:** *Harmothoe notochaetosa* López & San Martín 1996.
**SELECTED REFERENCES:** *Harmothoe lagiscoides serrata* — DAY, 1967: 69, fig. 1.10*.f-j*; BARNICH & FIEGE, 2000*a*: 1917-1919, fig. 14; BARNICH & FIEGE, 2003: 49-50, fig. 24. *Harmothoe serrata* — BARNICH *et al.*, 2006: 59; BARNICH & FIEGE, 2009: 62, figs. 2, 30. *Harmothoe notochaetosa* — LÓPEZ & SAN MARTÍN, 1996: 183-184, figs. 1-2.
**DISTRIBUTION:** South Africa, in 141 meters, in mud; Western Mediterranean Sea (Alboran Sea), in 3-24 meters, on algae and animal substracta, on hard bottoms.

## **Harmothoe spinifera* (Ehlers 1864)

*Polynoe (Antinoe) spinifera* EHLERS, 1864: 95-105, pl. 3 figs. 1-4, 6.

**TYPE LOCALITY:** Near Fiume (= Rijeka), Quarnero (Kvarner, Croatia), NE Adriatic Sea, at the coast, among stones and algae.

**SYNONYMS:** *Polynoë torquata* Claparède 1868; *Polynoe laevigata* Claparède 1870; *Harmothoë Sibbaldii* McIntosh 1876; *Harmothoe meteorae* Augener 1931.

**SELECTED REFERENCES:** *Polynoe spinifera* — CLAPARÈDE, 1868: 376-378, pl. 2 fig. 4. *Harmothoë spinifera* — SAINT-JOSEPH, 1888: 171-172; ALAEJOS, 1905: 41-46, pl. 5 figs. 8-10, pl. 6 figs. 1-6; AUGENER, 1913*a*: 165-166; FAUVEL, 1914*f*: 54; FAUVEL, 1923*c*: 64-66, fig. 23*f-l*. *Harmothoe spinifera* — MCINTOSH, 1900*a*: 327-330, pl. 28 fig. 3, pl. 29 fig. 12, pl. 33 fig. 4, pl. 38 figs. 17-19; BELLAN, 1964*b*: 26 [in part]; CAMPOY, 1982: 72-73, pl. 4 figs. *a-g*; TEBBLE & CHAMBERS, 1982: 28-30, figs. 8, 30; BRITO, NÚÑEZ & BACALLADO, 1991: 185, fig. 2*F*; CHAMBERS & MUIR, 1997: 110, fig. 29; BARNICH & FIEGE, 2000*a*: 1894-1897, figs. 2*A*, 3*A-C*; BARNICH & FIEGE, 2003: 53-55, figs. 12*A*, 28; BARNICH & FIEGE, 2009: 62-64, figs. 1, 31. *Polynoe torquata* — CLAPARÈDE, 1868: 378-379, pl. 2 fig. 3. *Harmothoe torquata* — DARBOUX, 1899: 119. *Polynoe lævigata* — CLAPARÈDE, 1870: 378-379, pl. 1 fig. 3. *Harmothoë Sibbaldii* — MCINTOSH, 1876*b*: 378-379, pl. 68 figs. 1-3. *Harmothoë meteorae* — AUGENER, 1931: 279-281, fig. 1.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1984 (Praia da Falésia); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (as *Harmothoë spinifera*; previous records: Ria Formosa; continental shelf of Algarve); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 220 (A.3895)**, off NW Porto Covo, 28 m, rock: 1 incomplete specimen, almost breaking in two pieces, the first with 12 chaetigers, the second one with 6. **FAUNA 1 — St. 18*A***, Alborán Sea, Alborán Island, 45-52 m, stones: 1 incomplete specimen, with 15 chaetigers, in poor condition, without elytra. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 5 specimens, 2 found among rhizomes of *Posidonia*; prostomial peaks present; lateral antennae with ventral insertion; front pair of eyes near the anterior border of the prostomium, below the prostomial peaks, often not visible in dorsal view; surface of elytra smooth with small tubercles; notopodial chaetae deeply cleft; all neuropodial chaetae bidentate; (1) complete, with 15 pairs of elytra (some missing), about 1.5 cm long for 39 chaetigers; in the left side, with the tentacular cirri occurs another cirrus, very long and thin; antennae and cirri papillated; above the mouth occurs a tubercle/papilla quite conspicuous; first pair of elytra pale and round; the remainder are reniform, becoming oval, with small tubercles; only one anal cirrus remaining; nephridial papillae from the sixth chaetiger; ventral cirri very short, except for the second chaetiger; (2) incomplete, small, in poor condition, with about 12 chaetigers; (3) incomplete, small, in poor condition, with about 12 chaetigers; (4) small (juvenile), incomplete, with 27 chaetigers, one elytrum remaining; (5) broken in two pieces, incomplete, anterior fragment with 16 chaetigers, posterior one with 13, one pair of elytra still attached. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 6 specimens; (1) small, about 2 mm long, incomplete, with 23 chaetigers, without elytra; (2) small, incomplete, with 23 chaetigers, without elytra; (3) small, incomplete, with about 25 chaetigers, with elytra; (4) incomplete, about 4 mm long, with 21 chaetigers, with elytra; (5) small, complete, with 26 chaetigers, with elytra, one anal cirrus still remaining; (6) complete, about 4 mm long, with 32 chaetigers, with elytra.

**DISTRIBUTION:** North-East Atlantic, from Norway and the British Isles to Madeira Island and Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; Gulf of Guinea. Many different kinds of bottoms. In 0-35 meters; one record from 800 meters, as commensal with a sponge in Haifa Bay.

## *Harmothoe vesiculosa* Ditlevsen 1917

*Harmothoe vesiculosa* DITLEVSEN, 1917: 34-35, text-figs. 16-17, pl. 1 figs. 10-11.

**TYPE LOCALITY:** South west of Ireland, on the Porcupine slope, 49º25'N, 12º20'W, at 1180 meters.

**SELECTED REFERENCES:** *Harmothoe vesiculosa* — BARNICH & FIEGE, 2009: 66, figs. 3, 32; FIEGE & BARNICH, 2009: 154-157, fig. 3.

**DISTRIBUTION:** SW Ireland, 49º25'N, 11º20'W, at 1180 meters; Bay of Biscay, Canyon de Belle Île, 46º15'N, 4º42'W, at 1180 meters, on *Madrepora oculata*; Ionian Sea (Mediterranean Sea), off Santa Maria di Leuca, 538-548 meters, on *Lophelia pertusa* and *Madrepora oculata*.

## *Harmothoe viridis* Loshamn 1981

*Harmothoe (Harmothoe) viridis* LOSHAMN, 1981: 7-8, fig. 2.

**TYPE LOCALITY:** Säcken, Bohuslän (Sweden), in a reef.

**SELECTED REFERENCES:** *Harmothoe (Harmothoe) viridis* — HARTMANN-SCHRÖDER, 1996: 51-52. *Harmothoe viridis* — BARNICH & FIEGE, 2009: 66-72, figs. 5, 33. *Lagisca* sp. — ELIASON, 1962*b*: 222, fig. 4*f*.
**DISTRIBUTION:** Along the coast of Norway and SW Sweden. Usually on hard bottoms with stones, sand and shells, but also on soft muddy bottoms. Between 20-120 meters.

## *GENUS ***Lepidasthenia*** Malmgren 1867

*Lepidasthenia* MALMGREN, 1867*a*: 15-16.
**TYPE SPECIES:** *Polynoë elegans* Grube 1840.
**SYNONYMS:** *Lepidametria* Webster 1879; *Drieschia* Michaelsen 1892; *Nectochaeta* Marenzeller 1892; [?] *Harmopsides* Chamberlin 1919.

**KEY TO SPECIES:**
(adapted from BARNICH & FIEGE, 2003)

**1a.** Parapodia without papillae; giant neurochaeta absent or present.....**2**
**1b.** Parapodia with papillae; giant neurochaeta absent.....**3**

**2a (1a).** Antennae and anteriormost dorsal cirri with subterminal swelling, tapering abruptly distally; stripes on dorsum; elytra speckled with white spot over elytrophore; in posterior segments, besides neurochaetae with bidentate tips, one giant neurochaeta with unidentate tip present.....***L. elegans****
**2b (1a).** Antennae and anteriormost dorsal cirri slender, without subterminal swellings; purple bars across dorsum; elytra dark pigmented; posterior segments only with bidentate neurochaetae, giant unidentate neurochaeta absent.....***L. maculata****

**3a (1b).** Row of six to eight papillae on ventral side of parapodia; dorsal cirri and antennae tapering; dorsum pale brown, without stripes; elytra half brown, half white (in alcohol); no notochaetae.....***L. brunnea****
**3b (1b).** Scattered papillae on dorsal and ventral side of parapodia [*L. grimaldii* was described and pictured as having a row of 5-7 papillae on the ventral side of the parapodia, and 2 papillae near the extremity and 3-4 near the elytrophore or cirrophore, on the dorsal side (FAUVEL, 1916*c*: 36, pl. 1 figs. 11-12; FAUVEL, 1923*c*: 90, fig. 34*b*)].....**4**

**4a (3b).** No notochaeta; antennae and tentacular cirri slightly inflated subdistally, with tapered filiform tips; neuropodia obliquely truncated, without a projecting acicular ligule; in some posterior segments neurochaetae slender with unidentate tips; white opaque irregular cross-bars on dorsum.....***L. medanensis***
**4b (3b).** Capillary notochaetae present; antennae and tentacular cirri slender, tapering gradually, without filiform tips; neuropodia with a dorsal acicular ligule.....**5**

**5a (4b).** Middle segments with four to five capillary notochaetae; in all segments neurochaetae with bidentate tips; dark bands across dorsum on each segment.....***L. argus***
**5b (4b).** Middle segments with one single notochaeta present; some superior notochaetae with unidentate tips; no dark bands across dorsum.....***L. grimaldii***

## ***Lepidasthenia argus*** Hodgson 1900

*Lepidasthenia argus* HODGSON, 1900: 250-253.
**TYPE LOCALITY:** Salcombe (Devonshire, England), as a commensal in the tubes of *Neoamphitrite edwardsii* (Quatrefages 1866).
**SELECTED REFERENCES:** *Lepidasthenia argus* — FAUVEL, 1923*c*: 87; MCINTOSH, 1923*a*: 424-425, pl. 134 fig. 1; CLARK, 1952: 6; TEBBLE & CHAMBERS, 1982: 68-69, fig. 23*a*-*b*; CHAMBERS & MUIR, 1997: 112, fig. 30.
**DISTRIBUTION:** British Isles (SE England, Wales, Clyde Sea, south coast of Ireland, English Channel). On mud and in burrows of the terebellid polychaete *Neoamphitrite edwardsii* (Quatrefages 1866). Littoral and sublittoral to 55 meters.

## **Lepidasthenia brunnea* Day 1960

*Lepidasthenia brunnea* DAY, 1960: 285-287, fig. 3*a-d*.

**TYPE LOCALITY:** False Bay (South Africa), 34º23.3'S, 18º40.3'E, 88 meters, in green mud.

**SELECTED REFERENCES:** *Lepidasthenia brunnea* — DAY, 1967: 92, fig. 1.16.*n-r*; HARTMANN-SCHRÖDER, 1977*a*: 68, fig. 8; BARNICH & FIEGE, 2003: 88, fig. 45. *Lepidasthenia maculata* [not Potts 1910] — FAUVEL, 1913*a*: 25; FAUVEL, 1914*f*: 71; FAUVEL, 1923*c*: 88-89, fig. 33*h-k*; FAUVEL, 1936*c*: 12; FAUVEL, 1953*c*: 58-59, fig. 27*h-k*; BELLAN, 1960*a*: 7; [?] CLARK, 1960: 13; BELLAN, 1964*b*: 30-31; CAMPOY, 1982: 77-78; [?] TEBBLE & CHAMBERS, 1982: 69. *Lepidasthenia blainvillii* [not *Polynoë Blainvillii* Audouin & Milne-Edwards 1832 = *Lepidasthenia elegans* (Grube 1840), according to HARTMAN (1959*a*)] — MCINTOSH, 1876*c*: 401-403, pl. 72 figs. 7-8. *Lepidasthenia longissima* [not *Polynoë longissima* Blainville 1828 = indeterminable, according to HARTMAN (1959*a*)] — MCINTOSH, 1876*c*: 403-404, pl. 72 figs. 9-11.

**REFERENCES FOR PORTUGAL:** MCINTOSH, 1876*c* (as *Lepidasthenia blainvillii*, and as *Lepidasthenia longissima*; off Cape Sagres); HARTMANN-SCHRÖDER, 1977*a* (Bay of Setúbal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 90 (A.3018)**, off Cape Sardão, 164 m, sand: 1 specimen, incomplete, in poor condition, found inside a tube of Chaetopteridae, in two fragments; anterior fragment with 19 chaetigers, one lateral antenna, one palp, proboscis everted; fragment with 5 chaetigers; ventral papillae present, but very difficult to see, due to the poor condition. **St. 236 (A.3140)**, off Vila Nova de Milfontes, 390 m, sandy mud: 3 specimens; (1) incomplete, poor condition, with 24 chaetigers, some dorsal cirri present, proboscis everted, mandibles without secondary teeth; (2) complete, poor condition, with about 85 chaetigers, dorsal, ventral and one tentacular cirri present, proboscis everted; (3) very small, broken in two, anterior fragment with 21 chaetigers, posterior one with 15 chaetigers; nephridial papillae present on all specimens; parapodia with ventral papillae (difficult to see due to the poor condition of the specimens). **SEPLAT 7 (2nd part) — St. 148 (A.3961)**, near Sines, 133 m, muddy sand: 1 specimen, complete but broken in several pieces, found inside a tube of Chaetopteridae; total length of about 4.5 cm for 106 chaetigers; anterior fragment with 30 chaetigers; middle fragments with 3, 3, 4, and 15 chaetigers; posterior fragment with 51 chaetigers; elytra present, with a dark spot in the middle; parapodia with ventral papillae. **FAUNA 1 — St. 1*A***, Gulf of Cádiz, off Huelva, 190 m, mud: 1 specimen, complete, broken in two pieces; total length about 2.5 cm; anterior fragment with 40 chaetigers, posterior fragment with about 21 chaetigers; one anal cirrus still attached; parapodia can have up to 12 ventral papillae; specimen found inside the same tube than unidentified specimens of Capitellidae and Terebellidae. **St. 5*A***, Alborán Sea, off Veléz-Málaga, 67-68 m, mud: 2 incomplete specimens; (1) 55 chaetigers for about 2.5 cm; only one elytrum present, big, being attached to the second chaetiger; prostomium bilobed, with long, slender antennae, which lacks papillae and terminal swellings; lateral antennae as the central one, only shorter; tentacular cirri as lateral antennae; only one palp present (which fell during the study), without papillae; nuchal fold present; only one dorsal cirrus present (at the third chaetiger), being as the lateral antennae; ventral cirri of second chaetiger much longer than the posterior ones; notopodium reduced to a conical papilla, with acicula; neuropodium large, bilabiate and obliquely truncate, with the posterior lobe shorter than the anterior one, with a row of 6 ciliated papillae on the ventral surface of each parapodium; neurochaetae mainly bidentated, with the secondary tooth almost as long as the terminal one, so that the end appears bifid; superior neurochaetae more slender than the inferior ones; no giant chaetae present; dark bars across most segments; (2) with 61 chaetigers; proboscis partially everted, without papillae; it lacks palps, elytra and one tentacular cirrus; dorsal cirri present, being almost as long as lateral antennae; nephridia can be seen in both specimens, in a ventral posterior position of the parapodia.

**DISTRIBUTION:** North East Atlantic; Portugal; Mediterranean Sea; Adriatic Sea; South Africa; Antarctic. On muddy grounds. Between 80-245 meters.

**REMARKS:** See the *REMARKS* section under *Lepidasthenia maculata*.

## **Lepidasthenia elegans* (Grube 1840)

*Polynöe elegans* GRUBE, 1840: 85.

**TYPE LOCALITY:** Gulf of Naples.

**SYNONYMS:** *Polynoë Blainvillii* Audouin & Milne Edwards 1832; *Polynoë lamprophthalma* Marenzeller 1874.

**SELECTED REFERENCES:** *Lepidasthenia elegans* — MARENZELLER, 1875: 139-141; BERNARDI, 1912: 94-95; FAUVEL, 1923*c*: 88, fig. 33*a-g*; RIOJA, 1935: 15-17, figs. 21-26; BELLAN, 1964*b*: 30; DAY, 1967: 90, fig. 1.16.*i-m*; CAMPOY, 1982: 76-77; BARNICH & FIEGE, 2003: 88-89, fig. 46. *Polynoë lamprophthalma* — MARENZELLER, 1874: 408-412, pl. 1 fig. 1.

**MATERIAL: FAUNA 1 — St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 1 juvenile specimen, very small, with about 20 chaetigers, in poor condition; difficult to notice the subterminal swellings in the first dorsal cirri; all elytra missing; neurochaetae, superior slender, numerous bidentate chaetae, with short blades and a secondary tooth smaller than the apical one; some broken giant chaetae are present in the middle chaetigers.

**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Aegean Sea; South East Atlantic; western Indo- Pacific. On hard grounds, between *Posidonia* rhizomes, and in sponges. Between 0-120 meters.

## ***Lepidasthenia grimaldii*** (Marenzeller 1892)

*Nectochaeta Grimaldii* MARENZELLER, 1892*a*: 184-185.

**TYPE LOCALITY:** Off Northwest Iberian Peninsula, 48º24'48"N, 20º38'30"W, pelagic, collected with a net at about 2000 meters deep.

**SELECTED REFERENCES:** *Nectochaeta Grimaldii* — FAUVEL, 1914*f*: 4-5; FAUVEL, 1916*c*: 32-39, pl. 1 figs. 8-20; FAUVEL, 1923*c*: 90-91, fig. 34. *Nectochaeta grimaldi* — CAMPOY, 1982: 79. *Lepidasthenia grimaldii* — HARTMAN, 1959*a*: 86. [?] *Quetaria pelagica* — VIGUIER, 1911: 252-257.

**REFERENCES FOR PORTUGAL:** FAUVEL, 1914*c* (as *Nectochæta Grimaldii*; off Sines); FAUVEL, 1916*c* (as *Nectochæta Grimaldii*; off Sines).

**DISTRIBUTION:** Middle Atlantic Ocean; Gulf of Gascony; off Portugal; Mediterranean Sea (Balearic Islands, Gibraltar); Azores; Canary Islands; Madeira. Bathypelagic, between 0-3000 meters.

**REMARKS:** FAUVEL (1923*c*) stated that *Lepidasthenia grimaldii* (as *Nectochaeta*), was quite probably the juvenile form of *Lepidasthenia brunnea* (as *L. maculata*). Later, HARTMAN (1959*a*) suggested the same synonymy, considering *L. grimaldii* a valid species. Finally, WEHE & FIEGE (2002) considered that *L. grimaldii* was a larval stage of *Lepidasthenia*, being the species doubtful.

It is possible that *L. grimaldii* represents the juvenile form of another species of *Lepidasthenia*, but for the moment I decided to consider it as a valid species. The available descriptions of the taxon enable its separation from the other species occurring in the European waters, as staded in the above generic key.

*L. grimaldii* is normally considered as having papillae only in the ventral side of the parapodia. However, *L. grimaldii* was described and pictured by FAUVEL (1916*c*: 36, pl. 1 figs. 11-12; 1923*c*: 90, fig. 34*b*) as having a row of 5-7 papillae on the ventral side of the parapodia, as well as 2 papillae near the extremity and 3-4 near the elytrophore or cirrophore on the dorsal side of the parapodia. FAUVEL (1916*c*: 36) also studied Marenzeller's holotype, and stated that, in spite of being in poor condition, it was possible to see the row of papillae in the ventral side of the holotype.

## ****Lepidasthenia maculata*** Potts 1910

*Lepidasthenia maculata* POTTS, 1910: 344, pl. 20 fig. 33, pl. 21 fig. 51.

**TYPE LOCALITY:** Zanzibar.

**SELECTED REFERENCES:** *Lepidasthenia maculata* — DAY, 1967: 92, fig. 1.16.*s*-*v*; THOMASSIN, 1970*a*: 50-51, fig. 3.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Espichel; Setúbal Canyon; Cape São Vicente); AMOUREUX, 1974*b* (off Porto); AMOUREUX, 1987 (off Aveiro; off Porto); CAMPOY, 1982 (previous records: Porto; Portuguese coast).

**MATERIAL: FAUNA 1 — St. 4*A***, Alborán Sea, between Rincón de la Victoria and Vélez-Málaga, 60 m, sand with mud: 1 incomplete specimen, in very poor condition; 33 chaetigers for about 2 cm long and 4 mm wide; only one lateral antenna remaining, all elytra missing; it seems to have one occipital antenna; dorsum dark colored; notopodium reduced to a conical papilla; neuropodium large, bilabiated; the lips are almost vertical, have almost the same length and have two lobes, being the upper one slightly longer; neurochaetae bidentate, with the secondary tooth almost as long as the main one, with very few cusps of spines, which are very long; I could not observe any long fine superior chaetae with blunt tips; no papillae present in the ventral surface of the parapodia.

**DISTRIBUTION:** [?] British Isles; Portugal; Zanzibar and Madagascar, Indian Ocean.

**REMARKS:** HARTMAN (1959*a*) suggests that *L. maculata* Potts 1910 could be a synonym of *L. grimaldii* (Marenzeller 1892), described with base on specimens collected near Azores. FAUVEL (1923*c*) also states that *L. grimaldii* (as *Nectochaeta*), is quite probably the juvenile form of *L. brunnea* (as *L. maculata*). However, this is not correct, as *L. maculata* does not present papillae in the parapodia, while *L. grimaldii* was pictured with papillae on both the dorsal and ventral sides of the parapodia.

THOMASSIN (1970*a*) was the first to notice that the specimens studied and pictured by FAUVEL (1913*a*, 1914*f*, 1923*c*), and later reproduced in FAUVEL (1953*c*), presented papillae on the ventral side of

parapodia. These papillae were absent from the descriptions given by POTTS (1910) and DAY (1967), and were also absent in the specimens studied by him, from Madagascar. THOMASSIN (1970*a*) suggested that probably Fauvel had mistaken specimens of *Lepidasthenia brunnea* Day 1960 with *L. maculata*. The same opinion was followed by BARNICH & FIEGE (2003). However, it must be noted that *L. brunnea* was described by DAY (1960, 1967) as having the dorsum light brown, without dark bands, while some of the records anteriorly referred to *L. maculata*, and now considered to represent *L. brunnea*, clearly describe the specimens with pigmented bands on the dorsum (*e.g.* FAUVEL, 1914*f*; FAUVEL, 1923*c*; FAUVEL, 1953*c*). On the other hand, BARNICH & FIEGE (2003) described the Mediterranean specimens as having the dorsum without pigmented stripes. I believe that the matter needs further investigation.

The specimen from Alboran Sea studied by me fits the descriptions given by DAY (1967) and THOMASSIN (1970*a*), being identified as *Lepidasthenia maculata*.

### ***Lepidasthenia medanensis*** Núñez, Brito & Ocaña 1992

*Lepidasthenia medanensis* NÚÑEZ, BRITO & OCAÑA, 1992: 347-349, figs. 1-3.
**TYPE LOCALITY:** El Médano, south west coast of Tenerife, Canary Islands.
**DISTRIBUTION:** El Médano, south west coast of Tenerife (Canary Islands), in beds of *Cymodocea nodosa* at 6 meters, and in a shallow subtidal area above a rocky and sandy bottom at 4 meters.

## *GENUS ***Lepidonotus*** Leach 1816

*Lepidonotus* LEACH, 1816: 451.
**TYPE SPECIES:** *Aphrodita clava* Montagu 1808.
**SYNONYM:** *Eumolpe* Blainville 1828.
**REMARKS:** The genus definition was first emended by MALMGREN (1865), and later by MCINTOSH (1900*a*).

**KEY TO SPECIES:**
(adapted from BARNICH & FIEGE, 2003)

**1a.** Margin of elytra smooth; elytral surface with conical, rugose macro- and microtubercles; notochaetae stout with blunt tips and slender with tapering tips; neurochaetae with unidentate tips.....***L. clava****
**1b.** Margin of elytra with fringing papillae.....**2**

**2a (1b).** Elytra with cylindrical microtubercles with crownlike tips; notochaetae slender with capillary tips, neurochaetae minutely bidentate or unidentate.....***L. tenuisetosus***
**2b (1b).** Elytra with rugose macro- and microtubercles.....**3**

**3a (2b).** Notochaetae stout with blunt tips and slender with tapering tips; neurochaetae with unidentate tips.....***L. squamatus***
**3b (2b).** Notochaetae slender with tapering tips; neurochaetae with bidentate tips.....***L. carinulatus***

### ***Lepidonotus carinulatus*** (Grube 1870)

*Polynoë (Lepidonotus) carinulatus* GRUBE, 1870*e*: 488.
**TYPE LOCALITY:** Red Sea.
**SELECTED REFERENCES:** *Polynoë (Lepidonotus) carinulatus* — GRUBE, 1878*c*: 26, pl. 3 fig. 2. *Lepidonotus carinulatus* — MARENZELLER, 1902: 571, pl. 1 fig. 4; WILLEY, 1905: 248-249, pl. 1 figs. 7-11; AUGENER, 1922*a*: 8, text-fig. 3*a*-*b*; FAUVEL, 1939*a*: 256; RULLIER, 1963*b*: 175; BARATECH, AGUIRRE & SAN MARTÍN, 1986: 1-3, fig. 1; UCHIDA, 1980: 15-20, figs. 1-6; HANLEY & BURKE, 1991: 65-68, fig. 20; IMAJIMA, 1997: 95-98, figs. 45-46; BARNICH & FIEGE, 2003: 82; BARNICH, FIEGE & SUN, 2004: 297-298.
**DISTRIBUTION:** Alboran Island (Western Mediterranean Sea), in coralligenous bottoms between 70-200 meters; Bosphorus Strait (Turkey). Widely distributed in the Indian Ocean and Indo-West and North-West Pacific; Red Sea; Persian Gulf; Coral Sea; New Caledonia; South China Sea; Japan. In many kinds of substrata, mainly hard substrata. Intertidal to 200 meters.

**REMARKS:** BARNICH & FIEGE (2003) suggested that *Lepidonotus carinulatus* might represent a species introduced with oysters in the Western Mediterranean, while RULLIER (1963*b*) suggested that its presence in the Bosphorus Strait is a consequence of a Lessepsian migration.

## **Lepidonotus clava* (Montagu 1808)

*Aphrodita Clava* MONTAGU, 1808: 108-109, pl. 7 fig. 3.

**TYPE LOCALITY:** South coast of Devonshire (England).

**SYNONYMS:** *Eumolpe squamata* Delle Chiaje 1822; *Polynoë scutellata* Risso 1826; *Polynoe clypeata* Grube 1860; *Polynoe dorsalis* Quatrefages 1866; *Polynoe modesta* Quatrefages 1866; [?] *Polynoe fucescens* Quatrefages 1866; *Polynoe Grubiana* Claparède 1870.

**SELECTED REFERENCES:** *Lepidonotus clava* — JOHNSTON, 1865: 111-112, 340, pl. 4 figs. 5-6; SAINT-JOSEPH, 1898: 225-230, pl. 13 figs. 2-8; MCINTOSH, 1900*a*: 280-284, pl. 26 fig. 1, pl. 27 fig. 4, pl. 32 fig. 2, pl. 37 figs. 11, 14-15, pl. 42 fig. 26; ALAEJOS, 1905: 15-24, text-figs. 1-3, pl. 1, pl. 2 fig. 1; BERNARDI, 1912: 93-94; FAUVEL, 1923*c*: 46-48, fig. 16*a-e*; BELLAN, 1964*b*: 23; SOSA, NÚÑEZ & BACALLADO, 1977: 232-233, pls. 1-2; CAMPOY, 1982: 81-83; TEBBLE & CHAMBERS, 1982: 19-21, figs. 1*a*, 4*a*, 24-25; HARTMANN-SCHRÖDER, 1996: 69-70; CHAMBERS & MUIR, 1997: 114, fig. 31; BARNICH & FIEGE, 2003: 82-86, fig. 43. *Eumolpe squamata* — DELLE CHIAJE, 1822: pl. 57 figs. 8, 17. *Polynoe squamosa* — DELLE CHIAJE, 1841*b*: 57, 60, 106; DELLE CHIAJE, 1841*c*: pl. 5 figs. 8, 17. *Polynoë scutellata* — RISSO, 1826: 414. *Polynoë clypeata* — GRUBE, 1860: 71-72, pl. 3 fig. 1. *Polynoe dorsalis* — QUATREFAGES, 1866*b*: 245. *Polynoe modesta* — QUATREFAGES, 1866*b*: 243. [?] *Polynoe fucescens* — QUATREFAGES, 1866*b*: 242. *Polynoe Grubiana* — CLAPARÈDE, 1870: 373-374, pl. 1 fig. 2. *Polynöe squamata* [not *Lepidonotus squamatus* (Linnaeus 1758)] — GRUBE, 1840: 87-88.

**REFERENCES FOR PORTUGAL:** NOBRE, 1903*a* (Leixões Harbour; Mouth of Douro; Setúbal); NOBRE, 1903*b* (Setúbal; Parede); CARVALHO, 1929 (Sines); AUGENER, 1933*b* (Buarcos, Coimbra); SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); CASTRO & VIEGAS, 1981 (Tagus Estuary); CAMPOY, 1982 (previous records: Sines; Setúbal; Arrábida; Parede; Buarcos; Mouth of Douro; Leixões); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal); SOUSA-REIS *et al.*, 1982 (Peniche region); DEXTER, 1992 (previous records: Peniche; Mondego Estuary); SALDANHA, 1995 (Portugal).

**MATERIAL: FAUNA 1 — St. 18*A***, Alborán Sea, Alborán Island, 45-52 m, stones: 2 specimens; (1) complete, 26 chaetigers, with elytra; first pair of elytra with margins fringed with some papillae; (2) broken in two pieces, incomplete, without elytra, anterior fragment with 13 chaetigers, middle fragment with 9; both specimens have notochaetae short and with blunt tips, and lower chaetae more slender, without being capillaries, as described for *Lepidonotus squamatus*. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 1 specimen, incomplete, with 26 chaetigers; only one elytrum attached; margin of elytrum without fringes of long papillae. **St. 32*A***, Alborán Sea, Alborán Island, 28 m, laminarians on rocks: 4 specimens, 3 incomplete with some elytra and between 13-15 chaetigers, and one complete, rolled up and almost breaking in two pieces, plus two posterior regions with 12 and 13 chaetigers and pygidia. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 2 specimens; (1) incomplete specimen with about 14 chaetigers, proboscis everted; (2) complete specimen with 26 chaetigers and 1.5 cm long, 12 pairs of elytra; central antenna missing; lateral antennae swollen terminally and sharply narrowed to a thin tip; palps with 5 longitudinal rows of papillae; smooth facial tubercle; second pair of eyes hidden by the anterior margin of the second chaetiger; elytra overlap longitudinally, in the anterior region, leaving the dorsal midline partially uncovered; in the posterior region they overlap almost completely; coloration in middle dorsum with brown spots and stripes, lateral antennae and tentacular cirri with basal and distal brown stripes, dorsal and anal cirri only with distal stripe. **St. 34*A***, Alborán Sea, Alborán Island, 62-69 m, porous rocks: 1 complete specimen, about 2 cm long. **St. 43*A***, Gulf of Cádiz, near Rota, 20-24 m, rocks with white coral: 1 complete specimen, with 26 chaetigers, but with the pygidium missing; some elytra missing; nephridial papillae from chaetiger 9. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 2 specimens, one complete and rolled up, the second incomplete, with 15 chaetigers.

**DISTRIBUTION:** North East Atlantic; Kattegat; Øresund; North Sea; Irish Sea; British Isles; English Channel; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Canary Islands; Red Sea; Indian Ocean; North Pacific. Under stones and rocks, in algal holdfasts, in seagrass beds, and on different hard grounds. Between 0-160 meters.

## *Lepidonotus squamatus* (Linnaeus 1758)

*Aphrodita squamata* LINNAEUS, 1758: 655.

**TYPE LOCALITY:** "*Habitat in Pelago*", probably at North European Atlantic.
**SYNONYMS:** *Lepidonote armadillo* Leidy 1855.
**SELECTED REFERENCES:** *Polynoe squamata* — AUDOUIN & MILNE-EDWARDS, 1832: 416-420, pl. 1 figs. 10-16; MÖBIUS, 1874: 167. *Polynoë squamata* — JOHNSTON, 1839*a*: 432-434, pl. 22 fig. 1. *Lepidonotus squamatus* — JOHNSTON, 1865: 109-111, 339, pl. 8 figs. *a-d*; SAINT-JOSEPH, 1888: 151-152; SAINT-JOSEPH, 1898: 230-231, pl. 13 figs. 9-13; MCINTOSH, 1900*a*: 274-280, pl. 25 figs. 1-2, pl. 26*A* fig. 2, pl. 32 fig. 1, pl. 37 figs. 9-10, 12-13, pl. 42 fig. 25; FAUVEL, 1923*c*: 45-46, fig. 16*f-j*; [?] BELLAN, 1964*b*: 23; GILLANDT, 1979: 20-22, fig. 1; CAMPOY, 1982: 80-81; TEBBLE & CHAMBERS, 1982: 21-23, figs. 4*b*, 26-27; USCHAKOV, 1982: 104; KIRKEGAARD, 1992: 73-75, fig. 30; HARTMANN-SCHRÖDER, 1996: 70-71, fig. 23; BÖGGEMANN, 1997: 16, fig. 9; CHAMBERS & MUIR, 1997: 116, fig. 32; BARNICH & FIEGE, 2003: 86. *Lepidonotus pleiolepis* [not Marenzeller 1879] — SAINT-JOSEPH, 1888: 152-154, pl. 6 figs. 1-5 [according to FAUVEL (1923*c*)].
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Setúbal Canyon); CAMPOY, 1982 (previous records: Portuguese coast).
**DISTRIBUTION:** North Atlantic, ranging south to France in the east, and New Jersey in the west; North Sea; Skagerrak; Kattegat; Øresund; western Baltic Sea; English Channel; Northern Spain; Portugal; [?] Mediterranean Sea; [?] Adriatic Sea; North Pacific; [?] Japan; Mexico. Hard grounds, on broken shells, stones, rocks, or tubes of serpulids. Intertidal to 2700 meters.

## ***Lepidonotus tenuisetosus*** (Gravier 1902)

*Euphione tenuisetosa* GRAVIER, 1902: 222-226, text-figs. 228-231, pl. 8 figs. 123-126.
**TYPE LOCALITY:** Djibouti, Gulf of Aden.
**SELECTED REFERENCES:** *Lepidonotus tenuisetosus* — FAUVEL, 1927*b*: 414; FAUVEL, 1953*c*: 36-37, fig. 14*c-f*; DAY, 1967: 82, fig. 1.14.*a-e*; BEN-ELIAHU, 1972*b*: 190, 195; BARNICH & FIEGE, 2003: 86, fig. 44.
**DISTRIBUTION:** Eastern Mediterranean, on the coasts of Egypt and Israel; Suez Canal; Red Sea; tropical West Africa; South Africa; Madagascar; Persian Gulf; Indo-West Pacific to Japan. Common of rocks and hard grounds. Between 18-27 meters.

# GENUS ***Leucia*** Malmgren 1867

*Leucia* MALMGREN, 1867*a*: 13.
**TYPE SPECIES:** *Polynoe nivea* M. Sars 1863.

**KEY TO SPECIES:**
(adapted from BARNICH & FIEGE, 2009)

**1a.** Elytral margin without papillae (occasionally few, scattered in anteriormost elytra); anterior half of elytra with numerous conical microtubercles, posterior half with rather indistinct, scattered, soft conical to mamilliform macrotubercles.....***L. violacea***
**1b.** Elytral margin with distinct papillae; macrotubercles spiny distally, in a row near posterior margin, microtubercles globose, bifid to branched multifid, larger towards posterior margin.....***L. nivea***

## ***Leucia nivea*** (M. Sars 1863)

*Polynoë nivea* M. SARS, 1863: 291-294.
**TYPE LOCALITY:** Bejan, Trondheimsfjorden, Norway, 30-40 fathoms (54.9-73.2 meters).
**SYNONYMS:** *Polynoë zonata* Langerhans 1880; *Harmothoë echinopustulata* Fauvel 1913.
**SELECTED REFERENCES:** *Leucia nivea* — MALMGREN, 1867*a*: 13; STORM, 1879: 33; BIDENKAP, 1895: 63; ELIASON, 1962*b*: 222; CHAMBERS, 1989: 145-146, fig. 1; KIRKEGAARD, 1992: 75-77, fig. 31; CHAMBERS & MUIR, 1997: 118, fig. 33; BARNICH & FIEGE, 2003: 56. *Harmothoe nivea* — DITLEVSEN, 1917: 29-30. *Harmothoe (Leucia) nivea* — HARTMANN-SCHRÖDER, 1996: 56. *Polynoe zonata* — LANGERHANS, 1880*b*: 275-276, fig. 5*a-g*. *Harmothoe zonata* — BARATECH & SAN MARTÍN, 1987: 43, fig. 2. *Harmothoë echinopustulata* — FAUVEL, 1913*a*: 19-20, fig. 6; FAUVEL, 1914*f*: 58-60, pl. 4 figs. 7-10, 21-26; FAUVEL, 1936*c*: 10. *Harmothoe echinopustulata* — CABIOCH, L'HARDY & RULLIER, 1968: 15; CAMPOY, 1982: 60.

**DISTRIBUTION:** Northern Ireland; Norway; Skagerrak; North Sea; Roscoff; Azores; Madeira Island; Morocco; Mediterranean Sea. On rocks, sand, shell fragments, and on *Desmascidon* (Porifera). In 8-400 meters.

### ***Leucia violacea*** (Storm 1879)

*Lænilla violacea* STORM, 1879: 32.
**TYPE LOCALITY:** Rødberg, Trondheimfjord (Norway).
**SYNONYMS:** *Evarne Normani* McIntosh 1897.
**SELECTED REFERENCES:** *Harmothoe violacea* — DITLEVSEN, 1917: 34. *Leucia violacea* — BARNICH & FIEGE, 2009: 8, 43-44, table 3; FIEGE & BARNICH, 2009: 157-159, fig. 4. *Evarne Normani* — MCINTOSH, 1897: 168-169, pl. 3 fig. 13.
**DISTRIBUTION:** NE Atlantic, along the Norwegian coast to the Bay of Biscay. On hard substrates, often associated with cold water colrals like *Lophelia pertusa* or *Madrepora oculata*. Between 30-1262 meters.

## GENUS ***Macellicephala*** McIntosh 1885

*Macellicephala* MCINTOSH, 1885*a*: 121-122.
**TYPE SPECIES:** *Polynoe (Macellicephala) mirabilis* McIntosh 1885.
**REMARKS:** The genus definition was emended by PETTIBONE (1976*a*).

**KEY TO SPECIES:**
(adapted from PETTIBONE, 1976*a*)

**1a.** Dorsal tubercles distinct, digitiform to subconical; neurochaetae smooth or with faint indications of spinous rows along one side, with slightly hooked tips; notochaetae smooth or with faint indications of spinous rows, being stouter than neurochaetae; with trilobed facial tubercle; prostomium with minute frontal filaments; body smooth, not papillate.....***M. violacea***
**1b.** Dorsal tubercles small to absent; neurochaetae with faint to distinct spinous rows along lateral borders, with blunt tips; notochaetae smooth or with faint to distinct spinous rows.....**2**

**2a (1b).** Notochaetae stouter than neurochaetae, smooth; facial tubercle 2-3 lobed; prostomium with minute frontal filaments; body minutely papillate.....***M. mirabilis***
**2b (1b).** Notochaetae subequal to or more slender than neurochaetae; without facial tubercle but with bulbous upper lip; prostomium without frontal filaments.....**3**

**3a (2b).** Body minutely papillate; notochaetae smooth or with faint indication of spinous rows.....***M. longipalpa***
**3b (2b).** Body smooth; notochaetae with faint spinous rows.....***M. laubieri***

### ***Macellicephala laubieri*** Reyss 1971

*Macellicephala laubieri* REYSS, 1971: 244, figs. 1-2.
**TYPE LOCALITY:** Western Mediterranean Sea, 40º59.3'N, 05º03'E, at 2665 meters.
**SELECTED REFERENCES:** *Macellicephala laubieri* — PETTIBONE, 1976*a*: 18, fig. 10; BARNICH & FIEGE, 2003: 92, fig. 47, pl. 1 fig. 6.
**DISTRIBUTION:** Western Mediterranean Sea, around 37º16.5'N – 40º59.3'N, and 04º59.4'E – 06º18.4'E, between 2447-2699 meters; Aegean Sea, around 39º14.99'N – 39º15.5'N, and 23º42.51'E – 23º43.43'E, between 1208-1253 meters. In abyssal mud.

### ***Macellicephala longipalpa*** Uschakov 1957

*Macellicephala longipalpa* USCHAKOV, 1957: 1663, 1671, fig. 4*A-D*.
**TYPE LOCALITY:** Arctic Ocean, between 420-2245 meters.
**SELECTED REFERENCES:** *Macellicephala longipalpa* — KHLEBOVICH, 1964: 168; PETTIBONE, 1976*a*: 17, figs. 8-9. *Macellicephala (Macellicephala) longipalpa* — HARTMANN-SCHRÖDER, 1974*c*: 76, table 1. *Macellicephala violacea* — DITLEVSEN, 1937: 15; WESENBERG-LUND, 1953*a*: 27 [in part?; not *Oligolepis violacea* Levinsen 1886].

**DISTRIBUTION:** Arctic; Kara Sea; Franz Joseph Land; Spitsbergen; East and West Greenland. In 120-2951 meters.

## ***Macellicephala mirabilis*** (McIntosh 1885)

*Polynoe (Macellicephala) mirabilis* MCINTOSH, 1885*a*: 121-122, pl. 16 fig. 1, pl. 12*A* figs. 9-11.

**TYPE LOCALITY:** New Zealand, off NW corner of the North Island, 37º34'S, 179º22'E, 700 fathoms (1280.2 meters), in blue mud.

**SELECTED REFERENCES:** *Polynoë (Macellicephala) mirabilis* — MCINTOSH, 1905*b*: 59-60. *Macellicephala mirabilis* — AUGENER, 1932*b*: 100; MONRO, 1936: 100; DAY, 1967: 45, fig. 1.3.*n-p*; AVERINCEV, 1972: 112; PETTIBONE, 1976*a*: 10-12, figs. 1-2. *Macellicephala (Macellicephala) mirabilis* — HARTMANN-SCHRÖDER, 1974*c*: 76, table 1. [?] *Macellicephala mirabilis* — REYSS, 1968: 323-326, table 1. *Macellicephala* sp. — MONRO, 1930: 47, fig. 10. Not *Macellicephala mirabilis* — FAUVEL, 1913*a*: 6 [doubtful, according to PETTIBONE (1976*a*)]; FAUVEL, 1914*f*: 39-40 [doubtful, according to PETTIBONE (1976*a*)]; FAUCHALD, 1974*b*: 9-10 [= *Macellicephala violacea* (Levinsen 1886)].

**DISTRIBUTION:** New Zealand, off Northern Island; South Africa, off Cape Point Lighthouse; South Georgia, mouth of Strommness Harbor; Princess Astrid Coast. In muddy bottoms. Between 155-1280 meters.

**REMARKS:** Probably this species does not belong to the European polychaete fauna. FAUVEL (1913*a*, 1914*f*) included *Oligolepis violacea* Levinsen 1886, from the Arctic, in synonymy under McIntosh's species, from the Antarctic. PETTIBONE (1976*a*) studied specimens from both regions and found them as belonging to different species, being Levinsen's species a valid one. She also studied Fauvel's specimen from off Azores, and found it to be in poor condition, but apparently with ceratophores for lateral antennae, what suggests that it doesn't belong to the genus *Macellicephala*. The same author verified the identity of specimens of *M. mirabilis* from off Norway, identified by FAUCHALD (1974*b*), and found them as belonging to *M. violacea* (Levinsen 1886), being the identification error probably a consequence of Fauvel's synonymy. Finally, the Mediterranean record of *M. mirabilis* in 600-650 meters by REYSS (1968) could not be revised, as the specimens were lost, and must therefore be considered as doubtful until more material is collected from the same area. So far, the only species that has been confirmed to be present in the Mediterranean waters is *Macellicephala laubieri* Reyss 1971 (BARNICH & FIEGE, 2003).

## ***Macellicephala violacea*** (Levinsen 1886)

*Oligolepis violacea* LEVINSEN, 1886: 4-5, 7, pl. 25 figs. 1-4.

**TYPE LOCALITY:** Kara Sea, at 49 fathoms (89.6 meters).

**SELECTED REFERENCES:** *Macellicephala violacea* — WIRÉN, 1901: 253; WIRÉN, 1907: 289-308, pls. 1-2; DITLEVSEN, 1917: 39; PETTIBONE, 1976*a*: 12-15, figs. 3-4. *Macellicephala (Macellicephala) violacea* — HARTMANN-SCHRÖDER, 1974*c*: 76. *Macellicephala mirabilis* [not *Macellicephala mirabilis* (McIntosh 1885)] — AUGENER, 1933*b*: 206, fig. 1; USCHAKOV, 1950: 156, fig. 2; USCHAKOV, 1955*b*: 312; KHLEBOVICH, 1964: 168; LEVENSTEIN, 1971: 21, figs. 2-4; LEVENSTEIN, 1973: 129, 130, 131, 133; FAUCHALD, 1974*b*: 9-10. Not *Macellicephala violacea* — DITLEVSEN, 1937: 15; WESENBERG-LUND, 1953*a*: 27 [= *Macellicephala longipalpa* Uschakov 1957].

**DISTRIBUTION:** Kara Sea; Laptev Sea; Barents Sea; Greenland Sea; Franz Josef Land; Spitsbergen; Jan Mayen; NE Iceland; Western Norway; Aleutian and Kurile-Kamchatka Trenches; Okhotsk Sea. On sand, mud, stones and mixtures of them. In 46-8400 meters.

**REMARKS:** The publication date of *Macellicephala violacea* is normally stated as being 1887, year of the publication of the book edited by C.F. Lütken, "*Dijmphna-Togtets zoologisk-botaniske Udbytte*". However, the chapter on annelids by G.M.R. Levinsen was already available in 1886, as a reprint. For this reason I consider the year of 1886 as the publication date of this species.

## *GENUS ***Malmgreniella*** Hartman 1967

*Malmgreniella* HARTMAN, 1967: 37.

**TYPE SPECIES:** *Malmgreniella dicirra* Hartman 1967.

**REMARKS:** See BARNICH & FIEGE (2001), for the discussion on the validity of the genus *Malmgrenia* McIntosh 1874. The definition of the genus was emended by BARNICH & FIEGE (2001).

**KEY TO SPECIES:**
(from BARNICH & FIEGE, 2003)

**1a.** Elytral surface without microtubercles; in anterior elytra some scattered papillae on elytral surface and margin; neurochaetae all unidentate, tapering to long, pointed tips, few lower with knob-like tips; elytra with pigmented pattern; neuropodial supra-acicular process digitiform.....***M. lilianae***
**1b.** Elytral surface at least partly covered by microtubercles.....**2**

**2a (1b).** Elytral surface with patch of microtubercles in anterior part.....**3**
**2b (1b).** Elytral surface covered more or less completely by microtubercles; elytral margin with fringing papillae (may be only a few, very short and scattered); neuropodia with digitiform supra-acicular process; elytra with pigmented pattern.....**9**

**3a (2a).** Elytral margin smooth.....**4**
**3b (2a).** Elytral margin with fringing papillae; neuropodia without supra-acicular process; elytra without pigmented pattern.....***M. mcintoshi***

**4a (3a).** Neuropodia with supra-acicular process.....**5**
**4b (3a).** Neuropodia without supra-acicular process; elytra with pigmented pattern.....***M. marphysae***

**5a (4a).** All (short and long) notochaetae stout, tips either all blunt or all pointed.....**6**
**5b (4a).** Short notochaetae stout, with blunt tips; long notochaetae slender, with pointed tips; upper and middle neurochaetae bidentate, lower unidentate; neuropodial supra-acicular process digitiform; elytra with pigmented pattern.....***M. darbouxi***

**6a (5a).** Neurochaetae bi- and unidentate; pigmented pattern in elytra present or absent.....**7**
**6b (5a).** Neurochaetae usually all bidentate; pigmented pattern in elytra present.....**8**

**7a (6a).** Notochaetae with blunt tips; upper and lower neurochaetae usually unidentate with knob-like tips, middle bidentate with distinct secondary tooth, tips knob-like or pointed; antennae and cirri papillate, usually pigmented basally (in preserved material); neuropodial supra-acicular process bulbous or subconical; elytra with pigment pattern; posterior 10-15 segments ventrally with characteristic color pattern.....***M. andreapolis***
**7b (6a).** Noto- and neurochaetae with pointed tips; upper and middle neurochaetae bidentate with minute secondary tooth, lower unidentate; antennae and cirri smooth, not pigmented basally (in preserved material); neuropodial supra-acicular process thick; elytra without pigmented pattern.....***M. castanea***

**8a (6b).** Neuropodia with small, digitiform supra-acicular process.....***M. lunulata***
**8b (6b).** Neuropodia with thick, conical supra-acicular process.....***M. arenicolae****

**9a (2b).** Outer lateral margin of elytra with many long papillae, posterior margin with shorter papillae; neurochaetae all unidentate, tapering to long, pointed tips.....***M. polypapillata***
**9b (2b).** Elytral margin with few, short, scattered papillae; neurochaetae usually all bidentate, lower straight.....***M. ljungmani****

## ***Malmgreniella andreapolis*** (McIntosh 1874)

*Malmgrenia andreapolis* MCINTOSH, 1874*b*: 195.
**TYPE LOCALITY:** St. Andrews (Scotland), washed ashore after storms and in stomachs of cod and haddock.
**SYNONYMS:** *Harmothoe synaptae* Saint-Joseph 1906.
**SELECTED REFERENCES:** *Malmgrenia andreapolis* — MCINTOSH, 1875*c*: 117; MCINTOSH, 1876*b*: 377-378, pl. 67 figs. 20-23; MCINTOSH, 1900*a*: 382-384, pl. 28 fig. 8, pl. 31 fig. 3, pl. 33 fig. 11, pl. 40 figs. 27-30; CHAMBERS & MUIR, 1997: 120-121, fig. 34. *Harmothoe andreapolis* — TEBBLE & CHAMBERS, 1982: 49-51, figs. 16*a-d*, 46-47; HANLEY, 1987: 151, fig. 3*D*; PARAPAR, BESTEIRO & URGORRI, 1992*a*: 314-316, fig. 2. *Malmgreniella andreapolis* — PETTIBONE, 1993*a*: 25-26, fig. 17; HARTMANN-SCHRÖDER, 1996: 62; BARNICH & FIEGE, 2001: 1130-1133, fig. 4; BARNICH & FIEGE, 2003: 56-58, fig. 29. *Harmothoë lunulata* Var. *Andreapolis* — FAUVEL, 1923*c*: 72, fig. 26*k-o*. *Laenilla glabra* — MALMGREN, 1865: 73, pl. 9 fig. 5 [in part; not same as lectotype]. *Harmothoe synaptæ* — SAINT-JOSEPH, 1906: 147-149, pl. 1 figs. 1-6; BEAUCHAMP & ZACHS, 1914: 221-224, figs. 1-2. *Harmothoë lunulata* Var.

*Synaptae* — FAUVEL, 1923*c*: 73. *Harmothoe lunulata* [not Delle Chiaje 1830] — CUÉNOT, 1912: 102-108, figs. 23-26; SOUTHERN, 1914: 52-53; ORTON, 1923: 861, fig. 1 [in part]; CAZAUX, 1968: 506-510, figs. 7-8. *Malmgrenia lunulata* [not Delle Chiaje 1830] — PETTIBONE, 1953: 25-28, pl. 9 figs. 73-77, pl. 10 figs. 78-87, pl. 11 figs. 88-103 [in part]. *Harmothoe lunulata* var. *E* — G.M. SPOONER *in* PLYMOUTH MARINE FAUNA, 1957: xxxviii, 112. *Malmgrenia castanea* [not McIntosh 1876] — AMANIEU & CAZAUX, 1963: 168.

**DISTRIBUTION:** Northeastern Atlantic Ocean, from Sweden to France; North Sea; Skagerrak; Ireland; Galicia; Mediterranean Sea; Adriatic Sea; Aegean Sea. On sand, can also occur as commensal of echinoderms (ophiuroids and synaptids). Intertidal to 94 meters.

## ****Malmgreniella arenicolae*** (Saint-Joseph 1888)

*Harmothoë arenicolæ* SAINT-JOSEPH, 1888: 174-176, pl. 6 figs. 22-23.

**TYPE LOCALITY:** Plage des Bains (Dinard coast, Northern France), in the sand, on a specimen of *Arenicola marina*.

**SYNONYMS:** *Harmothoë picta* Saint-Joseph 1888.

**SELECTED REFERENCES:** *Malmgreniella arenicolae* — PETTIBONE, 1993*a*: 26-30, figs. 18-19; HARTMANN-SCHRÖDER, 1996: 62-63. *Malmgrenia arenicolae* — CHAMBERS & MUIR, 1997: 122-123, fig. 35. *Harmothoë lunulata* Var. *Arenicolae* — FAUVEL, 1923*c*: 73. *Harmothoë picta* — SAINT-JOSEPH, 1888: 172-174, pl. 8 figs. 44-47; SAINT-JOSEPH, 1895: 203. *Harmothoe lunulata* [not Delle Chiaje 1841] — [?] TEBBLE & CHAMBERS, 1982: 51-53, figs. 16*e-g*, 48-49. *Harmothoë (Harmothoe) lunulata* [not Delle Chiaje 1841] — HARTMANN-SCHRÖDER, 1971*a*: 55-57 [in part]. *Malmgrenia alba* [not *Lænilla alba* Malmgren 1865 = indeterminable, according to BARNICH & FIEGE (2009)] — AUGENER, 1928: 694-695. *Harmothoe joubini* [not Fauvel 1913] — CLARK & DAWSON, 1963: 641.

**MATERIAL: FAUNA 1 — St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 2 specimens.

**DISTRIBUTION:** Northern Hemisphere; Arctic Ocean; Spitsbergen; Norwegian Sea to France; Alboran Sea; North Sea; Indian Ocean. Many of the records need to be confirmed. Can be found in tubes or burrows of other species of polychaetes, as *Arenicola marina*, *Neoamphitrite figulus*, *Lanice conchylega*, *Notomastus latericeus*, and also of sipunculids. Littoral and sublittoral to 220 meters.

## ***Malmgreniella castanea*** (McIntosh 1876)

*Malmgrenia castanea* MCINTOSH, 1876*b*: 376-377, pl. 67 figs. 15-19, pl. 68, fig. 15.

**TYPE LOCALITY:** Off North Unst (= North Uist), Hebrides, in 90-96 fathoms (164.6-175.6 meters), and in 85 fathoms (155.4 meters) on *Spatangus purpureus* (near the mouth), on shell-sand; Guernsey, English Channel; off Valentia, South West Ireland, in 80 fathoms (146.3 meters); off the Blasquet (= Blasket), SW Ireland, in 110 fathoms (201.2 meters).

**SELECTED REFERENCES:** *Malmgrenia castanea* — MCINTOSH, 1900*a*: 379-382, pl. 28 fig. 15, pl. 30 fig. 5, pl. 33 fig. 10, pl. 40 fig. 23-26; FAUVEL, 1914*f*: 50; FAUVEL, 1923*c*: 48-49, fig. 17*h-m*; CAMPOY, 1982: 80 [in part]; CHAMBERS & MUIR, 1997: 124, fig. 36. *Malmgreniella castanea* — PETTIBONE, 1993*a*: 30-31, fig. 20; HARTMANN-SCHRÖDER, 1996: 63-64, fig. 19; BÖGGEMANN, 1997: 16, fig. 10; BARNICH & FIEGE, 2001: 1133-1135, fig. 5; BARNICH & FIEGE, 2003: 58-60, fig. 30. *Harmothoe lunulata* [not Delle Chiaje 1830] — PÉRÈS, 1954: 92; BELLAN, 1964*b*: 27 [in part]. *Harmothoë (Harmothoe) lunulata* [not Delle Chiaje 1841] — HARTMANN-SCHRÖDER, 1971*a*: 55-57 [in part]. *Harmothoe castanea* — SAINT-JOSEPH, 1898: 236-237; DITLEVSEN, 1917: 27, text-figs. 9-10; TEBBLE & CHAMBERS, 1982: 47-49, figs. 15, 44-45; HANLEY, 1987: 151. [?] *Polynoë levis* — AUDOUIN & MILNE-EDWARDS, 1832: 421-422, pl. 9 figs. 11-19 [according to FAUVEL (1923*c*); CHAMBERS & MUIR (1997: 176) considered it as an unidentifiable polynoid].

**REFERENCES FOR PORTUGAL:** PINTO, 1984 (Sado Estuary); [?] DEXTER, 1992 (as *Malmgreniella* cf. *castanea*; previous records: Figueira da Foz); RAVARA, 1997 (as *Harmothoe castanea*; off Aveiro).

**DISTRIBUTION:** Arctic Ocean; Northeastern Atlantic; Norwegian Sea; North Sea; English Channel; from Shetland Islands to the Mediterranean Sea; Adriatic Sea; Red Sea. On sandy bottoms, usually as a commensal with *Spatangus purpureus* and sea-stars. Sublittoral to 878 meters.

## ***Malmgreniella darbouxi*** Pettibone 1993

*Malmgreniella darbouxi* PETTIBONE, 1993*a*: 39, fig. 24.

**TYPE LOCALITY:** Near Zlorin Island (Croatia), Middle Adriatic Sea, 20-60 meters, in sand and mud.

**SELECTED REFERENCES:** *Malmgreniella darbouxi* — BARNICH & FIEGE, 2001: 1126-1128, fig. 2; BARNICH & FIEGE, 2003: 60, fig. 31. *Harmothoe lunulata* [not Delle Chiaje 1830] — KATZMANN, 1983: 93.

**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Aegean Sea. In mud and sand, and also as commensal with the echiurid *Thalassema gigas*. Between 20-69 meters.
**REMARKS:** The species was described as having the ventral surface of posterior segments transversely banded with dark pigmentation, suggesting a commensal relationship with an unknown host (PETTIBONE, 1993*a*). The species was later found living associated with the echiurid *Thalassema gigas*, in samples collected at Cap Sicié (Mediterranean coast of France) (personal observations).

## ***Malmgreniella lilianae*** Pettibone 1993

*Malmgreniella lilianae* PETTIBONE, 1993*a*: 59, fig. 38.
**TYPE LOCALITY:** Bay of Flamengo, São Paulo (Brazil), 23º27'S, 45º06'W, 12 meters.
**SELECTED REFERENCES:** *Malmgreniella lilianae* — BARNICH & FIEGE, 2001: 1123-1126, fig. 1; BARNICH & FIEGE, 2003: 60-63, fig. 32.
**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; South West Atlantic (Brazil). Between 0.5-69 meters.

## ****Malmgreniella ljungmani*** (Malmgren 1867)

*Parmenis Ljungmani* MALMGREN, 1867*a*: 11-12, pl. 1 fig. 2.
**TYPE LOCALITY:** Koster Island, Bohüslan (Sweden), 5-30 fathoms (9-55 meters).
**SYNONYMS:** *Harmothoë Macleodi* McIntosh 1875; *Harmothoë zetlandica* McIntosh 1876.
**SELECTED REFERENCES:** *Harmothoë ljungmani* — MCINTOSH, 1900*a*: 332-334, pl. 28 fig. 4, pl. 29 fig. 13, pl. 32 fig. 14, pl. 38 figs. 22-23; FAUVEL, 1923*c*: 63-64, fig. 23*a-e*. *Harmothoe ljungmani* — BELLAN, 1964*b*: 25; CAMPOY, 1982: 65-68, pl. 4 figs. *h-m*; TEBBLE & CHAMBERS, 1982: 45-47, figs. 14, 42-43; KIRKEGAARD, 1992: 66-68, fig. 26; PARAPAR, BESTEIRO & URGORRI, 1993*b*: 419-420, fig. 5*A-D*. *Harmothoe (Harmothoe) ljungmani* — HARTMANN-SCHRÖDER, 1996: 50-51, fig. 14. *Malmgrenia ljungmani* — CHAMBERS & MUIR, 1997: 130, fig. 39. *Malmgreniella ljungmani* — BARNICH & FIEGE, 2001: 1138-1140, fig. 7; BARNICH & FIEGE, 2003: 63-65, fig. 33. *Harmothoë Macleodi* — MCINTOSH, 1875*c*: 116; MCINTOSH, 1876*b*: 382-383, pl. 69 figs. 2-3; SAINT-JOSEPH, 1888: 168-169, pl. 7 figs. 37-40. *Harmothoë zetlandica* — MCINTOSH, 1876*b*: 379-380, pl. 68 figs. 4-5, pl. 69 fig. 1; MCINTOSH, 1900*a*: 330-332, pl. 28 fig. 1, pl. 30 fig. 2, pl. 32 fig. 15, pl. 38 figs. 20-21. *Harmothoe zetlandica* — DITLEVSEN, 1917: 15, text-fig. 2, pl. 3 fig. 7.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Harmothoe ljungmani*; continental shelf of Algarve); DEXTER, 1992 (as *Harmothoë ljungmani*; previous records: continental shelf of Algarve; Sado Estuary; Figueira da Foz); BOAVENTURA *et al.*, 2006 (as *Malmgrenia*; Ancão, Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 158 (A.3953)**, near Sines, 59 m, sand: 1 incomplete specimen, with 29 chaetigers for 8 mm long; elytra in chaetigers 2, 4, 5, 7, alternate segments to 23, and then 26, 29; elytra with smooth margins except for small and short papillae, well separated; elytral surface with minute papillae, like verrucas; dorsal cirri with short claviform papillae; rows of spines of notopodial chaetae can run to the tip in the smaller developing chaetae which have not been used to the same extent as the longer ones; wear may result in the ends of some chaetae appearing smooth; neuropodial chaetae are longer and thinner, and have rows of spines on the slightly swollen terminal part with bidentate tips; the secondary tooth is straight and about half length than the primary one.
**DISTRIBUTION:** Northeastern Atlantic, from Norway to the Mediterranean Sea; Adriatic Sea; Aegean Sea; North Sea; British Isles; Irish Sea; Skagerrak; Senegal. On *Laminaria* and other algae, rocks and stones, *Posidonia* rhizomes, *Amphioxus* sand. Also as commensal with *Lanice conchilega* and in tubes of *Chaetopterus*. Between 0-200 meters.

## ***Malmgreniella lunulata*** (Delle Chiaje 1830)

*Polynoe lunulata* DELLE CHIAJE, 1830: pl. 79 figs. 5-6.
**TYPE LOCALITY:** Naples region.
**SYNONYMS:** [?] *Harmothoë lunulata* var. *nigra* Alaejos 1905.
**SELECTED REFERENCES:** *Polynoe lunulata* — DELLE CHIAJE, 1841*b*: 57, 62, 106; DELLE CHIAJE, 1841*d*: pl. 144 figs. 5-6; CLAPARÈDE, 1868: 373-376, pl. 2 fig. 1. *Harmothoë lunulata* — [?] ALAEJOS, 1905: 46-51, pl. 6 figs. 7-9, pl. 7; [?] SAINT-JOSEPH, 1906: 194-195, pl. 3 figs. 71-72; FAUVEL, 1913*a*: 15; FAUVEL, 1914*f*: 54; FAUVEL, 1923*c*: 70-73, fig. 26*a-h* [in part; in part *Malmgreniella andreapolis* (McIntosh 1874); in part *Malmgreniella arenicolae* (Saint-Joseph 1888); in part *Malmgreniella marphysae* (McIntosh 1876)]. *Harmothoe lunulata* — BELLAN, 1964*b*: 27 [in part?]; [?] CAMPOY, 1982: 69-70; [?] TEBBLE & CHAMBERS, 1982: 51-53, figs. 16*e-g*, 48-49; KIRKEGAARD, 1992: 69-71, fig. 28. *Harmothoë*

*(Harmothë) lunulata* — HARTMANN-SCHRÖDER, 1971*a*: 55-57, fig. 13 [in part; in part *Malmgreniella castanea* (McIntosh 1876)]. *Malmgrenia lunulata* — PETTIBONE, 1953: 25-28, pl. 9 figs. 73-77, pl. 10 figs. 78-87, pl. 11 figs. 88-103 [in part]. *Malmgreniella lunulata* — PETTIBONE, 1993*a*: 35-39, fig. 23; HARTMANN-SCHRÖDER, 1996: 64-65, fig. 20; BÖGGEMANN, 1997: 16, fig. 11; BARNICH & FIEGE, 2001: 1128-1130, fig. 3; BARNICH & FIEGE, 2003: 65-67, fig. 34. [?] *Harmothoë lunulata* var. *nigra* — ALAEJOS, 1905: 46; RIOJA, 1918*b*: 15. [?] *Harmothoë lunulata* Var. *nigra* — FAUVEL, 1923*c*: 72. [?] *Harmothoe lunulata nigra* — CAMPOY, 1982: 69. [?] *Harmothoe nigra* — PARAPAR, BESTEIRO & URGORRI, 1993*b*: 420-421, fig. 5*E-I*. *Harmothoe joubini* [not Fauvel 1913] — CLARK & DAWSON, 1963: 641. Not *Harmothoë lunulata* — MCINTOSH, 1876*b*: 385-386, pl. 69 figs. 16-20; MCINTOSH, 1900*a*: 342-344, pl. 27 fig. 8, pl. 30 fig. 4, pl. 32 fig. 12, pl. 39 figs. 12-16 [= *Malmgreniella marphysae* (McIntosh 1876)]. Not *Harmothoë lunulata* — MONRO, 1937*c*: 258-259. Not *Harmothoe lunulata* — DAY, 1962: 629; KATZMANN, 1983: 93.

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (as *Harmothoe lunulata*; off Porto); HARTMANN-SCHRÖDER, 1977*a* (as *Harmothoë (Harmothoë) lunulata*; off Cape Sardão); CAMPOY, 1982 (as *Harmothoe lunulata*; previous records: Porto); MONTEIRO-MARQUES, 1987 (as *Harmothoe lunulata*; continental shelf of Algarve); DEXTER, 1992 (as *Harmothoë lunulata*; previous records: Ria Formosa; continental shelf of Algarve); [?] RAVARA, 1997 (as *Harmothoe* cf. *lunulata*; off Aveiro).

**DISTRIBUTION:** Northeast Atlantic; Portugal; Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea. Between *Posidonia* rhizomes, shell debris, muddy substrata, or soft bottoms in rocks. Sometimes commensal with balanoglossids. Between 1-90 meters. Also recorded in the Pacific Ocean and Red Sea, and to be present down to 1430 meters.

**REMARKS:** According to BARNICH & FIEGE (2003), due to the confusion between this species and other species of *Malmgreniella*, the literature records from the Mediterranean and North East Atlantic are doubtful.

## ***Malmgreniella marphysae*** (McIntosh 1876)

*Harmothoë marphysæ* MCINTOSH, 1876*b*: 384-385, pl. 69 figs. 11-15, pl. 70 fig. 18.

**TYPE LOCALITY:** Guernsey (English Channel Islands), in the galleries of *Marphysa sanguinea*, and Polperro, Cornwall, in chinks of the rocks.

**SYNONYMS:** *Harmothoe marphysæ* var. *watsoni* McIntosh 1919.

**SELECTED REFERENCES:** *Harmothoë marphysæ* — MCINTOSH, 1900*a*: 339-341, pl. 27 fig. 11, pl. 29 fig. 16, pl. 32 fig. 13, pl. 39 figs. 7-11. *Harmothoe marphysae* — TEBBLE & CHAMBERS, 1982: 43-44, figs. 13*d-e*, 40-41; PARAPAR, BESTEIRO & URGORRI, 1992*a*: 312-314, fig. 1. *Malmgreniella marphysae* — PETTIBONE, 1993*a*: 31-33, fig. 21. *Malmgrenia marphysae* — CHAMBERS & MUIR, 1997: 132, fig. 40. *Harmothoë lunulata* [not Delle Chiaje 1841] — MCINTOSH, 1876*b*: 385-386, pl. 69 figs. 16-20; MCINTOSH, 1900*a*: 342-344, pl. 27 fig. 8, pl. 30 fig. 4, pl. 32 fig. 12, pl. 39 figs. 12-16; FAUVEL, 1923*c*: 70-73, fig. 26 [in part]. *Malmgrenia lunulata* [not Delle Chiaje 1841] — PETTIBONE, 1953: 25-28, pl. 9 figs. 73-77, pl. 10 figs. 78-87, pl. 11 figs. 88-103 [in part]. *Harmothoe marphysæ* var. *watsoni* — MCINTOSH, 1919: 163-164; MCINTOSH, 1923*a*: pl. 137 fig. 1. *Harmothoe Watsoni* — FAUVEL, 1927*a*: 406. *Harmothoë lunulata* Var. *Marphysae* — FAUVEL, 1923*c*: 72-73, fig. 26*i*; BELLAN, 1961: 89.

**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Harmothoe marphysae*; off Aveiro).

**DISTRIBUTION:** British Isles; Irish Sea; English Channel; Galicia; [?] Mediterranean Sea. On muddy sand or in chinks in rock, in tubes and burrows of other polychaetes and echinoderms. Littoral and sublittoral.

## ***Malmgreniella mcintoshi*** (Tebble & Chambers 1982)

*Harmothoe mcintoshi* TEBBLE & CHAMBERS, 1982: 53-55, figs. 17*a-b*, 50.

**TYPE LOCALITY:** Nine miles (14.48 kilometers) off Balta, in the Shetland Islands, at 60 fathoms (109.7 meters).

**SYNONYMS:** *Lagisca Jeffreysii* McIntosh 1900 [primary homonym; not McIntosh 1876].

**SELECTED REFERENCES:** *Malmgrenia mcintoshi* — CHAMBERS & MUIR, 1997: 134, fig. 41. *Malmgreniella mcintoshi* — PETTIBONE, 1993*a*: 33-35, fig. 22; HARTMANN-SCHRÖDER, 1996: 66. *Lagisca Jeffreysii* — MCINTOSH, 1900*a*: 305-307, pl. 27 fig. 10, pl. 32 fig. 7, pl. 38 figs. 7-9, pl. 42 fig. 30 [primary homonym; not McIntosh 1876 = *Harmothoe extenuata* (Grube 1840)]. *Harmothoe Jeffreysi* [not McIntosh 1876] — DITLEVSEN, 1917: 9. *Malmgrenia jeffreysi* [not McIntosh 1876] — AUGENER, 1925: 108, figs. 1-1*a*. *Harmothoë Haliaëti* [not McIntosh 1876] — FAUVEL, 1913*a*: 17; FAUVEL, 1914*f*: 57-58, pl. 3 fig. 17; FAUVEL, 1923*c*: 57, fig. 19*f-h*. *Harmothoë haliaëti* — RIOJA, 1935: 8-9, figs. 1-6. *Harmothoe haliaeti* [not McIntosh 1876] — CABIOCH, L'HARDY & RULLIER, 1968: 14; KIRKEGAARD, 1992: 61-62, fig. 23.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Harmothoe haliaeti*; continental shelf of Algarve); DEXTER, 1992 (as *Harmothoë haliaëti*; previous records: continental shelf of Algarve).
**DISTRIBUTION:** Northeastern Atlantic Ocean; Skagerrak; Faroes; Shetland and Orkney Islands; North Sea; British Isles; Roscoff; Portugal. On gravel, shelly sand and coralline algae. Sublittoral, between 10-128 meters.
**REMARKS:** *Lagisca Jeffreysii* was first used by MCINTOSH (1876*c*) to describe several specimens collected off Iceland in 298 meters, and in the English Channel slope, in 1262 meters. Later MCINTOSH (1900*a*) referred the species to *Lagisca extenuata* (Grube 1840) [= *Harmothoe extenuata* (Grube 1840)] and described a new species from Shetland Islands in 110 meters, also as *Lagisca jeffreysii*. Being the later species a homonym, it received a new name from TEBBLE & CHAMBERS (1982), as *Harmothoe mcintoshi*.

### ***Malmgreniella polypapillata*** Barnich & Fiege 2001

*Malmgreniella polypapillata* BARNICH & FIEGE, 2001: 1135-1138, fig. 6.
**TYPE LOCALITY:** Banyuls-sur-Mer (Mediterranean coast of France), coastal mud, at 35 meters.
**SELECTED REFERENCES:** *Malmgreniella polypapillata* — BARNICH & FIEGE, 2003: 67, fig. 35. [?] *Malmgrenia* sp. — INTÈS & LE LOEUFF, 1975: 273-274, fig. 1*a-i*.
**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; probably also off Ivory Coast. On muddy substrata and between *Posidonia* rhizomes. Between 12-85 meters.

## GENUS ***Melaenis*** Malmgren 1865

*Melænis* MALMGREN, 1865: 78.
**TYPE SPECIES:** *Melaenis loveni* Malmgren 1865.

### ***Melaenis loveni*** Malmgren 1865

*Melænis Lovéni* MALMGREN, 1865: 78-79, pl. 10 fig. 10.
**TYPE LOCALITY:** Spitsbergen, in Storfjorden and Kingsbay, in muddy bottoms, 15-40 fathoms (27.4-73 meters).
**SYNONYMS:** *Melænis Lovéni* var. *gigantea* Wirén 1883.
**SELECTED REFERENCES:** *Melænis Lovéni* — THÉEL, 1879: 22-23; WIRÉN, 1883: 391, pl. 28 fig. 4, pl. 29 fig. 3. *Melaenis Loveni* — FAUVEL, 1913*a*: 12. *Melænis Loveni* — FAUVEL, 1914*f*: 49-50. *Melænis lovéni* — DITLEVSEN, 1909: 10; DITLEVSEN, 1937: 16. *Melaenis lovéni* — AUGENER, 1928: 695-696; WESENBERG-LUND, 1950*a*: 9, chart 11; PETTIBONE, 1954: 214-215. *Melænis Lovéni* var. *gigantea* — WIRÉN, 1883: 391, pl. 28 fig. 3, pl. 29 fig. 4.
**DISTRIBUTION:** Arctic Ocean: Spitsbergen; Temple Bay, Isfjord; Kara Sea; Bering Sea; Davis Strait; Northern Pacific. In muddy bottoms. Between 4-200 meters.

## GENUS ***Neolagisca*** Barnich & Fiege 2000

*Neolagisca* BARNICH & FIEGE, 2000*a*: 1930-1931.
**TYPE SPECIES:** *Lagisca drachi* Reyss 1961.

### ***Neolagisca jeffreysi*** (McIntosh 1876)

*Lagisca jeffreysi* MCINTOSH, 1876*c*: 397-398, pl. 71 figs. 8-12, pl. 73 figs. 17-18.
**TYPE LOCALITY:** Off the west coast of Ireland (43º49'N, 13º15'W), in the tube of a *Eunice* in muddy sand, at 163 fathoms (298.1 meters), and on the British Channel slope (48º31'N, 10º03'W), in muddy sand, at 690 fathoms (1261.8 meters).
**SYNONYMS:** *Lagisca drachi* Reyss 1961.
**SELECTED REFERENCES:** *Neolagisca jeffreysi* — FIEGE & BARNICH, 2009: 160, fig. 1*E-J*. *Lagisca drachi* — REYSS, 1961*b*: 473-478, figs. 1-2. *Neolagisca drachi* — BARNICH & FIEGE, 2000*a*: 1932, fig. 20; BARNICH & FIEGE, 2003: 70, fig. 36. Not *Lagisca Jeffreysii* — MCINTOSH, 1900*a*: 305-307, pl. 27 fig. 10, pl. 32 fig. 7, pl. 38 figs. 7-9, pl. 42 fig. 30 [= *Malmgreniella mcintoshi* (Tebble & Chambers 1982)].

**DISTRIBUTION:** NE Atlantic, west of Ireland and on the Channel slope, 298-1262 meters, in muddy and sandy substrates; Western Mediterranean, Rech 'Lacaze-Duthiers', 12 miles off Banyuls-sur-Mer (South France), on the coral *Madrepora oculata* (L.), in 268 meters.

## GENUS *Neopolynoe* Loshamn 1981

*Neopolynoe* LOSHAMN, 1981: 9-10.
**TYPE SPECIES:** *Polynoe paradoxa* Storm 1888.
**SYNONYMS:** *Eupolynoë* Bidenkap 1895 [not McIntosh 1874].
**REMARKS:** The name *Neopolynoe* Loshamn 1981 is a replacement name for *Eupolynoë* Bidenkap 1895, which was preoccupied in Polychaeta. The generic diagnosis given by LOSHAMN (1981), was posteriorly emended by KIRKEGAARD (2001), in order to include a new species from the Atlantic coast of Morocco, *Neopolynoe africana* Kirkegaard 2001. According to KIRKEGAARD (2001), the diagnosis of the genus was as follows: body oblong, tapering posteriorly, up to 105 chaetigers; prostomium bilobed, with cephalic peaks and four subequal eyes; anterior pair of eyes dorsolateral at the greatest width of prostomium, posterior pair dorsal near posterior margin; lateral antennae with large ceratophores inserted ventrally; palps smooth; elytra 15 pairs on segments 2, 4, 5, 7, ... 23, 26, 29, and 32; elytra oval to subreniform in shape, not covering posterior part of the animal; parapodia biramous; notochaetae stouter than neurochaetae, with distinct spinous regions, with entire tips distally curved; nephridial papillae short, cylindrical, dorsally between successive neuropodia from segment 6, continuing posteriorly.

With base on this diagnosis, two species were here first temptatively referred to the genus *Neopolynoe*: *Polynoe (Eunoa) acanellae* Verrill 1881, and *Nemidia antillicola* Augener 1906.

The type of *Polynoe (Eunoa) acanellae* Verrill 1881 (and according to HARTMAN, 1942*a*) presents the body with about 65 segments and 15 pairs of elytra distributed as described for *Neopolynoe*, being followed by a posterior portion without elytra. The prostomium has an anterior pair of cephalic peaks, and the notochaetae, which are few [about 3 to 5, according to the description in HARTMAN (1942*a*); about 8 according to the drawing in HARTMAN (1944*e*)], are about as thick as the neurochaetae, being these unidentate with the tip distally curved. The elytra have entire margins, with the surface smooth except for pale, minute microtubercles. According to DITLEVSEN (1917), the number of notochaetae is seldom more than 6 to 8, and sometimes only 4 to 5 are present, while the elytra is described as being "*densely beset with minute conical bodies arranged in more or less regular rows over the surface of the scale; along the outer edge are found some spiny prominences not very conspicuous and a few thread-shaped papillae*". Finally PETTIBONE (1963*a*) added that the species can have between 50-80 segments.

In what concerns *Nemidia antillicola* Augener 1906, the species was described and pictured by AUGENER (1906) as having about 57 segments and 15 elytra, also distributed as described for *Neopolynoe*, leaving the posterior region of the body uncovered. The prostomium presents a pair of cephalic peaks, and the number of notochaetae ranges between 6 to 9, being about as thick as the neurochaetae, which are unidentate with the tip distally curved. Finally, the elytra is described as having the margins without fringes, but covered by numerous short conical papillae, and some less numerous cylindrical papillae.

According to these descriptions the two species seemed to belong to the genus *Neopolynoe*. They could not belong to *Harmothoe*, due to the big number of body segments, nor to *Polynoe*, as they presented cephalic peaks and all neurochaetae were unidentate. Finally, they could not be placed in the genus *Enipo*, as the notochaetae were not capillary, being of about the same thickness than the neurochaetae.

The genus, including the above mentioned species, was revised by BOCK, FIEGE & BARNICH (2010). Not only *Polynoe (Eunoa) acanellae* Verrill 1881 and *Nemidia antillicola* Augener 1906 were placed in the genus *Neopolynoe*, but also *N. antillicola* and *Neopolynoe africana* Kirkegaard 2001 were considered as junior synonyms of *Neopolynoe acanellae* (Verrill 1881). BOCK, FIEGE & BARNICH (2010) also emended the generic diagnosis, especially for the number of segments and the presence of a supra-acicular process, being the genus defined at present as follows: body dorsoventrally flattened, long, with up to about 100 segments; fifteen pairs of elytra covering dorsum, on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, and 32, leaving long tail uncovered; prostomium bilobed, with cephalic peaks, with three antennae; lateral antennae inserted ventrally to median antenna; two pairs of eyes and a pair of palps present; parapodia biramous, both rami with elongate acicular lobe; notopodia shorter and on anterodorsal side of neuropodia; neuropodia with supra-acicular process; tips of noto- and neuroacicula

penetrating epidermis; notochaetae stouter than or as stout as neurochaetae, with numerous rows of spines and blunt tip; neurochaetae more numerous, with numerous rows of spines only distally, and unidentate tip.

**KEY TO SPECIES:**
(data from BOCK, FIEGE & BARNICH, 2010)

**1a.** Antennae and cirri distinctly papillate; elytral margin with numerous, long papillae; supra-acicular process thick, stout; ventral cirri short, not reaching tip of neuropodium.....***N. paradoxa***
**1b.** Antennae and cirri smooth; elytral margin with few scattered, short papillae; supra-acicular process digitiform; ventral cirri long, reaching beyond tip of neuropodium.....***N. acanellae***

## ***Neolynoe acanellae*** (Verrill 1881)

*Polynoë (Eunoa) Acanellæ* VERRILL, 1881: pl. 6 fig. 5 [only figures given].
**TYPE LOCALITY:** Northern coast of the U.S.A., living in *Acanella Nordmanni* Verrill 1878 [= *Acanella arbuscula* (Johnson 1862)]. Lectotype designated by BOCK, FIEGE & BARNICH (2010) from off Newport, South of Cape Cod (Massachusetts), 39º48'30"N, 70º54'00"W, 252.5 fathoms (461.8 meters).
**SYNONYMS:** *Polynoë antillicola* Fauve 1913; *Polynoë (Nemidia) antillicola* variété *Chondrocladiae* Fauvel 1943; *Neopolynoe africana* Kirkegaard 2001.
**SELECTED REFERENCES:** *Polynoë (Eunoa) Acanellæ* — VERRILL, 1885*a*: 424-425; VERRILL, 1885*b*: 525, pl. 39 fig. 172. *Polynoë acanellae* — HARTMAN, 1942*a*: 27, figs. 27-31; HARTMAN, 1944*e*: 337, pl. 14 [46] fig. 9. *Harmothoe acanellae* — DITLEVSEN, 1917: 27-29, text-fig. 11, pl. 1 figs. 6, 8-9, 13, pl. 2 fig. 4. *Harmothoë acanellæ* — WESENBERG-LUND, 1950*a*: 7; WESENBERG-LUND, 1951: 15-16. *Harmothoë (Hermadion) acanellae* — PETTIBONE, 1963*a*: 35-36, fig. 6*l-m*. *Hermadion acanellae* — DETINOVA, 1985*a*: 101, table 2. *Neopolynoe acanellae* — BOCK, FIEGE & BARNICH, 2010: 56-58, fig. 3. *Nemidia antillicola* — AUGENER, 1906: 126-128, pl. 3 figs. 53-59. *Polynoë antillicola* — FAUVEL, 1913*a*: 24; FAUVEL, 1914*f*: 68-69. *Polynoë (Nemidia) antillicola* variété *Chondrocladiae* — FAUVEL, 1943*a*: 200, fig. 1*a-d*. *Neopolynoe africana* — KIRKEGAARD, 2001: 392, fig. 1.
**DISTRIBUTION:** Northwestern Atlantic, from off Nova Scotia to North Carolina, Davis Strait, and West Greenland; Northeastern Atlantic, from South of Iceland to Morocco and Canary Islands. Associated with corals (*Acanella arbuscula*, and *Anthomastus grandiflorus*), living on the branches, and to sponges of the genus *Chondrocladia*. Between 430-2440 meters.

## ***Neopolynoe paradoxa*** (Storm 1888)

*Polynoe paradoxa* STORM, 1888: 85.
**TYPE LOCALITY:** Trondhjemsfjorden (Norway).
**SELECTED REFERENCES:** *Eupolynoë paradoxa* — BIDENKAP, 1895: 64; STORM, 1895: viii. *Harmothoe paradoxa* — HARTMAN, 1959*a*: 77. *Neopolynoe paradoxa* — LOSHAMN, 1981: 10-11, fig. 4; KIRKEGAARD, 1992: 79-81, fig. 33; HARTMANN-SCHRÖDER, 1996: 58. *Lagisca extenuata* [not *Polynoe extenuata* Grube 1840] — FAUCHALD, 1974*b*: 9 [in part]. Description without a specific name — STORM, 1879: 34; STORM, 1880: 124.
**DISTRIBUTION:** Along the coast of Norway to Skagerrak, in 20-700 meters, usually together with corals; south of Iceland (62º57'N, 19º58'W), at 957 meters.

# GENUS ***Paradyte*** Pettibone 1969

*Paradyte* PETTIBONE, 1969*a*: 12-13.
**TYPE SPECIES:** *Polynoe crinoidicola* Potts 1910.

## ***Paradyte* cf. *crinoidicola*** (Potts 1910)

*Polynoe crinoidicola* POTTS, 1910: 337, pl. 18 fig. 10, pl. 20 fig. 30, pl. 21 figs. 39-41.
**TYPE LOCALITY:** Maldives, living as a symbiont in crinoids.
**SELECTED REFERENCES:** *Scalisetosus (Polynoë) crinoidicola* — HORST, 1917: 98-99, pl. 16 figs. 6-8, pl. 21 fig. 1. *Scalisetosus crinoidicola* — OKUDA, 1936*a*: 564, fig. 3. *Paradyte crinoidicola* — PETTIBONE, 1969*a*: 13-16, fig. 7; HANLEY & BURKE, 1991: 13-15, fig. 1; BARNICH, FIEGE & SUN, 2004: 312. *Adyte crinoidicola* — HANLEY, 1984: 88-90, fig. 1. *Scalisetosus longicirrus* [not *Polynoe (Lepidonotus)*

*longicirra* Schmarda 1861] — FAUVEL, 1953*c*: 50-51, fig. 22*a-c*; DAY, 1962: 631; DAY, 1967: 58-59, fig. 1.7.*a-f*. *Paradyte* cf. *crinoidicola* — BARNICH & FIEGE, 2003: 70-72, fig. 37.

**DISTRIBUTION:** Indo-West Pacific: Mozambique; Maldives; Malay Archipelago; northern Australia; Caroline Islands; Marshall Islands; Solomon Islands; Coral Sea; South China Sea; Japan. Commensal with crinoids and asteroids. Between 2-32 meters. In the Mediterranean Sea, it was temptatively identified by BARNICH & FIEGE (2003) with base on a poorly preserved specimen collected at Banc, in the Strait of Kassos, in 150 meters.

**REMARKS:** The record of the species in the Eastern Mediterranean Sea by BARNICH & FIEGE (2003) was based in a single specimen, in poor condition, missing all elytra and most appendages. The differences between the Mediterranean specimen and the stem species are as follows: a) in the Mediterranean specimen the tips of the notochaetae are blunt, and not notched as described by PETTIBONE (1969*a*) for *P. crinoidicola*; b) the lower neurochaetae show straight distal regions in contrast to falcate distal regions of *P. crinoidicola*.

## GENUS ***Pettibonesia*** Nemésio 2006

***Pettibonesia*** NEMÉSIO, 2006: 67-68.

**SYNONYMS:** *Wilsoniella* Pettibone 1993 [not Khalfin 1939 (Brachiopoda); not Eichler 1940 (Phthiraptera: Philopteridae)].

**TYPE SPECIES:** *Malmgrenia furcosetosa* Loshamn 1981.

**REMARKS:** PETTIBONE (1993*a*) established the genus *Wilsoniella* to include *Malmgrenia furcosetosa* Loshamn 1981, differing from *Malmgreniella* by having notochaetae of two types, shorter ones with blunt tips and longer ones tapering to slender split tips. CHAMBERS & MUIR (1997) did not accept that difference as a basis to use *Wilsoniella* as a new genus for this species, while other authors did it (*e.g.*, DAUVIN, DEWARUMEZ & GENTIL, 2003). Finally, NEMÉSIO (2006) determined that the name *Willsoniella* had been used twice in the past, first for extinct forms of Brachiopoda, and later for chewing louses found in a bird living in the northern South America. As there was no junior synonym for *Wilsoniella* Pettibone 1993, NEMÉSIO (2006) created the replacement name of *Pettibonesia* in order to replace it.

### ***Pettibonesia furcosetosa*** (Loshamn 1981)

*Malmgrenia furcosetosa* LOSHAMN, 1981: 5-7, fig. 1.

**TYPE LOCALITY:** Säcken, Tränsholmen, Bohuslän (west coast of Sweden), in 125 meters.

**SELECTED REFERENCES:** *Malmgrenia furcosetosa* — KIRKEGAARD, 1992: 77-79, fig. 32; CHAMBERS & MUIR, 1997: 126-127, fig. 37. *Harmothoe furcosetosa* — TEBBLE & CHAMBERS, 1982: 42-43, figs. 1*c*, 13*a-c*, 39; HANLEY, 1987: 151, fig. 3*G*. *Wilsoniella furcosetosa* — PETTIBONE, 1993*a*: 84-87, figs. 54-55; HARTMANN-SCHRÖDER, 1996: 61. *Harmothoe lunulata* — ORTON, 1923: 861 [in part: large specimens with *Neoamphitrite edwardsii*; not *Malmgreniella lunulata* (Delle Chiaje 1830)]. *Harmothoe* sp. nov. — G.M. SPOONER *in* PLYMOUTH MARINE FAUNA, 1957: xxxvi, 112 [with *Neoamphitrite edwardsii*]. *Harmothoe spinifera* [not *Harmothoe spinifera* (Ehlers 1864)] — CLARK, 1960: 12 [in part: specimen from Etterick Bay, Bute].

**DISTRIBUTION:** West coast of Sweden and Skagerrak, in 125-370 meters, on muddy bottoms; Plymouth area, England (English Channel), and west coast of Scotland, on littoral to 55 meters, on soft muddy bottoms. It can be found on burrows of *Neoamphitrite edwardsii* (Quatrefages 1866).

## GENUS ***Polaruschakov*** Pettibone 1976

*Polaruschakov* PETTIBONE, 1976*a*: 55-56.

**TYPE SPECIES:** *Macellicephala polaris* Uschakov 1957.

### ***Polaruschakov reyssi*** Pettibone 1976

*Polaruschakov reyssi* PETTIBONE, 1976*a*: 58, fig. 33.

**TYPE LOCALITY:** Mediterranean Sea, submarine canyon off Banyuls-sur-Mer, Rech Lacaze-Duthiers, 42º28'N, 03º28'E, 750 meters.

**SELECTED REFERENCES:** *Polaruschakov reyssi* — BARNICH & FIEGE, 2003: 92-94, fig. 48. *Macellicephala arctica* [not Knox 1959] — REYSS, 1968: 323-326, table 1 [in part]; REYSS, 1971: 244

[in part]; LEVENSTEIN, 1972: 172 [in part]. *Macellicephala (Sinantenna) arctica* [not Knox 1959] — HARTMANN-SCHRÖDER, 1974*c*: 81 [in part].
**DISTRIBUTION:** Western and Eastern Mediterranean Sea. Abyssal mud. Between 750-4391 meters.

## *GENUS ***Polynoe*** Savigny *in* Lamarck 1818

*Polynoë* SAVIGNY *in* LAMARCK, 1818: 308.
**TYPE SPECIES:** *Polynoë scolopendrina* Savigny 1822.
**SYNONYM:** *Parapolynoë* Czerniavsky 1882.

### ****Polynoe scolopendrina*** Savigny 1822

*Polynoë scolopendrina* SAVIGNY, 1822: 25.
**TYPE LOCALITY:** Near La Rochelle, Atlantic coast of France.
**SYNONYMS:** *Polynoë variegata* Grube 1856; [?] *Polynoe crassipalpa* Marenzeller 1874; *Polynoë Johnstoni* Marenzeller 1874; *Polynoë scolopendrina* var. *brevipalpa* Saint-Joseph 1888.
**SELECTED REFERENCES:** *Polynoë scolopendrina* — AUDOUIN & MILNE-EDWARDS, 1832: 428-431, pl. 7 figs. 17-19; JOHNSTON, 1865: 119-121, 340, pl. 11; MARENZELLER, 1874: 419-420; MCINTOSH, 1876*b*: 389; MCINTOSH, 1900*a*: 389-394, text-fig. 20, pl. 25 fig. 7, pl. 28 fig. 9, pl. 29 fig. 17, pl. 33 figs. 13-14, pl. 41 figs. 4-8; RIOJA, 1935: 12-14, figs. 14-20. *Polynoe scolopendrina* — SAVIGNY, 1826: 350-351; FAUVEL, 1923*c*: 80-82, fig. 30; BELLAN, 1964*b*: 30; CAMPOY, 1982: 48-49; TEBBLE & CHAMBERS, 1982: 57-59, figs. 18, 53-54; KIRKEGAARD, 1992: 81-83, fig. 34; CHAMBERS & MUIR, 1997: 136, fig. 42; BARNICH & FIEGE, 2003: 72-74, fig. 38. *Polynoë scolopendrina* var. *brevipalpa* — SAINT-JOSEPH, 1888: 183-185. *Polynoe (Polynoe) scolopendrina* — HARTMANN-SCHRÖDER, 1996: 59. *Polynoë Johnstoni* — MARENZELLER, 1874: 420. *Polynoë crassipalpa* — MARENZELLER, 1874: 412-419, pl. 2 fig. 1.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Roca; Cape São Vicente; Cape Sagres); CAMPOY, 1982 (previous records: Portugal); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 309**, off Arrifana, 93 m, rock: 1 specimen, complete but in poor condition, broken in three pieces and without elytra; total length 2.3 cm for 74 chaetigers; anterior fragment with 22 chaetigers, 11 elytral scars; dorsal median tubercles present; large anterior pair of eyes, well forward and hidden by the prostomial peaks; posterior pair almost nuchal; nuchal fold poorly developed; only one tentacular cirrus present, with papillae; median fragment with 9 chaetigers and 3 elytral scars; posterior fragment with 43 chaetigers and 1 elytral scar; 42 chaetigers with dorsal cirri (from chaetiger 32 all chaetigers with dorsal cirri); one central and two lateral rows of dorsal swellings per segment; notochaetae with blunt cleft tips; neurochaetae of two types, the superior ones enlarged and unidentated, may lose their spinules, the inferior ones strongly bidentate.
**DISTRIBUTION:** Eastern Atlantic Ocean, from Iceland to South Africa; British Isles; North Sea; Skagerrak; English Channel; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Canary Islands; Senegal; South Africa. In many kinds of bottoms, often found in tubes of *Polymnia nebulosa*. Littoral to 108 meters.

## GENUS ***Pseudohalosydna*** Fauvel 1913

*Pseudohalosydna* FAUVEL, 1913*a*: 4-5.
**TYPE SPECIES:** *Pseudohalosydna rosea* Fauvel 1913.

### ***Pseudohalosydna rosea*** Fauvel 1913

*Pseudohalosydna rosea* FAUVEL, 1913*a*: 5-6, fig. 1.
**TYPE LOCALITY:** Near Corvo Island (Azores), 29º44'20"N, 31º05'07"W, at 1213 meters, in rock and mud.
**SELECTED REFERENCES:** *Pseudohalosydna rosea* — FAUVEL, 1914*f*: 37-39, pl. 1 fig. 13, pl. 2 figs. 1-8.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Robertianella*** McIntosh 1885

*Robertianella* MCINTOSH, 1885*a*: 122-124.
**TYPE SPECIES:** *Polynoe (Robertianella) synophthalma* McIntosh 1885.

### ***Robertianella synophthalma*** McIntosh 1885

*Polynoe (Robertianella) synophthalma* MCINTOSH, 1885*a*: 122-124, pl. 14 fig. 4, pl. 20 fig. 5, pl. 12*A*, figs. 12-13.
**TYPE LOCALITY:** South of Canary Islands, 25º45'N, 20º14'W, 1525 fathoms (2789 meters), on hard ground; off Macis (Brazil), 10º11'S, 35º22'W, 1600 fathoms (2926 meters), on mud.
**SYNONYMS:** *Harmothoe lunulata* var. *fauveli* Bellan 1960; [?] *Robertianella platychaeta* Detinova 1985; *Harmothöe hyalonemae* Martín, Rosell & Uriz 1992.
**SELECTED REFERENCES:** *Polynoe synophthalma* — ROULE, 1906: 26-27, pl. 4 figs. 25-26, pl. 8 fig. 71. *Polynoe (Robertianella) synophthalma* — AMOUREUX, 1974*c*: 106; AMOUREUX, 1977*b*: 406-407, fig. 4*P-R*. *Robertianella synophthalma* — FAUVEL, 1913*a*: 11; FAUVEL, 1914*f*: 48; [?] CAMPOY, 1982: 47-48; BARNICH & FIEGE, 2000*a*: 1927-1930, fig. 19; BARNICH & FIEGE, 2003: 74-76, fig. 39. *Harmothoe lunulata* var. *fauveli* — BELLAN, 1960*b*: 277-278, figs. 1-4; BELLAN, 1964*b*: 27-29, fig. 2. *Harmothoe hyalonemae* — MARTÍN, ROSELL & URIZ, 1992: 171-177, figs. 2-6. [?] *Robertianella platychaeta* — DETINOVA, 1985*a*: 103-104, fig. 1*e-з*.
**REFERENCES FOR PORTUGAL:** [?] AMOUREUX, 1987 (as *Robertianella* cf *synophthalma*; off Aveiro).
**DISTRIBUTION:** Western Mediterranean Sea, 660-2256 meters, on *Hyalonema* and *Pheronema* sponges, and on soft bottoms; Ibero-Moroccan Gulf, 1488-2142 meters, on *Hyalonema* sponges; North-East Atlantic, on muddy bottoms and probably commensal with the crinoid *Annacrinus wyvillethomsoni* (Jeffreys), in 800-2912 meters; South of Canary Islands, 2789 meters, on hard ground; off Macis (Brazil), 2926 meters, on mud.

## *GENUS ***Subadyte*** Pettibone 1969

*Subadyte* PETTIBONE, 1969*a*: 8.
**TYPE SPECIES:** *Polynoe pellucida* Ehlers 1864.

### ****Subadyte pellucida*** (Ehlers 1864)

*Polynoe pellucida* EHLERS, 1864: 105-119, pl. 2 fig. 10, pl. 3 figs. 5, 7-13, pl. 4 figs. 1-3.
**TYPE LOCALITY:** Among algae and stones, at the coast near Martinšćica (= Martinsica), Kvarner (= Quarnero) Gulf, Croatia, Adriatic Sea.
**SYNONYMS:** *Hermadion fragile* Claparède 1868; *Hermadion Sabatieri* Darboux 1899.
**SELECTED REFERENCES:** *Lepidonotus pellucidus* — JOHNSTON, 1865: 117, 340, text-fig. XVIII 31, pl. 7 figs. 1-10. *Hermadion pellucidum* — SAINT-JOSEPH, 1888: 177-179, pl. 8 fig. 51; ALAEJOS, 1905: 31-36, pl. 4 fig. 7, pl. 5 figs. 1-7. *Scalisetosus pellucidus* — FAUVEL, 1913*a*: 10; FAUVEL, 1914*f*: 47; FAUVEL, 1923*c*: 74, fig. 27*a-f*; MONRO, 1930: 48; BELLAN, 1964*b*: 29; HARTMANN-SCHRÖDER, 1971*a*: 69-71, fig. 21*a-e*. *Subadyte pellucida* — PETTIBONE, 1969*a*: 8-10, fig. 4; INTES & LE LOEUFF, 1975: 274-275; HARTMANN-SCHRÖDER, 1977*a*: 68; CAMPOY, 1982: 52-54; PETTIBONE, 1993*a*: 2-4, fig. 1; HARTMANN-SCHRÖDER, 1996: 66-67, fig. 21; BÖGGEMANN, 1997: 16, fig. 12; BARNICH & FIEGE, 2003: 76-78, fig. 40. *Adyte pellucida* — SAINT-JOSEPH, 1899*b*: 170, pl. 6 figs. 4-5; TEBBLE & CHAMBERS, 1982: 63-64, figs. 5*a*, 20*c-d*, 56*b*; KIRKEGAARD, 1992: 37-39, fig. 9; CHAMBERS & MUIR, 1997: 80, fig. 14. *Harmothoe crosetensis* [not McIntosh 1885] — MONRO, 1930: 57-58 [in part]. *Hermadion Sabatieri* — DARBOUX, 1899: 120-123, fig. 23. *Scalisetosus communis* [not *Lysidice communis* Delle Chiaje 1841 = indeterminable; see CLAPARÈDE (1870: 380)] — MCINTOSH, 1900*a*: 372-377, pl. 26 fig. 6, pl. 27, fig. 12, pl. 30 fig. 9, pl. 33 fig. 7, pl. 34 fig. 1, pl. 40 figs. 17-19 [captions of figures as *Scalisetosus pellucidus*]; CUÉNOT, 1912: 40-43; SOUTHERN, 1914: 53-54, pl. 5 fig. 11.. *Hermadion fragile* — CLAPARÈDE, 1868: 383-386, pl. 5 fig. 2; CLAPARÈDE, 1870: 380-381, pl. 2 fig. 2. *Scalisetosus fragilis* — DAY, 1962: 631 [under the discussion of *Scalisetosus longicirrus*]; DAY, 1967: 59, fig. 1.7*g-k*. *Scalisetosus* sp. — HARTMAN, 1939*b*: 6-7, fig. 1*f-k*.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Sines); BELLAN, 1960*a* (as *Scalisetosus pellucidus*; Cape São Vicente); AMOUREUX, 1974*b* (as *Scalisetosus pellucidus*; off Aveiro); SALDANHA, 1974 (as *Scalisetosus pellucidus*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: Sines; Portugal); MONTEIRO-MARQUES, 1987 (as *Scalisetosus pellucidus*; continental

shelf of Algarve); DEXTER, 1992 (as *Scalisetosus pellucidus*; previous records: continental shelf of Algarve); SALDANHA, 1995 (as *Scalisetosus pellucidus*; Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 23**7, NW Vila Nova de Milfontes, 22 m, rock: 1 incomplete specimen with 9 chaetigers, without elytra, plus one middle fragment with 14 chaetigers. **FAUNA 1 — St. 6*A***, Alborán Sea, off Nerja, 70-74 m, sand with mud: 5 incomplete specimens, all in poor condition, with 8, 10, 12, 16 and 18 chaetigers; two of them show green pigment on dorsum. **St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 3 incomplete specimens; (1) with 13 chaetigers, proboscis everted; (2) with 16 chaetigers; (3) with 16 chaetigers, ventral cirri on second chaetiger very long, median antenna present, very long. **St. 18*A***, Alborán Sea, Alborán Island, 45-52 m, stones: 1 incomplete specimen, with 19 chaetigers; proboscis everted, with 11 pairs of papillae; only two tentacular cirri present, with papillae. **St. 32*A***, Alborán Sea, Alborán Island, 28 m, laminarians on rocks: 1 incomplete specimen with about 16 chaetigers, without elytra; styles of antennae and dorsal cirri with short claviform papillae; notochaetae curved, with denticled pouches along the convex side; the tips are blunt, with a small slit; neurochaetae with spines grouped into a cusp, and smaller spines on the terminal one-third to one-sixth, and bidentate tips, with a minute secondary tooth; pharynx projected, with 11 pairs of soft papillae, being the two lateral pairs small. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 incomplete specimen, with 13 chaetigers, without cirri or antennae. **St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse gravel: 7 specimens, all incomplete, with 14 to 33 chaetigers, poor condition; proboscis everted. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 3 incomplete specimens, 2 with 16 chaetigers, the third with 8, in poor condition. **St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 incomplete specimen, with 13 chaetigers, proboscis everted. **St. 60*A***, Gibraltar Strait, Tarifa, 12-16 m, sand, stones, photophile algae: 2 incomplete specimens; (1) poor condition, with about 20 chaetigers, antennae, tentacular cirri, and dorsal cirri missing, proboscis everted, with 11 papillae, notopodial chaetae with long spines, tips blunt, with a small slit, prostomium bilobed, with lobes rounded anteriorly; (2) with about 24 chaetigers, lateral antennae present, as some cirri, cirri with papillae, proboscis everted with 11 papillae. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 3 incomplete specimens; (1) with 17 chaetigers, proboscis everted, cirri with papillae; (2) with 11 chaetigers, dark stripes on dorsum; (3) with 14 chaetigers, proboscis everted, dark pigmentation on dorsum, cirri and antennae with papillae.

**DISTRIBUTION:** North Atlantic; North Sea; English Channel; off Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Azores; Porto Santo; Canary Islands; Bay of Bengal; Cape Verde; West and South Africa; Galápagos Islands; Australia. Among algae, in seagrass beds, and commensal with echinoderms (asteroids, ophiuroids). Intertidal to 200 meters.

## *INCERTAE SEDIS*

### GENUS ***Sinantenna*** Hartmann-Schröder 1974

*Sinantenna* HARTMANN-SCHRÖDER, 1974*c*: 80-81.

**TYPE SPECIES:** *Macellicephala (Sinantenna) macrophthalma* Fauvel 1913.

**REMARKS:** The genus diagnosis was emended by PETTIBONE (1976*a*). For comments on the the validity of the genus, check the *REMARKS* section below, under *Sinantenna macrophthalma*.

### ***Sinantenna macrophthalma*** (Fauvel 1913)

*Macellicephala (?) macrophthalma* FAUVEL, 1913*a*: 9-10, fig. 4.

**TYPE LOCALITY:** Gulf of Gascony, 45º27'N, 6º05'W, 4870 meters, in mud.

**SELECTED REFERENCES:** *Macellicephala (?) macrophthalma* — FAUVEL, 1914*f*: 45-47, pl. 2 fig. 9, pl. 3 figs. 1-3; FAUVEL, 1923*c*: 45, fig. 15*a-c*. *Macellicephala (Sinantenna) macrophthalma* — HARTMANN-SCHRÖDER, 1974*c*: 81, table 1. *Sinantenna macrophthalma* — PETTIBONE, 1976*a*: 67.

**DISTRIBUTION:** Known from type localiy.

**REMARKS:** *Sinantenna macrophthalma* is the type-species of the genus, and actually also its only species. PETTIBONE (1976*a*) couldn't studied the type and only known specimen of this species, but stated that the character of the prostomium was doubtful. On his description FAUVEL (1914*f*) stated that the prostomium had a median antenna, thorn at the base but whose ceratophore could be noticed, as noted by PETTIBONE (1976*a*). However, this species has being considered as lacking the median antenna by

following authors (*i.e.*, KNOX, 1959: 106; USCHAKOV, 1971: 39, in key; REYSS, 1971: 250; HARTMANN-SCHRÖDER, 1974*c*: 80-81, table 1 – see PETTIBONE, 1976*a*: 67). Due to the unavailability of the specimen for study, and to the fact that the original description was based solely on a single specimen in poor condition, PETTIBONE (1976*a*) considered this species (and consequently the genus) as doubtful.

## INDETERMINABLE OR DOUBTFUL SPECIES

### ***Drieschia melanostoma*** Ditlevsen 1917

*Drieschia melanostoma* DITLEVSEN, 1917: 44-46, text-figs. 20-21, pl. 3 fig. 2
**TYPE LOCALITY:** South West of Ireland, 51º00'N, 11º43'W, 840-1350 meters, pelagic.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** The type species of the genus *Drieschia* Michaelsen 1892, *D. pelagica* Michaelsen 1892, was considered by WEHE & FIEGE (2002) as being a juvenile form, probably of *Lepidasthenia* Malmgren 1867. *D. melanostoma* is here also considered as a possible juvenile of the subfamily Lepidastheniinae, but the revision of the type material, if existing, is desirable.

### ***Drieschia pelagica*** Michaelsen 1892

*Drieschia pelagica* MICHAELSEN, 1892: 96, figs. 15-17.
**TYPE LOCALITY:** Sri Lanka. Pelagic.
**SYNONYMS:** [?] *Nectochæta Caroli* Fauvel 1914.
**SELECTED REFERENCES:** [?] *Nectochaeta Caroli* — FAUVEL, 1914*f*: 5-6, fig. 2; FAUVEL, 1916*c*: 39-43, pl. 1 figs. 24-27, pl. 2 figs. 16-18; FAUVEL, 1923*c*: 91-93, fig. 35; CAMPOY, 1982: 79.
**DISTRIBUTION:** Sri Lanka; Mediterranean Sea (between Balearic Islands and Gibraltar). Bathypelagic, between 0-1665 meters.
**REMARKS:** WEHE & FIEGE (2002) considered *D. pelagica* as beig probably a larva of the genus *Lepidasthenia* Malmgren 1867, being its taxonomy uncertain. I think that more than a larva it would be a juvenile, but I follow these authors, and the species is here considered as being doubtful.

### ***Evarne atlantica*** McIntosh 1897

*Evarne atlantica* MCINTOSH, 1897: 168-169, pl. 3 figs. 11-12.
**TYPE LOCALITY:** Rockall, off Great Britain.
**SELECTED REFERENCES:** *Evarne atlantica* — MCINTOSH, 1900*a*: 363-364, text-figs. 31-32.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** FAUVEL (1923*c*) considered this species as a possible junior synonym of *Harmothoe impar* (Johnston 1839). However, TEBBLE & MUIR (1982: 70) examined the holotype and considered this species as indeterminable. BARNICH & FIEGE (2009) also examined the type material, and confirmed that the species was indeterminable, due to the incomplete holotype and insufficient description.

### ***Evarne Hubrechti*** McIntosh 1900

*Evarne Hubrechti* MCINTOSH, 1900*a*: 360-363, pl. 28 fig. 6, pl. 30 fig. 10, pl. 33 fig. 1, pl. 40 figs. 1-4.
**TYPE LOCALITY:** England. "*Procured by the 'Triton' in August, 1882, at 600 fathoms* (1097.3 meters)*; at Station 2, 500 fathoms* (914.4 meters)*; in the tow-net at 300 fathoms* (548.6 meters)*, and again at the surface*".
**SELECTED REFERENCES:** *Lagisca Hubrechti* — FAUVEL, 1913*a*: 23-24; FAUVEL, 1914*c*: 3-4; FAUVEL, 1914*f*: 67-68, pl. 4 figs. 11-17; FAUVEL, 1916*c*: 28-32, pl. 1 fig. 1, pl. 3 figs. 1-5, 9-14; FAUVEL, 1923*c*: 78-80, fig. 29; FAUVEL, 1932*c*: 10-11. *Harmothoe Hubrechti* — DITLEVSEN, 1917: 20-22, text-fig. 7, pl. 2 figs. 2-3, 6. *Lagisca hubrechti* — CAMPOY, 1982: 56; DETINOVA, 1985*a*: 101-102. *Eunoe hubrechti* — DAY, 1967: 62, fig. 1.7.*q*-*v*.
**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (as *Lagisca Hubrechti*; off Figueira da Foz); FAUVEL, 1914*f* (as *Lagisca Hubrechti*; off Figueira da Foz).
**DISTRIBUTION:** Atlantic Ocean: Newfoundland; Iceland; Azores; Gulf of Biscay; off Portugal; Benguela Current. Bathypelagic, between 0-3500 meters, and deep bottoms, between 800-2800 meters.
**REMARKS:** BARNICH & FIEGE (2009) revised the syntypes of this species. They were incomplete and in poor condition, which, together with the inadequate description of the species, led these authors to consider it as an indeterminable *Eunoe* larva.

## ***Evarne Johnstoni*** McIntosh 1876

*Evarne Johnstoni* MCINTOSH, 1876*c*: 398-400, pl. 71 figs. 13-18.

**TYPE LOCALITY:** Northeast Atlantic Ocean, West of the English Channel, 48º31'N, 10º03'W, 690 fathoms (1261.9 meters).

**SELECTED REFERENCES:** *Evarne Johnstoni* — MCINTOSH, 1900*a*: 358-363, pl. 27 fig. 7, pl. 28 fig. 12, pl. 30 fig. 6, pl. 32 fig. 19, pl. 39 figs. 23-28 [in part; in part = *Harmothoe fernandi* Barnich & Fiege 2009]. *Evarne johnstoni* — TEBBLE & CHAMBERS, 1982: 70. *Harmothoe johnstoni* — CHAMBERS & MUIR, 1997: 173. Not *Harmothoë Johnstoni* — FAUVEL, 1913*a*: 20-21; FAUVEL, 1914*c*: 1-2; FAUVEL, 1914*f*: 61-62, pl. 3 fig. 14; FAUVEL, 1916*c*: 22-24, pl. 3 figs. 6-8, 16; FAUVEL, 1923*c*: 61, fig. 21*g-o*; STØP-BOWITZ, 1948*b*: 8-9, fig. 4. Not *Harmothoe johnstoni* — BELLAN, 1964*b*: 24-25; CAMPOY, 1982: 64-65. Not *Lagisca tenuisetis* — MCINTOSH, 1885*a*: 78-79, pl. 2 fig. 7, pl. 18 fig. 9, pl. 7*a* figs. 5-9.

**REFERENCES FOR PORTUGAL:** [?] HARTMANN-SCHRÖDER, 1977*a* (as *Harmothoë (Harmothoë)* cf. *johnstoni*; off Cape Sardão); MONTEIRO-MARQUES, 1987 (as *Harmothoe johnstoni*; continental shelf of Algarve); DEXTER, 1992 (as *Harmothoë johnstoni*; previous records: continental shelf of Algarve).

**REMARKS:** TEBBLE & CHAMBERS (1982) examined one of the syntypes of this species (the second one, referred by McIntosh, seems to be lost), and considered it as indeterminable. It was in pieces with only one elytron, and presented long spines with bifid and trifid tips. The same authors stated that the records by FAUVEL (1923*c*) and STØP-BOWITZ (1948*b*) could not be related with McIntosh's description of the holotype. BARNICH & FIEGE (2009) revised the type material of the species, and stated that the slender neurochaetae with very faint rows of spines present in the type material is a character also found in *Harmothoe abyssicola* Bidenkap 1894. However, as the type material of *Evarne johnstoni* lacks elytra, it was considered as being an indeterminable *Harmothoe*.

Being this species indeterminable, the synonymy of *Lagisca tenuisetis* McIntosh 1885 with it, stated in FAUVEL (1923*c*) and HARTMAN (1959*a*), is not valid. Besides, drawings of chaetae from both taxa present differences, which seems to indicate that they belonged to different species. On the other side, according to BARNICH & FIEGE (2009), *L. tenuisetis* McIntosh 1885 is also an indeterminable *Harmothoe*.

## ***Evarne Pentactae*** Giard 1886

*Evarne Pentactae* GIARD, 1886: 14.

**TYPE LOCALITY:** Wimereux, Northern France, found on the holothurian *Cucumaria pentactes*.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** This species was normally regarded as a possible junior synonym of *Harmothoe impar* (Johnston 1939), but CHAMBERS & MUIR (1997) considered it as being an unidentifiable *Harmothoe* species. This opinion was followed by BARNICH & FIEGE (2009).

## ***Evarne tenuisetis*** McIntosh 1885

*Evarne tenuisetis* MCINTOSH, 1885: 99, pl. 9*A* figs. 10-12.

**TYPE LOCALITY:** Off southwest Sagres Point (Ponta de Sagres, Portugal), 36º23'N, 11º18'W, at 1525 fathoms (2788.9 meters), in a bottom of *Globigerina* ooze.

**SELECTED REFERENCES:** *Harmothoe tenuisetis* — CAMPOY, 1982: 73.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** The holotype was revised by BARNICH & FIEGE (2009), and found to be in poor condition. As the description of the species is also insufficient, the same authors considered it to be an indeterminable species, probably belonging to *Eunoe*.

## ***Harmothoe benthophila bimucronata*** Fauvel 1914

*Harmothoë benthophila* var. *bimucronata* FAUVEL, 1914*f*: 2-3, fig. 1.

**TYPE LOCALITY:** The subspecies was described with base on 4 specimens collected in 4 different stations. The data of the stations is as follows: 1) between Canary Islands and Azores, 31º06'N, 24º06'45"W, 0-5000 meters; 2) Azores, 36º46'N, 26º41'W, 0-3250 meters; 3) Azores, 37º04'N, 28º01'W, 0-3000 meters; 4) Atlantic Ocean, off Iberian Peninsula, 41º29'N, 15º44'W, 0-2000 meters.

**SELECTED REFERENCES:** *Harmothoë benthophila* var. *bimucronata* — FAUVEL, 1916*c*: 24-27, pl. 2 figs. 3-15. *Harmothoë benthophila* — FAUVEL, 1923*c*: 68, fig. 24*h-o*. [?] *Harmothoe benthophila* — EHLERS, 1913: 444-446, pl. 27 figs. 5-11.

**DISTRIBUTION:** Atlantic Ocean. Bathypelagic, between 0-5000 meters.

**REMARKS:** The pelagic specimens studied by FAUVEL (1914*f*, 1916*c*, 1923*c*) are juveniles, and probably not fully developed to enable a correct identification. Fauvel considered his specimens to be a variety of *Harmothoe benthophila* Ehlers 1913, a species described with base on a single broken specimen, 3mm long by 2mm wide, and regarded by HARTMAN (1959*a*) as being a larval stage. BARNICH & FIEGE (2009) checked the holotype of the stem species, *Harmothoe benthophila* Ehlers 1913, and confirmed that it was an incomplete specimen. For this reason, and for the insufficient description, the species was considered to be an indeterminable polynoid. The same authors considered *Harmothoe benthophila bimucronata* as an indeterminable polynoid larva.

## ***Harmothoë haliaëti*** McIntosh 1876

*Harmothoë haliaëti* MCINTOSH, 1876*b*: 384, pl. 69 figs. 7-10.

**TYPE LOCALITY:** The Minch (Scotland).

**SELECTED REFERENCES:** *Harmothoe haliaeti* — TEBBLE & CHAMBERS, 1982: 70; CHAMBERS & MUIR, 1997: 172. [?] *Harmothë Haliaëti* — MCINTOSH, 1900*a*: 336-337, pl. 38 fig. 27, pl. 39 figs. 1-3. Not *Harmothoe haliaëti* — MCINTOSH, 1885*a*: 96-97 [= *Harmothoe fraserthompsoni* McIntosh 1897 (see TEBBLE & CHAMBERS, 1982: 70)]. Not *Harmothoë Haliaeti* — FAUVEL, 1913*a*: 17 [= *Malmgreniella mcintoshi* (Tebble & Chambers 1982)]. Not *Harmothoë Haliaëti* — FAUVEL, 1914*f*: 57-58, pl. 3 fig. 17; FAUVEL, 1923*c*: 57, fig. 19*f-h*; KIRKEGAARD, 1992: 61-62, fig. 23 [= *Malmgreniella mcintoshi* (Tebble & Chambers 1982)]. Not *Harmothoë haliaëti* — RIOJA, 1935: 8-9, figs. 1-6 [= *Malmgreniella mcintoshi* (Tebble & Chambers 1982)]. Not *Harmothoe haliaeti* — CABIOCH, L'HARDY & RULLIER, 1968: 14 [= *Malmgreniella mcintoshi* (Tebble & Chambers 1982) (see CHAMBERS & MUIR, 1997: 172)].

**REMARKS:** This species was described only with base on the feet of a posterior fragment. TEBBLE & CHAMBERS (1982) revised the holotype, and stated that the only available fragments of the type material could not be associated with any known species with confidence, or serve as basis for a redescription, and considered it as indeterminable. BARNICH & FIEGE (2009) also checked the holotype of the species, and stated that it was a posterior fragment in poor condition. This way, these authors confirmed that the species was indeterminable.

## ***Harmothoe Malmgreni*** Lankester 1867

*Harmothoe Malmgreni* LANKESTER, 1867: 375, pl. 51 figs. 25-28.

**TYPE LOCALITY:** England.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** FAUVEL (1923*c*) considered this species as a possible junior synonym of *Harmothoe longisetis* (Grube 1863). However, according to CHAMBERS & MUIR (1997: 173) this species is an unidentifiable polynoid. This opinion was followed by BARNICH & FIEGE (2009).

## ***Harmothoë maxillospinosa*** Saint-Joseph 1888

*Harmothoë maxillospinosa* SAINT-JOSEPH, 1888: 166-167, pl. 7 figs. 32-36.

**TYPE LOCALITY:** Coasts of Dinard (Northern France).

**SELECTED REFERENCES:** *Harmothoë maxillospinosa* — FAUVEL, 1923*c*: 58-59, fig. 20*g-l*. *Harmothoe maxillospinosa* — CHAMBERS & MUIR, 1997: 173.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** This species has been normally considered as a possible junior synonym of *Harmothoe imbricata*. According to CHAMBERS & MUIR (1997: 173), the distinctive character of *Harmothoe maxillospinosa* Saint-Joseph 1888 is the presence of fine chitinous spines covering the jaws, being otherwise similar to *Harmothoe imbricata* (Linnaeus 1767). BARNICH & FIEGE (2009) revised the syntypes of the species. They were in poor condition, and the description considered to be insufficient. This way, the species was considered as being an indeterminable *Harmothoe*.

## ***Harmothoe micraspis*** Eliason 1962

*Harmothoe micraspis* ELIASON, 1962*b*: 218-220, figs. 3-4.

**TYPE LOCALITY:** Skagerrak, 58º22'N, 10º34'E, 270 meters, on brown mud.

**DISTRIBUTION:** Skagerrak, 270-478 meters, on muddy bottoms.

**REMARKS:** According to LOSHAMN (1980 *in* HANSSON, 1998), this is a dubious species. BARNICH & FIEGE (2009) considered it as being based in juvenile specimens in poor condition, and regarded it as an indeterminable *Harmothoe*.

## ***Harmothoe vittata*** Trautzsch 1889

*Harmothoe vittata* TRAUTZSCH, 1889: 140-143, pl. 7 figs. 1*b*, 2-3.
**TYPE LOCALITY:** Spitsbergen, at 10 meters, among stones and seaweeds.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** *Harmothoe vittata* Trautzsch 1889 has been normally considered as a possible junior synonym of *Eunoe nodosa* (M. Sars 1861). However, BARNICH & FIEGE (2009) considered it to be an indeterminable *Bylgides* or *Eunoe*, as the holotype is lost and the description doesn't provide enough information.

## ***Lænilla alba*** Malmgren 1865

*Lænilla alba* MALMGREN, 1865: 73-74, pl. 13 fig. 23.
**TYPE LOCALITY:** Karlsö (Finmark, Norway, at 70ºN), at 30-40 fathoms (54.9-73.2 meters).
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** This species was normally considered as a possible junior synonym of *Malmgreniella lunulata* (Delle Chiaje 1830), in spite of the fact that it was described as having a prominent pair of cephalic peaks. The type was revised by BARNICH & FIEGE (2009) and found to be in poor condition. This condition, together with the insufficient description given by Malmgren, led the same authors to consider the species as an indeterminable *Harmothoe*.

## ***Lagisca extenuata*** **var. *spinulosa*** Fauvel 1913

*Lagisca extenuata* var. *spinulosa* FAUVEL, 1913*a*: 22.
**TYPE LOCALITY:** Near Newfoundland, 46º04'40"N, 46º42'15"W, at 1267 meters, in soft grey mud.
**SELECTED REFERENCES:** *Lagisca extenuata* var. *spinulosa* — FAUVEL, 1914*f*: 64, pl. 4 figs. 27-29; FAUVEL, 1923*c*: 78, fig. 28*l-m*.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** This subspecies has been normally considered as being a junior synonym of *Harmothoe extenuata* (Grube 1840). However, BARNICH & FIEGE (2009) considered it to be an indeterminable *Harmothoe*, due to its insufficient description and lost of syntypes.

## ***Lagisca peracuta*** McIntosh 1885

*Lagisca peracuta* MCINTOSH, 1885*a*: 85-87, pl. 4 fig. 6, pl. 7*A* figs. 10-11.
**TYPE LOCALITY:** Off São Vicente, Cape Verde Islands.
**SELECTED REFERENCES:** *Lagisca peracuta* — FAUVEL, 1913*a*: 23; FAUVEL, 1914*f*: 65.
**DISTRIBUTION:** Madeira Island; Morocco; Cape Verde. Between 1311-2165 meters.
**REMARKS:** BARNICH & FIEGE (2009) checked the syntypes of this species, and found them to be incomplete and in poor condition. Due also to its insufficient description, the species was considered to be an indeterminable polynoid.

## ***Lagisca propinqua abyssorum*** Roule 1896

*Lagisca propinqua* var. *abyssorum* ROULE, 1896: 444.
**TYPE LOCALITY:** The species was described from the Gulf of Gascony, with base on specimens collected in three different stations, ranged between 650-1700 meters. The data of the stations is as follows: St. 4, 45º57'N, 6º21'W, 1410 meters, in corals and mud; St. 5, 45º47'N, 6º15'W, 1700 meters, in corals and mud; St. 11, 44º36'N, 4º25'W, 650 meters, in mud.
**SELECTED REFERENCES:** *Lagisca extenuata* var. *abyssorum* — FAUVEL, 1923*c*: 78.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** The types of this species are lost or never existed, and the description is insufficient in order to make an identification. For these reasons BARNICH & FIEGE (2009) considered it to be an indeterminable *Harmothoe*.

## ***Lepidonotus brevicornis*** Quatrefages 1866

*Lepidonotus brevicornis* QUATREFAGES, 1866*b*: 260.
**TYPE LOCALITY:** Guéthary, Bay of Biscay.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** FAUVEL (1923*c*: 95) as well as HARTMAN (1959*a*: 88) questionably referred this species to *Lagisca* sp.

## ***Macellicephala Grimaldii*** Fauvel 1913

*Macellicephala Grimaldii* FAUVEL, 1913*a*: 8-9, fig. 3.

**TYPE LOCALITY:** Josephine Bank, off Azores, 36º40'N, 14º09'45"W, 204 meters, in sand.

**SELECTED REFERENCES:** *Macellicephala Grimaldii* — FAUVEL, 1914*f*: 43-45, pl. 2 figs. 10-16. *Macellicephala grimaldii* — PETTIBONE, 1976*a*: 68.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** This species was based on a single, small, incomplete specimen of more than 20 segments, not agreeing with *Macellicephala* (which has 18 segments), reason why PETTIBONE (1976*a*) considered it to be an indeterminable Polynoidae.

## ***Macellicephala (?) incerta*** Fauvel 1915

*Macellicephala (?) incerta* FAUVEL, 1915: 1-2, fig. 1.

**TYPE LOCALITY:** Off Azores, 38º04'N, 26º07'30"W, in 0-3000 meters.

**SELECTED REFERENCES:** *Macellicephala (?) incerta* — FAUVEL, 1916*c*: 43-44, pl. 2 figs. 1-2, pl. 4 figs. 15-17; PETTIBONE, 1976*a*: 68.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** PETTIBONE (1976*a*) considered this species, described with base on a single anterior fragment in poor conditon, as an indeterminable Polynoidae.

## ***Polynoë borealis*** Théel 1879

*Polynoë borealis* THÉEL, 1879: 13-16, pl. 1 figs. 5-7.

**TYPE LOCALITY:** Kara Sea, 70º20'N, 62º40'E, at 85 meters, in brown clay.

**SELECTED REFERENCES:** *Harmothoe (Harmothoe) borealis* — USCHAKOV, 1982: 166; HARTMANN-SCHRÖDER, 1996: 44. *Harmothoe borealis* — ELIASON, 1962*b*: 217; KIRKEGAARD, 1992: 58-59, fig. 59.

**DISTRIBUTION:** Arctic; Skagerrak to Gullmarfjord. Between 100-600 meters.

**REMARKS:** BARNICH & FIEGE (2009) revised the type material of this species, and stated that it presented slender neurochaetae with very faint rows of spines, a character that is also found in *Harmothoe abyssicola* Bidenkap 1894. However, as the type material didn't present any elytra that would make possible the confirmation of the species, it was considered as being indeterminable.

## ***Polynoë? minuta*** Potts 1910

*Polynoë? minuta* POTTS, 1910: 337, pl. 19 fig. 12, pl. 20 fig. 31, pl. 21 figs. 42-43.

**TYPE LOCALITY:** Maldive Islands.

**SELECTED REFERENCES:** *Harmothoë minuta* — FAUVEL, 1932*b*: 23; FAUVEL, 1933*b*: 131; FAUVEL, 1933*c*: 38; FAUVEL, 1953*c*: 45-46, fig. 17*a-b*; RULLIER, 1963*b*: 176-177. *Harmothoe minuta* — BARNICH & FIEGE, 2000: 1926.

**DISTRIBUTION:** Red Sea; Gulf of Suez; Gulf of Aqaba; Maldive Islands; Indian Ocean; [?] Sea of Marmara.

**REMARKS:** *Harmothoe minuta* was recorded by RULLIER (1963*b*), in the Sea of Marmara, without a description. BARNICH & FIEGE (2000*a*) revised the type material of the species, and found it to be in such a poor condition that the species was considered to be indeterminable.

# FAMILY **PONTODORIDAE** Bergström 1914

**AS:** *PONTODORIDAE* BERGSTRÖM, 1914: 53-54.
**TYPE GENUS:** *Pontodora* Greeff 1879
**REMARKS:** The family Pontodoridae includes only two described holopelagic taxa, *Pontodora pelagica* Greeff 1879, from the Canary Islands, and *Epitoka pelagica* Treadwell 1943, from off Chile. However, the later is considered to be a synonym of the former (USCHAKOV, 1972; PLEIJEL, 2001*f*). The genus *Epitoka* Treadwell 1943 was originally placed in the family Syllidae, but according to USCHAKOV (1972), and in spite of the description and drawings of *E. pelagica* having been made using a macerated specimen, the important characters would correspond to *Pontodora*. This way, the family is monogeneric, with a single species.

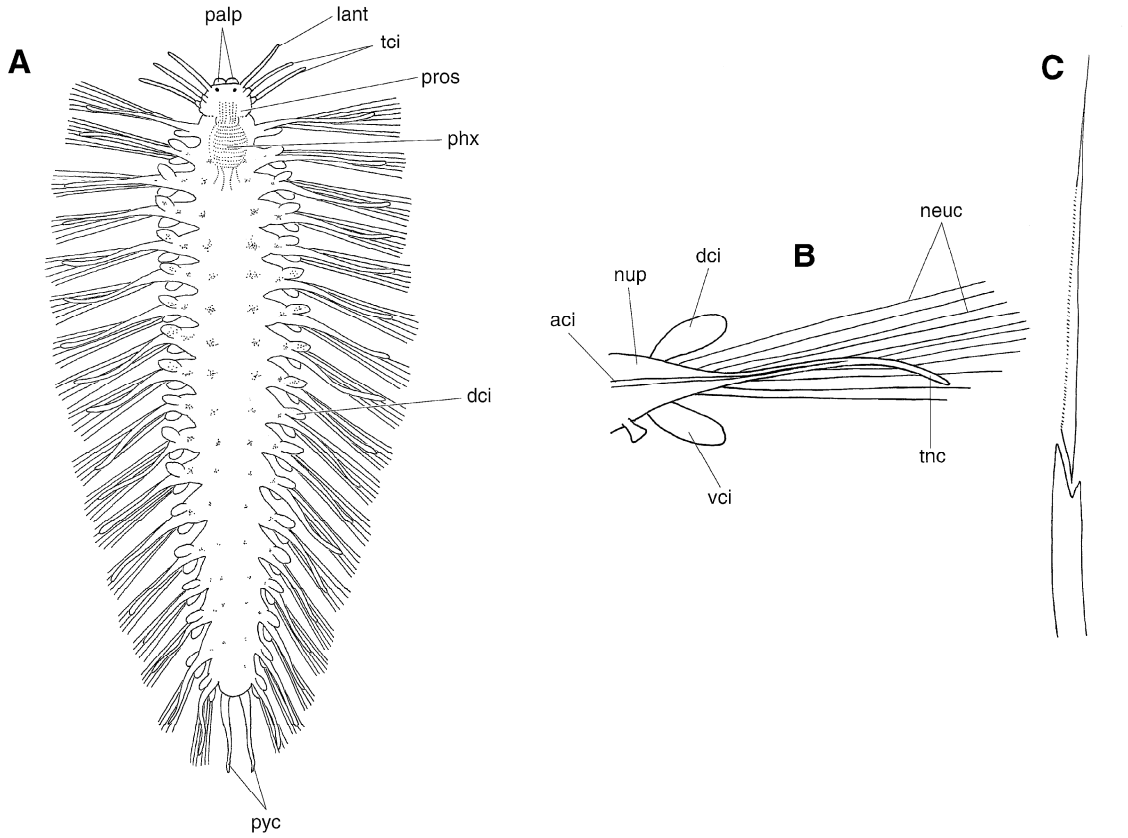


**Figure legend:** Family Pontodoridae. *Pontodora pelagica*. **A**, entire animal, dorsal view; **B**, parapodium; **C**, compound neurochaeta. **aci**, acicula; **dci**, dorsal cirrus; **lant**, lateral antenna; **neuc**, neurochaetae; **nup**, neuropodium; **palp**, palps; **pros**, prostomium; **phx**, pharynx; **pyc**, pygidial cirrus; **tci**, tentacular cirri; **tnc**, terminal neuropodial cirrus; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## GENUS ***Pontodora*** Greeff 1879

*Pontodora* GREEFF, 1879: 245-247.
**TYPE SPECIES:** *Pontodora pelagica* Greeff 1879.
**SYNONYMS:** *Epitoka* Treadwell 1943.

## ***Pontodora pelagica*** Greeff 1879

*Pontodora pelagica* GREEFF, 1879: 245-247, pl. 14 figs. 19-22.

**TYPE LOCALITY:** Off Arrecife harbour, Lanzarote Island (Canary Islands), pelagic.

**SYNONYMS:** *Epitoka pelagica* Treadwell 1943.

**SELECTED REFERENCES:** *Pontodora pelagica* — VIGUIER, 1886: 388-392, pl. 22 figs. 11-19; VIGUIER, 1920: 256-259, pl. 1 figs. 4-6; FAUVEL, 1923*c*: 197, fig. 73*f-k*; DAY, 1967: 167 fig. 6.1.*a-d*; USCHAKOV, 1972: 192-193, pl. 20 figs. 6-8.

**DISTRIBUTION:** Warm North Atlantic; Mediterranean Sea; South Africa; North-western and North-eastern Pacific; off Chile and Peru; South-west Indian Ocean. Pelagic.

# FAMILY **PROTODRILIDAE** Czerniavsky 1881

**AS:** *PROTODRILIDAE* CZERNIAVSKY, 1881*a*: 282.
**TYPE GENUS:** *Protodrilus* Hatschek 1880.
**REMARKS:** Protodrilidae are small interstitial polychaetes, that live mainly in sandy bottoms. The family includes two genera: *Protodrilus* Czerniavsky 1881, with 31 species, and *Parenterodrilus* Jouin 1992, with a single species (VON NORDHEIM, 1989; JOUIN, 1992; RISER, 1997).

*Parenterodrilus* Jouin 1992 was originally described as *Astomus* by JOUIN (1979). However, the name was preoccupied by *Astomus* Agassiz 1845 (in Arachnida), for which reason JOUIN (1992) proposed the new generic name of *Parenterodrilus*.

Eighteen species belonging to a single genus are known to occur in the European waters, but this family was not represented among the studied material.

## GENUS ***Protodrilus*** Hatschek 1880

*Protodrilus* HATSCHEK, 1880: 79.
**TYPE SPECIES:** *Protodrilus Leuckarti* Hatschek 1880.

**KEY TO SPECIES:**

**1a.** Adult body width of about 400 µm.....**2**
**1b.** Adult body width of at most 300 µm.....**4**

**2a (1a).** Eyes red, present ventrally at the prostomium; pygidium described as having three lobes, probably two lateral adhesive lobes and one median pygidial process; stated to reach 500 µm wide.....***P. schneideri***
**2b (1a).** Eyes absent; pygidium with two lateral adhesive lobes.....**3**

**3a (2b).** Body whitish-opaque; pharynx white; epidermal glands as large comma-shaped bacillary glands, especially ventrally; nuchal organs broad, laterally directly behind the tentacle bases; known from a freshwater aquarium.....***P. spongioides***
**3b (2b).** Body transparent; pharynx transparent/pink; epidermal glands as thick, oval bacillary glands, especially laterally and ventrally; nuchal organs narrow and long, strongly developed, located dorsally behind the tentacles; marine.....***P. robustus***

**4a (1b).** Salivary glands not extending farther than segment 7, or less, into the trunk.....**5**
**4b (1b).** Salivary glands extending farther than segment 7 into the trunk.....**9**

**5a (4a).** Septa 2 and 3 weakly developed or completely lacking, giving the appearance of an extremely long segment behind the head region; eyes absent.....**6**
**5b (4a).** Normal differentiation of septa in anterior part of the body; eyes absent or present.....**8**

**6a (5a).** Three pairs of spermioducts, with the funnels in segments 13-15; salivary glands extending to segment 7.....***P. brevis***
**6b (5a).** Two pairs of spermioducts; salivary glands extending to segments 4/5.....**7**

**7a (6a).** Funnels of spermioducts in segments 10 and 11; nuchal organs oval, dorsally behind the tentacles.....***P. gracilis***
**7b (6a).** Funnels of spermioducts in segments 11 and 12; nuchal organs longish-oval, dorsolaterally behind the tentacles.....***P. adhaerens***

**8a (5b).** Pharynx region distinctly red; eyes absent; salivary glands extending to segments 5/6; three pairs of spermioducts, with funnels in segments 9-11; three pygidial adhesive lobes, two laterally and one dorsally, only a little smaller; body whitish-yellowish.....***P. purpureus***
**8b (5b).** Pharynx region colourless; eyes normally present, ventrally at the prostomium; salivary glands extending to segments 4/5; four pairs of spermioducts, with funnels in segments 11-14; two pygidial adhesive lobes; body transparent/whitish.....***P. oculifer***

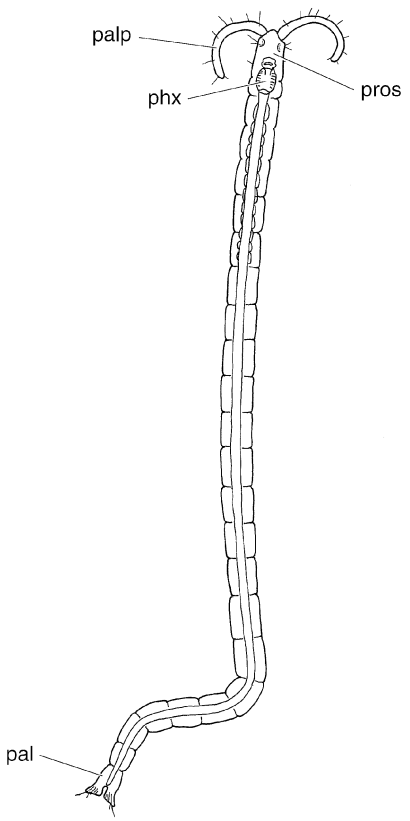


**Figure legend:** Family Protodrilidae. *Protodrilus* specimen, entire animal, dorsal view. **pal**, pygidial adhesive lobe; **palp**, palp; **phx**, pharynx; **pros**, prostomium. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawing by A. Murray).

**9a (4b).** Salivary glands extending to segment 8/9.....***P. leuckarti***
**9b (4b).** Salivary glands extending farther than segment 9.....**10**

**10a (9b).** Salivary glands starting at segment 2, extending to segment 15 in males, and segments 10/12 in females.....***P. similis***
**10b (9b).** Salivary glands always starting at segment 1.....**11**

**11a (10b).** One pair of spermioducts.....**12**
**11b (10b).** Three pairs of spermioducts.....**13**
**11c (10b).** Four pairs of spermioducts.....**15**

**12a (11a).** Spermioducts in segment 10; ciliation of each trunk segment only as small tufts and some sensory cilia; salivary glands at segments 1-9/17.....***P. rubropharyngeus***
**12b (11a).** Location of spermioducts not known; ciliation of each segment trunk as one dorsally interrupted ciliary ring per segment, and some sensory cilia; salivary glands at segments 1-10/12, max. 16.....***P. flavocapitatus***

**13a (11b).** Normal differentiation of septa in anterior part of the body; salivary glands at segments 1-11; 2 ciliary rings on each trunk segment; spermioducts at segments 13-15.....***P. hatscheki***
**13b (11b).** Septa 2 and 3 weakly developed or completely lacking, giving the appearance of an extremely long segment behind the head region; salivary glands at segments 1-18/20; no ciliary rings on trunk segments; spermioducts before segment 10.....**14**

**14a (13b).** Funnels of spermioducts in segments 5-7; head with 4 ciliary rings, from which 2 are double.....***P. ypoleucus***
**14b (13b).** Funnels of spermioducts in segments 6-8; head with 5 ciliary rings, from which 2 are double.....***P. helgolandicus***

**15a (11c).** Funnels of spermioducts in segments 11-14; lateral organs in segments 7-15; 2 strong ciliary rings in each trunk segment.....***P. ciliatus***
**15b (11c).** Funnels of spermioducts in segments 12-15; lateral organs in segments 7-16; ciliary rings in trunk segments present or absent.....**16**

**16a (15b).** Ciliation of each trunk segment as 2 ciliary rings; salivary glands at segments 1-12/17 in males.....***P. affinis***
**16b (15b).** Ciliation of each trunk segment only as few tufts and sensory cilia; salivary glands at segments 1-10/11 in males.....***P. albicans***

## ***Protodrilus adhaerens*** Jägersten 1952

*Protodrilus adhaerens* JÄGERSTEN, 1952: 431-439, 460-472, figs. 1-8, 21-29, 37, 39, pl. 1 figs. 6-7.
**TYPE LOCALITY:** Gullmar Fjord (Fiskebäckskil, Western Sweden, Skagerrak), "Bondhålet", between 0.5-1 meters (exceptionally down to 16 meters), in fine mineral sand, often more or less mixed with small shell fragments (great majority of the particles not exceeding 1 mm).
**SYNONYMS:** *Protodrilus pardii* Gerlach 1953; *Protodrilus adhaerens* forma *major* Jouin 1970.
**SELECTED REFERENCES:** *Protodrilus adhaerens* — JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; JOUIN, 1970*a*: 414-415, table page 420; JOUIN, 1970*b*: fig. 3*A*; VON NORDHEIM, 1984: 12, 15, figs. 4*A*, 6*B*, table 4; VON NORDHEIM, 1989: table 1 (page 249); WESTHEIDE, 1990: 100, fig. 33; HARTMANN-SCHRÖDER, 1996: 365-366, fig. 168; KIRKEGAARD, 1996: 263-264, fig. 144; WESTHEIDE, 2008: 110-111, fig. 77. *Protodrilus adhaerens* forma *major* — JOUIN, 1970*a*: 416-418, figs. 16, 20. *Protodrilus pardii* — GERLACH, 1953: 248-249, pl. 27 fig. 1.
**DISTRIBUTION:** North Sea; English Channel; Irish Sea; Skagerrak; Kattegat; French Atlantic coast; Mediterranean Sea. Interstitial in fine to medium sand in shallow subtidal areas (0-16 meters), and also in intertidal sandy beaches, down to 60 cm below the surface.

## ***Protodrilus affinis*** Jouin 1968

*Protodrilus affinis* JOUIN, 1968*b*: 10.
**TYPE LOCALITY:** Bloscon (Roscoff), English Channel, at 10 meters.
**SELECTED REFERENCES:** *Protodrilus affinis* — JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; JOUIN, 1970*a*: 378-381, figs. 3-4, 20; VON NORDHEIM, 1989: table 1 (page 251); WESTHEIDE, 1990: 104, figs. 27B, 35; HARTMANN-SCHRÖDER, 1996: 366-367; KIRKEGAARD, 1996: 264; WESTHEIDE, 2008: 114, fig. 79.
**DISTRIBUTION:** English Channel; Skagerrak; Mediterranean Sea. In sublittoral (5-13 meters) coarse sediments.

## ***Protodrilus albicans*** Jouin 1970

*Protodrilus albicans* JOUIN, 1970*a*: 398-402, figs. 11-12, 20.
**TYPE LOCALITY:** Plage du Troc, Banyuls-sur-Mer (Mediterranean Sea), in coarse sand, just below the water line (about 40 cm)
**SELECTED REFERENCES:** *Protodrilus albicans* — VON NORDHEIM, 1989: table 1 (page 252).
**DISTRIBUTION:** Western Mediterranean Sea. Sublittoral, in very coarse sand.

## ***Protodrilus brevis*** Jouin 1970

*Protodrilus brevis* JOUIN, 1970*a*: 389-398, figs. 7-10, 20.
**TYPE LOCALITY:** Gullmar Fjord (Fiskebäckskil): Gunnarskär, at 13 meters.
**SELECTED REFERENCES:** *Protodrilus brevis* — VON NORDHEIM, 1989: table 1 (page 252); HARTMANN-SCHRÖDER, 1996: 367.
**DISTRIBUTION:** Mediterranean Sea (Naples); Skagerrak (Gullmar Fjord). Between 6-18 meters, on shelly and coarse sand.

## ***Protodrilus ciliatus*** Jägersten 1952

*Protodrilus ciliatus* JÄGERSTEN, 1952: 440-444, 472-475, figs. 9-10, 30-31, 39-40.

**TYPE LOCALITY:** Gullmar Fjord (Fiskebäckskil, Western Sweden, Skagerrak), mainly from the "harbour" of the island of Bonden, between 3-5 meters (exceptionally down to 10 meters), and from Kramkistesund, near Lysekil, bewteen 1-2 meters, both in shell gravel (size of larger particles generally not exceeding 5 mm).

**SELECTED REFERENCES:** *Protodrilus ciliatus* — JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 5; JOUIN, 1970*a*: 377-378, figs. 3, 20; VON NORDHEIM, 1984: 12, 16, figs. 3*E*, 6*C*, table 4; VON NORDHEIM, 1989: table 1 (page 251); WESTHEIDE, 1990: 102, fig. 34; HARTMANN-SCHRÖDER, 1996: 367-368, fig. 169; KIRKEGAARD, 1996: 265, fig. 145; WESTHEIDE, 2008: 112, fig. 78.

**DISTRIBUTION:** North Sea; English Channel; [?] Irish Sea; Skagerrak; Mediterranean Sea. Intertidal and mostly sublittoral (1-10 meters), in shell gravel, and fine to coarse sediments.

## ***Protodrilus flavocapitatus*** (Uljanin 1877)

*Polygordius flavocapitatus* ULJANIN, 1877: 53.

**TYPE LOCALITY:** Sevastopol', Ukraine, Black Sea.

**SELECTED REFERENCES:** *Protodrilus flavocapitatus* — PIERANTONI, 1908: 167-171, pl. 1 fig. 6, pl. 3 figs. 5, 7-8, pl. 4 figs. 2, 15, 17, pl. 5 figs. 1-5, 7, 25, pl. 6 figs. 12, 16, pl. 7 figs. 11-13, pl. 8 fig. 43, pl. 9 figs. 1-2, 8-16; FAUVEL, 1927*a*: 424-425, fig. 143*a-b*; REMANE, 1932: 29-30, fig. 26; VON NORDHEIM, 1989: table 1 (page 252).

**DISTRIBUTION:** Black Sea; Gulf of Naples, Mediterranean Sea; Aegean Sea. Uppermost sublittoral, in medium to coarse sand.

**REMARKS:** See the *Remarks* section under *Protodrilus rubropharyngeus*.

## ***Protodrilus gracilis*** von Nordheim 1989

*Protodrilus gracilis* VON NORDHEIM, 1989: 263-266, fig. 7, table 1 (page 249).

**TYPE LOCALITY:** Island of Helgoland, Germany (54º15.18'N, 07º56.86'E), in *Amphioxus*-sand, sublittoral (18-20 meters).

**SELECTED REFERENCES:** *Protodrilus gracilis* — WESTHEIDE, 1990: 108, fig. 37; HARTMANN-SCHRÖDER, 1996: 368, fig. 170; KIRKEGAARD, 1996: 265-267, fig. 146; WESTHEIDE, 2008: 118, fig. 81. *Protodrilus adhaerens* forma *gracilis* — JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; JOUIN, 1968*b*: 10; JOUIN, 1970*a*: 415, table page 420; JOUIN, 1970*b*: fig. 3*C*.

**DISTRIBUTION:** North Sea; English Channel; Skagerrak; Mediterranean Sea. Interstitial, in fine to coarse sand and *Amphioxus*-sand, from the lowest intertidal zone to about 20 meters. Animals live subtidally in the upper 5-10 cm of the substrate, and intertidally 10-20 cm deep on the beach.

## ***Protodrilus hatscheki*** Pierantoni 1908

*Protodrilus Hatscheki* PIERANTONI, 1908: 159-162, pl. 1 fig. 4, pl. 2 figs. 1-2, 17, pl. 5 fig. 12, pl. 7 fig. 14, pl. 8 figs. 39-40, 42

**TYPE LOCALITY:** Gulf of Naples (Mediterranean Sea), at Posillipo, near Cenito, in *Amphioxus*-sand at 5-6 meters.

**SELECTED REFERENCES:** *Protodrilus hatscheki* — REMANE, 1932: 30-31, fig. 29; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; JOUIN, 1970*a*: 387-389, figs. 6, 20; VON NORDHEIM, 1989: table 1 (page 251); WESTHEIDE, 1990: 94, fig. 30; HARTMANN-SCHRÖDER, 1996: 368-369; KIRKEGAARD, 1996: 267, fig. 147; WESTHEIDE, 2008: 104, fig. 74. *Protodrilus Hatscheki* — FAUVEL, 1927*a*: 427, fig. 143*i-l*.

**DISTRIBUTION:** English Channel; Skagerrak; Mediterranean Sea. Medium to coarse sand, and *Amphioxus*-sand sediments, in sublittoral areas (1-60 meters).

## ***Protodrilus helgolandicus*** von Nordheim 1983

*Protodrilus helgolandicus* VON NORDHEIM, 1983: 171-174, figs. 1-5, table 1.

**TYPE LOCALITY:** German Bight, Isle of Helgoland, 600 meters north of the main island (Helgoland), between parallel rows of subtidal cliffs, at 4-6 meters; 55% shelly and 45% coarse sand, medium grain size 700 ± 120µm, sorting coefficient 1.8 ± 0.2, pore water content 43.3 ± 1.4%.

**SELECTED REFERENCES:** *Protodrilus helgolandicus* — VON NORDHEIM, 1989: table 1 (page 250); WESTHEIDE, 1990: 106, fig. 36; HARTMANN-SCHRÖDER, 1996: 369-370, fig. 171; KIRKEGAARD, 1996: 268-269, fig. 148; WESTHEIDE, 2008: 116, fig. 80.

**DISTRIBUTION:** North Sea; Skagerrak. Interstitial in sublittoral (1-20 meters) sediments of coarse and shelly sand and *Amphioxus*-sand.

## ***Protodrilus leuckarti*** Hatschek 1880

*Protodrilus Leuckarti* HATSCHEK, 1880: 79, pl. 17.

**TYPE LOCALITY:** Messina (Mediterranean Sea, Italy), at the margin of one of the two salt lakes (Pantani) which are found at the extention of land northern to the town of Faro. Of the two salt lakes present, the species was found at the sand of the beach of the northern lake. The lakes were opened to the sea by channels, but these could be closed during a big part of the year.

**SELECTED REFERENCES:** *Protodrilus leuckarti* — REMANE, 1932: 31, fig. 30; JOUIN, 1970*a*: 370-377, figs. 1-3, 20; VON NORDHEIM, 1989: table 1 (page 251). *Protodrilus Leuckarti* — PIERANTONI, 1908: 176-180, text-fig. 8, pl. 2 figs. 11-12, pl. 6 fig. 15; FAUVEL, 1927*a*: 423-424, fig. 142*m-o*.

**DISTRIBUTION:** Mediterranean Sea (salt lake, Pantano, near Messina, and Étangs de Salses, Grau Saint Ange, and Canet, southern France); [?] North America. Sublittoral, in coarse sand. In brackish water.

## ***Protodrilus oculifer*** Pierantoni 1908

*Protodrilus oculifer* PIERANTONI, 1908: 173-176, pl. 1 fig. 5, pl. 2 figs. 5-6, pl. 3 fig. 3, pl. 4 fig. 14, pl. 5 fig. 6, pl. 6 figs. 10-11, pl. 7 figs. 5-7, 20, pl. 8 figs. 1-2, 41.

**TYPE LOCALITY:** Naples (Mediterranean Sea), in *Amphioxus*-sand near Posillipo, near the Palace Donnanna.

**SYNONYMS:** *Protodrilus oculifer borealis* Remane 1932; *Protodrilus bahusiensis* Jägersten 1952.

**SELECTED REFERENCES:** *Protodrilus oculifer* — FAUVEL, 1927*a*: 425, fig. 143*c-d*; REMANE, 1932: 30, fig. 27; JOUIN, 1970*a*: 382-385, figs. 5, 20; VON NORDHEIM, 1984: 6-12, 14-15, figs. 3*C*, 5*C*, table 4; VON NORDHEIM, 1989: table 1 (page 250); WESTHEIDE, 1990: 96, fig. 31; HARTMANN-SCHRÖDER, 1996: 370-371, fig. 172; KIRKEGAARD, 1996: 270-271, fig. 150; WESTHEIDE, 2008: 106, fig. 75. *Protodrilus oculifer borealis* — REMANE, 1932: 30, fig. 28. *Protodrilus bahusiensis* — JÄGERSTEN, 1952: 444-447, figs. 11-12, 39; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 5. *Protodrilus* aff. *oculifer* — REMANE, 1926: 122-123, fig. 1*d*.

**DISTRIBUTION:** North Sea; English Channel; Skagerrak; Mediterranean Sea. Mostly in subtidal sediments of coarse sand and *Amphioxus*-sand (5-20 meters), sometimes occurring up to the low water line.

## ***Protodrilus purpureus*** (Schneider 1868)

*Polygordius purpureus* SCHNEIDER, 1868: 51, pl. 2 figs. 6-8.

**TYPE LOCALITY:** Helgoland, North Sea.

**SELECTED REFERENCES:** *Protodrilus purpureus* — FERRONNIÈRE, 1898: 103, pl. 5 figs. 1-2; PIERANTONI, 1908: 153-159, text-fig. 3, pl. 1 figs. 1-3, pl. 2 figs. 13-14, pl. 3 figs. 7-13, pl. 4 figs. 1, 3, 8, 10, 12, 16, 18, pl. 5 figs. 9-11, 13-16, 18, 21, 27, pl. 6 figs. 1-6, 14, 21, pl. 7 figs. 8-10, 15-19, pl. 8 figs. 3-38, pl. 9 figs. 3-7, 17-24, pls. 10-11; REMANE, 1926: 123; REMANE, 1932: 31-32, figs. 2, 10, 16, 23, 32; FAUVEL, 1927*a*: 422, fig. 142*f-h*; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 5; JOUIN, 1970*a*: 385-387, figs. 6, 20; VON NORDHEIM, 1984: 12, 15, figs. 3*D*, 6*A*, table 4; VON NORDHEIM, 1989: table 1 (page 250); WESTHEIDE, 1990: 90, fig. 28; HARTMANN-SCHRÖDER, 1996: 371-372, fig. 173; KIRKEGAARD, 1996: 271, fig. 151; WESTHEIDE, 2008: 100, fig. 72.

**DISTRIBUTION:** North Sea; English Channel; Skagerrak; French Atlantic Coast; Mediterranean Sea; Black Sea. Interstitial in medium to coarse sandy sediments, sometimes mixed with some mud, and in *Amphioxus*-sand, between the upper sulittoral zone to about 20 meters.

## ***Protodrilus robustus*** Jägersten 1952

*Protodrilus robustus* JÄGERSTEN, 1952: 447-450, figs. 13-14.

**TYPE LOCALITY:** "Harbour" of the Island of Bonden, Gullmar Fjord (Fiskebäckskil, Western Sweden, Skagerrak), between 3-5 meters, in shell gravel of generally somewhat larger particles than in the common *Amphioxus*-sand.

**SELECTED REFERENCES:** *Protodrilus robustus* — VON NORDHEIM, 1989: table 1 (page 254); HARTMANN-SCHRÖDER, 1996: 372; KIRKEGAARD, 1996: 272-273, fig. 152.

**DISTRIBUTION:** Gullmarfjord (Skagerrak). Between 3-20 meters, in coarse sand and *Amphioxus*-sand.

### ***Protodrilus rubropharyngeus*** Jägersten 1940

*Protodrilus rubropharyngeus* JÄGERSTEN, 1940*a*: 1-18, figs. 1-5.

**TYPE LOCALITY:** Near Fiskebäckskil, Gullmar Fjord (Skagerrak, west coast of Sweden), upper littoral, in shelly gravel.

**SELECTED REFERENCES:** *Protodrilus rubropharyngeus* — JÄGERSTEN, 1952: 428-431, 451-460, figs. 15-20, 34-36, 38-39, pl. 1 figs. 1-2, 8-9, pls. 2-3; VON NORDHEIM, 1989: table 1 (page 252); WESTHEIDE, 1990: 98, fig. 32; HARTMANN-SCHRÖDER, 1996: 373, fig. 174; KIRKEGAARD, 1996: 273-274, fig. 153; WESTHEIDE, 2008: 108, fig. 76.

**DISTRIBUTION:** North Sea; Irish Sea; Skagerrak; west coast of Norway; western Baltic Sea; [?] Yellow Sea. Interstitial in coarse and gravelly sand in the upper shallow subtidal (5-20 meters) and in the surf zone.

**REMARKS:** It is a possible synonym of the Mediterranean *Protodrilus flavocapitatus* (Uljanin 1877). However, WESTHEIDE (1990, 2008) stated that a definitive proof is still pending, and so he considered the north European records as belonging to *P. rubropharyngeus*.

### ***Protodrilus schneideri*** (Langerhans 1881)

*Polygordius Schneideri* LANGERHANS, 1880*b*: 125-127, pl. 6 figs. 46-49.

**TYPE LOCALITY:** Madeira Island, intertidal, in the sand under stones, and on little pools on rocks, on brackish water.

**SELECTED REFERENCES:** *Protodrilus Schneideri* — FERRONIÈRE, 1898: 104, pl. 5 figs. 3-7; PIERANTONI, 1908: 172-173; FAUVEL, 1927*a*: 422-423, fig. 142*d-e*. *Polygordius schneideri* — REMANE, 1932: 29; VON NORDHEIM, 1989: table 1 (page 254).

**DISTRIBUTION:** Madeira Island; Atlantic coast of France. Intertidal and sublittoral, in the zone of *Fucus*, in coarse and clean sand, under stones, and in intertidal rocky pools.

### ***Protodrilus similis*** Jouin 1970

*Protodrilus similis* JOUIN, 1970*a*: 418-420, fig. 20, plate I, table page 420.

**TYPE LOCALITY:** Tunis (Mediterranean Sea), Plage de Gammarth.

**SELECTED REFERENCES:** *Protodrilus similis* — VON NORDHEIM, 1989: table 1 (page 249).

**DISTRIBUTION:** Mediterranean Sea (Tunis) and NE Atlantic (Arcachon, France). Intertidal, in fine sand.

### ***Protodrilus spongioides*** Pierantoni 1903

*Protodrilus spongioides* PIERANTONI, 1903*b*: 324-327.

**TYPE LOCALITY:** Collected in the sand of a freshwater aquarium with *Petromyzon* collected at the Sarno River, and sand of marine origin, at the Stazione Zoologica di Napoli (Italy). Original habitat unknown (Sarno River or Mediterranean Sea?), but probably Sarno River. According to PIERANTONI (1908), the sand present in the aquarium was collected from a marine environment, but before being placed in the aquarium was washed several times with freshwater and dried under the sun. However, according to the same author, there is the possibility that some marine sand without being previously washed was introduced in the aquarium, without the author's knowledge. The sand where the species was found was removed from the aquarium to big crystal jars, at the Spring of 1901, for a study concerning Oligochaeta. The freshwater in these jars was replaced from time to time, and finally the new species was detected at the bottoms of the jars, in 1902.

**SELECTED REFERENCES:** *Protodrilus spongioides* — PIERANTONI, 1908: 162-166, pl. 1 fig. 9, pl. 2 figs. 15-16, pl. 4 figs. 9, 11, 13, pl. 5 figs. 8, 19-20, 22-24, 26, pl. 6 figs. 7-9, 17-19, pl. 7 figs. 21-22; FAUVEL, 1927*a*: 427, fig. 143*m-n*; REMANE, 1932: 33, figs. 7, 34; VON NORDHEIM, 1989: table 1 (page 254).

**DISTRIBUTION:** Only known from the original reference.

### ***Protodrilus ypoleucus*** Armenante 1903

*Protodrilus ypoleucus* ARMENANTE, 1903: 221-222.

**TYPE LOCALITY:** Gulf of Naples (Italy, Mediterranean Sea), in sand, few meters deep.

**SYNONYMS:** *Protodrilus sphaerulatus* Pierantoni 1908; *Protodrilus hypoleucus* forma *tenuis* Jouin 1968.

**SELECTED REFERENCES:** *Protodrilus hypoleucus* — PIERANTONI, 1908: 183-187, pl. 1 fig. 8, pl. 2 fig. 9-10, pl. 3 figs. 1-2, pl. 6 fig. 23, pl. 7 figs. 1-3; FAUVEL, 1927*a*: 426-427, fig. 143*g-h*; REMANE, 1926: 123-124; REMANE, 1932: 33, fig. 36; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; JOUIN, 1970*a*: 403-406, 408-413, figs. 13, 15*D*, 20; VON NORDHEIM, 1983: 176, table 1, fig. 5; VON NORDHEIM, 1989: table 1 (page 250); WESTHEIDE, 1990: 92, fig. 29; HARTMANN-SCHRÖDER, 1996: 370; KIRKEGAARD,

1996: 269-270, fig. 149; WESTHEIDE, 2008: 102, fig. 73. *Protodrilus hypoleucus* forma *tenuis* — JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; JOUIN, 1968*b*: 10; JOUIN, 1970*a*: 403, 406-413, figs. 14, 15*A-C*; VON NORDHEIM, 1983: 176, table 1, fig. 5. *Protodrilus sphaerulatus* — PIERANTONI, 1908: 180-183, pl. 1 fig. 7, pl. 2 figs. 3-4, pl. 3 figs. 4, 14, pl. 5 fig. 17, pl. 6 figs. 13, 20, 22, 24, pl. 7 fig. 4, pl. 8 fig. 44; FAUVEL, 1927*a*: 425-426, fig. 143*e-f*; REMANE, 1932: 33, fig. 35.

**DISTRIBUTION:** English Channel; Skagerrak; Mediterranean Sea. In medium and coarse sand, and *Amphioxus*-sand, in intertidal as well as subtidal littoral areas (1-27 meters).

# FAMILY **PROTODRILOIDIDAE** Purschke & Jouin 1988

**AS:** *PROTODRILOIDAE* PURSCHKE & JOUIN, 1988: 429-430.

**TYPE GENUS:** *Protodriloides* Jouin 1966.

**REMARKS:** The family Protodriloididae includes one single genus with two valid species, both described from European waters, but protodriloidids are also known to occur in New Zealand (RISER, 1984), and are probably also present on other regions of the globe. Protodriloidids are very small interstitial worms, measuring up to 13 mm in length. They are mainly known from intertidal and subtidal areas, and can be found on salinities of down to near 11‰.

The original spelling of the family name was corrected from Protodriloidae to Protodriloididae by FAUCHALD & ROSE (1997).

This family was not present in the studied material.

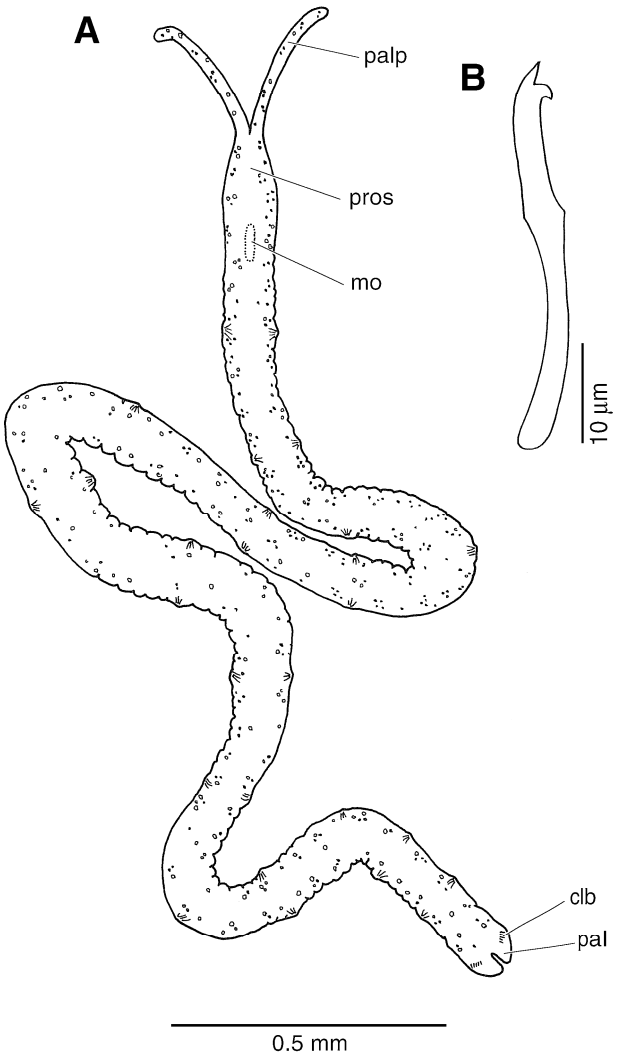


**Figure legend:** Family Protodriloididae. *Protodriloides* specimen. **A**, whole animal, dorsal view. **B**, bidentate hook. **clb**, ciliary band; **mo**, mouth; **pal**, pygidial adhesive lobes; **palp**, palp; **pros**, prostomium. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

## GENUS *Protodriloides* Jouin 1966

*Protodriloides* JOUIN, 1966*a*: 153.
**TYPE SPECIES:** *Protodrilus chaetifer* Remane 1926.

**KEY TO SPECIES:**
(from WESTHEIDE, 1990)

**1a.** With segmentally arranged sigmoid chaetae; without segmentally arranged adhesive glands.....***P. chaetifer***
**1b.** Without chaetae; with segmentally arranged adhesive glands.....***P. symbioticus***

### *Protodriloides chaetifer* (Remane 1926)

*Protodrilus chaetifer* REMANE, 1926: 120-122, fig. 1.
**TYPE LOCALITY:** Kiel Bay (Baltic Sea), in clean coarse sand, near the beach, at shallow water.
**SELECTED REFERENCES:** *Protodrilus chaetifer* — FAUVEL, 1927*a*: 428, fig. 144*i-l*; REMANE, 1932: 31, fig. 31; JOUIN, 1962: 3065-3067, figs. *A-D*. *Protodriloides chaetifer* — JOUIN, 1966*a*: 140-153, figs. 1*A*, 2, 3, 5-6, ; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; WOLFF, SANDEE & STEGENGA, 1980: 96, fig. 2*a*; WESTHEIDE, 1990: 112, fig. 39; HARTMANN-SCHRÖDER, 1996: 374-375, fig. 175; KIRKEGAARD, 1996: 259-260, fig. 142; WESTHEIDE, 2008: 122, fig. 84.
**DISTRIBUTION:** Baltic Sea; North Sea; English Channel; Irish Sea; French Atlantic coast (Arcachon); Mediterranean Sea; West Greenland; Atlantic coast of North America (North Carolina); Pacific coast of North America (Puget Sound); Yellow Sea (Qingdao, China); Indian Ocean (South Africa, Natal). On medium and coarse, rarely fine, sand. Sublittoral (0-20 meters), mostly middle and lower parts of intertidal areas, especially water-saturated coarse sandflats. Occurs on salinities of down to near 15‰.

### *Protodriloides symbioticus* (Giard 1904)

*Protodrilus symbioticus* GIARD, 1904: 297-298, fig. 2.
**TYPE LOCALITY:** Ambleteuse, Slack Estuary, Pas de Calais (Northern France, English Channel), in diatom-sand.
**SELECTED REFERENCES:** *Protodrilus symbioticus* — PIERANTONI, 1908: 187-194, text-figs. 9-12; REMANE, 1926: 122; FAUVEL, 1927*a*: 424, fig. 142*i-l*; REMANE, 1932: 32, figs. 3, 8, 33. *Protodriloides symbioticus* — JOUIN, 1966*a*: 140-153, figs. 1*B*, 4; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 6; HAMOND, 1972: 342; WOLFF, SANDEE & STEGENGA, 1980: 95-96, fig. 2*a*; WESTHEIDE, 1990: 110-111, fig. 38; HARTMANN-SCHRÖDER, 1996: 375, fig. 176; KIRKEGAARD, 1996: 261-262, fig. 143; WESTHEIDE, 2008: 120, fig. 83.
**DISTRIBUTION:** North Sea; English Channel; Irish Sea. On relatively clean sandy sediments of medium grain size, on the surface layers of intertidal sand flats (0-1 meters, but can occur down to 6 meters). Occurs from euhaline salinities to salinities near to 11‰, but it hardly occurs below 11‰ (WOLFF, SANDEE & STEGENGA, 1980).

# FAMILY **PSAMMODRILIDAE** Swedmark 1952

**AS:** *PSAMMODRILIDAE* SWEDMARK, 1952: 162.
**TYPE GENUS:** *Psammodrilus* Swedmark 1952.
**REMARKS:** Psammodrilidae is a small family that includes today one single genus with five species. The genus occurs in North Europe, with two of the five species. A third species, *Psammodrilus aedificator*, was described from West Greenland, but nevertheless it is included here. The family is also known to occur in New Zealand, Bermuda, and Florida. They are all small species, ranging from interstitial to tube dwellers.

Recent accounts on the family can be found in ROUSE (2001*m*), and KRISTENSEN & NØRREVANG (1982). The later includes a comparative table for three species. More recently, WORSAAE & STERRER (2006) described two new species from Bermuda, *Psammodrilus swedmarki*, and *P. moebjergi*. In the same work (WORSAAE & STERRER, 2006) the genus *Psammodriloides* Swedmark 1958 is synonymized with *Psammodrilus*, and a comparative table for all the five species, as well as a dichotomic key, are provided.

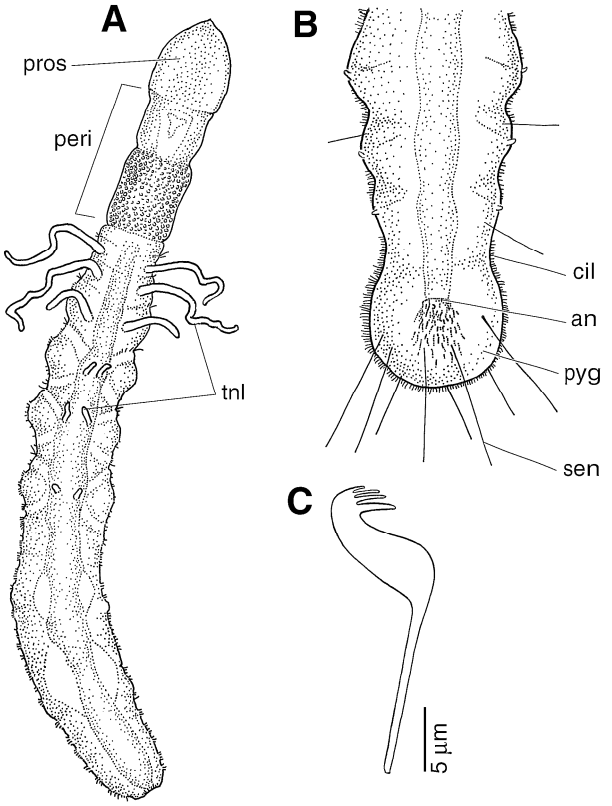


**Figure legend:** Family Psammodrilidae. *Psammodrilus balanoglossoides*. **A**, entire animal, dorsal view. **B**, pygidium, dorsal view. **C**, uncinus. **an**, anus; **cil**, cilia; **peri**, peristomium; **pros**, prostomium; **pyg**, pygidium; **sen**, sensoria; **tnl**, thoracic notopodial lobes. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## GENUS ***Psammodrilus*** Swedmark 1952

*Psammodrilus* SWEDMARK, 1952: 161.
**TYPE SPECIES:** *Psammodrilus balanoglossoides* Swedmark 1952.
**SYNONYMS:** *Psammodriloides* Swedmark 1958.

**KEY TO SPECIES:**
(adapted from: WESTHEIDE, 1990; WORSAAE & STERRER, 2006)

**1a.** Peristomial muscular diaphragms present (with a distinct, collar like pharyngeal region); body with four regions.....**2**
**1b.** Peristomial muscular diaphragms absent (without a distinct pharyngeal region); body with three regions.....***P. fauveli***

**2a (1a).** Oval-mouth; narrow collar (10 rows of cells); 3 long and 3 short cirri on thorax; 20 abdominal segments; 3 to 5 uncini in each unciniger; uncini with 0-2 barbules on manubrium.....***P. aedificator***
**2b (1a).** Y-shaped mouth; broad collar (25 rows of cells); 2 long, 1 medium and 3 short cirri on thorax; 31 abdominal segments; 16 uncini in each unciniger; uncini without barbules on manubrium.....***P. balanoglossoides***

## ***Psammodrilus aedificator*** Kristensen & Nørrevang 1982

*Psammodrilus aedificator* KRISTENSEN & NØRREVANG, 1982: 266-274, figs. 1, 2*C,* 3*C*, 4-8, 10-13, 17.
**TYPE LOCALITY:** Small bay called Iterdla, about 5 Km NE of the abandoned settlement of Skansen (69º26'N, 52º27'W), Disko Island (West Greenland), water depth 3 m; size of grains $M_z$ = 456 µm; slight admixtures of clay, detritus and coal particles were present on the ripple marks.
**DISTRIBUTION:** Known from the type locality.

## ***Psammodrilus balanoglossoides*** Swedmark 1952

*Psammodrilus balanoglossoides* SWEDMARK, 1952: 159-161, figs. 1-3.
**TYPE LOCALITY:** Aber de Roscoff (Northen France), in sand.
**SELECTED REFERENCES:** *Psammodrilus balanoglossoides* — SWEDMARK, 1955: 146-205, figs. 1-22, plate 3; SWEDMARK, 1958: 62-64, tables on pages 62 and 63; HOBSON, 1971: 249-250, fig. 2*A-B*; KRISTENSEN & NØRREVANG, 1982: table 1, figs. 2*A*, 3*A*, 9; WESTHEIDE, 1990: 134, fig. 48; HARTMANN-SCHRÖDER, 1996: 410, fig. 198; KIRKEGAARD, 1996: 148-150, fig. 75; WESTHEIDE, 2008: 142-144, fig. 100.
**DISTRIBUTION:** West coast of Scotland; North Sea; English Channel; Irish Sea; Baltic Sea; Cape Cod Bay, Massachusetts (NE USA); White Sea; New Zealand. Intertidal sand flats and subtidal sandy sediments (0-5.5 meters).

## ***Psammodrilus fauveli*** (Swedmark 1958)

*Psammodriloides fauveli* SWEDMARK, 1958: 57-61, fig. 1, plate 1, tables on pages 62 and 63.
**TYPE LOCALITY:** Bloscon, near Roscoff, and Trezen à Koden, a very large bank formed almost exclusively by shell fragments, located 3 miles NW of Île de Batz, at the north of Finistère (Northern France), both in organogenic sediments, between 15 and 50 meters.
**SELECTED REFERENCES:** *Psammodriloides fauveli* — KRISTENSEN & NØRREVANG, 1982: table 1, figs. 2*B*, 3*B*; WESTHEIDE, 1990: 136, fig. 49. *Psammodrilus fauveli* — WORSAAE & STERRER, 2006: table 2; WESTHEIDE, 2008: 144-146, fig. 101.
**DISTRIBUTION:** English Channel; Irish Sea; Skagerrak. On coarse shelly sediments and *Amphioxus*-sand, in subtidal areas.

# FAMILY **QUESTIDAE** Hartman 1966

**AS:** *QUESTIDAE* HARTMAN, 1966*a*: 197.

**TYPE GENUS:** *Questa* Hartman 1966.

**REMARKS:** Members of the family Questidae resemble oligochaetes, but it was clearly demonstrated that they are polychaetes, with an oligochaetoid mode of reproduction (GIERE & RISER, 1981). At present, the family Questidae includes one genus and 10 species (GIERE & ERSÉUS, 1998; GIERE, EBBE & ERSÉUS, 2008). A second genus, *Periquesta*, was described by BRITO & NÚÑEZ (2002) to include *P. canariensis*. However, this genus was transferred to the Paraonidae and synonymized with *Levinsenia* by GIERE, EBBE & ERSÉUS (2008). This oppinion will be followed here.

Two species, belonging to the single existing genus, were recorded on European and nearby waters (see below).

Important contributions to this family can be found in GIERE & RISER (1981), JAMIESON & WEBB (1984), GIERE & ERSÉUS (1998), and ROUSE (2001*c*), and comparative tables of relevant diagnostic differences between species can be found in GIERE & ERSÉUS (1998) and BRITO & NÚÑEZ (2002). A phylogenetic analysis of the family was performed by GIERE, EBBE & ERSÉUS (2008).

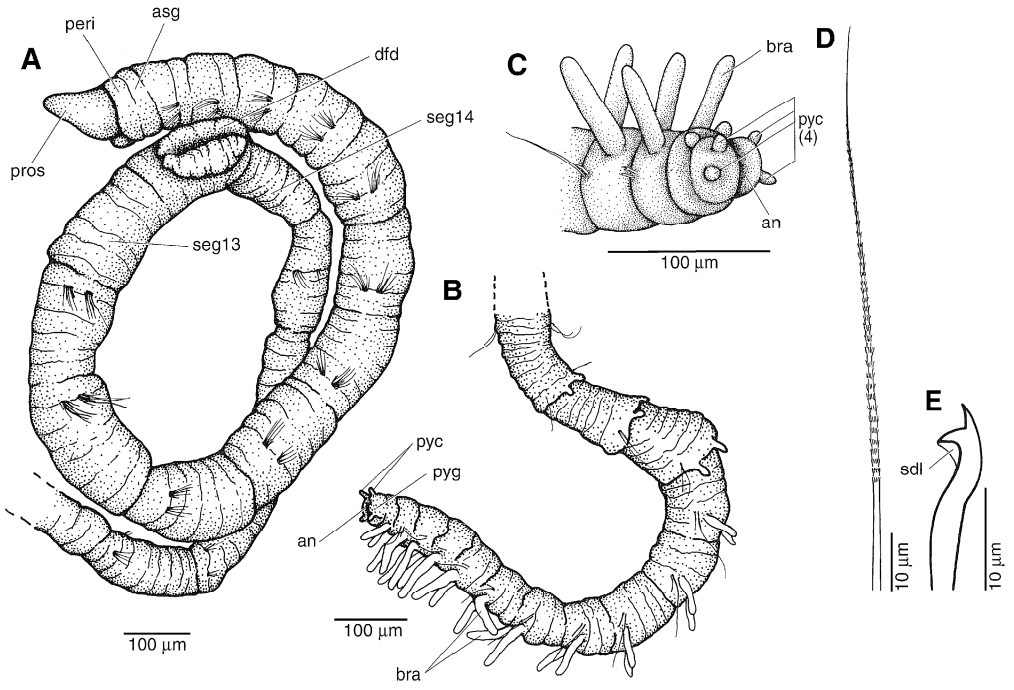


**Figure legend:** Family Questidae. **A**-**C**, *Questa* specimen, sections of male animal: **A**, anterior end; **B**, posterior end; **C**, pygidium and last few segments of the posterior end showing four pygidial cirri. **D**, **E**, chaetae of *Questa* specimen: **D**, capillary from chaetiger 2; **E**, hook from chaetiger 13. **an**, anus; **asg**, achaetous segment; **bra**, branchiae; **dfd**, dorsal fold; **peri**, peristomium; **pros**, prostomium; **pyc**, pygidial cirrus; **pyg**, pygidium; **sdl**, subdental ligament; **seg13**, segment 13; **seg14**, segment 14. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

## GENUS ***Questa*** Hartman 1966

*Questa* HARTMAN, 1966*a*: 197.

**TYPE SPECIES:** *Questa caudicirra* Hartman 1966.

**SYNONYMS:** *Novaquesta* Hobson 1970.

**REMARKS:** GIERE & ERSÉUS (1998) synonymized *Novaquesta* Hobson 1970 with *Questa* Hartman 1966.

**KEY TO SPECIES:**

**1a.** Dorsal crotchets from segment 2; 9-15 pairs of branchiae.....***Q. caudicirra***
**1b.** Dorsal crotchets from segments 5-6; 22-28 pairs of branchiae.....***Q. mediterranea***

## ***Questa caudicirra*** Hartman 1966

*Questa caudicirra* HARTMAN 1966*a*: 197-198, pl. 4.

**TYPE LOCALITY:** Ribbon Rock, off Santa Catalina Island (Southern California), in 16 fathoms (29.2 meters), on coralline nodules, with green *Ulva*, bryozoan clusters, broken shells, limpets, large fragments of dead hydrocorals, and dead shells penetrated by boring sponges.

**SELECTED REFERENCES:** *Questa caudicirra* — HOBSON, 1976: 595, figs. 2*a-e*; GIERE & RISER, 1981: 98-99; TAYLOR & GATHOF, 1984: 3.3-3.5, figs. 3.1-3.2; DELGADO & NÚÑEZ, 1994: 273-276, figs. 3-5; GIERE & ERSÉUS, 1998: 352.

**DISTRIBUTION:** West coast of North America (California, British Columbia); Gulf of Mexico (west coast of Florida); El Médano, Tenerife, Canary Islands. On fine to coarse calcareous (often shelly) sand. Sublittoral to about 130 meters.

**REMARKS:** According to GIERE & ERSÉUS (1998), the record of *Questa caudicirra* from the Canary Islands by DELGADO & NÚÑEZ (1994) remains to be confirmed. The two specimens from Canary Islands, considered as being mature males with base on the presence of spermatozoa in sperm sacs, were considered to be probably submature by GIERE & ERSÉUS (1998), as the dorsal thickening and folding of the body wall on segments 13 and 14 described by HOBSON (1976) and GIERE & RISER (1981) was not developed.

## ***Questa mediterranea*** Giere & Erséus 1998

*Questa mediterranea* GIERE & ERSÉUS, 1998: 350, figs. 1*A-B*, 3*A*, *D-E*.

**TYPE LOCALITY:** Isola di Ponza, Cala Feola, Tyrrhenian Sea, west coast of Italy (40.5ºN, 12.55ºE), at 20 meters, on seagrass (*Posidonia oceanica*) bed, fine sand rich in debris.

**SELECTED REFERENCES:** *Questa caudicirra* [not Hartman 1966] — SOMASCHINI & GRAVINA, 1993: 60, fig. 1.

**DISTRIBUTION:** Ponza and Zannone Islands (Pontine Islands), at about 40°53'5"N, 13°9'15"E, Tyrrhenian Sea, west coast of Italy. On coarse sand and in the sediment trapped among the rhizomes of *Posidonia oceanica*. At 20 meters.

# FAMILY **SABELLARIIDAE** Johnston 1865

**AS:** *SABELLARIADÆ* JOHNSTON, 1865: 247.

**TYPE GENUS:** *Sabellaria* Lamarck 1818.

**SYNONYMS:** *SABULARIA* Blainville 1828; *HERMELLEA* Quatrefages 1848; *HERMELLACEA* Grube 1850; *HERMELLIDAE* Malmgren 1867.

**REMARKS:** KIRTLEY (1994) revised the whole family, in what is the most important taxonomic publication concerning the family, with abundant iconography and dichotomic keys. Posterior taxonomic publications with descriptions of new taxa include LECHAPT & KIRTLEY (1996, 1998), NISHI & KIRTLEY (1999), NISHI & NÚÑEZ (1999), and BAILEY-BROCK *et al.* (2007). LECHAPT & KIRTLEY (1998) includes a key for genera of the subfamily Lygdaminae, updated keys of *Lygdamis* and *Tetreres*, and a comparative table for *Phalacrostemma* species, while BAILEY-BROCK *et al.* (2007) includes a key for species of *Neosabellaria*.

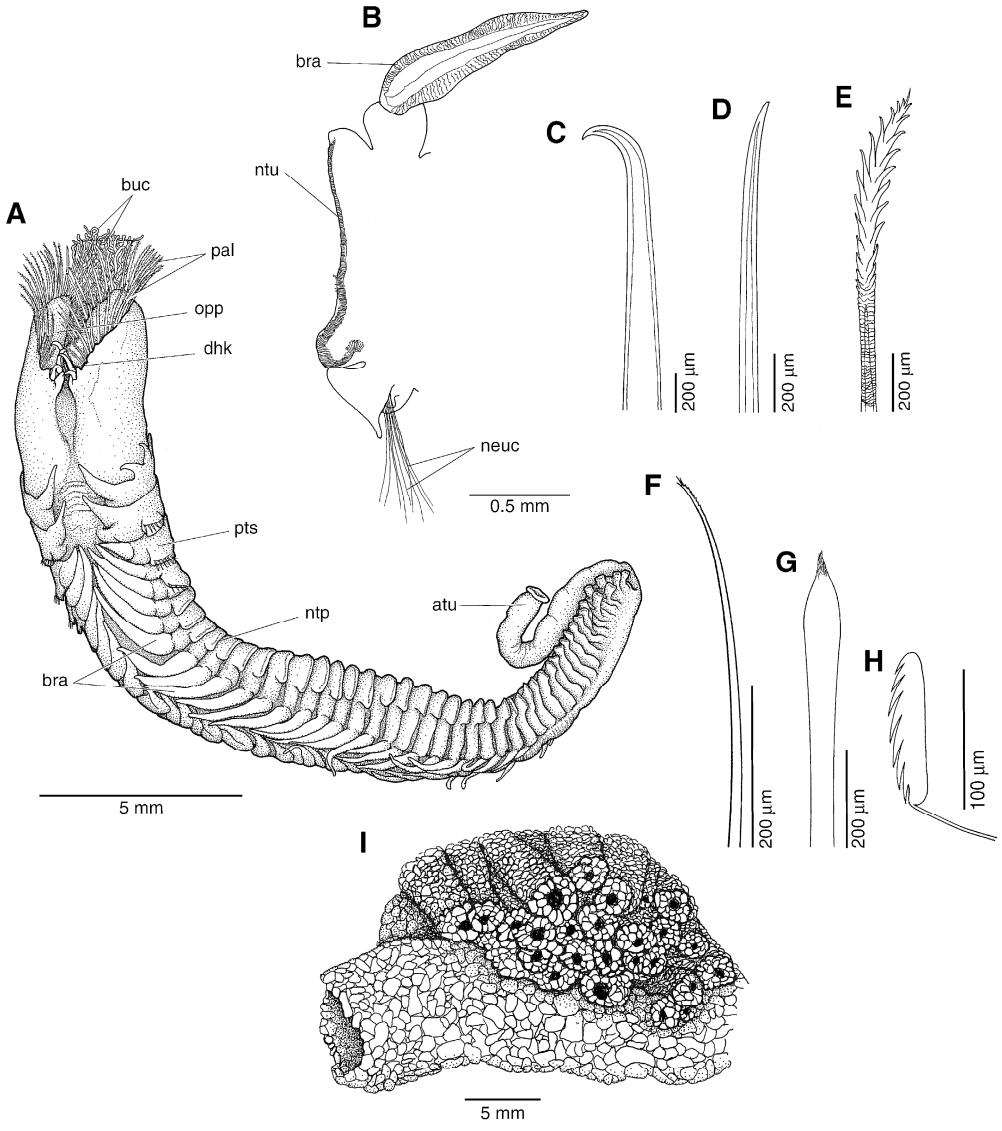


**Figure legend:** Family Sabellariidae. *Idanthyrsus* specimen. **A**, entire animal, dorso-lateral view. **B**, parapodium of chaetiger 7, posterior view; **C**, a dorsal hook from the operculum. **D**, inner palea from opercular peduncle. **E**, outer palea from opercular peduncle. **F**, **G**, chaetae from (parathoracic) chaetiger 2: **F**, accessory chaeta; **G**, oar-shaped chaeta. **H**, notopodial uncinus from chaetiger 1. **I**, part of tube aggregation. **atu**, anal tube; **bra**, branchiae; **buc**, buccal cirri; **dhk**, dorsal hook; **neuc**, neuropodial capillary chaetae; **ntp**, notopodium; **ntu**, notopodial uncini; **opp**, opercular peduncle; **pal**, paleae; **pts**, parathoracic segment. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

The ontogeny, larval development and settlement of the Sabellariidae has been thoroughly studied by numerous authors, especially in what concerns the European species [*e.g.*: BHAUD, 1970, 1975*a*, 1975*b*; CAZAUX, 1964; WILSON, 1929, 1968*a*, 1968*b*, 1970*a*, 1970*b*, 1977; check BHAUD *et al*. (1987) for other references]. BHAUD *et al.* (1987) presented a dichotomic key to identify larvae up to the generic level, and also a key for the planktonic larvae of the French coasts.

In his revision, KIRTLEY (1994) divided the family Sabellariidae in two subfamilies, SABELLARIINAE Johnston 1865 and LYGDAMINAE Kirtley 1994.

The Sabellariidae includes at present 12 genera and 121 species considered to be valid. From these, 5 genera and 9 species are present in the European and adjacent waters. No species of Sabellariidae were identified in the present work.

**KEY TO SUBFAMILIES AND GENERA:**
(adapted from KIRTLEY, 1994)

**1a.** With 3 parathoracic segments.....**Subfamily SABELLARIINAE**.....***Sabellaria***
**1b.** With 4 parathoracic segments.....**Subfamily LYGDAMINAE**.....**2**

**2a (1b).** With compound (branched) feeding tentacles (ciliated buccal tentacles).....***Lygdamis***
**2b (1b).** With simple (unbranched) feeding tentacles (ciliated buccal tentacles).....**3**

**3a (2b).** Nuchal chaetae with hooked tips.....**4**
**3b (2b).** Nuchal chaetae without hooked tips.....***Mariansabellaria***

**4a (3a).** With multiple pairs of nuchal spines with tips bent inward about 45º from longitudinal axis of shafts and with marginal limbation on concave side of hook.....***Phalacrostemma***
**4b (3a).** With one single pair of nuchal hooks, with strongly bent sharp tips and without limbations.....***Gesaia***

## GENUS *Gesaia* Kirtley 1994

*Gesaia* KIRTLEY, 1994: 166.
**TYPE SPECIES:** *Phalacrostemma elegans* Fauvel 1911.

### *Gesaia elegans* (Fauvel 1911)

*Phalacrostemma elegans* FAUVEL, 1911*c*: 31-33, fig. 3.
**TYPE LOCALITY:** Off Madeira Archipelago, 32º32'30"N, 17º02'W, at 1968 meters.
**SELECTED REFERENCES:** *Phalacrostemma elegans* — FAUVEL, 1914*f*: 270-273, pl. 24 figs. 1-16. *Gesaia elegans* — KIRTLEY, 1994: 167, figs. 10.1.1-3.
**DISTRIBUTION:** East-central Atlantic Ocean, at 1968 meters.

## GENUS *Lygdamis* Kinberg 1867

*Lygdamis* KINBERG, 1867: 350.
**TYPE SPECIES:** *Lygdamis indicus* Kinberg 1867.

**KEY TO SPECIES:**

**1a.** Distal ends of outer paleae tapering slowly to sharp staright distal tips; lateral inferior lobes on the second chaetiger with three short triangular extensions on the distal margin and being close together; nuchal hooks with strongly recurved, sharp tips.....***L. muratus***
**1b.** Distal ends of outer paleae with curved tips; lateral inferior lobes on the second chaetiger triangular in shape and well separated; nuchal hooks forming a more open curve.....***L. wirtzi***

### *Lygdamis muratus* (Allen 1904)

*Pallasia murata* ALLEN, 1904: 299-303, pl. 10 figs. 1-7.
**TYPE LOCALITY:** Off Stokes Point, Plymouth (England), on a patch of coarse gravel.
**SELECTED REFERENCES:** *Tetreres murata* — MCINTOSH, 1922*b*: 7-12, text-fig. 137*a*, pl. 118 fig. 1*a-d*, pl. 123 figs. 1*a-h*, pl. 125 figs. 8-8*a*. *Pallasia (Lygdamis) murata* — FAUVEL, 1927*a*: 214, fig. 75*a-k* [figure legend as *Pallasia (Lygdamis) cirrata*]. *Lygdamis muratus* — JOHANSSON, 1927: 83-84; BHAUD, 1975*b*: 158-164, figs. 1-4; KIRTLEY, 1994: 132, fig. 7.13.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1979 (as *Lygdamis murata*; southern continental shelf of Algarve); MONTEIRO-MARQUES, 1987 (as *Lygdamis murata*; continental shelf of Algarve); DEXTER, 1992 (as *Lygdamis murata*; previous records: continental shelf of Algarve).
**DISTRIBUTION:** English Channel, on bottoms of gravel. Recorded from the English Channel to the Western Mediterranean Sea; [?] Aegean Sea.

### *Lygdamis wirtzi* Nishi & Núñez 1999

*Lygdamis wirtzi* NISHI & NÚÑEZ, 1999: 39-41, figs. 1-3.
**TYPE LOCALITY:** Madeira Island, 14 meters deep at the margin between rock and sand, in front of Hotel Galomar, Caniço.
**DISTRIBUTION:** Madeira Island and Tenerife Island, between 5-35 meters, in sandy substrate close to rock or gravel. Probably also present at Cape Verde and Selvagens Islands.

## GENUS *Mariansabellaria* Kirtley 1994

*Mariansabellaria* KIRTLEY, 1994: 136-137.
**TYPE SPECIES:** *Phalacrostemma norvegicum* Strømgren 1971.

### *Mariansabellaria norvegica* (Strømgren 1971)

*Phalacrostemma norvegicum* STRØMGREN, 1971: 1-4, figs. 1-2.
**TYPE LOCALITY:** Bindalsfjorden (Norway), 65º09'40"N, 12º18'30"E, 70-400 meters, in hard bottoms.
**SELECTED REFERENCES:** *Mariansabellaria norvegica* — KIRTLEY, 1994: 141, figs. 8.3.1-2.
**DISTRIBUTION:** Norwegian Sea, between 70-400 meters.

## GENUS *Phalacrostemma* Marenzeller 1895

*Phalacrostemma* MARENZELLER, 1895: 191.
**TYPE SPECIES:** *Phalacrostemma cidariophilum* Marenzeller 1895.

**KEY TO SPECIES:**
(adapted from KIRTLEY, 1994)

**1a.** Outer paleae with distal margins of choanothecae with pectinate fringes.....***P. lechapti***
**1b.** Thecae of outer paleae without sculptured distal fringes.....***P. cidariophilum***

### *Phalacrostemma cidariophilum* Marenzeller 1895

*Phalacrostemma cidariophilum* MARENZELLER, 1895: 191-192.
**TYPE LOCALITY:** Off Palagosa (Pelagrušza) Island, Croatia, 42º26'N, 16º15'E, on radioles of *Cidaris cidaris*, at 485-1298 meters.
**SELECTED REFERENCES:** *Phalacrostemma cidariophilum* — KIRTLEY, 1994: 151-152, figs. 9.2.1-2. Not *Phalacrostemma cidariophilum* — FAUVEL, 1914*f*: 273-276, pl. 24 figs. 17-21, pl. 25 figs. 1-4; FAUVEL, 1927*a*: 212-213, fig. 74; HARTMANN-SCHRÖDER, 1977*a*: 98, figs. 66-69 [= *Phalacrostemma lechapti* Kirtley 1994].
**DISTRIBUTION:** Deep waters of Mediterranean and Adriatic Sea, between 160-1298 meters; Aegean Sea.

### ***Phalacrostemma lechapti*** Kirtley 1994

*Phalacrostemma lechapti* KIRTLEY, 1994: 157, figs. 9.6.1-5.
**TYPE LOCALITY:** Canary Islands, off east coast of Lanzarote, 1098 meters.
**SELECTED REFERENCES:** *Phalacrostemma cidariophilum* [not Marenzeller 1895] — FAUVEL, 1914*f*: 273-276, pl. 24 figs. 17-21, pl. 25 figs. 1-4; FAUVEL, 1927*a*: 212-213, fig. 74; HARTMANN-SCHRÖDER, 1977*a*: 98, figs. 66-69. *Sabellaria laevispinis* [not Grube 1870] — EHLERS, 1913: 548, figs. 7-13.
**REFERENCES FOR PORTUGAL:** FAUVEL, 1911*c* (as *Phalacrostemma cidariophilum*; off Faro); FAUVEL, 1914*f* (as *Phalacrostemma cidariophilum*; off Faro); HARTMANN-SCHRÖDER, 1977*a* (as *Phalacrostemma cidariophilum*; off Cape Sardão); KIRTLEY, 1994 (off Algarve).
**DISTRIBUTION:** Eastern Atlantic: Canary Islands, off east coast of Lanzarote, 1098 meters, on echinoid spines, tubes made of foraminifera and smoothy rounded sand grains; Cape Verde Islands, 628-1642 meters; Azores, 880-1360 meters, on sand, mud and rocky bottoms; South of Portugal, at 1440 meters, on shells of *Dentalium* and on *Buccinum* carried by *Sympagurus bicristatus*, and also between 1370-1430.

## GENUS ***Sabellaria*** Lamarck 1818

*Sabellaria* LAMARCK, 1818: 350-351.
**TYPE SPECIES:** *Sabella alveolata* Linnaeus 1767.
**SYNONYMS:** *Hermella* Savigny 1822; *Centrocorone* Grube 1850.

**KEY TO SPECIES:**
(adapted from KIRTLEY, 1994)

**1a.** Outer paleae without distal plume; with distal teeth all curved toward lateral margins of outer paleae.....***S. alveolata***
**1b.** Outer paleae with medial plume.....**2**

**2a (1b).** Distal plume of outer paleae short.....***S. taurica***
**2b (1b).** Distal plume of outer paleae long.....**3**

**3a (2b).** Long distal plume with dense denticulation (up to 18-20 denticles, each side); middle paleae geniculate, with distally erect blade, not laterally compressed.....***S. alcocki***
**3b (2b).** Denticulation not dense (5-12 denticles each side); blades of middle paleae all laterally compressed, in-curving.....***S. spinulosa***

### ***Sabellaria alcocki*** Gravier 1906

*Sabellaria alcocki* GRAVIER, 1906*c*: 541-543.
**TYPE LOCALITY:** Indian Ocean, 8º23'N, 76º28'E, 186 meters, between Cochin, Kerala, India and the Maldives Archipelago.
**SELECTED REFERENCES:** *Sabellaria alcocki* — GRAVIER, 1909: 298-302, pl. 8 figs. 11-23; KIRTLEY, 1994: 49, fig. 4.1.
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (as *Sabellaria spinulosa* var. *alcocki*; off Porto); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Papoa; Ponta do Surdão); SOUSA-REIS *et al.*, 1982 (as *Sabellaria alkoci*; Peniche region). [Probably these records refer to a different species of Sabellaridae].
**DISTRIBUTION:** Western Indian Ocean, at 186-440 meters.
**REMARKS:** The name *Sabellaria spinulosa alcocki* Gravier 1906 has been used in the literature for a number of different forms from all over the world, but a close study revealed morphological differences of the diagnostic hard parts, indicating the presence of different taxa under the same name (KIRTLEY, 1994). *Sabellaria alcocki* is not present in Europe, in spite of having been cited from European waters (*e.g.* FAUVEL, 1927*a*). The species is presently known only from the Western Indian Ocean.

### ***Sabellaria alveolata*** (Linnaeus 1767)

*Sabella alveolata* LINNAEUS, 1767: 1268-1269.
**TYPE LOCALITY:** Great Britain.

**SYNONYMS:** *Tubularia arenosa anglica* Linnaeus 1758; *Tubipora arenosa* Linnaeus 1758; *Sabella rudis* Pennant 1777; *Sabellaria crassissima* Savigny 1818; *Cistena Pallasii* Leach 1824; *Amphitrite ostrearia* Cuvier 1827; *Hermella Rissoi* Quatrefages 1848; *Sabellaria Anglica* Grube 1848; *Sabellaria uncinata* Grube 1848; *Sabella alveolaria* Dalyell 1853.

**SELECTED REFERENCES:** *Sabellaria alveolata* — MALMGREN, 1867*a*: 102-103, pl. 12 fig. 70; SAINT-JOSEPH, 1894: 160-162; MCINTOSH, 1913: 176-181; MCINTOSH, 1922*b*: 22-33, text-figs. 138-140, pl. 112 figs. 4-4*a*, pl. 118 fig. 2, pl. 123 figs. 3-3*e*, pl. 133 fig. 15; FAUVEL, 1927*a*: 207-208, 72*a-o*; JOHANSSON, 1927: 92; FAUVEL, 1936*c*: 87; KIRTLEY, 1994: 50-51, figs. 4.2.1-4; HARTMANN-SCHRÖDER, 1996: 534-536, fig. 261.

**REFERENCES FOR PORTUGAL:** NOBRE, 1903*a* (northern coast of Portugal); CARVALHO, 1929 (Sines); NOBRE, 1937 (S. Pedro de Muel); SALDANHA, 1974 (coast of Arrábida); ALMAÇA, 1975 (Praia de Ribeira d'Ilhas, Ericeira); ALMAÇA, 1977 (Praia de Ribeira d'Ilhas, Ericeira); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); DEXTER, 1992 (previous records: Ria Formosa; Sines; Sado Estuary; Mondego Estuary); SALDANHA, 1995 (Portugal).

**DISTRIBUTION:** British Isles; Atlantic coasts of Europe; western Mediterranean; northwest Africa. Intertidal and shallow nearshore waters, on bottoms of sand and among oyster shells, forming colonies.

## ***Sabellaria spinulosa*** Leuckart 1849

*Sabellaria spinulosa* LEUCKART, 1849: 178.

**TYPE LOCALITY:** Iceland.

**SYNONYMS:** *Sabella lumbricalis* Montagu 1805; *Hermella ostrearia* Leuckart 1847; *Sabellaria spinulosa* var. *ensifera* McIntosh 1913; *Sabellaria spinulosa* var. *bahusiensis* Johansson 1927.

**SELECTED REFERENCES:** *Sabellaria spinulosa* — MALMGREN, 1867*a*: 102, pl. 11 fig. 66; SAINT-JOSEPH, 1894: 154-160, pl. 7 figs. 200-203; MCINTOSH, 1913: 169-176; MCINTOSH, 1922*b*: 12-22, text-figs. 136-137, pl. 112 figs. 1-1*c*, pl. 118 figs. 3-3*a*, pl. 123 figs. 2-2*i*, pl. 124 figs. 10-10*b*; FAUVEL, 1927*a*: 208-211, fig. 73*a-p*; JOHANSSON, 1927: 93-95; FAUVEL, 1936*c*: 87; GILLANDT, 1979: 63-64, fig. 25; KIRTLEY, 1994: 74-76, figs. 4.30.1-3; HARTMANN-SCHRÖDER, 1996: 536-538, fig. 262; KIRKEGAARD, 1996: 287-289, fig. 160.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Roca; Cascais; Cape Espichel; Setúbal Canyon); SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); DEXTER, 1992 (previous records: Peniche); KIRTLEY, 1994 (Sesimbra); SALDANHA, 1995 (as *Sabellaria spinosula*; Portugal).

**DISTRIBUTION:** North Sea; English Channel; European Atlantic; Porugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Morocco. On shallow water, on rocks, and among oyster shells, forming colonies.

**REMARKS:** KIRTLEY (1994) found a wide range of variability in the morphology of the opercular paleae of the specimens studied by him and considered to be *Sabellaria spinulosa*, stating that the taxon may be found to contain more than one definable species.

## ***Sabellaria taurica*** (Rathke 1837)

*Amphitrite taurica* RATHKE, 1837: 426, pl. 8 figs. 7-15.

**TYPE LOCALITY:** Crimea, Black Sea.

**SELECTED REFERENCES:** *Centrocorone taurica* — BOBRETZKY, 1870: 257, figs. 59-63; BOBRETZKY, 1873: 334, figs. 1-3. *Sabellaria spinulosa taurica* — ANNENKOVA, 1925: 85, figs. 1-6. *Sabellaria taurica* — JAKUBOVA, 1930: 878; KIRTLEY, 1994: 77, fig. 4.31.

**DISTRIBUTION:** Black Sea.

# *FAMILY **SABELLIDAE** Latreille 1825

**AS:** *SABELLÆA* LATREILLE, 1825: 242.

**TYPE GENUS:** *Sabella* Linnaeus 1767.

**SYNONYMS:** *SABELLACEA* Malmgren 1866; *ERIOGRAPHIDEA* Malmgren 1866; *AMPHICORINIDAE* Benham 1896; *SABELLONGIDAE* Hartman 1969; *CAOBANGIIDAE* Jones 1974.

**REMARKS:** The Sabellidae (also known as feather-duster worms) is a diverse group of polychaetes, easily recognized by the presence of a radiolar crown in the anterior region of the body, generally protruding from a tube, inside which the worm lives. The family Sabellidae includes at present about 50 genera, with around 490 acceptable nominal species, according to A. GIANGRANDE (pers. com. *in* ROUSE, 2001). They are distributed worldwide, living in a great diversity of habitats, from intertidal to great depths, in soft or hard substrata, with some taxa adapted to fresh water conditions (*Caobangia*, *Brandtika*, *Monroika*, *Manayunkia*). Some of its taxa are able to perforate calcium carbonate substrates, and can be common in coral reefs (*e.g.*, *Notaulax*), or in mollusc shells (*Brandtika*, *Caobangia*, *Terebrasabella*), where they form burrows. For this reason, *Terebrasabella* is considered a pest of cultured abalone in California (FITZHUGH & ROUSE, 1999). Tubes of Sabellidae are generally horny, gelatinous, or mucoid, being usually covered with sediments of different nature, from mud to mollusc shells, but one taxon, *Calcisabella piloseta*, is known for its ability to produce a calcareous tube (PERKINS, 1991).

The family is at present divided in two subfamilies, the Sabellinae (including the previous subfamily Myxicolinae, part of the subfamily Fabriciinae, and the family Sabellongidae), and the Fabriciinae (including the previous family Caobangiidae). The two subfamilies are diagnosed as follows (FITZHUGH, 1991*b*):

**FABRICIINAE Rioja 1923** – Small-bodied sabellids with two or three pairs of radioles. Branchial skeleton absent. Branchial lobes separate. Branchial hearts present. Ventral lips absent. Anterior margin of anterior peristomial ring present as (1) a thin membranous collar, (2) a wide ventral triangular or lip-like lobe, or (3) a low ridge. Posterior peristomial ring collar absent. Inferior thoracic notochaetae elongate, narrowly hooded in all chaetigers, or replaced in some chaetigers by pseudospatulate or broadly hooded, flagellate chaetae. Abdominal neurochaetae modified, elongate, narrowly hooded. Thoracic uncini acicular, with narrow breast and long handled; hood present. Abdominal notopodial uncini usually rasp-shaped plates; breast as an elongate manubrium; handles absent. Abdominal chaetigers number three or four.

**SABELIINAE Johnston 1846** – Small- to large-bodied sabellids. Radiolar skeleton present. Branchial lobes fused middorsally. Radiolar flanges, and dorsal and ventral radiolar appendages common. Anterior margin of anterior peristomial ring as either a (1) wide ventral, triangular lobe, (2) a narrow, ventral, triangular lobe, or (3) a low, even surface. Posterior peristomial ring collar usually present. Postchaetal 'glandular' girdle sometimes present on chaetiger 2. Inferior thoracic notochaetae present as anterior or posterior groups, or both. Abdominal neurochaetal fascicles as anterior or posterior groups, or both. Thoracic uncini ranging from acicular to avicular. Abdominal uncini as rasp-shaped plates with poorly developed breasts or well-developed manubria, or avicular with expanded or narrow breasts and handles absent or present.

There is a great amount of bibliography concerning the Sabellidae, and the most relevant publications concerning the European sabellids are cited below. Introductory works to the family include ROUSE (2000*b*, 2001*d*), and especially FITZHUGH (1989). Major recent publications on the taxonomy of Sabellidae are quite numerous, and are not going to be referred here in detail. These publications include the revision of genera [*e.g.*: PERKINS (1984*a*), for *Demonax*, *Hypsicomus*, and *Notaulax*; FITZHUGH (1990*b*), for *Augeneriella*; FITZHUGH (1990*c*), for *Fabricia*; FITZHUGH (1990*d*), for *Fabriciola*; KNIGHT-JONES & PERKINS (1998), for *Sabella*, *Bispira*, and *Stylomma*; KNIGHT-JONES & MACKIE (2003), for *Sabellastarte*], the description of new genera [*e.g.*: *Pseudofabriciola* and *Novafabricia* (FITZHUGH, 1990*a*); *Calcisabella* (PERKINS, 1991); *Stylomma* (KNIGHT-JONES, 1997); *Pseudoaugeneriella* (FITZHUGH, 1998); *Terebrasabella* (FITZHUGH & ROUSE, 1999); *Raficiba* (FITZHUGH, 2001); *Kirkia* (NOGUEIRA, LÓPEZ & ROSSI, 2004)], or description of new species [*e.g.*: ROUSE (1993, 1994), FITZHUGH (1996, 1999), NISHI (1998), NOGUEIRA & KNIGHT-JONES (2002), CAPA & LÓPEZ (2004), NOGUEIRA, ROSSI & LÓPEZ (2006), TOVAR-HERNÁNDEZ & KNIGHT-JONES (2006), GIANGRANDE, LICCIANO & GAMBI (2007), MURRAY & ROUSE (2007), TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE (2007), CAPA (2008), LÓPEZ & RODRÍGUEZ (2008)], studies on the fauna of sabellids of certain geographic areas [*e.g.*: UEBELACKER (1984*j*), for the Gulf of Mexico; GIANGRANDE (1990*a*) for the Italian coasts; SAN MARTÍN, LÓPEZ & JIMÉNEZ (1994), for Cuba; TOVAR-HERNÁNDEZ & SALAZAR-VALLEJO (2006), for the Grand

Caribbean; FITZHUGH (2002*b*), for the Andaman Sea], or the analysis of phylogenetic relations among sabellids [*e.g.*: FITZHUGH (1989, 1991*b*, 1998, 2003); ROUSE & FITZHUGH (1994); ROUSE & GAMBI (1997); COCHRANE (2003); TOVAR-HERNÁNDEZ (2008)], amid many others.

Some of the older doubtful records of alien species for the European waters, that were never found again, are not considered below. At present, 33 genera (one of which unnamed), are present in the European and nearby waters, including 113 species (with 1 been considered as *incertae sedis*, and 6 not having been formally described, yet), and 2 subspecies, considered to be valid. Some of these records are, however, doubtful. Among the studied material 6 species were identified, belonging to 5 different genera.

The following key is largely based in the keys published by FITZHUGH (1989, 2001). However, in FITZHUGH (2001), two mistakes in the key can difficult its use: at the dichothomies *7a*. and *7b*., where it states "*Ventral lips*", it should state "*Dorsal lips*", and at the dichothomies *8a*. and *8b*., where it states "*Inferior thoracic neurosetae*", it should state "*Inferior thoracic notosetae*".

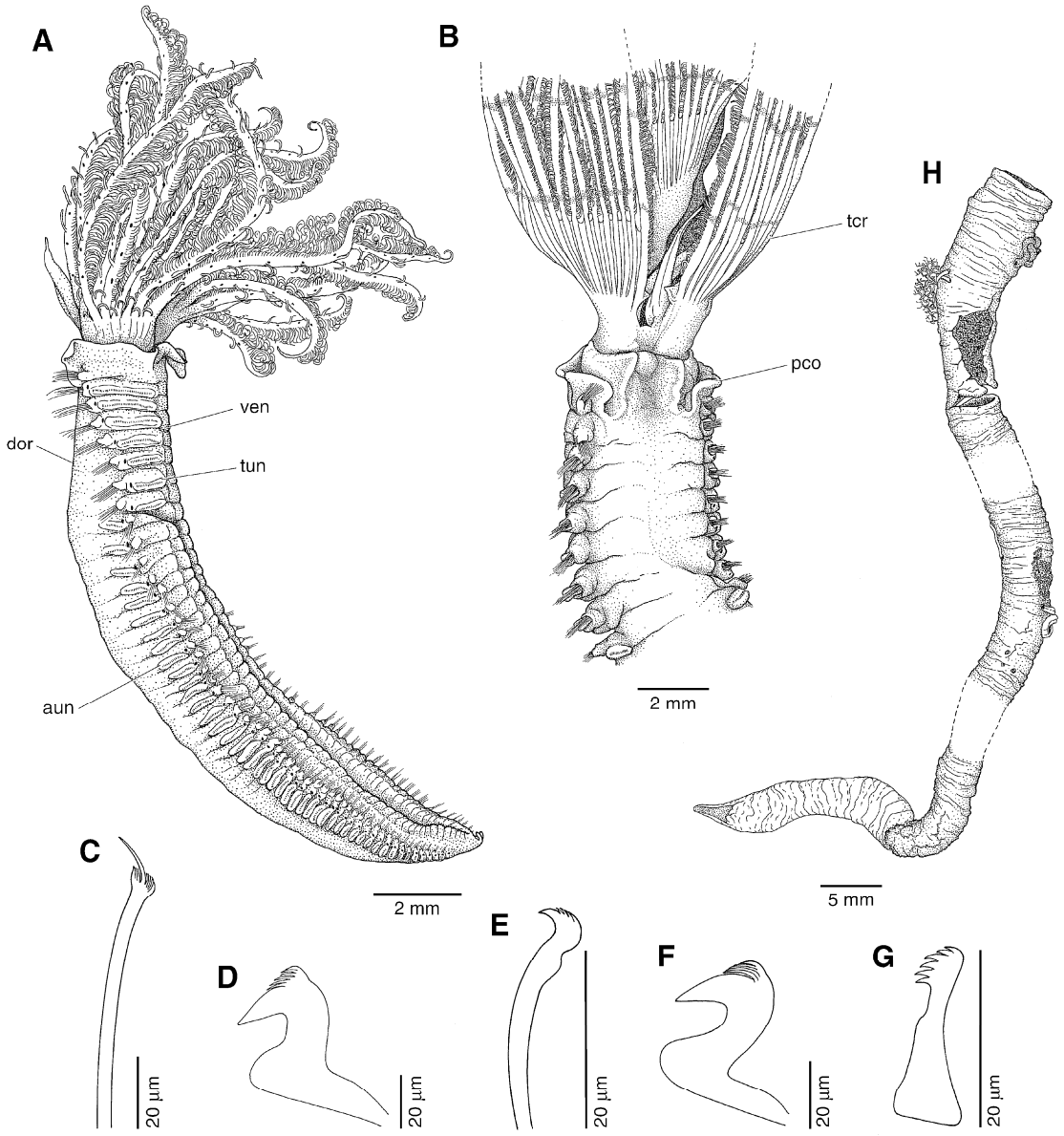


**Figure legend:** Family Sabellidae. **A**, *Branchiomma* specimen, whole animal, lateral view; **B**, anterior end of *Sabella* specimen showing the proximal half of the tentacular crown, dorsal view. **C**-**E**, thoracic chaetae: **C**, 'companion' notochaeta of *Demonax* specimen; **D**, neurochaetal uncinus of *Demonax* specimen; **E**, neurochaetal uncinus of *Fabriciola* specimen. **F**, **G**, abdominal notochaetae: **F**, uncinus of *Demonax* specimen; **G**, uncinus of *Fabriciola* species. **H**, anterior, middle and posterior sections from a 90 mm long tube of *Branchiomma*. **A**-**D**, **F**, subfamilly Sabellinae; **E**, **G**, subfamily Fabriciinae. **aun**, abdominal uncini (notopodial); **dor**, dorsum; **pco**, peristomial collar; **tcr**, tentacular crown; **tun**, thoracic uncini (neuropodial); **ven**, ventral surface. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

**KEY TO GENERA:**
(adapted from: FITZHUGH, 1989, 2001)

**1a.** Breast of thoracic uncini narrow, poorly developed, giving uncini an acicular appearance.....**2**
**1b.** Breast of thoracic uncini well developed, giving uncini a Z-shaped, or avicular appearance.....**SUBFAMILY SABELIINAE [in part]**....**18**

**2a (1a).** Abdominal uncini rasp-shaped plates, with an elongate manubrium below dentate region.....**SUBFAMILY FABRICIINAE**.....**3**
**2b (1a).** Abdominal uncini rasp-shaped plates, or with series of teeth above a main fang, but without a manubrium.....**SUBFAMILY SABELIINAE [in part]**....**11**

**3a (2a).** Branchial crown with two pairs of radioles; ventral filamentous appendages unbranched; dorsal lips present; teeth above main fang of thoracic uncini of equal size; anterior peristomial ring modified as a thin collarlike membrane.....***Manayunkia***
**3b (2a).** Branchial crown with three pairs of radioles.....**4**

**4a (3b).** Anterior peristomial ring collar as a low ridge dorsally and laterally, ventrally as a well-developed lobe.....**5**
**4b (3b).** Anterior peristomial ring collar membranous all around.....**10**

**5a (4a).** Ventral filamentous appendages present.....**6**
**5b (4a).** Ventral filamentous appendages absent.....**9**

**6a (5a).** Ventral filamentous appendages nonvascularized; peristomial and pygidial eyespots dark brown in living and preserved specimens.....***Pseudofabricia***
**6b (5a).** Ventral filamentous appendages vascularized.....**7**

**7a (6b).** Ventral filamentous appendages branched; peristomial and pygidial eyespots black in living and preserved specimens.....***Augeneriella***
**7b (6b).** Ventral filamentous appendages unbranched.....**8**

**8a (7b).** Peristomial and pygidial eyespots black in living and preserved specimens; specimens do not produce calcareous spicules over the general body surface.....***Pseudoaugeneriella***
**8b (7b).** Peristomial and pygidial eyespots red in living specimens, absent in preserved specimens; specimens produce calcareous spicules over the general body surface.....**GENUS *A***

**9a (5b).** Dorsal lips as low ridges, fused with proximalmost pinnule of dorsal radiole; inferior thoracic notochaetae of chaetigers 2-8 short, elongate, narrowly hooded, or with pseudospatulate chaetae in chaetigers 3-5 or 3-6; manubrium of abdominal uncini about the same length as dentate region or twice as long.....***Novafabricia***
**9b (5b).** Dorsal lips well developed, triangular, and distinct from dorsal radiole; inferior thoracic notochaetae pseudospatulate in chaetigers 3-7; manubrium of abdominal uncini at least two times longer than dentate region.....***Fabricia***

**10a (4b).** Anterior peristomial ring collar incomplete middorsally; nonvascularized ventral filamentous appendages present.....***Fabriciola***
**10b (4b).** Anterior peristomial ring collar complete middorsally (some species with collar margin incised or middorsal surface with longitudinal groove); ventral filamentous appendages, when present, vascularized.....***Pseudofabriciola***

**11a (2b).** Abdominal uncini as rasp-shaped plates only.....**12**
**11b (2b).** Abdominal uncini at least in part not rasp-shaped, with a distinct main fang surmounted by a broad series of smaller teeth.....**13**

**12a (11a).** Posterior peristomial ring collar present; anterior peristomial ring with a narrow, triangular, ventral lobe.....***Amphicorina***

**12b (11a).** Posterior peristomial ring collar absent; anterior peristomial ring with a wide, blunt, ventral lobe.....***Desdemona***

**13a (11b).** Abdominal uncini form short, discrete tori.....**14**
**13b (11b).** Abdominal uncini form nearly complete cinctures around the body.....***Myxicola***

**14a (13a).** Abdominal uncini with a distinct handle proximal to the breast.....**15**
**14b (13a).** Abdominal uncini without a distinct handle.....**16**

**15a (14a).** Distal ends of the radioles without foliaceous flanges; inferior thoracic "bayonet" notochaetae present; abdominal uncini with breasts reduced to a narrow swelling and long handles; chaetiger 2 glandular ridge always present.....***Jasmineira****
**15b (14a).** Distal ends of the radioles with prominent, foliaceous flanges; inferior thoracic "bayonet" notochaetae absent; abdominal uncini with well developed breasts and very short handles; chaetiger 2 glandular ridge can be present or absent.....***Claviramus***

**16a (14b).** Thoracic neuropodial companion chaetae present.....***Panousea***
**16b (14b).** Thoracic neuropodial companion chaetae absent.....**17**

**17a (16b).** Last several abdominal chaetigers modified as a ventral anal depression.....***Euchone***
**17b (16b).** Last several abdominal chaetigers resemble more anterior chaetigers.....***Chone***

**18a (1b).** Handle of thoracic uncini very long.....***Potamethus***
**18b (1b).** Handle of thoracic uncini of medium to short length, or absent.....**19**

**19a (18b).** Abdominal neuropodial tori as erect, conical lobes.....**20**
**19b (18b).** Abdominal neuropodial tori as low, transverse ridges [assumed to be so in *Euratella*].....**24**
**19c (18b).** Abdominal neuropodial tori with only two chaetae, having the inferior chaetae a compact spoonshaped hood, and being much smaller than the superior chaetae (inferior 0.7 of the superior) [companion chaetae present; radiolar eyes or lensed ocelli absent; chaetae of chaetiger 1 not arranged in an elongate fascicle].....***Potamethus breviuncinatus*** **[check *insertae sedis*]**

**20a (19a).** Companion chaetae present.....**21**
**20b (19a).** Companion chaetae absent.....**22**

**21a (20a).** Radiolar eyes absent; abdominal neurochaetae arranged in a tight spiral pattern.....***Sabella****
**21b (20a).** Radiolar compound eyes present; abdominal neurochaetae arranged in an incomplete spiral, or C-shaped pattern.....***Bispira***

**22a (20b).** Outer margins of radioles with stylodes.....**23**
**22b (20b).** Outer margins of radioles without stylodes.....***Sabellastarte***

**23a (22a).** Stylodes poorly developed, only as low, rounded elevations; radiolar eyes absent or poorly developed (radioles may be pigmented); radiolar flanges present.....***Pseudobranchiomma***
**23b (22a).** Stylodes well developed; paired radiolar compound eyes present; radiolar flanges absent.....***Branchiomma***
*

**24a (19b).** Abdominal neurochaetae include paleate chaetae; radioles with lensed ocelli present.....**25**
**24b (19b).** Abdominal neurochaetae do not include paleate chaetae; radiolar eyes present or absent.....**26**

**25a (24a).** Chaetae of chaetiger 1 arranged in an elongate fascicle.....***Notaulax***
**25b (24a).** Chaetae of chaetiger 1 arranged in a bundle similar to other superior thoracic notochaetae.....***Hypsicomus***

**26a (24b).** Inferior thoracic notochaetae composed of broadly hooded chaetae.....**27**
**26b (24b).** Inferior thoracic notochaetae composed of paleate chaetae only.....**29**

**27a (26a).** Companion chaetae present.....**28**

**27b (26a).** Companion chaetae absent.....***Euratella***

**28a (27a).** At least some radioles with compound eyes located on inner margins, near the distal end; companion chaetae with distal ends as roughly symmetrical, teardrop-shaped membranes.....***Megalomma***
**28b (27a).** No compound radiolar eyes present (simple radiolar eyes present in *Demonax tommasi*); companion chaetae with distal ends slightly inflated, dentate, thin membrane or mucro extending from dentate margin.....***Demonax****

**29a (26b).** With unpaired radiolar compound eyes present on outer margins, usually limited to proximal half of most radioles.....***Pseudopotamilla****
**29b (26b).** Without compound radiolar eyes.....**30**

**30a (29b).** Radioles united by a palmate membrane.....***Potamilla***
**30b (29b).** Radioles free to their bases.....**31**

**31a (30b).** Posterior peristomial ring collar present.....**32**
**31b (30b).** Posterior peristomial ring collar absent.....***Amphiglena***

**32a (31a).** Thoracic and abdominal uncini without handles.....***Laonome***
**32b (31a).** Thoracic and abdominal uncini with handles.....***Perkinsiana***

## GENUS *A sensu* Fitzhugh 1989

*Genus A* FITZHUGH, 1989: 63.

**SYNONYMS:** *Echinofabricia* Castelli, Abbiati, Badalamenti, Bianchi, Cantone, Gambi, Giangrande, Gravina, Lanera, Lardicci, Somaschini & Sordino 1995 [*nomen nudum*].

**REMARKS:** When HARTMANN-SCHRÖDER (1965*a*) described the species *Augeneriella dubia* from Hawai'i, she expressed some doubts concerning its inclusion in the genus *Augeneriella*. These doubts were supported by GITAY (1970), who observed that *A. dubia* differed from other species of *Augeneriella* by: (1) having teeth of equal size above the main fang; (2) not having the typical pseudospatulate chaetae; and (3) having unbranched, ventral filamentous appendages (FITZHUGH, 1989). For this reason he considered the placement of the species in the genus *Augeneriella* as questionable, not recognizing it in his emended diagnosis (FITZHUGH, 1989).

FITZHUGH (1989) examined the holotype of *Augeneriella dubia*, and determined that the species belonged to an undescribed genus, referred as *Genus A*. This genus is characterized as follows (FITZHUGH, 1989): fabriciin species with radiolar surface minutely wrinkled; three pairs of flattened radioles; ventral filamentous appendages vascularized, unbranched; branchial hearts present; anterior margin of anterior peristomial ring with wide ventral lobe; surface of epithelium with emergent calcareous spicules, with highest concentration in pinnules and ventral surface of chaetigers 11 and 12 and pygidium; thoracic inferior notochaetae of chaetigers 1 and 2, and 7 and 8, elongate, narrowly hooded; broadly hooded chaetae in chaetigers 3-6; thoracic uncinal fang surmounted by series of equal size teeth; hood present; three to four abdominal chaetigers. The genus includes the species *Augeneriella dubia* Hartmann-Schröder 1965 (from Hawai'i), *Augeneriella alata* Hartmann-Schröder 1991 (from Australia), and several additional undescribed species.

As highlighted by FITZHUGH (1989), the genus is very distinctive in that species produce calcareous spicules over the general body surface. Besides, it resembles *Manayunkia* in possessing a minutely wrinkled radiolar surface and in the shape of the ventral filamentous appendages and thoracic uncini. Finally, specimens belonging to this genus tend to show variation, which may be size related, in the number of abdominal chaetigers. Specimens of this genus are known to occur in the Indian, Pacific, and Atlantic Oceans (FITZHUGH, 1989).

CASTELLI *et al.* (1995) recorded *Augeneriella dubia* Hartmann-Schröder 1965 from Porto Pozzo Bay, in Northern Sardinia (occidental basin of Italy), placing the species in the genus "*Echinofabricia* (Hartmann-Schroeder, 1965)" [sic], stating that the species of this genus are normally attributed to the genus *Augeneriella*. However, HARTMANN-SCHRÖDER (1965*a*) didn't designate the genus *Echinofabricia* when originally described *Augeneriall dubia*, neither did she so in any of her papers published in the same year of posteriorly (or at least I was unabled to find such information). Apparently *Echinofabricia* was a name created by CASTELLI *et al.* (1995) to include *A. dubia*, making reference to its unique

character of having emergent calcareous spicules in the epithelium. The name *Echinofabricia* was published in a catalogue of species, and is not accompanied by a description or definition stating the characters that are purported to differentiate it as a taxon, nor by a bibliographic reference to such a published statement, and for this reason is here treated as a *nomen nudum*.

### ***Augeneriella dubia*** Hartmann-Schröder 1965

*Augeneriella dubia* HARTMANN-SCHRÖDER, 1965*a*: 156-158, figs. 84-85.
**TYPE LOCALITY:** Hawai'i: Maui, near Paiia, on the algae zone covering rocks.
**SELECTED REFERENCES:** *Augeneriella dubia* — GITAY, 1970: 108; FITZHUGH, 1989: 63, 65; FITZHUGH, 1990*b*: 217-218; BAILEY-BROCK *et al.*, 2002: 464, 467, 474. *Echinofabricia dubia* — CASTELLI *et al.*, 1995: 30, 41.
**DISTRIBUTION:** Hawai'i Islands: Maui and O'ahu, from the algae zone covering rocks to about 70 meters, over a sandy bottom; [?] Mediterranean Sea: Porto Pozzo Bay, in Northern Sardinia.
**REMARKS:** FITZHUGH (1990*b*) examined the type material, and stated that due to its poor condition new material is necessary in order to provide adequate illustrations and a better characterization of the branchial crown.

ROUSE (1990*b*) recorded *Augeneriella* cf. *dubia* from the Great Barrier Reef. This identification, only tentative due to poor type material, was later corrected to *Augeneriella alata* Hartmann-Schröder 1991, a species also belonging to Genus *A*, and described from Australia (FITZHUGH, 1998: 209).

## GENUS ***Amphicorina*** Quatrefages 1866

*Amphicorina* QUATREFAGES, 1866*b*: 474.
**TYPE SPECIES:** *Fabricia (Amphicorina) armandi* Claparède 1864.
**SYNONYMS:** *Oria* Quatrefages 1866 [not Hübner 1821 (Lepidoptera); not Robineau-Desvoidy 1863 (Diptera)]; *Oriopsis* Caullery & Mesnil 1896; *Oridia* Rioja 1917 [not Gorham 1895 (Coleoptera)]; *Oriades* Chamberlin 1919.
**REMARKS:** The name *Oriopsis* Caullery & Mesnil 1896 was normally used to designate this genus, but ROUSE (1994: 202) determined that the name *Amphicorina* Quatrefages 1866 was valid and had priority. Besides, the type species of *Oriopsis*, *O. metchnikowi* Caullery & Mesnil 1896, may be valid or a junior synonym of the type species of *Amphicorina*, *A. armandi* Claparède 1864 (ROUSE & FITZHUGH, 1994). It is considered here as a junior synonym of *A. armandi*.

The diagnosis of the genus was emended by BANSE (1957). GIANGRANDE, MONTANARO & CASTELLI (1999) presented a comparative table with the main diagnostic characters of the 34 taxa described in the genus.

#### KEY TO SPECIES:

**1a.** Collar present.....**2**
**1b.** Collar absent or very reduced, replaced by a ventral wrinkle or fold.....**5**

**2a (1a).** Collar with a scalloped margin.....**3**
**2b (1a).** Collar with a smooth margin.....**4**

**3a (2a).** Collar with about 10 scallops on each side.....***A. eimeri***
**3b (2a).** Collar with 4 scallops on each side.....***A. persinosa***

**4a (2b).** Collar poorly developed, with a low ventral border; 12 abdominal chaetigers.....***A. armandi***
**4b (2b).** Collar well developed, being unusual in being set low on the first segment, with its oblique margin lower than the oblique peristome; 5 abdominal chaetigers.....***A. hynensis***

**5a (1b).** Four pairs of radioles; thoracic notochaetae wide.....**6**
**5b (1b).** Three pairs of radioles; one pair of ventral radiolar appendages; thoracic notochaetae narrow.....***A. grahamensis***

**6a (5a).** Two pairs of ventral radiolar appendages (Mediterranean population); abdomen with up to seven chaetigers; abdominal uncini with a basal tooth which is only slightly larger than overlying ones.....***A. pectinata***
**6b (5a).** One pair of ventral radiolar appendages; abdomen with 5-6 chaetigers; abdominal uncini with a basal tooth which is clearly larger than overlying ones.....***A. triangulata***

## ***Amphicorina armandi*** Claparède 1864

*Fabricia (Amphicorina) Armandi* CLAPARÈDE, 1864: 496-501, pl. 3 fig. 2.
**TYPE LOCALITY:** Port-Vendres, Mediterranean coast of France (Pyrénées Orientales).
**SYNONYMS:** *Amphicorina cursoria* Quatrefages 1866; *Oriopsis Metchnikowi* Caullery & Mesnil 1896.
**SELECTED REFERENCES:** *Oria armandi* — SAINT-JOSEPH, 1894: 321-323, pl. 12 fig. 348. *Oria Armandi* — MCINTOSH, 1916*a*: 26-28; MCINTOSH, 1923*a*: 268-270, pl. 115 fig. 3, pl. 129 fig. 5; SOULIER, 1902: 114-116, fig. 2. *Oridia Armandi* — RIOJA, 1917*c*: 73; RIOJA, 1923*c*: 52, figs. 77-82; FAUVEL, 1927*a*: 328, fig. 114*a-g*; RIOJA, 1931: 377-379, pl. 121 figs. 5-10. *Oriopsis armandi* — BANSE, 1957: 71-72, 105, fig. 1*a-b*; BANSE, 1959*b*: 115, fig. 3; BELLAN, 1964*b*: 170. *Amphicorina armandi* — GIANGRANDE, MONTANARO & CASTELLI, 1999: 201, fig. 6. *Oriopsis Metchnikowi* — CAULLERY & MESNIL, 1896: 483-484, figs. 1-2. *Oriopsis Metkniokowi* — FAUVEL, 1927*a*: 329-330, fig. 114*h-i*. *Amphicorina cursoria* — IROSO, 1921: 74-74, pl. 3 fig. 2.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Oriopsis armandi*; Peniche).
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Bay of Biscay; English Channel; [?] Ghardaqa (= Hurghada), Egypt, Red Sea. Among algae and in hard bottoms. Intertidal to shallow water.

## ***Amphicorina eimeri*** (Langerhans 1880)

*Oria Eimeri* LANGERHANS, 1880*b*: 117, pl. 5 fig. 31.
**TYPE LOCALITY:** Madeira Island, on algae located at the coastal line ("*Strandpflanzen*").
**SELECTED REFERENCES:** *Oriopsis eimeri* — BANSE, 1957: 72-73; [?] DAY, 1967: 787-788, fig. 37.10.*a-g*; [?] GAMBI, GIANGRANDE & FRESI, 1983: 213-216, figs. 1-3. *Amphicorina eimeri* — GIANGRANDE, MONTANARO & CASTELLI, 1999: 201-202.
**DISTRIBUTION:** Madeira Island; [?] Tyrrhenian Sea (Mediterranean Sea); Adriatic Sea; [?] South Africa. In hard bottoms. Intertidal to shallow water.
**REMARKS:** It is not clear if the specimens described by GIANGRANDE, MONTANARO & CASTELLI (1999) from the Tyrrhenian Sea as *Oriopsis eimeri* belong the same species than the described originally by LANGERHANS (1880*b*). This way, the species was originally described as having the first segment and the pygidium with one pair of red eyes each, the second segment with one pair of round otoliths, and with two ventral filaments (probably ventral radiolar appendages) present at the branchial crown, none of which were stated as being present in the Tyrrhenian specimens.

## ***Amphicorina grahamensis*** Giangrande, Montanaro & Castelli 1999

*Amphicorina grahamensis* GIANGRANDE, MONTANARO & CASTELLI, 1999: 196-198, figs. 1, 3*b*, table 1.
**TYPE LOCALITY:** Sicilian Channel (Ionian Sea), at 40 meters, in hard bottom.
**DISTRIBUTION:** Ionian Sea (Sicilian Channel); Tyrrhenian Sea (Ponza Island). In hard bottoms and in *Posidonia* beds. Between 30-40 meters.

## ***Amphicorina hynensis*** (Knight-Jones 1983)

*Oriopsis hynensis* KNIGHT-JONES, 1983: 290-292, fig. 21.
**TYPE LOCALITY:** On the south and east shores of Lough Hyne (Ine), County Cork (Ireland), amongst *Laurencia platycephala*, *Codium fragile* ssp. *tomentosoides*, and weedy rocks, at about 0.25 meters below LWS.
**DISTRIBUTION:** Southern coast of Ireland, amongst algae, at shallow water.

## ***Amphicorina pectinata*** (Banse 1957)

*Oriopsis alata pectinata* BANSE, 1957: 74-76, fig. 2*b-c*.
**TYPE LOCALITY:** Auckland Island (New Zealand), in a cliff coast with *Melobesia*.
**SELECTED REFERENCES:** *Oriopsis alata-pectinata* — GIANGRANDE, 1990*a*: 162. *Amphicorina pectinata* — GIANGRANDE, MONTANARO & CASTELLI, 1999: 200, fig. 5.

**DISTRIBUTION:** New Zealand; [?] South Georgia; [?] Campbell Islands. Among algae, in rocky shores. The subspecies was recorded, with some doubts, from the Mediterranean and Adriatic Sea (Corsica and Capraia Island) by GIANGRANDE (1990*a*), and CASTELLI *et al.* (1995). This presence was later confirmed by GIANGRANDE, MONTANARO & CASTELLI (1999), with base on specimens from hard bottoms 1 meter deep in the Bay of Calvi (Northern Corsica), and from Nerja (South Spain), in coralligenous formations.
**REMARKS:** GIANGRANDE, MONTANARO & CASTELLI (1999) raised the subspecies to the specific level. The same authors stated that the Mediterranean specimens are longer than the specimens from New Zealand, with base on which the taxon was established. The taxon was described by BANSE (1957) as having two pairs of ventral radiolar appendages. However, LÓPEZ & TENA (1999) revised the holotype and stated that only a single pair of ventral filaments could be distinguished, while the radioles numbered nine (four on the right side and five on the left side). According to the same authors, the ventralmost left radiole was quite shorter than the rest, perhaps leading to confusion with a ventral filament in Banse's original description. However, the Mediterranean specimens of *Amphicorina pectinata* recorded by GIANGRANDE, MONTANARO & CASTELLI (1999) were described as having two pairs of ventral filaments.

## ***Amphicorina persinosa*** (Ben-Eliahu 1975)

*Oriopsis eimeri persinosa* BEN-ELIAHU, 1975*a*: 60-65, pl. 3.
**TYPE LOCALITY:** Shore north of Shavei Zion (Mediterranean coast of Israel), 217 meters north of Bet Ha'Emek Creek, in *Dendropoma* reefs encrusted on beachrock slabs.
**SELECTED REFERENCES:** *Oriopsis eimeri persinosa* — [?] SAN MARTÍN, LÓPEZ & JIMÉNEZ, 1994: 561-564, fig. 5. *Amphicorina persinosa* — GIANGRANDE, MONTANARO & CASTELLI, 1999: 198-199, figs. 2, 3*a*, table 1.
**DISTRIBUTION:** Mediterranean coast of Israel, among the pecton of vermetids; Adriatic Sea (Gargano and Brindisi), on hard substrate, between 1-3 meters; [?] Cuba.
**REMARKS:** BEN-ELIAHU (1975*a*) compared her material from the Mediterranean coast of Israel with a specimen from South Africa identified as *Oriopsis eimeri* by J.H. Day, a species originally described from Madeira. The South African material showed a collar with 10 shallow scallops on each lateral margin (against 4 much deeper scallops in the Eastern Mediterranean material), and a proportion of the branchiae to the body length (including branchia) of about 1:7 (while in the Eastern Mediterranean material it is said to be longer) (BEN-ELIAHU, 1975*a*). With base in these differences, BEN-ELIAHU (1975*a*) created the new subspecies.

SAN MARTÍN, LÓPEZ & JIMÉNEZ (1994) recorded *Oriopsis eimeri persinosa* from Cuba with base on a single specimen with the same proportion of the branchiae to the body length, and with chaetae, uncini, and collar margin with the same shape than the Eastern Mediterranean material. However, the scallops in the collar were described as being shallower, which was attributed to the state of the specimen after the fixation process, and there were 9 abdominal segments, instead of the 10 or more of the original description. This was justified as being the result of differences in the development stage of the specimens, as described by GAMBI, GIANGRANDE & FRESI (1983) for Mediterranean specimens identified as *Oriopsis eimeri*.

GIANGRANDE, MONTANARO & CASTELLI (1999) raised the subspecies to the specific level. The same authors indicate 3 pairs of radioli for the species, instead of the 5 described by BEN-ELIAHU (1975). In spite all this, the validity of the subspecies (and now, species) should be checked, if possible, against material from Madeira Island, instead of South Africa.

## ***Amphicorina triangulata*** López & Tena 1999

*Amphicorina triangulata* LÓPEZ & TENA, 1999: 330-334, figs. 1-2, table 1.
**TYPE LOCALITY:** North of Isabel II Island, 35º10'46"N, 2º26'34"W, Chafarinas Islands (Alborán Sea, Western Mediterranean), among epibiotic fauna on the cnidarian *Ellisella paraplexauroides* Stiasny, at 24 meters.
**DISTRIBUTION:** Chafarinas Islands (Alborán Sea, Western Mediterranean). On concretions of calcareous algae, among algae, *Cystoseira*, or hydroids, on *Posidonia oceanica* beds, and as epibiotic on the cnidarian *Ellisella paraplexauroides*. Between 0.5-24 meters.

## GENUS ***Amphiglena*** Claparède 1864

*Amphiglena* CLAPARÈDE, 1864: 492.
**TYPE SPECIES:** *Amphicora mediterranea* Leydig 1851.

### *Amphiglena mediterranea* (Leydig 1851)

*Amphicora mediterranea* LEYDIG, 1851: 328.
**TYPE LOCALITY:** Nice (Mediterranean French coast), under intertidal stones.
**SYNONYMS:** [?] *Fabricia gracilis* Grube 1855; *Amphiglena Armandi* Claparède 1864.
**SELECTED REFERENCES:** *Amphiglena mediterranea* — CLAPARÈDE, 1869: 154-155, pl. 12 fig. 6; LO BIANCO, 1893: 81; SAINT-JOSEPH, 1894: 307-309, pl. 11 figs. 315-322; IROSO, 1921: 74; MCINTOSH, 1916*a*: 28-29; MCINTOSH, 1923*a*: 270-273, pl. 113*A* fig. 4, pl. 115 fig. 4, pl. 131 fig. 4; RIOJA, 1923*c*: 38, figs. 49-57; FAUVEL, 1927*a*: 324, fig. 112*k-r*; RIOJA, 1931: 362-366, pl. 116 figs. 1-9; KNIGHT-JONES & BOWDEN, 1984: 809-811, fig. 1; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 845; HARTMANN-SCHRÖDER, 1996: 540; ROUSE & GAMBI, 1997: 1005-1010, figs. 9-16, 21, 23, 26-28, table 1. *Amphiglene mediterranea* — SOULIER, 1902: 109-113, fig. 1. *Amphiglena Armandi* — CLAPARÈDE, 1864: 492-496, pl. 3 fig. 1.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); [?] DEXTER, 1992 (as *Amphiglena mediterranea?*; previous records: continental shelf of Algarve).
**DISTRIBUTION:** English Channel; North Sea; Mediterranean Sea; Adriatic Sea; Aegean Sea. In rocky bottoms, among algae and bryozoans. Between 0-5 meters.

## GENUS *Augeneriella* Banse 1957

*Augeneriella* BANSE, 1957: 95-96.
**TYPE SPECIES:** *Augeneriella hummelincki* Banse 1957.
**REMARKS:** The genus definition of *Augeneriella* was emended by FITZHUGH (1990*b*), not considering unbranched ventral filamentous appendages as part of the diagnosis, as stated by GITAY (1970). Besides, the use of the term ventral lips in the diagnosis was done only as tentative, as the observed structures were quite simple and do not resemble the ventral lips seen in other genera of Sabellinae (FITZHUGH, 1990*b*).

### *Augeneriella lagunai* Gitay 1970

*Augeneriella lagunai* GITAY, 1970: 105-108, figs. 1-2.
**TYPE LOCALITY:** Bardawil Lagoon, North Sinai, Mediterranean coast of Egypt, in shallow hypersaline water.
**SELECTED REFERENCES:** *Augeneriella lagunai* — FITZHUGH, 1990*b*: 201-205, figs. 4-6.
**DISTRIBUTION:** Bardawill Lagoon, North Sinai, Egypt (Mediterranean Sea). Shallow hypersaline water.

## GENUS *Bispira* Krøyer 1856

*Bispira* KRØYER, 1856: 13.
**TYPE SPECIES:** *Amphitrite volutacornis* Montagu 1804.
**SYNONYMS:** *Distyla* Quatrefages 1866; *Metalaonome* Bush 1904.

**KEY TO SPECIES:**
(adapted from KNIGHT-JONES & PERKINS, 1998)

**1a.** Thoracic tori of mature specimens long, those posterior to the 4th segment reaching, or nearly reaching, margins of ventral shields; eyes on each radiole sparse (4 pairs or less).....**2**
**1b.** Thoracic tori fairly short, all separated from ventral shields by gaps about as broad as their segments are long.....**3**

**2a (1a).** Eyes mostly in distal half of crown and never in bands around crown; some blades of inferior chaetae from posterior thoracic segments flattened with parallel sides and bluntly tapered tips.....***B. volutacornis***

**2b (1a).** Eyes mostly in proximal half of crown, in about 3 bands, proximal band very distinct; blades flattened but sides not parallel.....***B. mariae***

**3a (1b).** First segment up to twice the length of following one (dorsolateral view); dorsolateral margins of collar reaching or covering junction between crown and body; crown with many paired eyes.....**4**
**3b (1b).** First segment about 3 times the length of the following one; dorsolateral margins of collar not reaching base of crown; crown with few or no eyes.....***B. viola***

**4a (3a).** Ventral collar lappets short, about as long as or scarcely longer than lateral parts of collar; radioles with pale eyes.....***B. fabricii***
**4b (3a).** Ventral lappets prominent, longer than lateral parts of collar; radioles with dark eyes.....***B. crassicornis***

## ***Bispira crassicornis*** (Sars 1851)

*Sabella crassicornis* SARS, 1851: 202-203.
**TYPE LOCALITY:** Tromsø, Finmark (Norway), between 10-20 fathoms (18.3-36.6 meters).
**SYNONYMS:** *Sabella picta* Krøyer 1856; [?] *Sabella nordenskiöldi* McIntosh 1916.
**SELECTED REFERENCES:** *Sabella crassicornis* — SARS, 1862*d*: 119-122; MALMGREN, 1866: 399, pl. 27 fig. 83; [?] MOORE, 1909*c*: 144; PETTIBONE, 1954: 334-335 [in part]; HARTMANN-SCHRÖDER, 1996: 546. *Bispira crassicornis* — KIRKEGAARD, 1996: 367-369, fig. 211; KNIGHT-JONES & PERKINS, 1998: 411-413, figs. 8-9. *Sabella picta* — KRØYER, 1856: 24, 25. *Sabella spitzbergensis* [not Malmgren 1867] — WEBSTER & BENEDICT, 1887: 750 [in part]. [?] *Sabella nordenskiöldi* — MCINTOSH, 1916*a*: 63-65, pl. 3 figs. 12-13, pl. 4 figs. 4-6. Not *Sabella crassicornis* — HARTMAN, 1961: 43; HARTMAN, 1969: 733-734; HARTMANN-SCHRÖDER, 1977*a*: 96-97; KIRKEGAARD, 1983*b*: 597 [= probably undescribed species; see KNIGHT-JONES & PERKINS, 1998: 413].
**DISTRIBUTION:** Arctic Ocean; Alaska, Beaufort Sea; Labrador; Norway; [?] Adriatic Sea. On crustose coralline algae, bottoms of stones, serpulids, and various combinations of gravel, stones, and rocks. Between 0-200 meters, at great numbers between 18-27 meters.

## ***Bispira fabricii*** (Krøyer 1856)

*Sabella fabricii* KRØYER, 1856: 20-21.
**TYPE LOCALITY:** Greenland.
**SYNONYMS:** *Sabella spetsbergensis* Malmgren 1866.
**SELECTED REFERENCES:** *Laonome? Fabricii* — MALMGREN, 1867*a*: 113. *Sabella Fabricii* — FAUVEL, 1914*f*: 313-314, pl. 31 figs. 36-43. *Sabella fabricii* — AUGENER, 1928*a*: 800; WESENBERG-LUND, 1951: 118-119. *Bispira fabricii* — KNIGHT-JONES & PERKINS, 1998: 413-415, fig. 10. *Sabella spetsbergensis* — MALMGREN, 1866: 399-400, pl. 29 fig. 93. *Sabella spitzbergensis* — WEBSTER & BENEDICT, 1887: 750 [in part; part = *Bispira crassicornis* (Sars 1851)]. *Sabella crassicornis* [not Sars 1851] — BERKELEY & BERKELEY, 1943: 130; PETTIBONE, 1954: 334-335 [in part].
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Sabella fabricii*; coast of Arrábida); MONTEIRO-MARQUES, 1979 (as *Sabella fabricii*; southern continental shelf of Algarve); MONTEIRO-MARQUES, 1987 (as *Sabella fabricii*; continental shelf of Algarve); DEXTER, 1992 (as *Sabella fabricii*; previous records: continental shelf of Algarve); SALDANHA, 1995 (as *Sabella fabricii*; Portugal).
**DISTRIBUTION:** Arctic waters of North Atlantic: Greenland; Spitsbergen; Iceland; Eastport, Maine; Hudson Bay. On bottoms of stones, serpulid tubes, and various combinations of gravel, stones, and rocks. From low water to 420 meters.

## ***Bispira mariae*** Lo Bianco 1893

*Bispira Mariae* LO BIANCO, 1893: 75-76, pl. 1 fig. 2, pl. 2 fig. 4, pl. 3 figs. 7-8, 13.
**TYPE LOCALITY:** Gulf of Naples: off Punta di Posilipo, in a bottom known as Faraglione, among rhizomes of *Posidonia*, at 20-35 meters; Secca della Gajola, in the coralligenous, between 35-40 meters. Neotype designated by KNIGHT-JONES & PERKINS (1998) from Ischia, Gulf of Naples.
**SELECTED REFERENCES:** *Bispira mariae* — GIANGRANDE, 1990*a*: 168-169; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 846, figs. 2*B*, 3*B*, 5*A-C*; KNIGHT-JONES & PERKINS, 1998: 428-431, fig. 17. *Sabellastarte indica* [not *Sabellastarte indica* Savigny 1822] — JOHANSSON, 1927: 154-155.
**DISTRIBUTION:** From Mediterranean Sea to Canary Islands; Aegean Sea. In rocks, coralline bottoms and amongst rhizomes of *Posidonia*. Between 2-40 meters, probably present down to at least 90 meters.

Probably the Mediterranean records of *Bispira volutacornis* (Montagu 1804), a northern European species, refer to this species (KNIGHT-JONES & PERKINS, 1998).

### ***Bispira viola*** (Grube 1863)

*Sabella viola* GRUBE, 1863: 58-60, pl. 6 fig. 4.
**TYPE LOCALITY:** Krivica (= Crivizza), Losinj (= Lussin) Island, Croatia.
**SELECTED REFERENCES:** *Sabella viola* — GRUBE, 1864: 90. *Bispira viola* — GIANGRANDE, 1990*a*: 169; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 846-847, fig. 5*E-F*; KNIGHT-JONES & PERKINS, 1998: 422-424, fig. 14. [?] *Sabella melanostigma* [not Schmarda 1861] — GIBBS, 1971: 201-202. Not *Sabella viola* — SOULIER, 1903: 201-212, figs. 2-3 [= S*abella pavonina* Savigny 1822].
**DISTRIBUTION:** From the Mediterranean Sea and Aegean Sea to SE Asia (Indonesia); [?] Solomon Islands. In rocks, among sponges or calcareous nodules. Between 3-13 meters.

### ***Bispira volutacornis*** (Montagu 1804)

*Amphitrite volutacornis* MONTAGU, 1804: 80-82, pl. 7 fig. 10.
**TYPE LOCALITY:** South coast of Devonshire (England), taken by dredging for oysters.
**SELECTED REFERENCES:** *Sabella volutacornis* — JOHNSTON, 1865: 262. *Distyla volutacornis* — QUATREFAGES, 1866*b*: 421-423, pl. 16*bis* figs. 5-7. *Bispira volutacornis* — SAINT-JOSEPH, 1894: 286-292, pl. 11 figs. 289-295; MCINTOSH, 1923*a*: 254-261, text-figs. 151-152, pl. 113 fig. 5, pl. 115 fig. 1, pl. 120 fig. 8, pl. 128 fig. 5, pl. 136 fig. 22; RIOJA, 1923*c*: 23, figs. 11-12; FAUVEL, 1927*a*: 307-308, fig. 106*a-i*; RIOJA, 1931: 348-350, pl. 112; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 846, fig. 5*D*; HARTMANN-SCHRÖDER, 1996: 540; KNIGHT-JONES & PERKINS, 1998: 409-411, figs. 2, 7, 30*N-U*. *Bispira volutocornis* — MCINTOSH, 1916: 20-25.
**DISTRIBUTION:** North Sea; British Isles; English Channel; Atlantic coast of France; Bay of Biscay; [?] Mediterranean Sea and Aegean Sea [probably the Mediterranean records refer to *Bispira mariae* Lo Bianco 1893 (see KNIGHT-JONES & PERKINS, 1998)]. Under rocky overhangs and crevices, away from wave action, at shallow water.

## *GENUS ***Branchiomma*** Kölliker 1858

*Branchiomma* KÖLLIKER, 1858: 537.
**TYPE SPECIES:** *Amphitrite bombyx* Dalyell 1853.
**SYNONYMS:** *Dasychone* M. Sars 1861; *Dasychonopsis* Bush 1904.

**KEY TO SPECIES:**

**REMARKS:** The shape of the radiolar stylodes can depend on the size of the worms, as well as on the angle of observation. For this reason, this character should be used carefully.

**1a.** Dorsal collar margins fused to the edges of the narrow faecal groove.....**2**
**1b.** Dorsal collar margins free, separated by a wide gap, which includes the faecal groove.....**4**

**2a (1a).** Shape of radiolar stylodes depend on size of the worms: a) in smaller specimens they are as elongated shoe-horns, with the concave sides towards the radiole surface, each with the distal end somewhat expanded and often bending away from the radiole; b) specimens with radioles about 5 mm long or longer have stylodes with undulating distal edges, resembling cabbage leaves; dorsal lips long, grooved and narrowly tapering, length about 8 times the basal breadth, and 0.25 times the length of the crown.....***B. bombyx****
**2b (1a).** Radiolar stylodes long and narrow, digitiform, somewhat flattened, broadest about the middle and tapering distally to a blunt point end, never like shoe-horns.....**3**

**3a (2b).** Dorsal lips short and blunt, length about 2 times the width and 0.1 times the length of branchial crown; gradation of stylode sizes absent; colour uniform.....***B. lucullanum***
**3b (2b).** Dorsal lips long and tapered, length about 20 times the width, and about 1/2 the length of branchial crown; gradation of stylodes sizes present, becoming slightly larger in the middle part of the radiole; large pigmented spots present in the crown and along the body.....***B. maerli***

**4a (1b).** Radiolar macrostylodes present.....***B. boholense***
**4b (1b).** Radiolar macrostylodes absent.....**5**

**5a (4b).** Thoracic uncinal crests with just two or three rows of few teeth.....***B. luctuosum***
**5b (4b).** Thoracic uncinal crests with an extensive crest of small compact rows of teeth.....**6**

**6a (5b).** Collar low, without ventro-lateral notches; ventral collar lappets short; radiolar eyes present, almost obscured by narrow dense pigment bands lying just anterior to bases of (usually) alternate pairs of stylodes, but eyes not apparent in paler, more distal bands or areas between bands, and absent near the base of the crown; all thoracic tori but the first two reaching the ventral shields; coloration patterns dark brown, with most thoracic ventral shields with two D-shaped patches, first shield with paired transversal elongate triangles, dorsal side of thoracic parapodia and inter-ramal area (between fascicles and tori) with unusually large patches, and dorsal side of abdominal parapodia with dark triangles.....***B. moebii***
**6b (5b).** Collar high, with ventro-lateral notches; ventral collar lappets prominent; radiolar eyes absent; thoracic tori not reaching ventral shields, being the gaps between their ventral ends and the ventral shields more or less developed; coloration otherwise.....**7**

**7a (6b).** Coloration pattern include transverse bands on crown, more or less disctinct (not described in *B. spongiarum*, but represented in figures).....**8**
**7b (6b).** Coloration as tiny inter-ramal spots, transverse bands on crown absent; 6-8 pairs of cylindrical to thread-like stylodes per radiole.....***B. inconspicuum***

**8a (7a).** Stylodes fine, numbering 6 pairs per radiole; inferior thoracic notochaetae geniculate, with "knee" up to twice the width of the shaft; thoracic tori short (15 to 22 uncini in 5th and 6th tori), not reaching the indistinct ventral shields; small species, 7.5 mm long, 0.8 mm wide, without branchiae [thoracic uncini with short neck; besides transverse bands on crown, colour pattern as blackish-red inter-ramal spots fairly large and very distinct; body about 9 times longer than wider].....***B. spongiarum***
**8b (7a).** Stylodes narrow or tongue shaped, numbering 12-30 per radiole; inferior thoracic notochaetae slender and scarcely geniculate, with "knee" scarcely wider than shaft; thoracic tori short (*B. bahusiense*), or longer than in previous species, with a shorter gap between their ventral ends and well defined ventral shields.....**9**

**9a (8b).** Stylodes narrow, numbering about 30 pairs per radiole; thoracic tori short, not reaching the ventral shields; body plump, about 7 times longer than wide (about 34.2 mm long, 5 mm wide, without branchiae); coloration with quadrangular, weakly distinct pigment blotches on the ventral shields, and small inter-ramal spots, besides the transverse bands on crown.....***B. bahusiense***
**9b (8b).** Stylodes tongue shaped, numbering 12-25 pairs per radiole; thoracic tori long, with gaps between their ventral ends and the ventral shields; body plumper (about 4-5 times longer than wider), or more elongated (12-14 times longer than wider); body pigmentation without quadrangular, weakly distinct pigment blotches on the ventral shields.....**10**

**10a (9b).** Body elongated, about 12-14 times longer than wider (50-67 mm long, 3.5-5 mm wide, without branchiae); styloid size gradation along the radiole, absent; thoracic uncini with a short neck; no coloration besides the transverse bands on crown.....***B. arcticum***
**10b (9b).** Body plump, about 4-5 times longer than wider (20-70 mm long, 5-13 mm wide, without branchiae); styloid size gradation along the radiole, present; thoracic uncini with a long neck; besides transverse bands on crown, coloration includes indistinct inter-ramal spots.....***B. infarctum***

## ***Branchiomma arcticum*** (Ditlevsen 1937)

*Sabellastarte arctica* DITLEVSEN, 1937: 47-50, figs. 3-5.
**TYPE LOCALITY:** The species was described with base on seven specimens collected at three different localities in the Davis Strait and West Greenland, but apparently no holotype or type locality was designated. The data of the three localities is as follows: 1) Totness Road, Exeter Sound, at the Baffin Land, at 75-200 meters, bottom temperature of -1.6ºC; 2) 74º12'N, 77º00'W, at 680 meters, bottom temperature of -0.4ºC; 3) 76º12'N, 77º00'W, at 80-180 meters, bottom temperature of -1.3ºC.
**SELECTED REFERENCES:** *Branchiomma arcticum* — KNIGHT-JONES, 1994: 194, figs. 2*t-z*, 4*e*.
**DISTRIBUTION:** Davis Strait; West Greenland. Between 75-680 meters.

### ***Branchiomma bahusiense*** Johansson 1927

*Branchiomma infarcta* var. *bahusiensis* JOHANSSON, 1927: 161.
**TYPE LOCALITY:** Bohuslän, Western Sweden.
**SELECTED REFERENCES:** *Branchiomma bahusiense* — KNIGHT-JONES, 1994: 194, figs. 2*n-s*, 4*f*.
**DISTRIBUTION:** Western Sweden; Faroes.

### ***Branchiomma boholense*** (Grube 1878)

*Sabella (Dasychone) boholensis* GRUBE, 1878*c*: 261.
**TYPE LOCALITY:** Philippine Islands.
**SELECTED REFERENCES:** *Branchiomma boholense* — KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 852-854, fig. 6*P*. *Branchiomma boholensis* — LICCIANO & GIANGRANDE, 2008: 389. *Dasycone cingulata* [not Grube 1870] — WILLEY, 1905: 308-309, pl. 7 figs. 170-173. *Dasychone cingulata* [not Grube 1870] — MONRO, 1937*a*: 86.
**DISTRIBUTION:** Indo-West Pacific: Hong Kong, Sri Lanka; Mediterranean Sea: Atlit and Tel-Aviv (Israel), and Malta.

### ****Branchiomma bombyx*** (Dalyell 1853)

*Amphitrite bombyx* DALYELL, 1853: 236-245, pls. 31-33.
**TYPE LOCALITY:** Scotland, Shetland, and Orkney Islands.
**SYNONYMS:** *Branchiomma Dalyelli* Kölliker 1858; *Dasychone Argus* Sars 1862; *Sabella polyzonos* Grube 1863.
**SELECTED REFERENCES:** *Dasychone Bombyx* — SAINT-JOSEPH, 1894: 309-316, pl. 11 figs. 323-326, pl. 12 figs. 327-336; *Dasychone bombyx* — RIOJA, 1923*c*: 43, figs. 58-67; FAUVEL, 1927*a*: 319-320, fig. 111; RIOJA, 1931: 368-370, pls. 117-118, pl. 120 fig. 4. *Branchiomma bombyx* — KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 847, figs. 3*C*, 6*A-D*; HARTMANN-SCHRÖDER, 1996: 541-542, fig. 263; KIRKEGAARD, 1996: 369-371, fig. 212; LICCIANO & GIANGRANDE, 2008: 385, fig. 1. *Branchiomma Dalyelli* — KÖLLIKER, 1858: 536-541. *Dasychone dalyelli* — MALMGREN, 1867*a*: 115-116. *Dasychone Argus* — M. SARS, 1862*d*: 125; M. SARS, 1863: 319-320; MALMGREN, 1866: 403-404, pl. 28 fig. 89. *Dasychone argus* — MCINTOSH, 1916: 29-33; MCINTOSH, 1923: 273-281, pl. 112 fig. 6, pl. 113*A* fig. 5, pl. 120 fig. 14, pl. 121 fig. 1, pl. 129 fig. 1; *Sabella polyzonos* — GRUBE, 1863: 63-64, pl. 6 fig. 5. *Dasychone polyzonos* — LO BIANCO, 1893: 73. *Dasychone polyzonosa* — IROSO, 1921: 71.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (as *Dasychone bombyx*; Sines); SALDANHA, 1974 (as *Dasychone bombyx*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); SALDANHA, 1995 (Portugal); MACHADO & CANCELA DA FONSECA, 2007 (Algarve).
**MATERIAL: FAUNA 1 — St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse gravel: 1 complete specimen in good condition, with about 66 chaetigers, 8 of which thoracic; 30 mm long (without crown), 5 mm wide, crown 15 mm long; radioles with eyes, from 9 to 20 pairs of composed eyes, with associated stylodes, membranous and foliaceous; collar membrane well developed; abdominal chaetal bundle C-shaped; dark spots in the base of the branchiae, located between two radioli; dark spots also between parapodia.
**DISTRIBUTION:** Northeastern Atlantic to Gulf of Guinea; Norway; British Isles; North Sea; English Channel; Bay of Biscay; Skagerrak; Kattegat; Øresund; Mediterranean Sea; Adriatic Sea; Aegean Sea. In rocks, among algae, hydrozoans, rhizomes of *Laminaria*, *Sabellaria* reefs, oyster banks, and also on muddy bottoms, pure or with sand. From 1 to about 400 meters.

### ***Branchiomma inconspicuum*** (M. Sars *in* G.O. Sars 1872)

*Dasychone inconspicua* M. SARS *in* G.O. SARS, 1872*a*: 416.
**TYPE LOCALITY:** Drøbak, Osofjorden, Norway, 50-60 fathoms (91.4-109.7 meters).
**SELECTED REFERENCES:** *Branchiomma inconspicua* — HARTMANN-SCHRÖDER, 1996: 542; KIRKEGAARD, 1996: 371. *Branchiomma inconspicuum* — KNIGHT-JONES, 1994: 194.
**DISTRIBUTION:** West Norway; Skagerrak.

### ***Branchiomma infarctum*** (Krøyer 1856)

*Sabella infarcta* KRØYER, 1856: 21.
**TYPE LOCALITY:** Greenland?.

**SELECTED REFERENCES:** *Dasychone infarcta* — MALMGREN, 1866: 403, pl. 28 fig. 86; LEVINSEN, 1884: 186; FAUVEL, 1909: 44-45; FAUVEL, 1914*f*: 318. *Branchiomma infarcta* — JOHANSSON, 1927: 159-160. *Branchiomma infarctum* — KNIGHT-JONES, 1994: 193-194, fig. 2*a-m*. *Sabella decora* — SARS, 1862*d*: 124.
**DISTRIBUTION:** [?] Greenland; Spitsbergen; Norway; northern coasts of Europe and Asia. Shallow water to 22 meters.

## ***Branchiomma luctuosum*** (Grube 1870)

*Sabella (Dasychone) luctuosa* GRUBE, 1870*e*: 517.
**TYPE LOCALITY:** Tor (El Tûr), Sinai Peninsula (Egypt), Red Sea.
**SELECTED REFERENCES:** *Dasychone luctuosa* — GRAVIER, 1906*a*: pl. 7 figs. 271-273; GRAVIER, 1908: 98-101, text-figs. 454-457. *Branchiomma luctuosum* — GIANGRANDE, 1990*a*: 166-167; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 854, fig. 6*L-N*; ÇINAR *et al.*, 2006: 86, fig. 4; NOGUEIRA, ROSSI & LÓPEZ, 2006: 597-602, figs. 7*E-F*, *I-K*, 8-9, 10*A-G*; EL HADDAD, CAPACCIONI-AZZATI & GARCÍA-CARRASCOSA, 2007: 2-6, fig. 3, table 2; LICCIANO & GIANGRANDE, 2008: 386-387, figs. 3, 4*A*.
**DISTRIBUTION:** Red Sea; Tyrrhenian Sea; Ionian Sea; Aegean Sea; Levantine coast of Turkey; north coast of Cyprus; South Spain; São Paulo State (Brazil). Among coral reefs and on rocky shores. Between 0-30 meters, but also known from euhaline lagoons.

## ***Branchiomma lucullanum*** (Delle Chiaje 1828)

*Sabella lucullana* DELLE CHIAJE, 1828: pl. 42 figs. 23, 23*a*, 24.
**TYPE LOCALITY:** Gulf of Naples.
**SELECTED REFERENCES:** *Sabella Lucullana* — GRUBE, 1846*a*: 46-49, pl. 2 fig. 3. *Sabella lucullana* — QUATREFAGES, 1866*b*: 442. *Dasychone Lucullana* — CLAPARÈDE, 1869: 168-169, pl. 30 fig. 4; FAUVEL, 1927*a*: 320-321, fig. 110*m-s*. *Dasychone lucullana* — LO BIANCO, 1893: 72; IROSO, 1921: 71; RIOJA, 1931: 370-372, pl. 119, pl. 120 figs. 1-3. *Branchiomma lucullanum* — KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 847, fig. 6*E-G*; LICCIANO & GIANGRANDE, 2008: 385-386, fig. 2.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (off Cape Sagres); MONTEIRO-MARQUES, 1987 (as *Dasychone lucullana*; continental shelf of Algarve); DEXTER, 1992 (as *Dasychone lucullana*; previous records: continental shelf of Algarve).
**DISTRIBUTION:** Gulf of Naples; Adriatic Sea; Aegean Sea; Algerian coast; Galicia (Northeastern Spain). Among bryozoans or algae. In depths of a few meters.

## ***Branchiomma maerli*** Licciano & Giangrande 2008

*Branchiomma maerli* LICCIANO & GIANGRANDE, 2008: 389-390, figs. 4*B*, 7.
**TYPE LOCALITY:** Forio Ischia, Naples (Tyrrhenian Sea), on mäerl bottom, 65 meters.
**DISTRIBUTION:** Tyrrhenian Sea; Aegean Sea. On soft bottoms and mäerl. Between 60-65 meters.

## ***Branchiomma moebii*** Knight-Jones 1994

*Branchiomma moebii* KNIGHT-JONES, 1994: 192-194, figs. 1, 4*a-b*.
**TYPE LOCALITY:** Rovinj, Northern Adriatic Sea.
**SELECTED REFERENCES:** *Branchiomma* species A — KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 847-849, figs. 2*A*, 6*H-K*. *Dasychone lucullana* [not Delle Chiaje 1828] — SAINT-JOSEPH, 1906: 241-243. [?] *Branchiomma* cf. *moebii* — LICCIANO & GIANGRANDE, 2008: 387-388, fig. 5.
**DISTRIBUTION:** Adriatic Sea; Aegean Sea (Turkish coast); Cannes (Southern France); [?] Tyrrhenian Sea. In rocks. Between 3-13 meters.

## ***Branchiomma spongiarum*** Knight-Jones 1994

*Branchiomma spongiarum* KNIGHT-JONES, 1994: 194-196, figs. 3, 4*c-d*.
**TYPE LOCALITY:** SE of Faroes, 61º43'53"N, 5º42'77"W, 274 meters.
**DISTRIBUTION:** Faroes shelf. In association with the sponges *Thenea levis* and *Thenea valdiviae*. Between 225-354 meters.

# GENUS *Chone* Krøyer 1856

*Chone* KRØYER, 1856: 33.
**TYPE SPECIES:** *Chone infundibuliformis* Krøyer 1856.
**SYNONYMS:** *Parachonia* Kinberg 1867; *Dialychone* Claparède 1870; *Megachone* Johnson 1901; *Metachone* Bush *in* Moore 1904.
**REMARKS:** The genus diagnosis was emended by BANSE (1972*a*), again by FITZHUGH (1989), and restricted later by TOVAR-HERNÁNDEZ & SOSA-RODRÍGUEZ (2006).

**KEY TO SPECIES:**

**NOT INCLUDED IN THE KEY:** *Chone paucibranchiata* (Krøyer 1856); *Chone longocirrata* M. Sars. *in* G.O. Sars 1872; *Chone ingelorae* (Plate 1995).

**1a.** Collar with crenulated margin; pygidium with posterior rounded margin, sometimes with eyespots.....***C. collaris***
**1b.** Collar with entire margin.....**2**

**2a (1b).** Glandular ridge on chaetiger 9; large epidermal acidophil glands present; pygidium with a short cirrus.....***C. gambiae***
**2b (1b).** No glandular ridge on segment 9; large epidermal acidophil glands absent; anal cirrus present or absent.....**3**

**3a (2b).** Anal cirrus present (sometimes may be lost).....**4**
**3b (2b).** Anal cirrus absent.....**9**

**4a (3a).** Insertion of branchial lobes exposed dorsally; radiolar pigmentation present, as irregular purple lateral spots in the radiolar axis skeleton, on flanges and extending into pinnules; ventral margin of collar higher than dorsal; longitudinal grooves on lateral sides of collar present; anal cirrus small, not easily discernible; [palmate membrane covering ¾ of radioles; radiolar tips long].....***C. arenicola***
**4b (3a).** Insertion of branchial lobes not exposed, covered by collar; radiolar pigmentation absent; ventral margin of collar slightly higher than dorsal; longitudinal grooves on lateral sides of collar absent; anal cirrus easily visible.....**5**

**5a (4b).** Palmate membrane very short, covering about ¼ of the radiolar length; [radiolar tips short; radiolar flanges broad; inferior thoracic chaetae with mucro medium sized].....***Chone* sp. 1**
**5b (4b).** Palmate membrane developed, covering at least about ½ of the radiolar length.....**6**

**6a (5b).** Thoracic neuropodial uncini with main fang short and blunt; [radiolar tips long; palmate membrane covering about ½ of the radiolar length; ventral margin of the anterior peristomial ring as a triangular lobe, extending slightly beyond the collar].....***Chone* sp. 2**
**6b (5b).** Thoracic neuropodial uncini with main fang long and pointed.....**7**

**7a (6b).** Anterior peristomial ring lobe exposed beyond collar, distally bilobed; posterior peristomial ring collar and chaetiger 2 of about the same length, in lateral view; inferior thoracic chaetae with mucro short sized [radiolar tips medium to long; radiolar flanges broad; palmate membrane covering about ¾ of the radiolar length].....***C. filicaudata***
**7b (6b).** Anterior peristomial ring lobe not exposed beyond collar, distally triangular; posterior peristomial ring collar longer than chaetiger 2, in lateral view (ratio 1.5:1); inferior thoracic chaetae with mucro medium to long sized.....**8**

**8a (7b).** Radiolar tips extralong; radiolar flanges narrow; palmate membrane covering about ½ of the radiolar length.....***C. usticensis***
**8b (7b).** Radiolar tips short; radiolar flanges broad; palmate membrane covering about ¾ of the radiolar length.....***Chone* sp. 3**

**9a (3b).** Insertion of branchial lobes exposed dorsally.....**10**

**9b (3b).** Insertion of branchial lobes not exposed dorsally, covered by collar; palmate membrane covering from ¼ to ¾ of radiolar length.....**13**

**10a (9a).** Palmate membrane covering about ½ ot radiolar length; radiolar tips short.....***Chone* sp. 4**
**10b (9a).** palmate membrane covering about ¾ of radiolar length; radiolar tips long or extralong.....**11**

**11a (10a).** Anterior peristomial ring lobe not exposed, triangular; paleate thoracic chaetae with short mucro; ratio of posterior peristomial ring collar length *versus* chaetiger 2 length, in lateral view, of 2:1; ventral shield of collar rounded, not easily discernible; [radiolar tips long; radiolar flanges broad].....***C. fauveli***
**11b (10a).** Anterior peristomial ring lobe exposed, bilobed; paleate thoracic chaetae with mucro medium sized; ratio of posterior peristomial ring collar length *versus* chaetiger 2 length, in lateral view, of 1.5:1; ventral shield of collar horseshoe shaped, 2 times wider than long.....**12**

**12a (11b).** Radiolar tips extralong; radiolar flanges broad; dorsal lips broadly rounded, as long as wide; all abdominal uncini not modified, with main fang surmounted by four rows of equal sized teeth, occupying one half of the main fang length; ventral margin of collar higher than dorsal.....***C. duneri***
**12b (11b).** Radiolar tips long; radiolar flanges narrow; dorsal lips triangular, elongated; anterior abdominal uncini not modified, with the main fang surmounted by four rows of equal sized teeth, occupying less than half of the main fang length, posterior abdominal uncini modified, with the main fang surmounted by 6-7 regular vertical rows of equal size teeth, occupying three quarters of the main fang length; ventral margin of collar only slightly higher than dorsal.....***C. dunerificta***

**13a (9b).** Palmate membrane short, covering about ¼ of the radiolar length; longitudinal grooves present on dorsal, lateral, and ventral sides of collar segment, with dark glands along their axis; radiolar flanges narrow; glandular ridge on chaetiger 2 broad dorsally; [radiolar tips extralong; anterior peristomial ring not exposed, triangular; ventral margin of collar higher than dorsal; ratio of posterior peristomial ring collar length *versus* chaetiger 2 length, in lateral view, of 1.5:1; ventral shield of collar rounded, rudimentary, not easily discernible].....***C. acustica***
**13b (9b).** Palmate membrane covering at least ½ of the radiolar length [not known in *C. kroyerii*]; longitudinal grooves with associated dark glands absent on collar segment; radiolar flanges broad [not known in *C. kroyerii*]; glandular ridge on chaetiger 2 narrow.....**14**

**14a (13b).** Anterior peristomial ring lobe not exposed, triangular; all abdominal uncini not modified, with main fang surmounted by four to five rows of equal sized teeth, occupying less than half of the main fang length.....**15**
**14b (13b).** Anterior peristomial ring exposed, bilobed; anterior abdominal uncini not modified, with the main fang surmounted by four or five rows of equal sized teeth, occupying less than half of the main fang length, posterior abdominal uncini modified, with the main fang surmounted by 5-7 regular vertical rows of equal size teeth, occupying three quarters of the main fang length.....**16**

**15a (14a).** Ventral shield of collar horseshoe-shaped, two times wider than long, divided transversally by a white and slender line; ventral margin of collar slightly higher than dorsal; ratio of posterior peristomial ring collar length *versus* chaetiger 2 length, in lateral view, of 1.5:1; paleate chaetae with a short-sized mucro.....***C. infundibuliformis***
**15b (14a).** Ventral shield of collar rectangular, not easily discernible; ventral margin of collar higher than dorsal; ratio of posterior peristomial ring collar length *versus* chaetiger 2 length, in lateral view, of 2:1; paleate chaetae with a medium-sized mucro.....***C. kroyerii***

**16a (14b).** Ventral shield of collar rectangular; ventral margin of collar slightly higher than dorsal; palmate membrane covering about ½ of the radiolar length; radiolar tips extralong; paleate chaetae with a medium-sized mucro.....***C. longiseta***
**16b (14b).** Ventral shield of collar horseshoe-shaped; ventral margin of collar higher than dorsal; palmate membrane covering about ¾ of the radiolar length; radiolar tips medium sized; paleate chaetae with a long-sized mucro.....***C. normani***

## ***Chone acustica*** (Claparède 1869)

*Dialychone acustica* CLAPARÈDE, 1869: 170-171, pl. 30 fig. 3.

**TYPE LOCALITY:** Gulf of Naples. A neotype was designated by TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE (2007), from the Gulf of Naples, Naples, Castel dell'Ovo, 40º49.43'N, 14.35'E, from 8 meters.
**SELECTED REFERENCES:** *Dialychone acustica* — LO BIANCO, 1893: 77; IROSO, 1921: 72; FAUVEL, 1927*a*: 333-334, fig. 115*l-q*; BELLAN, 1964*b*: 171; [?] BELLAN, 1978: 62. *Chone acustica* — KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 849; GIANGRANDE, 1992: 521-523, figs. 8-9; TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 318-322, fig. 3, table 1.
**DISTRIBUTION:** Mediterranean Sea: Gulf of Naples, Tyrrhenian Sea, Ionian Sea, Adriatic Sea, Turkish Aegean Sea; [?] Azores; [?] England. In sandy bottoms. Between 8-20 meters.
**REMARKS:** TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE (2007) designated a neotype for the species from the type locality, according to Arcticle 75.3.1 of the ICZN. According to the same authors, it is possible that *Chone acustica* belongs to a different genus, with base on the modified posterior abdominal uncini, as well as on the structure of the extra long dorsal lips, 10 times longer than wide, instead of being broadly rounded, as long as wide.

## ***Chone arenicola*** Langerhans 1880

*Chone arenicola* LANGERHANS, 1880*b*: 115-116, pl. 5 fig. 28.
**TYPE LOCALITY:** Madeira Island, between 15-30 fathoms (27.4-54.9 meters).
**SELECTED REFERENCES:** *Chone arenicola* — GIANGRANDE, 1992: 523-524, figs. 10-12; TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 322-324, fig. 4, table 1.
**DISTRIBUTION:** Madeira; Canary Islands; Gulf of Naples; Tyrrhenian Sea; Ligurian Sea; Adriatic Sea. In sandy bottoms. Between 8-35 meters.

## ***Chone collaris*** Langerhans 1880

*Chone collaris* LANGERHANS, 1880*b*: 116, pl. 5 fig. 29*a-f*.
**TYPE LOCALITY:** Madeira Island, among algae at rocky shores, and in fish baskets.
**SELECTED REFERENCES:** *Chone collaris* — SAINT-JOSEPH, 1906: 243; FAUVEL, 1927*a*: 337, fig. 116*p-x*; [?] DAY, 1967: 777, fig. 37.7.*a-f*; AMOUREUX, 1976*b*: 29; AMOUREUX & GANTÈS, 1976: 196; CANTONE, FASSARI & BRIGANDI, 1978: 73; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 850; GIANGRANDE, 1992: 524-525, figs. 13-14; TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 324-326, fig. 5, table 1.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); PARDAL, MARQUES & BELLAN, 1993 (Mondego Estuary).
**DISTRIBUTION:** Madeira; Canary Islands; Mediterranean Sea; Tyrrhenian Sea; Adriatic Sea; Aegean Sea; Black Sea; [?] Ireland; [?] Persian Gulf; [?] Mozambique. Rocky bottoms covered by photophilic algae, and occasionally in sandy bottoms. Between 0-10 meters.

## ***Chone duneri*** Malmgren 1867

*Chone Dunéri* MALMGREN, 1867*a*: 116-117, pl. 13 fig. 75.
**TYPE LOCALITY:** Whalerspoint, Spitsbergen.
**SYNONYMS:** *Chone longocirrata* M. Sars *in* G.O. Sars 1872.
**SELECTED REFERENCES:** *Chone Dunéri* — [?] LANGERHANS, 1880*b*: 114-115, pl. 6 fig. 44. *Chone Duneri* — FAUVEL, 1927*a*: 336-337, fig. 117*l-r*. *Chone Duneri* — HOFSOMMER, 1913: 32-35, text-fig. *h*, map. *Chone duneri* — SOUTHERN, 1914: 141; MCINTOSH, 1916*a*: 42-43, pl. 2 figs. 4-7; MCINTOSH, 1923*a*: 295-297, pl. 130 fig. 3; WESENBERG-LUND, 1950*a*: 58; BANSE, 1972*a*: 466-467, fig. 2*a-b*; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 850; HARTMANN-SCHRÖDER, 1996: 549, fig. 267; KIRKEGAARD, 1996: 372-374, fig. 213; TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 326-329, fig. 6, table 1. *Chone dunéri* — PETTIBONE, 1954: 339, fig. 39*k-l*; ELIASON, 1962*a*: 89-91. *Chone longocirrata* — M. SARS *in* G.O. SARS, 1872*a*: 415-416. Not *Chone duneri* — GIANGRANDE, 1992: 525, figs. 15-16 [= *Chone dunerifica* Tovar-Hernández, Licciano & Giangrande 2007].
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); DEXTER, 1992 (previous records: Arrábida).
**DISTRIBUTION:** Arctic Ocean; Alaska; Beaufort Sea; Puget Sound (Washington, U.S.A.); Greenland; from Northern Europe (Spitsbergen, Norway, Scotland, Jutland, Skagerrak, Kattegat, Øresund) to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Pechora Sea; [?] Madeira. In silt, clay, sand, gravel, stones, in the sediment between *Zostera*, algae, rhizomes of *Laminaria*, banks of mussels. Between 2-217 meters.

## ***Chone dunerificta*** Tovar-Hernández, Licciano & Giangrande 2007

*Chone dunerificta* TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 329-331, fig. 7, table 1.
**TYPE LOCALITY:** Gulf of Salerno (Italy), between 5-15 meters.
**SELECTED REFERENCES:** *Chone duneri* [not Malmgren 1867] — GIANGRANDE, 1992: 525, figs. 15-16.
**DISTRIBUTION:** Gulf of Salerno; Tyrrhenian Sea; Canary Islands. In sand in *Cymodocea nodosa* prairies. Between 5-34 meters.

## ***Chone fauveli*** McIntosh 1916

*Chone fauveli* MCINTOSH, 1916*a*: 36-42, pl. 2 fig. 8.
**TYPE LOCALITY:** "*Widely distributed in Britain*".
**SELECTED REFERENCES:** *Chone fauveli* — MCINTOSH, 1923*a*: 290-295, text-figs. 160-161, pl. 121 fig. 2, pl. 130 fig. 2; KNIGHT-JONES, KNIGHT-JONES & NELSON-SMITH, 2000: 250, fig. 6.20; KIRKEGAARD, 1996: 374-376, fig. 214; TOVAR-HERNÁNDEZ, 2007: 42-44, fig. 6.
**DISTRIBUTION:** North Atlantic, along the European coast to Morocco; North Sea; Scotland; Norway; Skagerrak; Kattegat; Øresund; western Baltic Sea. In sand, very fine sand, and coarse silt. Between 5-71 meters.

## ***Chone filicaudata*** Southern 1914

*Chone filicaudata* SOUTHERN, 1914: 141-144, pl. 14 figs. 32*A-E*, pl. 15 figs. 32*F-L*.
**TYPE LOCALITY:** West Ireland: Inishlyre Harbour (Clew Bay), in 5 fathoms (9.1 meters); Ballynakill Harbour, in 2 fathoms (3.7 meters); Dublin Bay, in 8-12 fathoms (14.6-21.9 meters); Dingle Bay, in 20 fathoms (36.6 meters), in gravel.
**SELECTED REFERENCES:** *Chone filicaudata* — MCINTOSH, 1916*a* 45; MCINTOSH, 1923*a*: 297-299, pl. 131 fig. 1; FAUVEL, 1927*a*: 337-339, fig. 117*a-k*; [?] DAY, 1967: 776-777, fig. 37.6.*p-w*; HARRIS, 1971: 712-713, fig. 18; [?] AMOUREUX, 1976*b*: 29; KIRKEGAARD, 1996: 376-377, fig. 215; TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 331-332, fig. 8, table 1. *?Chone filicaudata* — [?] HARTMANN-SCHRÖDER, 1974*a*: 200. Not *Chone filicaudata* — GIANGRANDE, 1992: 525-527, figs. 17-18.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: Ria Formosa; continental shelf of Algarve; Arrábida); RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** North Atlantic Ocean; Ireland; Portugal; [?] Mediterranean Sea; [?] Adriatic Sea; [?] Aegean Sea; [?] West Africa; [?] North Carolina. In sandy bottoms. Between 1-33 meters.
**REMARKS:** As stated by TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE (2007), until recently *Chone filicaudata* was the only well known species of *Chone* which showed a pygidial cirrus, and for this reason any specimen of *Chone* that showed that kind of structure was identified as *C. filicaudata*. However, there are more described species showing that feature, and quite probably some more still undescribed. *Chone filicaudata* has been widely recorded from the Mediterranean Sea, but as stated by TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE (2007), they belong to a different species.

## ***Chone gambiae*** Tovar-Hernández, Licciano & Giangrande 2007

*Chone gambiae* TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 332-334, fig. 9, table 1.
**TYPE LOCALITY:** Naples (Gulf of Naples, Italy), Castel dell'Ovo, 40º49.43'N, 14º14.35'E, at 7 meters, in sand.
**DISTRIBUTION:** Known from the type locality.

## ***Chone infundibuliformis*** Krøyer 1856

*Chone infundibuliformis* KRØYER, 1856: 33.
**TYPE LOCALITY:** Greenland.
**SYNONYMS:** *Chone suspecta* Kröyer 1856.
**SELECTED REFERENCES:** *Chone infundibuliformis* — MALMGREN, 1866: 404-405, pl. 28 fig. 87; MALMGREN, 1867*a*: 116, pl. 13 fig. 79; CUNNINGHAM & RAMAGE, 1888: 670, pl. 44 fig. 32; MCINTOSH, 1916*a*: 35-36, pl. 2 fig. 9; FAUVEL, 1927*a*: 334-335, fig. 116*a-o*; WESENBERG-LUND, 1950*a*: 58-59; [?] IMAJIMA, 1961: 98-99, figs. 13-14; BANSE, 1972*a*: 461-465, fig. 1*a-l*; GIANGRANDE, 1992: 518-519, figs. 1, 2*a-c*, 2*d1*, 2*e*; HARTMANN-SCHRÖDER, 1996: 550-551, fig. 268; TOVAR-HERNÁNDEZ & SOSA-RODRÍGUEZ, 2006: 37-56, figs. 1-3, 4*A-C*, 5-11; TOVAR-HERNÁNDEZ, 2007: 44-45, fig. 7. Not *Chone infundibuliformis* — FAUVEL, 1913*b*: 91-93, figs. 1-2; FAUVEL, 1914*f*: 319-320, pl. 31 figs. 10-18

[according to BANSE (1972*a*); according to MCINTOSH (1916*a*) = *Chone duneri*]. *Chone suspecta* — KRØYER, 1856: 33; [?] HOFSOMMER, 1913: 35-38, text-fig. *i*, pl. 4 figs. 13-15, map. [?] *Chone teres* — BUSH, 1904: 215-216, pl. 30 fig. 1, pl. 37 figs. 16-23; HARTMAN, 1942*a*: 87. Not *Chone teres* — OKUDA, 1934: 236-239, figs. 3-4; IMAJIMA & HARTMAN, 1964: 365. Not *Chone infundibuliformis* — [?] HOFSOMMER, 1913: 28-31, text-fig. *g*, pl. 4 figs. 9-12, map; [?] RIOJA, 1925*b*: 55-57, figs. 24-25; [?] RIOJA, 1931: 382-383, pl. 122.

**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); DEXTER, 1992 (previous records: Sines; Arrábida).

**DISTRIBUTION:** Arctic Ocean; Alaska; Greenland; Svalbard; Norway; North Sea; Skagerrak; Kattegat; Øresund; Baltic Sea; Eastern Canada (Byam Martin Channel; New Foundland; Baffin); [?] Alaska; [?] Kamchatka. In mud, pure or mixed with gravel or stones, in coarse sand, and among hydrozoans, serpulids, and ascideans. Between 1-394 meters.

**REMARKS:** The species was redescribed by TOVAR-HERNÁNDEZ & SOSA-RODRÍGUEZ (2006), who also designated a lectotype for the species.

*Chone infundibuliformis* seems to be an Arctic species. The more southernly records of the species have been reidentified either as *Chone kroyeri* Sars 1851, or as *Chone fauveli* McIntosh 1923, both species previously synonymized with *C. infundibuliformis* (see: BANSE, 1972*a*: 465; GIANGRANDE, 1992: 519).

## ***Chone ingeloreae*** (Plate 1995)

*Oriopsis ingeloreae* PLATE, 1995: 125-126, pl. 1 figs. 1-4.

**TYPE LOCALITY:** Liefdefjorden, Spitsbergen, 79º34'N, 12º49'W, 18 meters, in mud.

**SELECTED REFERENCES:** *Chone ingelorae* — BICK & RANDEL, 2005: 146, 150-153, figs. 3*M-P*, 10-11 [as *Oriopsis ingelorae*].

**DISTRIBUTION:** Liefdefjorden, Northwest Spitsbergen, 4-20 meters, in muddy bottoms.

**REMARKS:** BICK & RANDEL (2005) revised the available material of the species and redescribed it. With base on this redescription the species was assigned to the genus *Chone*, but it was not stated if the species was valid or not.

## ***Chone kroyerii*** M. Sars 1862

*Chone Krøyerii* SARS, 1862*d*: 126.

**TYPE LOCALITY:** Norway.

**SELECTED REFERENCES:** *Chone kroyerii* — TOVAR-HERNÁNDEZ, 2007: 45-47, fig. 8.

**DISTRIBUTION:** Norway.

**REMARKS:** FAUVEL (1927*a*: 335) considered this species as being a junior synonym of *C. infundibuliformis* Krøyer 1856, while GIANGRANDE (1992: 519), considered it as being valid. TOVAR-HERNÁNDEZ (2007) confirmed the validity of the species, redescribing it with base on a specimen from Bogestrømmen.

## ***Chone longiseta*** Giangrande 1992

*Chone longiseta* GIANGRANDE, 1992: 519-521, figs. 3-5.

**TYPE LOCALITY:** Taranto (Italy), Ionian Sea, 15 meters, in detritic sand.

**SELECTED REFERENCES:** *Chone longiseta* — TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 334-335, fig. 10, table 1.

**DISTRIBUTION:** Ionian Sea; Tyrrhenian Sea; Gulf of Policastro; Aegean Sea. On muddy sand bottoms with algal detritus, and *Cymodocea* or *Caulerpa*. Between 10-28 meters.

## ***Chone longocirrata*** M. Sars *in* G.O. Sars 1872

*Chone longocirrata* M. SARS. *in* G.O. SARS, 1872*a*: 415-416.

**TYPE LOCALITY:** Drøbak, Oslofjorden, Norway, 40-50 fathoms (73.2-91.4 meters).

**SELECTED REFERENCES:** *Chone longocirrata* — KIRKEGAARD, 1996: 377, fig. 216 [figures from LANGERHANS (1880*b*: pl. 5 fig. 29*a-f*), for *Chone collaris*].

**DISTRIBUTION:** North Sea; Kattegat.

## ***Chone normani*** McIntosh 1916

*Chone normani* MCINTOSH, 1916*a*: 65-67, pl. 2 figs. 13-15, pl. 3 figs. 14-15.

**TYPE LOCALITY:** Off Finmark (Norway).

**SELECTED REFERENCES:** *Chone normani* — TOVAR-HERNÁNDEZ, 2007: 50-52, fig. 11.
**DISTRIBUTION:** Norway; Scotland. Medium to coarse sand. Shallow waters to 20 meters.

## *Chone paucibranchiata* (Krøyer 1856)

*Sabella paucibranchiata* KRØYER, 1856: 22.
**TYPE LOCALITY:** Finmark, Northern Norway.
**SELECTED REFERENCES:** *Chone paucibranchiata* — BANSE, 1972*a*: 465-466.
**DISTRIBUTION:** Known from the type locality, from one single specimen.
**REMARKS:** According to BANSE (1972*a*), the original description was based on a single specimen, and the species has been regarded since MALMGREN (1866) as a junior synonym of *Chone infundibuliformis* Krøyer 1856. BANSE (1972*a*) revised the holotype, and stated that ventral shields are visible in *C. paucibranchiata*, especially after using methyl green, while in *C. infundibuliformis* they are not visible. The redescription of the species didn't include drawings, and some characters, like the shape of the limbate chaetae, which were all broken off, were not given. BANSE (1972*a*) stated that the species was possibly indeterminable, and this might be true, as according to TOVAR-HERNÁNDEZ (2007) the type material is apparently lost.

## *Chone usticensis* Giangrande, Licciano & Castriota 2006

*Chone usticensis* GIANGRANDE, LICCIANO & CASTRIOTA, 2006: 53-57, figs. 2-4.
**TYPE LOCALITY:** SW coast of Ustica Island (Southern Tyrrhenian Sea), 38º41.50'N, 13º09.78'E, at 50 meters, on a soft-bottom mainly composed of medium sand, biogenic and volcanic particles, together with a significant amount of red calcareous algae.
**SELECTED REFERENCES:** *Chone usticensis* — TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007: 335-336, fig. 11, table 1.
**DISTRIBUTION:** Southern Tyrrhenian Sea; Gulf of Naples; Canary Islands. In sand in a *Cymodocea nodosa* prairie, and mixed soft bottoms with rhodoliths. Between 7-50 meters.

## *Chone* sp. 1

*Chone* sp. GIANGRANDE, 1992: 521, figs. 6-7.
**SELECTED REFERENCES:** *Chone filicaudata* [not Southern 1914] — GIANGRANDE, 1985: 200, pls. 1-2.
**REMARKS:** GIANGRANDE (1992) stated that the taxon identified by her as *Chone* sp. was similar to *Chone filicaudata* from the Mediterranean Sea, but differing in several aspects (both taxa being, however, distinct species from the one described by Southern). This way, both taxa differ in characters such as the length of the palmate membrane, the tips of the radioles, the presence or absence of a bilobed process in the ventral side of the buccal segment, the number of chaetae and uncini (which is smaller than in the Mediterranean *C. filicaudata*), and the shape of the paleate chaetae (GIANGRANDE, 1992).
**DISTRIBUTION:** Adriatic Sea: Brindisi, 11 meters; Tyrrhenean Sea: Ischia (Naples, Italy), 15 meters, on *Posidonia*.

## *Chone* sp. 2

*Chone* sp. GIANGRANDE & LICCIANO, 2006: 1316-1319, figs. 8-9.
**DISTRIBUTION:** Tyrrhenian Sea (Follonica, Fiumicino), between 6-25 meters, on sand and muddy sand; Ligurian Sea (Zoagli), at 10 meters, on sand; Southern Adriatic Sea (Brindisi), at 0.5 meters, on detritic hard bottom.

## *Chone* sp. 3

*Chone filicaudata* [not Southern 1914] — GIANGRANDE, 1992: 525-527, figs. 17-18.
**REMARKS:** The Mediterranean specimens identified as *Chone filicaudata* by GIANGRANDE (1992) differ from *C. filicaudata* in having the anterior peristomial ring lobe entire and triangular (bilobed in *C. filicaudata*), radiolar tips medium-length (short in *C. filicaudata*), radiolar flanges broad (narrow in *C. filicaudata*), and the dorsal methyl green staining pattern less coloured than the ventral (stained uniformly dorsal and ventrally in *C. infundibuliformis*) (TOVAR-HERNÁNDEZ, LICCIANO & GIANGRANDE, 2007). When first describing the Mediterranean population of *C. filicaudata* GIANGRANDE (1992) had already stated some differences in relation to Southern's description of the species, as having fewer uncini and chaetae, and presenting the midline region of the ventral collar more vestigial.
**DISTRIBUTION:** Oriental Basin of Mediterranean Sea: Haifa (Israel), at 1 meter; Southern Adriatic Sea: Brindisi, at 10 meters, in a sandy bottom.

### *Chone* sp. 4

*Chone* sp. KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 850.
**DISTRIBUTION:** Turkish Aegean Sea, 0-4 meters, in rocks.

## GENUS *Claviramus* Fitzhugh 2002

*Claviramus* FITZHUGH, 2002*b*: 412-415.
**TYPE SPECIES:** *Sabella candela* Grube 1863.

**KEY TO SPECIES:**

**1a.** Filamentous ends to radioles distal to the foliaceous flanges present; shallow incision present along the ventral margin of the collar; ventral collar margins slightly higher than the dorsal margins; abdominal shields absent.....***C. oculatus***
**1b.** Radioles distal to the filamentous flanges truncated, without filamentous ends; ventral margin of the collar even in height, without incision; collar of even height all around; abdominal shields present.....***C. candelus***

### *Claviramus candelus* (Grube 1863)

*Sabella candela* GRUBE, 1863: 60, pl. 6 fig. 8.
**TYPE LOCALITY:** Lussin [Losinj] Island, Adriatic Sea.
**SELECTED REFERENCES:** *Jasmineira candela* — LANGERHANS, 1884: 270, pl. 26 fig. 33; LO BIANCO, 1893: 68-69; FAUVEL, 1914*f*: 319, pl. 31 figs. 26-29; RIOJA, 1923*c*: 55, figs. 83-89; FAUVEL, 1927*a*: 331, fig. 115*a-f*; RIOJA, 1931: 379-380, pl. 116 figs. 10-15; ELIASON, 1962*b*: 287; HARTMANN-SCHRÖDER, 1996: 556-557; KIRKEGAARD, 1996: 387-388, fig. 222. *Claviramus candelus* — FITZHUGH, 2002*b*: 414-415, 416-418
**DISTRIBUTION:** Madeira Island; Azores; Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Skagerrak. On muddy and detritic bottoms. Between 20-350 meters, and at 880 meters.

### *Claviramus oculatus* (Langerhans 1884)

*Jasmineira oculata* LANGERHANS, 1884: 270-271, pl. 16 fig. 34.
**TYPE LOCALITY:** Madeira Island.
**SELECTED REFERENCES:** *Claviramus oculatus* — FITZHUGH, 2002*b*: 414-415, 416-419.
**DISTRIBUTION:** Madeira Island; North Sea; Norwegian Sea.
**REMARKS:** *Claviramus oculatus* was described from Madeira Island, as *Jasmineira*, apparently with base on a single small specimen 0.5 cm long. As noted by FITZHUGH (2002*b*), LANGERHANS (1884) didn't state that distal flanges were present in the specimen of *C. oculatus* described by him, nor presented any drawing of them, as he only illustrated the chaetae of the species and the pygidial segment, on a dorsal view. The inference that flanges might have been observed was made by FITZHUGH (2002*b*) on the basis of the fact that LANGERHANS (1884: 270) considered that his specimen could be a young *C. candelus*: "*Es ist möglich, dass diese Form nur die Jugendform von J. candela ist.*" However, LANGERHANS (1884: 270) did describe the abdominal uncini as being short ("*dorsal kurze Haken*"), picturing them with a well developed breast (LANGERHANS, 1884: pl. 16 fig. 34*e*), which is typical of the genus *Claviramus*.

Type material of *C. oculatus* is not known to exist. Recent studies conducted on the species (COCHRANE *in* FITZHUGH, 2002*b*), have been performed using specimens identified as *C. oculatus* from the North Sea and Norwegian Sea. Morphologic details that were not given by LANGERHANS (1884) in his original description, were assumed to be present in *C. oculatus* by considering these North Atlantic specimens as identical with the specimens from the type locality. However, it is possible that these assumptions are erroneous, as the two populations (from Madeira and from the North Sea and Norwegian Sea) may be proved to belong to different species.

This way, the short description used above to separate *C. oculatus* from *C. candelus* must be used with caution, as it is possible that it was based in specimens which don't completely fit the species described by LANGERHANS (1884), *Claviramus oculatus*..

## *GENUS ***Demonax*** Kinberg 1867

*Demonax* KINBERG, 1867: 354.
**TYPE SPECIES:** *Demonax Krusensterni* Kinberg 1867.
**SYNONYMS:** *Parasabella* Bush 1904; *Distylidia* Hartman 1961.

**KEY TO SPECIES:**

**1a.** Thoracic glandular shields (ventral shields) without lateral indentations and well separated from the tori….....***D. torulis***
**1b.** Thoracic glandular shields (ventral shields) indented laterally by the tori.....**2**

**2a (1b).** Simple radiolar eyes present.....***D. tommasi***
**2b (1b).** Radiolar eyes absent.....**3**

**3a (2b).** Short collar.....**4**
**3b (2b).** High collar.....**5**

**4a (3a).** Radioles with bare tips tapered.....***D. brachychona****
**4b (3a).** Radioles with terminal tips not tapered but even thicker than the rachis in side view.....***D. langerhansi***

**5a (3b).** Thoracic uncini with long straight-sided necks of almost uniform thickness; radiolar tips blunt.....***D. tenuicollaris***
**5b (3b).** Thoracic uncini with curved tapering necks; radiolar tips tapered.....***D. cambrensis***

### *****Demonax brachychona*** (Claparède 1870)

*Sabella brachychona* CLAPARÈDE, 1870: 503-504, pl. 14 fig. 5.
**TYPE LOCALITY:** Gulf of Naples.
**SYNONYMS:** *Sabella saxicola* Grube 1861 [in part; in part = *Pseudopotamilla reniformis* O.F. Müller 1771].
**SELECTED REFERENCES:** *Demonax brachychona* — KNIGHT-JONES, 1983: 259-260, fig. 6; CAPACCIONI-AZZATI, TORRES-GAVILÁ & TENA, 1991: 118-120, fig. 3; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 850-851, figs. 3*D*, 7*N-P*; GIANGRANDE, 1994: 231-232, figs. 3-4. *Potamilla Torelli* [not Malmgren 1866] — LO BIANCO, 1893: 71; FAUVEL, 1906: 550-553; RIOJA, 1923*c*: 29, figs. 23-28; FAUVEL, 1927*a*: 310-311, fig. 107*m-s*; RIOJA, 1931: 353-354, pl. 113 figs. 3-12. *Sabella saxicola* — GRUBE, 1861: 151 [in part; in part = *Pseudopotamilla reniformis* O.F. Müller 1771]; GRUBE, 1870*a*: 349. *Demonax saxicola* — KNIGHT-JONES, 1983: 257-259, fig. 5.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Potamilla torelli*; Cape Santa Maria); SALDANHA, 1974 (as *Potamilla torelli*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (as *Potamilla torelli*; Peniche).
**MATERIAL: FAUNA 1 — St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse gravel: 1 incomplete specimen with 36 chaetigers (9 thoracic); body 15 mm long, 2 mm wide, crown 10 mm long; radioles with bare tips tapering; collar low, not covering the junction between body and crown; thoracic glandular shields indented by the thoracic tori; inferior thoracic notochaetae much broader than in *D. cambrensis*.
**DISTRIBUTION:** Naples (Italy); Adriatic Sea; Aegean Sea; Cherbourg (northern coast of France); Southeast Ireland; Turkish Aegean Sea. In hard bottoms, among *Lithothamnium*, and reefs of *Sabellaria alveolata*. Intertidal to about 21 meters.
**REMARKS:** KNIGHT-JONES, KNIGHT-JONES & ERGEN (1991) briefly resumed the history of this species: GRUBE (1861) first described *Sabella saxicola* as having the radioles with a single series of 3 to 8 dorsal eyes, which agrees with one of the syntypes deposited in Berlin, which is in fact *Pseudopotamilla reniformis* (O.F. Müller 1771). Later, the same author implied that *Sabella saxicola* lacked radiolar eyes (GRUBE, 1870*a*), being distinct from *Sabella saxicava* Quatrefages 1866 (which is a junior synonym of *Pseudopotamilla reniformis*). In the same year CLAPARÈDE (1870) used the name *Sabella brachychona* for the same species. As KNIGHT-JONES, KNIGHT-JONES & ERGEN (1991), I also prefer to use this last name, for being less controversial. KNIGHT-JONES (1983) redescribed both *Demonax brachychona* and

*Demonax saxicola*, giving specific importance to the number of thoracic segments, but that importance was later questioned by KNIGHT-JONES, KNIGHT-JONES & ERGEN (1991), who synonymised both species.

### ***Demonax cambrensis*** Knight-Jones & Walker 1985

*Demonax cambrensis* KNIGHT-JONES & WALKER, 1985: 606-609, fig. 1.
**TYPE LOCALITY:** Liverpool Bay (England), 53º33'N, 3º33'W, at 27 meters.
**DISTRIBUTION:** Liverpool Bay (England). In sandy to muddy gravel, with amid 0 and 30% of silt/clay. Between 18-27 meters.

### ***Demonax langerhansi*** Knight-Jones 1983

*Demonax langerhansi* KNIGHT-JONES, 1983: 265-269, figs. 9-10.
**TYPE LOCALITY:** Madeira Island.
**SELECTED REFERENCES:** *Potamilla incerta* [not *Demonax incertus* Kinberg 1867 (secondary homonym) = *Demonax leucastis* Kinberg 1867] — LANGERHANS, 1884: 267-268, pl. 16 fig. 29; SAINT-JOSEPH, 1894: 299-300. *Demonax langherhansi* [sic] — GIANGRANDE, 1994: 232, figs. 5-6. *Sabella (Potamilla) breviberbis* [not Grube 1860] — LANGERHANS, 1881: 118-119, pl. 5 fig. 27.
**DISTRIBUTION:** Madeira Island, 8 meters; Canary Islands; southwest England, south Wales and south Ireland; English Channel; Adriatic Sea; Aegean Sea. In crevices, cobbles, and among serpulid tubes and calcareous algae. Intertidal to 20 meters.

### ***Demonax tenuicollaris*** (Grube 1870)

*Sabella tenuicollaris* GRUBE, 1870*d*: 68.
**TYPE LOCALITY:** Adriatic Sea.
**SELECTED REFERENCES:** *Demonax tenuicollaris* — KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 851, fig. 7*A-M*; GIANGRANDE, 1994: 232-233, figs. 7-8.
**DISTRIBUTION:** Adriatic Sea; Turkish Aegean Sea. In rocks. Between 1-6 meters.

### ***Demonax tommasi*** Giangrande 1994

*Demonax tommasi* GIANGRANDE, 1994: 230-232, figs. 1-2.
**TYPE LOCALITY:** Brindisi (Italy), Adriatic Sea, at 7 meters, on hard substrate with algal covering.
**DISTRIBUTION:** Brindisi (Adriatic Sea), and Ponza (Tyrrhenian Sea). On hard bottoms with algae. Between 5-7 meters.

### ***Demonax torulis*** Knight-Jones & Walker 1985

*Demonax torulis* KNIGHT-JONES & WALKER, 1985: 609-610, fig. 2.
**TYPE LOCALITY:** Liverpool Bay, England, 53º33'N, 3º33'W, at 27 meters.
**DISTRIBUTION:** Liverpool Bay (England). In sandy to muddy gravel, with amid 0 and 30% of silt/clay. Between 18-27 meters.

## GENUS ***Desdemona*** Banse 1957

*Desdemona* BANSE, 1957: 90.
**TYPE SPECIES:** *Desdemona ornata* Banse 1957.

### ***Desdemona ornata*** Banse 1957

*Desdemona ornata* BANSE, 1957: 90-92, fig. 7.
**TYPE LOCALITY:** Mouth of Klein River, near Hermanus, Cape Province, South Africa.
**SELECTED REFERENCES:** *Desdemona ornata* — DAY, 1967: 790, fig. 37.10.*i-o*; HARTMANN-SCHRÖDER, 1974*a*: 197; HARTMANN-SCHRÖDER, 1982: 92-93; HARTMANN-SCHRÖDER, 1983*a*: 151; LARDICCI & CASTELLI, 1986: 195-199, figs. 2-3; PANAGOPOULOS & NICOLAIDOU, 1990: 36-37; CEBERIO, MARTÍNEZ & AGUIRREZABALAGA, 1998: 38-40, figs. 2-3.
**DISTRIBUTION:** South Africa (Cape, Natal); western Australian coast; Ría de Pasajes and Bidasos Estuary, Euskadi, Bay of Biscay; Elba Island, Mediterranean Sea; Adriatic Sea; Elefsis Bay, Aegean Sea. Generally in brackish waters in coastal lagoons or estuaries, in bottoms of mud and sand. Eulittoral to 23 meters.

## GENUS *Euchone* Malmgren 1866

*Euchone* MALMGREN, 1866: 405-406.
**TYPE SPECIES:** *Sabella analis* Krøyer 1856.
**SYNONYMS:** *Chaponella* Rullier 1972.
**REMARKS:** The genus diagnosis was emended by BANSE (1972*a*).

**KEY TO SPECIES:**

**1a.** Crown "snowflake" type (three or four radioles, with few pinules, arranged alternately, being longest in the mid-radiolar regions); anal depressions formed by only three to four segments; thoracic neuropodial uncini with main fang short and blunt; ratio main fang length/ total length of unicinal head of 0.2.....***Euchone (Chiade sensu* Cochrane) sp.**
**1b.** Crown "feather-duster" type (it can have more than 20 pairs of radioles, with numerous pinnules, arranged in pairs and relatively similar in length along the length of the radiole); anal depressions formed by up to 15 segments; thoracic neuropodial uncini with main fang long and pointed; ratio main fang length/ total length of uncinal head of 0.4.....**2**

**2a (1b).** Collar crenulated.....**3**
**2b (1b).** Collar smooth or very weakly undulated.....**4**

**3a (2a).** Anal depression formed by 9 to 10 chaetigers, with a distinct ridge marking the anterior and lateral edges; pygidium rounded, with a long filiform cirrus (may be lost); palmate membrane for about half of the length of the radioles, which terminate as extra long filaments; thoracic neuropodial uncini with teeth of different sizes over the main fang.....***E. pseudolimnicola***
**3b (2a).** Anal depression formed by 6 chaetigers, with large wings forming a complete medial gap in the anterior margin; pygidium rounded, without filiform cirrus; palmate membrane developed for the entire length of the radioles, leaving only a filiform tip free; thoracic neuropodial uncini with small teeth of similar size over the main fang.....***E. pararosea***

**4a (2b).** 5-12 anterior abdominal chaetigers; 3-7 chaetigers in the anal depression; collar with midventral notch.....**5**
**4b (2b).** 11-25 anterior abdominal chaetigers; 7-12 chaetigers in the anal depression; collar with a midventral notch or a deep midventral incision.....**9**

**5a (4a).** 6-7 chaetigers in the anal depression; 10-12 anterior abdominal chaetigers; radioles with filiform tips.....***E. rosea***
**5b (4a).** 3-5 chaetigers in the anal depression.....**6**

**6a (5b).** 3 chaetigers in the anal depression; 5-8 anterior abdominal chaetigers; girdle present on 3rd abdominal chaetiger; radioles ending in long free tips.....***E. incolor***
**6b (5b).** 4-5 chaetigers in the anal depression; girdle absent on 3rd abdominal chaetiger.....**7**

**7a (6b).** 10 anterior abdominal chaetigers; radioles with filiform tips; collar high, slightly higher ventrally, with a very small ventral incision.....***Euchone* sp.**
**7b (6b).** 8 anterior abdominal chaetigers; radioles with a flange extending almost to the tip.....**8**

**8a (7b).** Ventral notch in collar; 4 chaetigers in the anal depression; abdominal uncini without posterior elongation.....***E. southerni***
**8b (7b).** Ventral incision in collar; 5 chaetigers in the anal depression; abdominal uncini with posterior elongation.....***E. southerni incisa***

**9a (4b).** Collar with a deep midventral incision; lower thoracic notochaetae spatulate or subspatulate....**10**
**9b (4b).** Collar with a midventral notch; lower thoracic notochaetae subspatulate.....**11**

**10a (9a).** 7-8 chaetigers in the anal depression; 17-24 anterior abdominal chaetigers; lower thoracic notochaetae subspatulate.....***E. capensis***
**10b (9a).** 8-10 chaetigers in the anal depression; at least 21 anterior abdominal chaetigers; lower thoracic notochaetae spatulate.....***E. papillosa***

**11a (9b).** 11-15 anterior abdominal chaetigers; 12 chaetigers in the anal depression; abdominal segments with 2 rings of glandular cells.....***E. rubrocincta***
**11b (9b).** 16-22 anterior abdominal chaetigers; 9-12 chaetigers in the anal depression; glandular cells in the abdominal segments not forming rings.....***E. analis***

## ***Euchone analis*** (Krøyer 1856)

*Sabella analis* KRØYER, 1856: 17.
**TYPE LOCALITY:** Greenland.
**SYNONYMS:** *Oriopsis liefdefjordensis* Plate 1995.
**SELECTED REFERENCES:** *Euchone analis* — MALMGREN, 1866: 406, pl. 28 fig. 88; MALMGREN, 1867*a*: 114, pl. 13 fig. 80; MCINTOSH, 1923*a*: 281-282, text-figs. 157-159; BANSE, 1972*a*: 482-483, fig. 9*a-c*; HARTMANN-SCHRÖDER, 1996: 551; KIRKEGAARD, 1996: 379, fig. 217; BICK & RANDEL, 2005: 146-150, figs. 1-2, 3*A-L*, 4-11; GIANGRANDE & LICCIANO, 2006: 1303-1305, fig. 1. *Oriopsis liefdefjordensis* — PLATE, 1995: 126-127, pl. 1 figs. 5-10.
**DISTRIBUTION:** Arctic; Greenland; Spitsbergen; North Pacific; Alaska; Northeastern Atlantic; Skagerrak; Kattegat. In sandy bottoms. Intertidal to about 140 meters.

## ***Euchone capensis*** Day 1961

*Euchone capensis* DAY, 1961: 540-542, fig. 14*m-t*.
**TYPE LOCALITY:** South Africa, off Cape Coast, 36º06'S, 16º37'E, at 311 meters, in green mud.
**SELECTED REFERENCES:** *Euchone capensis* — DAY, 1967: 776, fig. 37.6*j-o*; GIANGRANDE, 1990*a*: 161.
**DISTRIBUTION:** South Africa, off Cape coasts, in mud and sand, between 76-311 meters; [?] Mediterranean Sea, in muddy sand; [?] Aegean Sea.
**REMARKS:** The presence of this species in the Mediterranean Sea requires confirmation, as it is possible that this record is the consequence of a misidentification using DAY's (1967) monography on South African polychaetes.

## ***Euchone incolor*** Hartman 1965

*Euchone incolor* HARTMAN, 1965*b*: 231-232, pl. 51.
**TYPE LOCALITY:** Off New England (NE USA), 40º 20'30"N, 70º47'W, in 97 meters.
**SYNONYMS:** *Euchone trisegmentata* Reish 1965; *Euchone barnardi* Reish 1968.
**SELECTED REFERENCES:** *Euchone incolor* — BANSE, 1970: 393-397, fig. 2. *Euchone trisegmentata* — REISH, 1965: 150, fig. 3. *Euchone barnardi* — REISH, 1968: 93, fig. 19.
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1987 (as *Euchone iricolor*; off Aveiro).
**DISTRIBUTION:** Off New England, in shelf to abyssal depths, 17.5 to 2500 meters; off Bermuda, in 1700 meters; off Brazil, in 770 to 805 meters; California, 25-81 meters; NW Pacific coast of America and Bering Sea, 15-67 meters; off Portugal, 1170 meters. In muddy bottoms, sometimes mixed with broken shells and sand.

## ***Euchone papillosa*** (M. Sars 1851)

*Sabella papillosa* M. SARS, 1851: 203.
**TYPE LOCALITY:** Öxfjord and Havösund (Norway), at 40 fathoms (73.2 meters).
**SYNONYMS:** *Chone flabelligera* Krøyer 1856; [?] *Sabella tuberculosa* Krøyer 1856; *Euchone papillosa* var. *rigida* Tauber 1879.
**SELECTED REFERENCES:** *Euchone papillosa* — MALMGREN, 1866: 407, pl. 29 fig. 94; HOFSOMMER, 1913: 23-28, text-fig. *f*, pl. 4 figs. 6-8, map; BANSE, 1972*a*: 483-484, fig. 9*d-h*; HARTMANN-SCHRÖDER, 1996: 552-553, fig. 269; KIRKEGAARD, 1996: 381, fig. 218. *Chone flabelligera* — KRØYER, 1856: 34. *Euchone papillosa* var. *rigida* — TAUBER, 1879: 137. [?] *Euchone tuberculosa* — MALMGREN, 1866: 407-408, pl. 29 fig. 92.
**DISTRIBUTION:** Arctic; North Pacific; North Atlantic; North Sea; Skagerrak; Kattegat; Øresund; Kiel Bight. In muddy bottoms, and also in fine sand, clay, or dead *Zostera*. From upper sublittoral to about [?] 2500 meters.

## ***Euchone pararosea*** Giangrande & Licciano 2006

*Euchone pararosea* GIANGRANDE & LICCIANO, 2006: 1305-1307, fig. 2.
**TYPE LOCALITY:** Gulf of Policastro (South Tyrrhenian Sea), at 15 meters, on sand.
**SELECTED REFERENCES:** *Euchone rosea* [not Langerhans 1884] — GIANGRANDE, 1990*a*: 160-161.
**DISTRIBUTION:** Known from the type locality.

## ***Euchone pseudolimnicola*** Giangrande & Licciano 2006

*Euchone pseudolimnicola* GIANGRANDE & LICCIANO, 2006: 1307-1309, fig. 3.
**TYPE LOCALITY:** South coast of Ustica Island (Tyrrhenian Sea), 38º41'N, 13º09'E, at 50 meters, on a soft bottom mainly composed of medium sand, and biogenic and volcanic particles, together with a significant amount of red calcareous algae.
**DISTRIBUTION:** Tyrrhenian Sea: Ustica Island, and Gulf of Policastro; Southern Adriatic Sea: Brindisi; Southern Spain: Murcia. On soft bottoms, composed of medium sand, biogenic, and volcanic particles, together with a significant amount of red calcareous algae, and mäerl. Between 40-50 meters.

## ***Euchone rosea*** Langerhans 1884

*Euchone rosea* LANGERHANS, 1884: 271, pl. 16 fig. 35.
**TYPE LOCALITY:** Madeira Island, big depth, in coral ("*Aus größerer Tiefe an Korallen*.").
**SELECTED REFERENCES:** *Euchone rosea* — MCINTOSH, 1923*a*: 286-287, pl. 129 fig. 8 [in part; in part = *E. southerni* Banse 1970]; KIRKEGAARD, 1959: 101-102 [in part; in part = *E. southerni incisa* Banse 1970]; BANSE, 1970: 389-392, fig. 1; [?] GIANGRANDE & LICCIANO, 2006: 1311-1313, fig. 5. Not *Euchone rosea* — SOUTHERN, 1914: 144-146, pl. 15 fig. 33*A-K*; FAUVEL, 1927*a*: 340-341, fig. 118*a-l* [both = *E. southerni* Banse 1970].
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).
**DISTRIBUTION:** Madeira, big depth, in coral; [?] Ivory Coast; [?] Southern Adriatic Sea, at 25 meters, in coralligenous bottoms; [?] Aegean Sea.
**REMARKS:** As noted by the author, the description of the species given in BANSE (1970) was based on the original description and complemented by the study of a specimen collected at Ivory Coast, which was found to be close to the original description. The Ivory Coast form was more than twice as long as the type, and the palmate membrane extended to about two-thirds of the radioli, while in the type it extended only to one-half the length of the radioles. Finally, LANGERHANS (1884) pictured a well defined spatulate thoracic notochaetae with a short tip, which was clearly different from the subspatulate chaetae represented by BANSE (1970). As in similar cases, new material from the type locality of *E. rosea* will be needed in order to clarify the true morphology of the species, and to determine if the differences found between the original description and the Ivory Coast form are significant.

The above comments apply also to the specimens described by GIANGRANDE & LICCIANO (2006), as *Euchone rosea*, from the Southern Adriatic Sea. While the original description refers specimens with spatulate thoracic notochaetae with a short tip, a palmate membrane extending to one-half the length of the radioles, and a pair of pygidial eye-spots, the Adriatic specimens are described with thoracic paleate chaetae with long tips, palmate membranes for about three-quarters of the radiolar length, and pygidia without eye-spots. In my oppinion, the Adriatic specimens represent a species different from *E. rosea*.

## ***Euchone rubrocincta*** (M. Sars 1862)

*Chone rubrocincta* M. SARS, 1862*d*: 128.
**TYPE LOCALITY:** Florø, near Bergen (Norway), at about 61º40'N, 5º00'E, in a stony bottom.
**SYNONYMS:** [?] *Euchone normani* McIntosh 1916.
**SELECTED REFERENCES:** *Chone rubrocincta* — M. SARS, 1863: 318-319. *Euchone rubrocincta* — MALMGREN, 1866: 406-407, pl. 29 fig. 91; SOUTHERN, 1914: 144; MCINTOSH, 1916*a*: 33-34; MCINTOSH, 1923*a*: 282-284, pl. 131 fig. 2, pl. 138 fig. 9; FAUVEL, 1927*a*: 339-340, fig. 118*m-u*; HARRIS, 1971: 713-715, fig. 19; BANSE, 1972*a*: 484-487, fig. 10; HARTMANN-SCHRÖDER, 1996: 553; KIRKEGAARD, 1996: 382-384, fig. 219; GIANGRANDE & LICCIANO, 2006: 1313; TOVAR-HERNÁNDEZ, 2007: 62-63. [?] *Euchone normani* — MCINTOSH, 1916*a*: 34-35; MCINTOSH, 1923*a*: 284-286, pl. 120 fig. 15, pl. 131 fig. 6.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).

**DISTRIBUTION:** Arctic; North Atlantic, from Norway to the Mediterranean Sea; Adriatic Sea; Aegean Sea; North Sea; Skagerrak; Kattegat; Øresund. Between 30-200 meters.

### *Euchone southerni* Banse 1970

*Euchone southerni* BANSE, 1970: 401-402, fig. 5.
**TYPE LOCALITY:** Ballynakil Harbor, NW Ireland, 2-5 meters (1-3 fathoms).
**SELECTED REFERENCES:** *Euchone rosea* [not Langerhans 1884] — SOUTHERN, 1914: 144-146, pl. 15 fig. 33*A-K*; MCINTOSH, 1923*a*: 286-287, pl. 129 fig. 8 [in part]; FAUVEL, 1927*a*: 340-341, fig. 118*a-l*.
**DISTRIBUTION:** Ballynakil Harbor, NW Ireland, 2-5 meters; [?] Adriatic Sea.

### *Euchone southerni incisa* Banse 1970

*Euchone southerni incisa* BANSE, 1970: 402-404, fig. 5.
**TYPE LOCALITY:** False Bay (Cape Province, South Africa), 34º12'S, 18º29.1'E, at 40 meters.
**SELECTED REFERENCES:** *Euchone rosea* [not Langerhans 1884] — KIRKEGAARD, 1959: 101-102 [in part]; DAY, 1967: 774, fig. 37.6*a-i* [at least, in part].
**DISTRIBUTION:** False Bay (Cape Province, South Africa), between 20-40 meters; West coast of Africa; Northern Aegean Sea, 80 meters, in muddy sand.

### *Euchone (Chiade sensu* Cochrane) sp.

*Euchone (Chiade sensu* Cochrane) sp. GIANGRANDE & LICCIANO, 2006: 1313-1316, fig. 6.
**DISTRIBUTION:** Brindisi (Southern Adriatic Sea), at 40 meters, in a coralligenous bottom.

### *Euchone* sp.

*Euchone* sp. GIANGRANDE & LICCIANO, 2006: 1309-1311, fig. 4.
**SELECTED REFERENCES:** *Euchone southerni* [not Banse 1970] — GIANGRANDE, 1990*a*: 161 [in part].
**DISTRIBUTION:** Tyrrhenian Sea, in detritic substratum, at 55 meters.

## GENUS *Euratella* Chamberlin 1919

*Euratella* CHAMBERLIN, 1919*a*: 469.
**TYPE SPECIES:** *Laonome salmacidis* Claparède 1869.
**REMARKS:** SAINT-JOSEPH (1894) stated that *Laonome salmacidis* didn't belong to the genus *Laonome*, due to the absence of true thoracic spatulate chaetae. According to this, CHAMBERLIN (1919*a*) created the genus *Euratella*, with *Laonome salmacidis* Claparède 1869 as type species of the new genus. This separation was based on the presence of two kinds of dorsal thoracic chaetae (*Laonome*) against the presence of one single kind of dorsal thoracic chaetae (*Euratella*). Besides, the collar is well developed in *Laonome*, with ends well separated, while in *Euratella* the collar is reduced. FAUCHALD (1977*a*) also considered *Euratella* as a valid genus, separating it from *Laonome* with base on the absence of thoracic spatulate notochaetae in *Euratella*, against the presence of such notochaetae in *Laonome*. In addition, *Euratella* also presents a reduced collar and the radioli basally united by a web (or palmate membrane), while in *Laonome* the collar is developed and bilobed, and the radioli are no united by a web (FAUCHALD, 1977*a*). Other authors, like FAUVEL (1927*a*) didn't consider this genus as valid. FITZHUGH (1989) didn't included the genus in his cladistic analyses of the family Sabellidae, due to lack of material.

### *Euratella salmacidis* (Claparède 1869)

*Laonome Salmacidis* CLAPARÈDE, 1869: 167-168, pl. 25 [wrongly indicated in the text as plate 24] fig. 4.
**TYPE LOCALITY:** Gulf of Naples.
**SELECTED REFERENCES:** *Laonome salmacidis* — MARENZELLER, 1893: 35-36, pl. 2 fig. 7. *Laonome Salmacidis* — FAUVEL, 1927*a*: 323, fig. 112*s-x*. *Euratella Salmacidis* — CHAMBERLIN, 1919*a*: 469.
**DISTRIBUTION:** Mediterranean Sea: Gulf of Naples; Samos; Phineka Bay; Adriatic Sea. On muddy bottoms with rocks. Known to be present at 390 meters, but probably occurs at shallower waters.

## GENUS *Fabricia* Blainville 1828

*Fabricia* BLAINVILLE, 1828: 439-440.
**TYPE SPECIES:** *Tubularia stellaris* O.F. Müller 1774.
**SYNONYMS:** *Othonia* Johnston 1835; *Amphicora* Ehrenberg 1836.

### *Fabricia stellaris adriatica* Banse 1956

*Fabricia sabella adriatica* BANSE, 1956*a*: 431-433, fig. 7.
**TYPE LOCALITY:** Venice city canal (Rio dell'Arco, Adriatic Sea), 10 cm depth, in yellow clay overlaying black mud.
**SELECTED REFERENCES:** *Fabricia sabella adriatica* — HARTMAN, 1959*a*: 545. *Fabricia stellaris adriatica* — FITZHUGH, 1990*c*: 7-8. *Fabricia sabella adriatica* — GIANGRANDE, 1990*a*: 163.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** This subspecies was recognised by BANSE (1956*a*), with some doubts, on the basis of having: 1) only three pairs of pinnules per radiole; 2) short radioles of unequal height; and 3) pseudospatulate chaetae with drawn-out tips. FITZHUGH (1990*c*) redescribed the type material, maintaining the subspecies as valid only because he was not able to examine specimens from areas between the North Sea and the Adriatic, but predicting that once that examination is done, it will be found that *Fabricia stellaris adriatica* is a clinal variant of the nominal subspecies.

### *Fabricia stellaris caspica* (Zenkewitsch 1922)

*Fabricia sabella caspica* ZENKEWITSCH, 1922: 320-322, fig. 1.
**TYPE LOCALITY:** Near Krasnovodsk (Caspian Sea), on rocks among *Cladophora* and *Enteromorpha*, and on pilings in the littoral zone.
**SELECTED REFERENCES:** *Fabricia sabella caspica* — ANNEKOVA, 1929*a*: 17-18, pl. 3 figs. 5-6, pl. 4 figs. 13-15; ANNENKOVA, 1929*c*: 124; BANSE, 1956*a*: 428, 431; HARTMAN, 1959*a*: 545. *Fabricia stellaris caspica* — FITZHUGH, 1990*c*: 8. *Fabricia sabella* [not Ehrenberg 1836] — RULLIER, 1954*b*: 20-21.
**DISTRIBUTION:** Caspian Sea; Black Sea. Among algae. Littoral zone.
**REMARKS:** According to FITZHUGH (1990*c*), this subspecies was recognized with base on its overall small body size (2.5 mm), small sized pinnules, and small number of chaetae. There is few information on the subspecies, as the descriptions by ZENKEWITSCH (1922) and ANNENKOVA (1929*a*) are too incomplete, and FITZHUGH (1990*c*) was not able to obtain specimens neither of the type material nor from the type locality. For this reason FITZHUGH (1990*c*) suggested to maintain the present status of the species for the time being.

### *Fabricia stellaris* (O.F. Müller 1774)

*Tubularia stellaris* O.F. MÜLLER, 1774: 18-19.
**TYPE LOCALITY:** Baltic Sea, probably at the Danish coast. FITZHUGH (1990*c*) designated a neotype from Eneoboerodde, Odense Fjord, north coast of Fyn (Denmark), in fine sand with *Ruppia*, at 0-1 meters.
**SYNONYMS:** *Tubularia fabricia* O.F. Müller 1776; *Amphicora sabella* Ehrenberg 1836; *Fabricia quadripunctata* Leuckart 1847; *Fabricia affinis* Leuckart 1849; *Fabricia amphicora* Quatrefages 1866; *Fabricia Leidyi* Verrill 1874; *Haplobranchus atlanticus* Treadwell 1932; *Fabriciola bochmanni* Friedrich 1939; *Fabricia dubia* Wesenberg-Lund 1942; *Novafabricia bilobata* Martin & Giangrande 1991.
**SELECTED REFERENCES:** *Tubularia stellaris* — O.F. MÜLLER, 1776: 254. *Fabricia stellaris* — BLAINVILLE, 1828: 439-440; GRUBE, 1850: 342-343; KIRKEGAARD, 1996: 384-386, fig. 220; BICK, 2005*c*: 147. *Fabricia stellaris stellaris* — FITZHUGH, 1990*c*: 5-7, fig. 1; HARTMANN-SCHRÖDER, 1996: 553-555, fig. 270. *Tubularia fabricia* — O.F. MÜLLER, 1776: 254, no. 3066; FABRICIUS, 1780: 440-441, fig. 12. *Othonia Fabricii* — JOHNSTON, 1835*a*: 181-183, fig. 19; JOHNSTON, 1865: 274-276, fig. 46; GOSSE, 1855*a*: 33-34, pl. 4 fig. 22. *Amphicora Fabricia* — MALMGREN, 1867*a*: 117-118. *Fabricia fabricii* — BUSH, 1904: 189. *Amphicora fabricia* — MCINTOSH, 1916*a*: 25-26. *Fabricia fabricii* — RIOJA, 1923*c*: 50-51, figs. 73-76; RIOJA, 1931: 376-377, pl. 121 figs. 1-4. *Amphicora sabella* — EHRENBERG, 1836: 4-5; HUMBOLDT, 1837: 26-27, figs. 1-2; SCHMIDT, 1848: 21-32, pl. 2 fig. 6. *Fabricia sabella* — GRUBE, 1850: 343; SAINT-JOSEPH, 1894: 319-321, pl. 12 fig. 347; MCINTOSH, 1923*a*: 264-268, text-figs. 155-156, pl. 114 fig. 5, pl. 129 fig. 7; FAUVEL, 1927*a*: 325-326, fig. 113*e-i*; HARTMAN, 1951*a*: 381, 387; RULLIER, 1954*b*: 18-20, figs. 1-2; USHAKOV, 1955*a*: 415, fig. 157*A-E*; BANSE, 1956*a*: 416-420, 424, 427-428, 430-431, figs. 1-3, 6*a*; HARTMANN-SCHRÖDER, 1971*a*: 513-514; KNIGHT-JONES & BOWDEN, 1984: 812-813. *Fabricia Sabella* — CLAPARÈDE, 1862: 118-122, pl. 4 figs. 11-15; CLAPARÈDE, 1869: 151-152. *Fabricia quadripunctata* — LEUCKART, 1847: 151-152, pl. 2 fig. 3.

*Fabricia affinis (?)* — LEUCKART, 1849: 193-195. *Fabricia amphicora* — QUATREFAGES, 1866*b*: 464. *Fabricia Leidyi* — VERRILL, 1874*c*: 619. *Haplobranchus atlanticus* — TREADWELL, 1932: 279-281, figs. 1-8. *Fabriciola bochmanni* — FRIEDRICH, 1939*b*: 364-365, figs. 3-4. *Fabricia dubia* — WESENBERG-LUND, 1942: 33-36, figs. 2-4; HARTMAN, 1951*a*: 381, 386-387. *Novafabricia bilobata* — MARTIN & GIANGRANDE, 1991: 114-118, figs. 2-6.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Fabricia sabella*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (as *Fabricia sabella*; Peniche); CASTRO & VIEGAS, 1981 (as *Fabricia sabella*; Tagus Estuary); MONTEIRO-MARQUES *et al.*, 1982 (as *Fabricia sabella*; Cape Carvoeiro; Cape Papoa; Ponta do Baleal); SALDANHA, 1995 (as *Fabricia sabella*; Portugal).

**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Baltic Sea; Denmark; North Sea; British coast; [?] French coast; Bay of Biscay; Iceland; Greenland; Madeira Island; Northeast coast of North America. Among algae, balanids, and also in muddy sediments at brackish water (as *Novafabricia bilobata*, at the Ebro Delta, Mediterranean Sea). Usually intertidal to shallow subtidal.

**REMARKS:** The definition of the species *Fabricia stellaris* was emended by FITZHUGH (1990*c*), in his redescription of the species. BICK (2005*c*) revised the type material of *Novafabricia bilobata* Martin & Giangrande 1991, and found that the species doesn't belong to *Novafabricia*, differing in several points from the definition of the genus given by FITZHUGH (1990*c*): a) the dorsal lips are well developed and erect, instead of being reduced to low narrow ridges; and b) the pseudospatulate inferior thoracic notochaetae are present in chaetigers 3-7, instead of chaetigers 3-5 or 3-6. Taking these characters into account, BICK (2005*c*) considered *Novafabricia bilobata* to be very close to *Fabricia stellaris*, assuming that *N. bilobata* is a junior synonym of *F. stellaris*. According to BICK (2005*c*), a definitive solution of the problem will require the future study of different populations within the area of occurrence of the synonymised species.

## GENUS ***Fabriciola*** Friedrich 1939

*Fabriciola* FRIEDRICH, 1939*b*: 362-363.

**TYPE SPECIES:** *Fabricia (Manayunkia) spongicola* Southern 1921.

**SYNONYMS:** *Fabriciella* Zenkewitsch 1934 [not Bezzi 1906 (Diptera)].

**REMARKS:** The genus definition was emended by FITZHUGH (1990*d*), differing in regard to the terminology of the chaetae, being the previously thoracic "pseudospatulate" or "spatulate" chaetae referred as short, elongate, narrowly hooded chaetae.

**KEY TO SPECIES:**

(adapted from: FITZHUGH, 1998; FITZHUGH, 1999):

**1a.** Anterior peristomial ring collar relatively even in height all around.....**2**
**1b.** Collar higher ventrally.....**3**

**2a (1a).** Middorsal gap in collar very wide.....***F. ghardaqa***
**2b (1a).** Collar gap narrow.....***F. berkeleyi***

**3a (1b).** Thoracic uncini few in number, 2-3 per fascicle.....***F. baltica***
**3b (1b).** Thoracic uncini more numerous, 5-8 per fascicle.....***F. tonerella***

### ***Fabriciola baltica*** Friedrich 1939

*Fabriciola baltica* FRIEDRICH, 1939*b*: 363-364, figs. 1-2.

**TYPE LOCALITY:** Western Baltic Sea. Neotype designated by FITZHUGH (1990*d*) from Diksen, Øresund (Denmark), in sand and detritus, at 18 meters.

**SELECTED REFERENCES:** *Fabriciola baltica* — BANSE, 1956*a*: 422; FITZHUGH, 1990*d*: 155-157, fig. 1; HARTMANN-SCHRÖDER, 1996: 555, fig. 271; KIRKEGAARD, 1996: 386-387, fig. 221; BICK, 2004: 58-61, fig. 4*F-G*.

**DISTRIBUTION:** Baltic Sea; Kiel Bight; Øresund; [?] South Spain. In sand, sandy mud, and detritus. Between 5-18 meters.

### ***Fabriciola berkeleyi*** Banse 1956

*Fabriciola berkeleyi* BANSE, 1956*a*: 429, 434.

**TYPE LOCALITY:** Departure Bay, Nanaimo, New Castle Island (British Columbia, Pacific Canada), on stones, at low tide.

**SELECTED REFERENCES:** *Fabriciola berkeleyi* — HOBSON & BANSE, 1981: 103, fig. 25*r-s*; FITZHUGH, 1990*d*: 157-158, figs. 2-3; FITZHUGH, 1992: 71; KNIGHT-JONES, KNIGHT-JONES & NELSON-SMITH, 2000: 252, fig. 6.21. *Fabricia sabella* — BERKELEY, 1930: 73, 3 figs. [in part]. *Fabricia pacifica* [not Annenkova 1934; senior homonym] — BERKELEY & BERKELEY, 1950: 66-67; HARTMAN, 1951*a*: 387; BERKELEY & BERKELEY, 1952: 121, fig. 249. *Oridia pacifica* [not Annenkova 1934; senior homonym] — RULLIER, 1954*b*: 19-20. Not *Fabricia berkeleyi* — HARTMAN, 1969: 691-692, figs. 1-6 [= *Fabriciola* cf. *berkeleyi* Banse 1956; see FITZHUGH, 1992].

**DISTRIBUTION:** British Columbia; South Wales. In muddy holdfasts of turf algae. Intertidal.

**REMARKS:** *Fabriciola berkeleyi* Banse 1956 is a replacement name for *Fabriciola pacifica* (Berkeley & Berkeley 1950), preoccupied by *Fabriciola pacifica* (Annenkova 1934) (BANSE, 1956*a*; FITZHUGH, 1990*d*).

### ***Fabriciola ghardaqa*** Banse 1959

*Fabriciola ghardaqa* BANSE, 1959*b*: 114-115, fig. 2.

**TYPE LOCALITY:** Ghardaqa (= Hurghada) Egypt, Red Sea, several kilometers south of Abomingar Island, intertidal, in clamps of blue-green algae on sand.

**SELECTED REFERENCES:** *Fabriciola ghardaqa* — BEN-ELIAHU, 1975*a*: 66-67, fig. 1*b*, pl. 1 fig. *b*; FITZHUGH, 1990*d*: 158-160, fig. 4.

**DISTRIBUTION:** Red Sea (Hurghada and Gulf of Elat); [?] Adriatic coast of Puglia (South Italy). Intertidal, among algae.

### ***Fabriciola tonerella*** Banse 1959

*Fabriciola tonerella* BANSE, 1959*c*: 445-447, fig. 9.

**TYPE LOCALITY:** Sorrento Peninsula, Northern Gulf of Naples (Tyrrhenian Sea, Italy): at the mouth of a submarine cave about 3 meters deep, and same locality, littoral, on sand.

**SELECTED REFERENCES:** *Fabriciola tonerella* — BANSE, 1956*a*: 430 [*nomen nudum*]; ALÓS, CAMPOY & PEREIRA, 1982: 148-149; FITZHUGH, 1990*d*: 163; FITZHUGH, 1998: 211; FITZHUGH, 1999: 5; BICK, 2004: 58-62, figs. 2*K-L*, 3*E-F*; BICK, 2005*c*: 138-142, figs. 1-4, table 1. *Fabriciola* cf. *baltica* — BEN-ELIAHU, 1975*a*: 58-59, fig. 1*a*, pl. 1 fig. *a*, pl. 2 figs. *a-b*; ACERO & SAN MARTÍN, 1986: 19, fig. 10.

**DISTRIBUTION:** Mediterranean Sea. In hard bottoms, on tubes of vermetids (*Dendropoma* sp.), among algae, and on shells of *Stramonita haemastoma* (Linnaeus 1758) inhabited by hermit crabs. Intertidal to 13 meters.

## GENUS ***Hypsicomus*** Grube 1870

*Hypsicomus* GRUBE, 1870*a*: 348.

**TYPE SPECIES:** *Sabella stichophthalmos* Grube 1863.

### ***Hypsicomus stichophthalmos*** (Grube 1863)

*Sabella stichophthalmos* GRUBE, 1863: 62-63, pl. 6 fig. 3.

**TYPE LOCALITY:** Croatia: Krivica (= Crivizza), Lussin (= Losinj) Island, Adriatic Sea.

**SYNONYMS:** [?] *Hypsicomus caecus* Iroso 1921.

**SELECTED REFERENCES:** *Sabella (Hypsicomus) stichophthalmus* — GRUBE, 1870*a*: 348. *Hypsicomus stychophthalmus* — IROSO, 1921: 70. *Potamilla stichophthalmos* — FAUVEL, 1927*a*: 311-312, fig. 106*k* [in part; not figures of specimens from Cape Verde Islands]. *Hypsicomus stichophthalmos* — PERKINS, 1984*a*: 323-326, figs. 22-23. [?] *Sabella stichophthalmos* — MARION & BOBRETZKY, 1875: 92-93, pl. 11 figs. 23*a-g*. [?] *Sabella (Potamilla) stichophthalmos* — LANGERHANS, 1884: 267. [?] *Hypsicomus caecus* — IROSO, 1921: 70-71. Not *Potamilla stichophthalmos* — FAUVEL, 1914*f*: 315-316, pl. 31 figs. 30-35.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Potamilla stichophthalmos*; coast of Arrábida); SALDANHA, 1995 (as *Pseudopotamilla stychophthalmos*; Portugal).

**DISTRIBUTION:** Adriatic Sea; Aegean Sea; [?] Western Mediterranean Sea; [?] Madeira. At 20 meters.

## *GENUS *Jasmineira* Langerhans 1880

*Jasmineira* LANGERHANS, 1880*b*: 113-114.
**TYPE SPECIES:** *Jasmineira caudata* Langerhans 1880.

**KEY TO SPECIES:**
(data from FITZHUGH, 2002*b*)

**1a.** One anal cirri; 7-8 pairs of radioles; mid-ventral collar incision absent; mid-ventral collar lobes absent; 17-20 abdominal chaetigers.....***J. caudata****
**1b.** Without anal cirri.....**2**

**2a (1b).** Mid-ventral collar incision and mid-ventral collar lobes absent; anterior ventral margin of collar crenulated; 13-18 pairs of radioles [from figure]; up to 47 abdominal chaetigers.....***J. reayi***
**2b (1b).** Mid-ventral collar incision and mid-ventral collar lobes present; anterior ventral margin of collar smooth.....**3**

**3a (2b).** Mid-ventral collar incision not located in a depression of the collar margin; collar lobes low, rounded; 8-12 pairs of radioles; 22-32 abdominal chaetigers.....***J. elegans****
**3b (2b).** Mid-ventral collar incision located in a depression of the collar margin, being flanked by the rounded collar lobes; up to 15 pairs of radioles; 62 abdominal segments.....***J. schaudinni***

## **Jasmineira caudata* Langerhans 1880

*Jasmineira caudata* LANGERHANS, 1880*b*: 114, pl. 5 fig. 32.
**TYPE LOCALITY:** Madeira Island, among beach vegetation and algae.
**SELECTED REFERENCES:** *Jasmineira caudata* — SOUTHERN, 1914: 140; MCINTOSH, 1916*a*: 47; MCINTOSH, 1923*a*: 304-305, pl. 138 fig. 5; FAUVEL, 1927*a*: 332, fig. 115*g-k*; FITZHUGH, 2002*d*: table 3.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1984 (Praia da Falésia); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 210 (A.3902)**, off Porto Covo, 163 m, sand: 2 specimens; (1) 2 mm long, in poor condition, without tentacular crown; 8 thoracic chaetigers, 7 acicular; 13 abdominal chaetigers; first thoracic chaetigers only with bayonet chaetae; posterior thoracic notochaetae in two rows, anterior one of bayonet chaetae, posterior one with paleate chaetae; abdominal chaetigers with elongate, narrowly hooded chaetae; abdominal uncini with breast reduced to a narrow swelling; collar high, with a dorsal slit; at first chaetiger, 2 otocystes with a spherique otolyte; pygidium with a long anal cirrus; (2) incomplete, with part of posterior region lacking, having only 8 abdominal chaetigers.
**DISTRIBUTION:** Northeast Atlantic (Madeira Island; Portugal; Ireland; Adriatic Sea; Aegean Sea; Black Sea). Among algae. Shallow water to about 30 meters.

## **Jasmineira elegans* Saint-Joseph 1894

*Jasmineira elegans* SAINT-JOSEPH, 1894: 316-319, pl. 12 figs. 337-346.
**TYPE LOCALITY:** Dinard (Northern France), amongst oyster-shells
**SELECTED REFERENCES:** *Jasmineira elegans* — MCINTOSH, 1916*d*: 45-47; MCINTOSH, 1923*d*: 301-304, pl.129 fig. 4; RIOJA, 1923*c*: 55 fig. 83-89; FAUVEL, 1927*d*: 330-331, fig. 114*k-r*; HARTMANN-SCHRÖDER, 1996: 557; FITZHUGH, 2002*d*: table 3.
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (off Porto); AMOUREUX & CALVÁRIO, 1981 (Peniche); SOUSA-REIS *et al.*, 1982 (Peniche region); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: Ria de Alvor; continental shelf of Algarve; Sado Estuary; Arrábida; Peniche); [?] MUCHA & COSTA, 1999 (as *Jasmineira elegans ?*; Ria de Aveiro and/or Sado Estuary); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 6 — St. 9**, off Praia do Telheiro, 65 m, rock: 1 specimen with 32 chaetigers, 8 of which thoracic; radioles with tips not enlarged; collar high. **St. 22**, off Praia de Castelejo, 52 m, rock: 1 complete specimen about 5 mm long, with 30 chaetigers, 8 of which thoracic; many radioles missing, tips of radioles not enlarged; collar high and incised dorsally; glandular ridge at the posterior region of the second chaetiger; otocystes and eyes not seen; pygidium without cirri.

**DISTRIBUTION:** Eastern Atlantic, from the southern North Sea to Angola; Mediterranean Sea; Adriatic Sea; Aegean Sea. Among old shells, serpulids or bryozoans.

### ***Jasmineira reayi*** (McIntosh 1916)

*Chone reayi* MCINTOSH, 1916*a*: 43-45, pl. 2 fig. 10.
**TYPE LOCALITY:** Shetland, off the coast of Ireland, and Channel Islands.
**SELECTED REFERENCES:** *Chone reayi* — MCINTOSH, 192*a*: 299-301, pl. 121 fig. 3, pl. 130 fig. 1, pl. 131 fig. 5. *Jasmineira reayi* — TOVAR-HERNÁNDEZ, 2007: 63.
**DISTRIBUTION:** British Isles: between tide-marks, at St. Peter Port, Guernsey Island, under red ascidians; attached to stones, between tide-marks, Herm, along with *Sabella*; Galway; at 145 meters, St. Magnus Bay, Shetland; Scotland, Brae Oilfield, in fine to medium sand, at 110 meters. Canada; Greenland; Finmark (Norway).

### ***Jasmineira schaudinni*** Augener 1913

*Jasmineira Schaudinni* AUGENER, 1913*a*: 185-188, pl. 5 fig. 17, pl. 6 figs. 18-23.
**TYPE LOCALITY:** Spitsbergen, between 650-1000 meters.
**SELECTED REFERENCES:** *Jasmineira schaudinni* — JIRKOV, 2001: 543, fig. and map in same page.
**DISTRIBUTION:** Arctic Ocean; East Greenland; Iceland; Spitsbergen; Norway; Barents Sea; Siberian coast. Between 125-2370 meters.

## GENUS ***Laonome*** Malmgren 1866

*Laonome* MALMGREN, 1866: 400.
**TYPE SPECIES:** *Laonome kröyeri* Malmgren 1866.

### ***Laonome kroyeri*** Malmgren 1866

*Laonome Kröyeri* MALMGREN, 1866: 400-401, pl. 27 fig. 85 [named as *Sabella* in plate 27].
**TYPE LOCALITY:** Spitsbergen (Whalerspoint and Shoal Point), at 20-30 fathoms (36.6-54.9 meters), on muddy bottoms.
**SELECTED REFERENCES:** *Laonome Kroyeri* — HOFSOMMER, 1913: 20-23, text-fig. *e*, pl. 4 figs. 3-5, 25-29, map; MCINTOSH, 1916*a*: 15-16; MCINTOSH, 1922*b*: 245-247; MCINTOSH, 1923*a*: pl. 129 fig. 3; FAUVEL, 1927*a*: 322-323, fig. 112*a-i*. *Laonome kröyeri* — HARTMANN-SCHRÖDER, 1996: 542-543, fig. 264; KIRKEGAARD, 1996: 388-389, fig. 223; FITZHUGH, 2002*b*: table 4.
**DISTRIBUTION:** Arctic Ocean; North Pacific; Northeast Atlantic; Ireland; North Sea; Skagerrak; Kattegat; Øresund; Baltic Sea; Aegean Sea. Mainly in muddy bottoms. Sublittoral to about 60 meters.

## GENUS ***Manayunkia*** Leidy 1858

*Manayunkia* LEIDY, 1858: 90.
**TYPE SPECIES:** *Manayunkia speciosa* Leidy 1858.
**SYNONYMS:** *Haplobranchus* Bourne 1883.

**KEY TO SPECIES:**
(adapted from ANNENKOVA, 1930)

**NOT INCLUDED IN THE KEY:** *Manayunkia cursoria* (Quatrefages 1866).

**1a.** Between 1.5-4 mm long; branchial crown with 12-18 radioles.....***M. caspica***
**1b.** Between 4-6 mm long; branchial crown with 8 radioles.....***M. aestuarina***

### ***Manayunkia aestuarina*** (Bourne 1883)

*Haplobranchus aestuarinus* BOURNE, 1883: 168-176, plate 9.
**TYPE LOCALITY:** Coast of Island of Sheppey (England), and Mouth of the Liffey (Ireland).
**SYNONYMS:** *Haplobranchus balticus* Karling 1933; *Manayunkia polaris* Zenkewitsch 1935.

**SELECTED REFERENCES:** *Haplobranchus æstuarinus* — MCINTOSH, 1916*a*: 47. *Manayunkia (Haplobranchus) æstuarinus* — MCINTOSH, 1923*a*: 305-307, pl. 117 fig. 3, pl. 135 fig. 20. *Manayunkia aestuarina* — FAUVEL, 1927*a*: 327, fig. 113*a-d*; FRIEDRICH, 1939*b*: 366, fig. 5; WESENBERG-LUND, 1942: 41-43, figs. 7-8; LIGHT, 1969*a*: 3089-3090, figs. 1-4; HARRIS, 1970: 106-107, fig. 1; JUNOY & VIÉITEZ, 1990: 86-88, text-fig. 2, plates 1-2; BICK, 1996: 288-292, figs. 3-12; HARTMANN-SCHRÖDER, 1996: 557-559, fig. 272; KIRKEGAARD, 1996: 390-391, fig. 224; BICK, 2004: 58-62, figs. 2*G-I*, 3*A-B*. *Haplobranchus balticus* — KARLING, 1933: 242-245. *Manayunkia polaris* — ZENKEWITSCH, 1935: 196.
**DISTRIBUTION:** British Isles; Baltic and North Seas; Skagerrak; Kattegat; Øresund; Barents Sea (Kola Fjord); Galicia, NE Spain; British Columbia (Indian Arm Inlet, 49º28'N, 122º53'W). Circumarctic and circumboreal, in estuarine conditions, in mud flats. In Galicia it was found associated to prairies of *Zostera noltii* Hornemann 1832. Intertidal to 20 meters, in salinities ranging from less than 5 to over 50‰.

### ***Manayunkia caspica*** Annenkova 1929

*Manayunkia caspica* ANNENKOVA, 1929*a*: 18-20, pl. 3 figs. 1-4, pl. 4 figs. 10-12.
**TYPE LOCALITY:** Caspian Sea: 43º03'N, 48º23'E, among mussels, at 45 meters; 41º0'40"N, 49º42'E, in mud, at 44 meters; 39º17'45"N, 49º30'E, in mud, at 23 meters; 38º42'00"N, 52º2'E, in white mud, at 64 meters.
**SYNONYMS:** *Manayunkia caspica fluviatilis* Băcesco 1948.
**SELECTED REFERENCES:** *Manayunkia caspica* — ANNENKOVA, 1929*c*: 123-124, 125; ANNENKOVA, 1930: 39-40, fig. 11; MARINESCU, 1964: 95-99, figs. 7-10; RUSSEV & MARINOV, 1964: 193; JAKOVČEV-TODOROVIĆ *et al.*, 2006: 35P-36P, fig. 1. *Manajunkia caspica* — MARINOV, 1977: 216, pl. 30 fig. 1. *Manayunkia caspica fluviatilis* — BĂCESCO, 1948*a*: 246, plate 2 fig. 6; BĂCESCO, 1948*b*: 552.
**DISTRIBUTION:** Ponto-Caspian area; Danube River Basin, up to the Serbian part of the Danube. The most upstream record of species was collected near the townlet of Tekija (Serbia), 44º41'2"N, 22º24'53"E, at an altitute of 477 meters, at the Km 956 of the watercourse, at a depth of 9 meters. It lives in fresh and brackish water, in habitats containing very fine sand and silt (grains < 0.125 mm), and fine and coarse sand (grains between 0.125 – 0.5, and 0.5 – 2 mm, respectively). Black Sea, at Sevastopol (Crimea), in sand with broken shells of mussels and mud, in salinities ranging between 16-18‰; Caspian Sea, in salinities ranging between 12.64-13.2‰.

### ***Manayunkia cursoria*** (Quatrefages 1866)

*Amphicorina cursoria* QUATREFAGES, 1866*b*: 475-477, pl. 16 figs. 1-4.
**TYPE LOCALITY:** Île-de-Bréhat, Brittany, Northern France.
**DISTRIBUTION:** Known from the type locality, at shallow water.

## GENUS ***Megalomma*** Johansson 1927

*Megalomma* JOHANSSON, 1927: 130.
**TYPE SPECIES:** *Amphitrite vesiculosa* Montagu 1815.
**REMARKS:** The genus definition was emended by FITZHUGH (2003).

Due to the poor knowledge of the species *Megalomma vigilans* (Claparède 1870), in the key below the odd habitat where this species was so far exclusively found is used in order to separate it from other species. However, its peculiar habitat could be the result of an artifact.

In my opinion, the identification of European specimens belonging to *Megalomma* is problematic at present, as some species are not completely known or defined, and some of the characters used are probably subject to variability. As noted by NISHI (1998), it is possible that some characters, as the number of subterminal eyes or the shape of the dorsal collar, vary with age within a species. For this reason, and as in most or all cases, it is desirable to study several specimens from the same locality in order to detect this variability.

#### KEY TO SPECIES:

**1a.** Thoracic uncini with long handle.....**2**
**1b.** Thoracic uncini with short handle.....**4**

**2a (1a).** So far, has been found only associated with *Aphrodita aculeata*, living with the tube nested among its chaetae.....***M. vigilans***
**2b (1a).** Found on soft and hard bottoms, not associated with *Aphrodita aculeata*.....**3**

**3a (2b).** Base of the collar reaches dorsally the second chaetiger; inferior thoracic notochaetae narrowly hooded with long tip; recorded on soft bottoms.....***M. lanigera***
**3b (2b).** Base of the collar reaches dorsally only the first chaetiger; inferior thoracic notochaetae very broadly hooded, nearly paleate; recorded mainly on hard bottoms.....***M. claparedei sensu* Gravier 1906**

**4a (1b).** Inferior thoracic notochaetae narrowly hooded; ventral margin of collar slightly higher than dorsal, with ventral lappets short and rounded.....***M. vesiculosum***
**4b (1b).** Inferior thoracic notochaetae very broadly hooded, in some occasions being nearly paleate; ventral margin of collar slightly or clearly higher than dorsal, ventral lappets well developed.....**5**

**5a (4b).** Dorsalmost radioles bearing large eyes with a long free tip above eye (longer than eye's length).....***M. claparedei sensu* Giangrande & Licciano 2008**
**5b (4b).** Dorsalmost radioles bearing large eyes with a short free tip above eye (about as long as eye's length).....***M. messapicum***

## *Megalomma claparedei* (Gravier 1906)

*Branchiomma Claparedei* GRAVIER, 1906*d*: pl. 7 figs. 265-266.
**TYPE LOCALITY:** At the reef of Marabout, Bay of Djibouti, and at the big reef of Musha Islands, Gulf of Tadjourah, in perforations at the base of *Porites* corals.
**SELECTED REFERENCES:** *Branchiomma Claparedei* — GRAVIER, 1908: 91-94, text-figs. 441-446. *Megalomma claparedei* — [?] GIANGRANDE & LICCIANO, 2008: 214-216, figs. 5*E-F*.
**DISTRIBUTION:** Djibouti and Gulf of Tadjourah (Red Sea), in perforations at *Porites* corals; [?] Southern Adriatic Sea, on rocky bottoms and *Posidonia* beds, between 9-20 meters.
**REMARKS:** GIANGRANDE & LICCIANO (2008) recorded the species *Megalomma claparedei* from Southern Adriatic Sea, suggesting that it could be a Lessepsian migrant. However, while the Red Sea specimens are described by GRAVIER (1908) as having thoracic uncini with a long handle, in the specimens from the Adriatic Sea the handle of the thoracic uncini is stated by GIANGRANDE & LICCIANO (2008) as being short. In my opinion, it is possible that the Adriatic specimens of *Megalomma* that bear a long free tip above the eyes, in the dorsalmost radioles, belong to a species different from *M. claparedei*.

## *Megalomma lanigera* (Grube 1846)

*Sabella lanigera* GRUBE, 1846*a*: 51-53, pl. 2 fig. 1.
**TYPE LOCALITY:** Unknown.
**SYNONYMS:** *Branchiomma Köllicheri* Claparède 1869; *Branchiomma vesiculosum* var. *Neapolitana* Claparède 1869.
**SELECTED REFERENCES:** *Branchiomma Köllikeri* — CLAPARÈDE, 1869: 163-164, pl. 22 fig. 4. *Branchiomma kollikeri* — MCINTOSH, 1916*a*: 57-59, pl. 3 figs. 10-11, pl. 4 fig. 7. *Megalomma lanigera* — GIANGRANDE & LICCIANO, 2008: 209-213, figs. 2-4, 5*C-D*. *Branchiomma vesiculosum* var. *Neapolitana* — CLAPARÈDE, 1869: 164-166, pl. 22 fig. 5. *Megalomma neapolitana* — KNIGHT-JONES, 1997: 314. *Branchiomma vesiculosum* [not Montagu 1815] — LO BIANCO, 1893: 69-70, pl. 3 fig. 4; SOULIER, 1903: 212-235, figs. 4-5; IROSO, 1921: 68; RIOJA, 1923*c*: 31, figs. 29-36; FAUVEL, 1927*a*: 315, fig. 109; RIOJA, 1931: 356-358, pl. 114 figs. 1-8.
**DISTRIBUTION:** Mediterranean Sea; Tyrrhenian Sea; Adriatic Sea. On sandy bottoms and on *Posidonia* beds. Between 5-20 meters. According to GIANGRANDE & LICCIANO (2008), many of the Mediterranean soft-bottom records of *Megalomma vesiculosum* refer to *M. lanigera*.
**REMARKS:** As stressed by KNIGHT-JONES (1997), *Sabella lanigera* Grube 1846 (with type locality unknown), and *Branchiomma köllikeri* Claparède 1869 (with type locality at Naples), were considered by HARTMAN (1959*a*) as junior synonyms of *Megalomma vesiculosum*. KNIGHT-JONES (1997) studied material from both taxa, and stated that the two were the same species, but different from *M. vesiculosum* in having collar margins well above the junction between crown and thorax, especially those of the dorsal lappets. However, and pending a further study, Knight-Jones sustained that it would be better to regard *M. lanigera* as a subspecies of *M. vesiculosum*, and *M. köllikeri* as a junior synonym of *M. lanigera*. *Megalomma lanigera* was finally redescribed by GIANGRANDE & LICCIANO (2008).

GIANGRANDE & LICCIANO (2008) revised one specimen from the Gulf of Naples deposited at the Zoological Museum of Berlin, and identified by Eduard Claparède as *Megalomma vesiculosum*. This material was assumed to represent *Branchiomma vesiculosum* var. *neapolitana* Claparède 1869, in spite of being labeled only as *B. vesiculosum*, as there is no other reference to this species in Claparède's papers concerning the Gulf of Naples. This specimen was considered by GIANGRANDE & LICCIANO (2008) as being the type material of *Branchiomma vesiculosum* var. *neapolitana*, and as it was identical with *Megalomma lanigera*, *M. neapolitana* was considered a junior synonym of *M. lanigera*.

KNIGHT-JONES (1997) considered, with some doubts, that *Megalomma neapolitana* had probably the dorsal collar margins free, not fused to the faecal groove, maybe using the figure in Claparède's publication as a reference (CLAPARÈDE, 1869: pl. 22 fig. 5), together with the description of the subspecies given by its author (CLAPARÈDE, 1869: 165): "*Chacune des moitiés de la colerette a le bord entier, mais ces deux moitiés sont séparées l'une de l'autre, du côté dorsal, par un large intervalle concave, au fond duquel se voient deux lobes membraneux, bruns* [...]*, qu'on pourrait peut-être considérer comme deux autres lobes de la colerette, bien qu'ils soient tout à fait indépendants des premiers*". GIANGRANDE & LICCIANO (2008) considered that it was highly improbable that Claparède subspecies had the dorsal collar margins free. Besides the fact that these authors re-examined the possible type material of the species (see above) and didn't find such character to be present, GIANGRANDE & LICCIANO (2008) alsop stated that the species was originally described by CLAPARÈDE (1869) as being very similar to *Megalomma vesiculosum*, a species with the collar margins fused with the faecal groove.

## ***Megalomma messapicum*** Giangrande & Licciano 2008

*Megalomma messapicum* GIANGRANDE & LICCIANO, 2008: 213-214, figs. 5*G-H*, 6.

**TYPE LOCALITY:** Brindisi (Southern Adriatic Sea), at 10 meters, in a rocky bottom.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** *Megalomma messapicum* was described as having a peculiar unique eye distribution among *Megalomma*, with the second to fourth radioles without eyes, the fifth to seventh with eyes, and the eight and ninth radioles again without eyes. I think that this character should be used with care, until it is found to be fixed also on other populations of the species. I had the opportunity to study a specimen from Murcia (Southern Spain) that was quite close to *M. messapicum*, if not the same species. Some of its radioles did not bear radiolar eyes, but their disposition did not follow any particular pattern. In fact, one of the dorsalmost radioles was regenerating its tip, bearing an eye of a smaller size and less conspicuous than its counterpart.

## ***Megalomma vesiculosum*** (Montagu 1815)

*Amphitrite vesiculosa* MONTAGU, 1815: 19-20, pl. 5 fig. 1.

**TYPE LOCALITY:** Estuary of Kingsbridge, south coast of Devonshire (England), intertidal, in sand. Neotype designated by KNIGHT-JONES (1997), collected at low spring tide from St. Anthony (50º09'N, 5º00'W), 90 Km west of the type locality, the Kingsbridge Estuary (50º15'N, 3º45'W).

**SYNONYMS:** *Sabella arenilega* Quatrefages 1866.

**SELECTED REFERENCES:** *Sabella vesiculosa* — JOHNSTON, 1865: 259-260, 346. *Branchiomma vesiculosum* — SAINT-JOSEPH, 1894: 300-307, pl. 11 figs. 303-314; MCINTOSH, 1916*a*: 16-20; MCINTOSH, 1922*b*: 247-250, pl. 120 fig. 9; MCINTOSH, 1923*a*: 251-254, pl. 115 fig. 2, pl. 128 fig. 4, pl. 138 fig. 4. *Megalomma vesiculosum* — KNIGHT-JONES, 1997: 314; KNIGHT-JONES, KNIGHT-JONES & NELSON-SMITH, 2000: 252-253, fig. 6.21; GIANGRANDE & LICCIANO, 2008: 208-209, figs. 1, 5*A-B*. *Branchiomma vesiculosum*, Montagu? — MCINTOSH, 1885*a*: 493-495, pl. 30*A* figs. 10-12.

**REFERENCES FOR PORTUGAL:** MCINTOSH, 1916*a* (as *Branchiomma kollikeri* var. of *B. vesiculosum*?; Setúbal Bay); RIOJA, 1931 (as *Branchiomma vesiculosum*; previous records: Setúbal); DEXTER, 1992 (as *Branchiomma vesiculosum*; previous records: Sado Estuary).

**DISTRIBUTION:** British Isles; Atlantic shores of Southern Europe; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; off Faial (Azores). Intertidal to 165 meters.

## ***Megalomma vigilans*** (Claparède 1870)

*Branchiomma vigilans* CLAPARÈDE 1870: 501-503, pl. 14 fig. 3.

**TYPE LOCALITY:** Gulf of Naples, attached to *Aphrodita aculeata*.

**SELECTED REFERENCES:** *Branchiomma vigilans* — SOULIER, 1903: 235-240, fig. 6; RIOJA, 1923*c*: 34; FAUVEL, 1927*a*: 316-317, fig. 108*m-u*; RIOJA, 1931: 358-360. *Branchiomma Linaresi* [not Rioja 1917] — [?] IROSO, 1921: 69-70, pl. 3 fig. 1.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Branchiomma vigilans*; Cape Santa Maria).

**DISTRIBUTION:** Western Mediterranean Sea. Shallow water.
**REMARKS:** In their revision of the Mediterranean *Megalomma* GIANGRANDE & LICCIANO (2008) did not include *M. vigilans*, due to the lack of available material. The species was considered as being valid, but apparently quite rare, probably due to its particular habitat. However, in the same paper it is also stated that the status of the species needs to be confirmed.

CLAPARÈDE (1870) found this species only in three occasions, always attached to specimens of *Aphrodita aculeata*, with the tube placed among the chaetae of the host. SOULIER (1903) also referred about 20 specimens collected at the region of Séte, at the Gulf of Aigues-Mortes (South France), all of them also living among the chaetae of specimens of *Aphrodita aculeata*. This habitat is quite curious for a sabellid, and the matter deserves further investigation. It is also possible that such a habitat is the result of an artifact occurred during the collecting process.

## GENUS ***Myxicola*** Koch *in* Renier 1847

*Myxicola* KOCH *in* RENIER, 1847: 52.
**TYPE SPECIES:** *Terebella infundibulum* Renier 1804.
**SYNONYMS:** *Eriographis* Grube 1850; *Leiobranchus* Quatrefages 1850; *Arippasa* Johnston 1865; *Gymnosoma* Quatrefages 1866; *Leptochone* Claparède 1870.

**KEY TO SPECIES:**
(from KNIGHT-JONES, KNIGHT-JONES & NELSON-SMITH, 2000)

**1a.** Thorax indistinct (1-4 segments); distinct eyespots (1-4) on each side of each segment; worm a few mm long.....***M. aesthetica***
**1b.** Thorax distinct (7-9 segments); eyespots absent; more than 2 cm long.....**2**

**2a (1b).** Thoracic chaetae 100 plus in small circular pads, small and scarcely visible under dissecting microscope; tips of radioles dull purple.....***M. infundibulum***
**2b (1b).** Thoracic chaetae few but longer (clearly visible with dissecting microscope); tips of radioles not differentially pigmented.....***M. sarsi***

### ***Myxicola aesthetica*** (Claparède 1870)

*Leptochone æsthetica* CLAPARÈDE, 1870: 514-517, pl. 14 fig. 1.
**TYPE LOCALITY:** Gulf of Naples, among algae.
**SYNONYMS:** *Myxicola Dinardensis* Saint-Joseph 1894.
**SELECTED REFERENCES:** *Myxicola aesthetica* — LO BIANCO, 1893: 80; FAUVEL, 1907*a*: 99, pl. 2 fig. 12; MCINTOSH, 1923*a*: 317-318, pl. 130 fig. 5, pl. 132 fig. 8; FAUVEL, 1927*a*: 344-345, fig. 119*k-s*. *Myxicola aesthética* — RIOJA, 1923*c*: 61, figs. 96-99; RIOJA, 1931: 388-390, pl. 124 figs. 6-8. *Myxicola Dinardensis* — SAINT-JOSEPH, 1894: 324-328, pl. 12 figs. 350-357. *Myxicola (Leptochone) oesthetica* — SOULIER, 1902: 133-138, fig. 6. [?] *Myxicola Steenstrupi* [not Kröyer 1856] — SOULIER, 1903: 240-247, fig. 7; RIOJA, 1923*c*: 63, figs. 100-102; RIOJA, 1931: 390-391, pl. 124 figs. 9-11.
**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Bay of Biscay; English Channel. Among algae, serpulids, hydrozoans, old shells, and in crevices of rocks. Shallow water.

### ***Myxicola infundibulum*** (Montagu 1808)

*Amphitrite Infundibulum* MONTAGU, 1808: 109-110, pl. 8.
**TYPE LOCALITY:** Estuary of Kingsbridge, near the Salt stone, South coast of Devonshire (England), uncovered by the lowest ebb of spring tides, burried beneath the surface.
**SYNONYMS:** [?] *Myxicola Grubii* Krøyer 1856; [?] *Myxicola Steenstrupi* Krøyer 1856; *Myxicola parasites* Quatrefages 1866; *Myxicola viridis* Milne-Edwards 1849.
**SELECTED REFERENCES:** *Myxicola Infundibulum* — CLAPARÈDE, 1870: 505-513, pl. 14 fig. 2. *Myxicola infundibulum* — LO BIANCO, 1893: 79-80; SAINT-JOSEPH, 1898: 433-440, pl. 23 figs. 241-247; SOULIER, 1902: 128-133, fig. 5; FAUVEL, 1907*a*: 95, pl. 1 figs. 1-2; MCINTOSH, 1916*a*: 47-51; IROSO, 1921: 73; MCINTOSH, 1923*a*: 311-317, text-figs. 162-164, pl. 114 fig. 4, pl. 130 fig. 4; RIOJA, 1923*c*: 58, figs. 90-95; FAUVEL, 1927*a*: 342-344, fig. 119*a-i*; RIOJA, 1931: 384-388, pl. 123, pl. 124 figs. 1-5 HARTMANN-SCHRÖDER, 1996: 559, fig. 273; KIRKEGAARD, 1996: 391-393, fig. 225. *Arippasa infundibulum* — JOHNSTON, 1865: 252-253, 346. [?] *Myxicola Steenstrupi* — MALMGREN, 1866: 408-409, pl. 29 fig. 90;

HOFSOMMER, 1913: 44-48, pl. 4 figs. 23-24, 30, map. *Myxicola viridis* — MCINTOSH, 1916*a*: 51-52; MCINTOSH, 1923*a*: 319-320, pl. 116 fig. 1, pl. 121 fig. 4, pl. 130 fig. 6. [?] *Myxicola parásites* — RIOJA, 1923*c*: 65, figs. 103-106; RIOJA, 1931: 391-392, pl. 124 figs. 12-15.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Faro); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Sado Estuary).
**DISTRIBUTION:** Arctic; North Pacific; North Atlantic to Mauritania; Namibia; South Africa; Mediterranean Sea; Adriatic Sea; Aegean Sea; English Channel; Skagerrak; Kattegat; Øresund; Baltic Sea; Australia. In muddy bottoms and mixed grounds of mud, sand, clay, gravel, or stones. Eulittoral to about 500 meters.
**REMARKS:** The species was first described as *Terebella infundibulum* Renier 1804, from the Mediterranean Sea, and also as *Terebella Buccina* Renier 1804, from the Adriatic Sea. However both names were included in a work rejected for nomenclatural purposes by the ICZN, and the next available description of the species was by MONTAGU (1808), as *Amphitrite Infundibulum*.

### ***Myxicola sarsi*** Krøyer 1856

*Myxicola Sarsii* KRØYER, 1856: 9.
**TYPE LOCALITY:** Finmark (Norway).
**SELECTED REFERENCES:** *Myxicola sarsi* — KNIGHT-JONES, KNIGHT-JONES & NELSON-SMITH, 2000: 253, fig. 6.22.
**DISTRIBUTION:** Scotland; north-east England; Isle of Man; Norway. In fine muddy sand. Sublittoral.

## GENUS ***Notaulax*** Tauber 1879

*Notaulax* TAUBER, 1879: 136.
**TYPE SPECIES:** *Notaulax* n.sp. Tauber 1879 [= *Notaulax rectangulata* Levinsen 1884].
**SYNONYMS:** *Protulides* Webster 1884; *Eurato* Saint-Joseph 1894; *Hypsicomatopsis* Augener 1924.
**REMARKS:** In *Notaulax* Tauber 1879, characters of specific importance are the arrangement and position of the radiolar ocelli, the shape of the collar, the number of thoracic chaetigers, the cross sectional structure of the radioles, and pronounced differences in the chaetae or uncini (PERKINS, 1984*a*). However, the collars of some species change during development, from a 4-lobed structure on juveniles, to a 1- or 2-lobed structure on adults, and moreover, in juveniles of most species the position and organization of the ocelli are not diagnostic (PERKINS, 1984*a*). Therefore PERKINS (1984*a*) recommends that several specimens should be examined before a specific determination is made, besides considering only major differences in chaetation as important.

**KEY TO SPECIES:**

**1a.** Collar margin entire both dorsally and ventrally.....***N. phaeotaenia***
**1b.** Collar margin deeply incised dorsally; collar margin on adults incised ventrally.....***N. rectangulata***

### ***Notaulax phaeotaenia*** (Schmarda 1861)

*Sabella phaeotaenia* SCHMARDA, 1861: 35, text-figs. *a*-*e*, pl. 22 fig. 188.
**TYPE LOCALITY:** Ceylon (= Sri Lanka).
**SELECTED REFERENCES:** *Hypsicomus phaeotaenia* — AUGENER, 1914: 113-115 [in part; report of types]. *Hypsicomus stichophthalmus* [not Grube 1863] — [?] LO BIANCO, 1893: 70-71.
**DISTRIBUTION:** With security, the species is only known from its type locality (Sri Lanka). All the other records, including the Mediterranean ones, need confirmation, as different species were recorded under this name (PERKINS, 1984*a*). In the Mediterranean Sea, the species was recorded from the Gulf of Naples and Aegean Sea.
**REMARKS:** According to PERKINS (1984*a*), *Sabella phaeotaenia* Schmarda 1861 appears to be similar to *Sabella alticollis* Grube 1868, from the Red Sea. However, radiolar ocelli have not been reported for *S. phaeotaenia*. It is possible that ocelli were originally present, but had already faded by the time AUGENER (1914) examined the types. Anyway, even if they were present, the arrangement of the ocelli is unknown (PERKINS, 1984*a*). *N. phaeotaenia* has been reported worldwide, and descriptive information indicates that these records certainly comprise several different species (PERKINS, 1984*a*).

In Europe, *N. phaeotaenia* was reported from the Gulf of Naples, by LO BIANCO (1893: 70-71), as *Hypsicomus stichophthalmus* (not Grube 1863), and IROSO (1921: 70), as *Hypsicomus Phaetonia* [*sic*]. Later, GIANGRANDE (1990*a*), refers Lo Bianco's and Iroso's records to *Notaulax pheotenia* [*sic*], the later one with some doubts, probably because no figure or description is given by Iroso. GIANGRANDE (1990*a*) also comments the possibility that the Italian records of the species refer in reallity to a different species from the one described by SCHMARDA (1861).

FAUVEL (1927*a*: 312-314, fig. 108*a-l*) refers the species as being present in the Mediterranean Sea, as *Hypsicomus phaeotenia*, and following IROSO (1921) record [but not LO BIANCO (1893) record, which he keeps in *Hypsicomus stichophthalmus* (as *Potamilla*)], and also suggests the possibility of the synonymy of *Hypsicomus caecus* Iroso 1921 with *H. phaeotaenia*, with base on the fact that radiolar eyes can fade in alcohol. However, GIANGRANDE (1990*a*) considered *H. caecus* Iroso 1921 as being a junior synonym of *H. stichophthalmos* (Grube 1863), maybe following PERKINS' (1984*a*) opinion, who already suggested that synonymy. GIANGRANDE (1990*a*) also stated that she never had the possibility of studying *Notaulax* specimens from the Mediterranean Sea, so a definitive statement on the presence of *N. phaeotaenia* or of a different *Notaulax* species in the Mediterranean, will depend on the finding of such specimens in the future.

FAUVEL's (1927*a*) description of the species is based on records from different origins, but figure 108*a*, was taken from the original description by SCHMARDA (1861).

### *Notaulax rectangulata* Levinsen 1884

*Notaulax rectangulatus* LEVINSEN, 1884: 188, 191, pl. 2 figs. 1-3, 8*m-n*.
**TYPE LOCALITY:** Denmark: Lille Baelt, at 30 meters in a muddy bottom.
**SELECTED REFERENCES:** *Notaulax rectangulata* — PERKINS, 1984*a*: 331, fig. 24; KIRKEGAARD, 1996: 393-394, fig. 226. *Notaulax* n. sp. — TAUBER, 1879: 136. *Hypsicomus rectangulatus* — JOHANSSON, 1927: 141. *Hypsicomus* sp. — HARTMANN-SCHRÖDER, 1971*a*: 502.
**DISTRIBUTION:** Denmark. Apparently, only one specimen of the species is known, from the type locality.

## GENUS *Novafabricia* Fitzhugh 1990

*Novafabricia* FITZHUGH, 1990*a*: 7-8.
**TYPE SPECIES:** *Fabriciola chilensis* Hartmann-Schröder 1962.

**KEY TO SPECIES:**

**1a.** Thoracic uncini 5-7 per fascicle; abdominal uncini 9-16, 9-14 and 7-11, in chaetigers 9-11, respectively; anterior peristomial ring of about the same length than the posterior peristomial ring, both being twice the length of the first chaetiger; branchial crown length 0.3-0.4 mm, body length 1.1-1.4 mm (total length 1.3-1.8 mm); manubrium of abdominal uncini about 10-12 µm long.....***N. infratorquata***
**1b.** Thoracic uncini 12 per fascicle; abdominal uncini 24, 19 and 14, in chaetigers 9-11, respectively; anterior peristomial ring longer than posterior peristomial ring, which is of about the same length of the first chaetiger; branchial crown length 1.2 mm, body length 1.8 mm (total length 3 mm); manubrium of abdominal uncini about 18 µm long (from drawing).....***N. posidoniae***

### *Novafabricia infratorquata* (Fitzhugh 1983)

*Fabricia infratorquata* FITZHUGH, 1983: 284-289, fig. 4, table 2.
**TYPE LOCALITY:** Twin Cays, Belize.
**SELECTED REFERENCES:** *Novafabricia infratorquata* — FITZHUGH, 1990*a*: 9, 13, fig. 8; FITZHUGH, 1998: 215, 245; BICK, 2005*c*: 142-147, figs. 5-6, table 2. *Novafabricia* cf. *infratorquata* — BICK, 2004: 58-62, figs. 2*M*, 4*E*. [?] *Novafabricia* sp. cf. *N. infratorquata* — LICCIANO & GIANGRANDE, 2006: 676-678, fig. 4.
**DISTRIBUTION:** Gulf of Mexico; Caribbean Sea; Western Mediterranean Sea; [?] South Adriatic Sea. Among algae, and on shells of *Stramonita hemastoma* (Linnaeus 1758) inhabited by hermit crabs. Intertidal to 13 meters.
**REMARKS:** According to BICK (2005*c*), this species presents a big variability. The specimens from the Eastern Mediterranean Sea reported by LICCIANO & GIANGRANDE (2006) differ from the Western Mediterranean ones described by BICK (2005*c*) by the lack of pigmentation, and a different shape of the anterior peristomial ring ventral lobe. Due to the limited available material and the described variability

of the species, LICCIANO & GIANGRANDE (2006) considered their specimens as belonging probably to *Novafabricia infratorquata*.

### ***Novafabricia posidoniae*** Licciano & Giangrande 2006

*Novafabricia posidoniae* LICCIANO & GIANGRANDE, 2006: 673-676, figs. 1-3.
**TYPE LOCALITY:** Ponza Island (Pontine Islands), Tyrrhenian Sea, west coast of Italy, at 5 meters, on a *Posidonia oceanica* bed.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Panousea*** Rullier & Amoureux 1970

*Panousea* RULLIER & AMOUREUX, 1970: 135-136.
**TYPE SPECIES:** *Panousea africana* Rullier & Amoureux 1970.

### ***Panousea africana*** Rullier & Amoureux 1970

*Panousea africana* RULLIER & AMOUREUX, 1970: 136-138, fig. 2.
**TYPE LOCALITY:** Khnifiss Lagoon (between Tantan and Tarfaya, Atlantic Morocco, 28°02'54"N, 12°13'66"W), near the fishermen cliff ("*falaise des pêcheurs*"), shallow water, on sand with *Cardium*.
**SELECTED REFERENCES:** *Panousea africana* — AMOUREUX, 1972*a*: 70; FITZHUGH, 1989: 69-70. Not *Panousea africana* — AMOUREUX, 1974*b*: 148-150, fig. 7 [? = *Potamethus filiformis* Hartmann-Schröder 1977].
**DISTRIBUTION:** Morocco; South Portugal (personal observation). On coastal lagoons and saltmarshes, at shallow water, on sand.

## GENUS ***Perkinsiana*** Knight-Jones 1983

*Perkinsiana* KNIGHT-JONES, 1983: 273-274.
**TYPE SPECIES:** *Sabella (Potamilla) rubra* Langerhans 1880 (Welsh form as genotype).
**REMARKS:** The genus definition was emended by CAPA (2007).

**KEY TO SPECIES:**
(adapted from GIANGRANDE, 1990*a*)

**1a.** Each lobe with 3-5 radioles; radioles with few pinnules; margin of the collar extremely oblique in side view; ventral lappets of the collar distally pointed and very long; first segment (collar segment) about twice the length of the other thoracic segments; first thoracic shield longer and rounded distally below the V-shaped collar cleft; thoracic tori with about 3 uncini; small size (about 3 mm).....***P. socialis***
**1b.** Each lobe with 5-10 radioles; radioles with numerous pinnules; margin of the collar slightly oblique in side view; ventral lappets of the collar subtriangular, separated by a V-shaped cleft, not overlapping at the midline; first segment fairly short, not clearly longer than the others in the thorax; first thoracic shield not much longer than the others, which are about 2½ times as broad as long; thoracic tori with about 8-18 uncini; big size (3-8 cm).....***P. rubra***

### ***Perkinsiana rubra*** (Langerhans 1880)

*Sabella (Potamilla) rubra* LANGERHANS, 1880*b*: 113, pl. 5 fig. 27.
**TYPE LOCALITY:** Madeira Island, living in lime beds, in pools at the rocky shore.
**SELECTED REFERENCES:** *Potamilla rubra* — RIOJA, 1918*a*: 76-78, fig. 10. *Perkinsiana rubra* — KNIGHT-JONES, 1983: 274-277, figs. 12-13; GIANGRANDE, 1990*a*: 171. [?] *Potamilla Torelli* — SOULIER, 1903: 193-201, fig. 1.
**DISTRIBUTION:** Madeira Island; Gijon (Spain); south Wales; Mediterranean Sea (Italy); Adriatic Sea. In limestone and calcareous encrustations on rocky shores. At low water
**REMARKS:** KNIGHT-JONES, KNIGHT-JONES & ERGEN (1991: 855, fig. 7*Q*) recognised as *Perkinsiana* sp. the Mediterranean *Potamilla torelli* sensu SOULIER (1903), from near Sète (South France). According to the same authors, Soulier's description agrees well with *Perkinsiana rubra* as described by KNIGHT-

JONES (1983), except in that its thoracic uncini have shorter shafts. A crownless specimen from Hvar (Croatia), found amongst material of *Sabella brevibarbis* Grube, had chaetae like the figured by Soulier, and a tube like the described for *P. rubra*: "*In rocky areas bordering sand, the tube is extended above the surface of the limestone and the outer surface of the hardened mucous wall is decorated with sand and shell particles, the latter obliquely attached by one edge. Whether adorned or not the mouth of the tube can be closed by lateral flattening when the worm is withdrawn*" (KNIGHT-JONES, 1983: 277). The independent finding of *P. rubra* in Italy (GIANGRANDE, 1990*a*) seems to confirm the tentative identification by KNIGHT-JONES, KNIGHT-JONES & ERGEN (1991).

### ***Perkinsiana socialis*** (Langerhans 1884)

*Potamilla socialis* LANGERHANS, 1884: 268, pl. 16 fig. 30.
**TYPE LOCALITY:** Madeira Island, in tubes attached to dead coral "*Dendrophyllia ramia*".
**SELECTED REFERENCES:** *Perkinsiana socialis* — KNIGHT-JONES, 1983: 279, fig. 15.
**DISTRIBUTION:** Madeira Island, at 8 meters; Mediterranean Sea (Italy), interstitial in hard bottoms with sedimentation, and also with *Cymodocea*.

## GENUS ***Potamethus*** Chamberlin 1919

*Potamethus* CHAMBERLIN, 1919*a*: 469, 471.
**TYPE SPECIES:** *Potamis spathiferus* Ehlers 1887.
**SYNONYMS:** *Potamis* Ehlers 1887 [not Hübner 1807 (Lepidoptera); not Gray 1833 (Mollusca)]; *Gorbunovia* Annenkova 1952.
**REMARKS:** Besides the species below, another one was wrongly associated with the genus *Potamethus*, but its correct generic location can not be for the moment unravelled. *Potamethus breviuncinatus* was described by HARTMANN-SCHRÖDER (1977*a*), with base on material found off the Moroccan Atlantic coast, at 72 meters. Its dubious placement in *Potamethus*, already pointed by HARTMANN-SCHRÖDER (1977*a*), was confirmed by KNIGHT-JONES (1983). According to this latter author, it can not be a species of *Potamethus* on account of the shortness of the first segment and the shortness of the thoracic uncini. Besides, the inferior abdominal chaetae are much smaller than the superior chaetae (former 0.7 of the latter), but there is only one of each in an abdominal parapodium and the inferior chaetae has the compact spoonshaped hood commonly seen in *Hypsicomus* or *Notaulax* (however it can not be a *Notaulax*, as the first thoracic chaetae are not in a longitudinal row) (HARTMANN-SCHRÖDER, 1977*a*; KNIGHT-JONES, 1983).

**KEY TO SPECIES:**
(data from KNIGHT-JONES, 1983)

**1a.** Dorsal margins of the main collar fused to the base of each branchial lobe.....**2**
**1b.** Dorsal margins of the main collar not fused to the base of each branchial lobe; they extend two-thirds of the way up the collar segment, but they are not fused to the dorsal margins of the collar, which terminate at the first fascicles; [type, damaged posteriorly, 15 mm long, 1 mm wide, crown 10 mm longer.....***P. malmgreni***

**2a (1a).** Collar undivided ventrally (?); longitudinal dorsal lamellae extending about halfway up the long first segment, with their lower parts fused to the dorsal margins of the collar, forming pockets at the angle of fusion; [type 28 mm long, 1 mm wide, crown extending a further 20 mm, with 9 radioles on each side].....***P. spathiferus***
**2b (1a).** Collar divided ventrally, with an indentation centred on the midline.....**3**

**3a (2b).** Longitudinal dorsal lamellae extending about halfway up the long first segment, not reaching the base of the crown; [type 22 mm long, 0.7 mm wide, crown 16 mm long].....***P. filiformis***
**3b (2b).** Longitudinal dorsal lamellae extending distally as far as the base of the crown; [type 38 mm long, 4.5 mm wide at the thorax, crown 13 mm long].....***P. murrayi***

### ***Potamethus filiformis*** Hartmann-Schröder 1977

*Potamethus filiformis* HARTMANN-SCHRÖDER, 1977*a*: 97, figs. 70-75.

**TYPE LOCALITY:** Off the Portuguese coast, 37º39.0'N, 9º3.0'W, at 1370-1430 meters.
**SELECTED REFERENCES:** *Potamethus filiformis* — KNIGHT-JONES, 1983: 272-273, fig. 11*A-K*. [?] *Panousea africana* [not Rullier & Amoureux 1970] — AMOUREUX, 1974*b*: 148-150, fig. 7.
**REFERENCES FOR PORTUGAL:** [?] AMOUREUX, 1974*b* (as *Panousea africana*; off Aveiro; off Porto); HARTMANN-SCHRÖDER, 1977*a* (off Cape Sardão).
**DISTRIBUTION:** Known from the type locality.

### ***Potamethus malmgreni*** (Hansen 1878)

*Potamilla Malmgreni* HANSEN, 1878: 13, pl. 9 figs. 9-13.
**TYPE LOCALITY:** Collected in two localities at the Norwegian Sea (North Atlantic): 63º22'N, 5º29'W, at 2222 meters, in Biloculina clay; 65º53'N, 7º18'W, at 2127 meters, in Biloculina clay.
**SELECTED REFERENCES:** *Patamilla Malmgreni* — HANSEN, 1882: 42-43, pl. 7 figs. 23-27. *Potamis malmgreni* — ELIASON, 1951: 139, 140, 141, text-figs. 5*e-f*, pl. 2 figs. 5-6. *Potamethus malmgreni* — KNIGHT-JONES, 1983: 271.
**DISTRIBUTION:** Between Faeroes and Jan Mayen; Laptev Sea. Between 1000-2222 meters.

### ***Potamethus murrayi*** (McIntosh 1916)

*Sabella murrayi* MCINTOSH, 1916*a*: 54-57, pl. 1 figs. 1-9.
**TYPE LOCALITY:** North of the Hebrides, at a depth of 555 fathoms (1015 meters).
**SELECTED REFERENCES:** *Potamethus murrayi* — KNIGHT-JONES, 1983: 272.
**DISTRIBUTION:** Known from the type locality.

### ***Potamethus spathiferus*** (Ehlers 1887)

*Potamis spathiferus* EHLERS, 1887: 278-283, pl 54 figs. 7-11, pl. 55 figs. 1-4.
**TYPE LOCALITY:** Off Sambos, at 275 fathoms (502.9 meters).
**SELECTED REFERENCES:** *Potamis spathifera* — AUGENER, 1906: 183. *Potamis spathiferus* — FAUVEL, 1913*a*: 80; FAUVEL, 1914*f*: 316-317, pl. 31 figs. 1-9; FAUVEL, 1932*c*: 38-39. *Potamethus spathiferus* — KNIGHT-JONES, 1983: 269-271.
**DISTRIBUTION:** Gulf of Mexico and Caribbean Sea, 232-1792 meters; Madeira Island, 1700 meters; Azores Archipelago, 1229-4360 meters. In muddy bottoms.

## GENUS ***Potamilla*** Malmgren 1866

*Potamilla* MALMGREN, 1866: 401.
**TYPE SPECIES:** *Sabella neglecta* Sars 1851.
**REMARKS:** The genus definition was emended by KNIGHT-JONES (1983).

**KEY TO SPECIES:**
(adapted from HARTMANN-SCHRÖDER, 1996)

**1a.** Membrane at the base of the radioli clearly visible; collar low, leaving peristomium visible, with long, thin rounded ventral lobes.....***P. neglecta***
**1b.** Membrane at the base of the radioli low, difficult to recognize; collar high, to the base of the tentacular crown, with short, wide rounded ventral lobes.....***P. torelli***

### ***Potamilla neglecta*** (M. Sars 1851)

*Sabella neglecta* M. SARS, 1851: 203.
**TYPE LOCALITY:** Hammerfaest and Tromsø (Norway), at 40 fathoms (73.2 meters).
**SELECTED REFERENCES:** *Potamilla neglecta* — MALMGREN, 1866: 401-402, pl. 27 fig. 84. *Potamilla neglecta* — PETTIBONE, 1954: 335-336, fig. 38*j-n*; HARTMANN-SCHRÖDER, 1971*a*: 506 [in part]; KNIGHT-JONES, 1983: 249-251, fig. 1; KNIGHT-JONES & BOWDEN, 1984: 811, fig. 2; HARTMANN-SCHRÖDER, 1996: 543-544; KIRKEGAARD, 1996: 396, fig. 227.
**DISTRIBUTION:** Arctic; North Pacific; North Atlantic; off Northern Norway; northern North Sea; Skagerrak; Kattegat; [?] Adriatic Sea; South Africa; subantarctic islands; Antarctic Ocean. Shallow water to about 80 meters.

### ***Potamilla torelli*** Malmgren 1866

*Potamilla Torelli* MALMGREN, 1866: 402.
**TYPE LOCALITY:** Iceland, at Berufjorden, at 12 fathoms (22 meters).
**SELECTED REFERENCES:** *Potamilla Torelli* — MALMGREN, 1867*a*: 114, pl. 13 fig. 76; SAINT-JOSEPH, 1894: 296-299, pl. 11 figs. 299-302; MCINTOSH, 1916*a*: 11-15; MCINTOSH, 1922*b*: 239-243, pl. 114 fig. 3, pl. 120 fig. 7; MCINTOSH, 1923*a*: pl. 128 fig. 3. *Potamilla torelli* — KNIGHT-JONES, 1983: 251-253, fig. 2; HARTMANN-SCHRÖDER, 1996: 544. *Potamilla neglecta* — HARTMANN-SCHRÖDER, 1971*a*: 506 [in part].
**DISTRIBUTION:** Arctic; North Pacific; Northwest Atlantic to the Mediterranean Sea; Adriatic Sea; Black Sea; Bay of Fundy; Iceland; Faroes; English Channel; North Sea; [?] South Africa; [?] Mozambique; [?] Madagascar; [?] New Caledonia. Shallow water to about 1240 meters. According to HARTMANN-SCHRÖDER (1996) probably some of the records of this species refer to *Potamilla neglecta*. It is also possible that other similar species are involved in this wide distribution. According to KNIGHT-JONES (1983), the species is fairly distributed in the NW Atlantic, but other records from southern locations are not reliable.

## GENUS ***Pseudoaugeneriella*** Fitzhugh 1998

*Pseudoaugeneriella* FITZHUGH, 1998: 216-217.
**TYPE SPECIES:** *Pseudoaugeneriella unirama* Fitzhugh 1998.

### ***Pseudoaugeneriella nigra*** (Langerhans 1880)

*Fabricia nigra* LANGERHANS, 1880*b*: 117-118, pl. 5 fig. 33.
**TYPE LOCALITY:** Madeira Island, among littoral algae.
**SELECTED REFERENCES:** *Fabricia nigra* — ZENKEWITSCH, 1925: 42, 45; BANSE, 1956*a*: 428, 433; FITZHUGH, 1990*a*: 8-9. *Pseudoaugeneriella nigra* — BICK, 2004: 54-62, figs. 1, 2*A-C*, 4*A-B*. *Fabricia sabella* [not Ehrenberg 1836] — RULLIER, 1954*b*: 20, 26.
**DISTRIBUTION:** Madeira Island; Canary Islands. Among algae. Intertidal to shallow subtidal.

## GENUS ***Pseudobranchiomma*** Jones 1962

*Pseudobranchiomma* JONES, 1962: 198-201.
**TYPE SPECIES:** *Pseudobranchiomma emersoni* Jones 1962.
**REMARKS:** KNIGHT-JONES & GIANGRANDE (2003) divided the genus into three groups: ***Group A***: including species in which each crown radiole has distinct, paired serrated flanges for most of its lengh; ***Group B***: including species in which the flanges and serrations are distinct only on distal parts of radioles; ***Group C***: including species in which the flanges are reduced to low ridges, lacking distinct serrations. The single species of *Pseudobranchiomma* so far known from European waters, *P. tarantoensis* Knight-Jones & Giangrande 2003, belongs to *Group C*.

### ***Pseudobranchiomma tarantoensis*** Knight-Jones & Giangrande 2003

*Pseudobranchiomma tarantoensis* KNIGHT-JONES & GIANGRANDE, 2003: 100-101, fig. 3.
**TYPE LOCALITY:** Gulf of Taranto (Southern Italy, Eastern Mediterranean Sea), in a sandy-muddy substrate, at 10 meters.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Pseudofabricia*** Cantone 1972

*Pseudofabricia* CANTONE, 1972: 3.
**TYPE SPECIES:** *Pseudofabricia aberrans* Cantone 1972.

### *Pseudofabricia aberrans* Cantone 1972

*Pseudofabricia aberrans* CANTONE, 1972: 4-6, text-figs. 1-2, plate 1.
**TYPE LOCALITY:** Brucoli Bay, Siracusa (Sicily, Italy), Ionian Sea, 2 meters, among rhizomes of *Posidonia oceanica*.
**SELECTED REFERENCES:** *Pseudofabricia aberrans* — GIANGRANDE & CANTONE, 1990: 363-364, figs. 1-3; FITZHUGH, 1995: 2-5, figs. 2-4.
**DISTRIBUTION:** Ionian Sea; Tyrrhenian Sea; Adriatic Sea. Among rhizomes of *Posidonia oceanica*. Between 1-2 meters.

## GENUS *Pseudofabriciola* Fitzhugh 1990

*Pseudofabriciola* FITZHUGH, 1990*a*: 2.
**TYPE SPECIES:** *Pseudofabriciola incisura* Fitzhugh 1990.
**REMARKS:** The genus definition of *Pseudofabriciola* was emended by FITZHUGH (1996), in order to reflect the great variability in collar construction, especially in what concerns the collar-margin sculpturing, the presence or absence of a middorsal groove, the size of the teeth above the main fang in thoracic uncini, and relative lengths of the dentate region and manubrium in abdominal uncini.

**KEY TO SPECIES:**
(data from FITZHUGH, 2002*a*)

**1a.** Middorsal collar notch present, as a narrow slit; middorsal collar surface smooth; one pair of dorsolateral notches, V-shaped; dorsal lips as narrow ridges; all thoracic segments longer than wider; pygidium very elongate, up to three times longer than wide, gently tapering to a narrow, rounded distal end, with anal depression absent.....***P. longipyga***
**1b.** Middorsal collar notch absent.....**2**

**2a (1b).** Pygidium roughly triangular in shape, terminating as broad, rounded lobe, with a ventral anal depression present; middorsal collar surface smooth; two pairs of dorsolateral notches, V-shaped; dorsal lips as a narrow ridges; first 2-3 thoracic segments wider than longer.....***P. analis***
**2b (1b).** Pygidium up to two times longer than wide, gently tapered and rounded posteriorly, with anal depression absent; middorsal collar surface grooved; one pair of dorsolateral notches, slit-like; dorsal lips as triangular lobes; all thoracic segments slightly or clearly longer than wider.....***P. capensis***

### *Pseudofabriciola analis* Fitzhugh, Giangrande & Simboura 1994

*Pseudofabriciola analis* FITZHUGH, GIANGRANDE & SIMBOURA, 1994: 221-226, figs. 2-5.
**TYPE LOCALITY:** Brindisi (Italy), Adriatic Sea, 22 meters, among algae and detritus on rock substrate.
**SELECTED REFERENCES:** *Pseudofabriciola analis* — FITZHUGH & SIMBOURA, 1995: 1-2, table 1; FITZHUGH, 1996: table 1; FITZHUGH, 2002*a*: table 4. *Fabricia filamentosa* [not Day 1963] — GIANGRANDE & CASTELLI, 1986: 119-121, fig. 1; GIANGRANDE, 1990*a*: 163.
**DISTRIBUTION:** Brindisi, Adriatic Sea, 22 meters, among algae and detritus on a rocky bottom; Western Ionian Sea, at the west coast of Peloponissos Peninsula, at 15 meters, in sandy silt.

### *Pseudofabriciola capensis* (Monro 1937)

*Oridia capensis* MONRO, 1937*b*: 366-370, figs. 1-8.
**TYPE LOCALITY:** Humewood Beach, Port Elizabeth, South Africa.
**SELECTED REFERENCES:** *Fabricia capensis* — HARTMAN, 1951*a*: 387-388; DAY, 1955: 447-448, fig. 8*g-k*; BANSE, 1956*a*: 430; DAY, 1967: 784, fig. 37.8.*m-r*; HARTMANN-SCHRÖDER, 1974*a*: 199; GIANGRANDE, 1990*a*: 163-164. *Pseudofabriciola capensis* — FITZHUGH, 1991*a*: 1102-1105, figs. 1-2. *Fabricia* cf. *capensis* — SAN MARTÍN & VIÉITEZ, 1982: 19-21, fig. 2.
**DISTRIBUTION:** South Africa; [?] Mediterranean Sea: Ischia Island and Bay of Palma de Mallorca (Balearic Islands). Eulittoral to upper sublittoral.
**REMARKS:** Both records from the Mediterranean Sea (SAN MARTÍN & VIÉITEZ, 1982; GIANGRANDE, 1990*a*) were considered as dubious by their authors, and they refer probably to one of the two species of *Pseudofabriciola* described from the Mediterranean Sea in the meantime.

### ***Pseudofabriciola longipyga*** Fitzhugh, Giangrande & Simboura 1994

*Pseudofabriciola longipyga* FITZHUGH, GIANGRANDE & SIMBOURA, 1994: 226-230, figs. 6-7.
**TYPE LOCALITY:** Lésvos (Lesbos) Island, Geras Gulf, NE Aegean Sea, 21 meters, in muddy sand.
**SELECTED REFERENCES:** *Pseudofabriciola longipyga* — FITZHUGH & SIMBOURA, 1995: 2-6, figs. 2-7, tables 1-2; FITZHUGH, 1996: table 1; FITZHUGH, 2002*a*: table 4. *Fabricia filamentosa* [not Day 1963] — SIMBOURA, 1990: 129-130.
**DISTRIBUTION:** Aegean Sea: Lésvos Island, Rhodes Island, Cyclades Islands, Saronikos Gulf. In muddy sand, sandy silt and coralligenous substrate. Between 6-112 meters

## *GENUS ***Pseudopotamilla*** Bush 1904

*Pseudopotamilla* BUSH, 1904: 203-204.
**TYPE SPECIES:** *Amphitrite reniformis* O.F. Müller 1771.
**REMARKS:** The genus definition was emended by CAPA (2007).

**KEY TO SPECIES:**

**1a.** Each radiole with numerous small eyes.....***P. ceresinae***
**1b.** Each radiole with few big lenticular eyes.....***P. reniformis****

### ***Pseudopotamilla ceresinae*** (Grube 1870)

*Sabella (Potamilla) cerasina* GRUBE, 1870*d*: 67.
**TYPE LOCALITY:** Dalmatia (Adriatic Sea).
**SELECTED REFERENCES:** *Pseudopotamilla ceresina* — GIANGRANDE, 1990*a*: 169.
**DISTRIBUTION:** Known from the type locality.

### ****Pseudopotamilla reniformis*** (O.F. Müller 1771)

*Amphitrite reniformis* O.F. MÜLLER, 1771: 194-200, pl. 16 figs. 1-3.
**TYPE LOCALITY:** Denmark.
**SYNONYMS:** *Sabella saxicola* Grube 1861 [in part; in part = *Demonax brachychona* (Claparède 1870)]; *Sabella saxicava* Quatrefages 1866.
**SELECTED REFERENCES:** *Potamilla reniformis* — MALMGREN, 1867*a*: 114, pl. 13 fig. 77; SAINT-JOSEPH, 1894: 292-296, pl. 11 figs. 296-298; SOULIER, 1902: 120-128, fig. 4; MCINTOSH, 1916*a*: 7-11; RIOJA, 1917*c*: 63-64, fig. 19; MCINTOSH, 1922*b*: 232-239, pl. 114 fig. 2, pl. 127 fig. 7; MCINTOSH, 1923*a*: pl. 128 figs. 1-2; FAUVEL, 1927*a*: 309-310, fig. 107*a-l*; JOHANSSON, 1927: 142-143; RIOJA, 1931: 350-353, pl. 113 figs. 1-2. *Pseudopotamilla reniformis* — BLAKE, 1969*a*: 818, fig. 6; KNIGHT-JONES, 1983: 254, fig. 3; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 852, fig. 2*C-D*; HARTMANN-SCHRÖDER, 1996: 544-546, fig. 265; KIRKEGAARD, 1996: 397, fig. 228. *Sabella saxicava* — QUATREFAGES, 1866*b*: 437-438; GRUBE, 1870*a*: 349-350.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Potamilla reniformis*; Cape Santa Maria); AMOUREUX, 1974*b* (off Porto); SALDANHA, 1974 (as *Potamilla reniformis*; coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (as *Potamilla reniformis*; western continental shelf of Algarve); AMOUREUX & CALVÁRIO, 1981 (as *Potamilla reniformis*; Peniche); MONTEIRO-MARQUES *et al.*, 1982 (as *Potamilla reniformis*; Cape Carvoeiro; Cape Papoa; Ponta do Surdão); DEXTER, 1992 (as *Potamilla reniformis*; previous records: Sado Estuary).
**MATERIAL: FAUNA 1 — St. 17*A***, Alborán Sea, Alborán Island, 70-74 m, stones: 1 incomplete specimen with about 45 chaetigers, 8 of which are thoracic.
**DISTRIBUTION:** Arctic; North Pacific; North Atlantic southward to Senegal; New England; English Channel; North Sea; Kattegat; Øresund; Mediterranean Sea; Adriatic Sea; Aegean Sea; Namibia; South Africa; Mozambique; Madagascar. In rocks, pure mud, mud mixed with sand, *Amphioxus*-sand, gravel, stones, coralligenous bottoms, and among rhizomes of *Laminaria*, algae, sponges and shells. Eulittoral to about 800 meters.

## *GENUS ***Sabella*** Linnaeus 1767

*Sabella* LINNAEUS, 1767: 1268.
**TYPE SPECIES:** *Sabella penicillus* Linnaeus 1767.
**SYNONYMS:** *Spirographis* Viviani 1805.
**REMARKS:** The genus definition was restricted by KNIGHT-JONES & PERKINS (1998).

**KEY TO SPECIES:**
(from KNIGHT-JONES & PERKINS, 1998):

**1a.** Length of thorax not much greater than breadth; dorsal collar margins curved, extending towards the body midline, nearly covering short, curved ridges flanking midline groove; gaps between ventral shields and tori of posterior half of thorax very small, or absent in larger specimens; large specimens with one side of crown forming several whorls.....***S. spallanzanii***
**1b.** Length of thorax at least twice the breadth; dorsal collar margins wide apart and ending close to first fascicles; anterior midline groove without flanking ridges; gaps between ventral shields and tori very distinct and of similar size throughout the thorax; crowns of large specimens in semicircles or with one side in partial spiral.....**2**

**2a (1b).** Tips of radioles short and plain; first segment longer than others in thorax, with dorsolateral collar margins not reaching junction of crown and body; inferior thoracic chaetae with region above knee about 6 times as long as broad.....***S. pavonina****
**2b (1b).** Tips of radioles with a whitish subdistal swelling on same side as pinnules; first segment similar in length to others in thorax, with dorsolateral collar margins covering junction of crown and body; inferior thoracic chaetae with region above knee about 3 times as long as broad.....***S. discifera***

## ***Sabella discifera*** Grube 1874

*Sabella discifera* GRUBE, 1874*a*: 54.
**TYPE LOCALITY:** Hvar Island (Lesina), Croatia.
**SYNONYMS:** *Sabella variabilis* Langerhans 1884; *Branchiomma Linaresi* Rioja 1917.
**SELECTED REFERENCES:** *Sabella discifera* — KNIGHT-JONES & PERKINS, 1998: 401-403, fig. 6. *Sabella variabilis* — LANGERHANS, 1884: 269-270, pl. 16 fig. 32; KNIGHT-JONES & BOWDEN, 1984: 814-815, fig. 3. *Branchiomma Linaresi* — RIOJA, 1917*c*: 66-69, fig. 20; RIOJA, 1923*c*: 35, figs. 37-47; FAUVEL, 1927*a*: 317, fig. 110*a-e*; RIOJA, 1931: 360-362, pl. 114 figs. 9-12, pl. 115. *Branchiomma linaresi* — HARRIS, 1971: 715-716, fig. 20. Not *Branchiomma Linaresi* — IROSO, 1921: 69-70, pl. 3 fig. 1 [= probably *Myxicola infundibulum* (Montagu 1808)].
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; Madeira Island; Bay of Biscay; English Channel; South Wales; Faroes. Over firm substract, in places with strong currents. Between 24-49 meters.

## ****Sabella pavonina*** Savigny 1822

*Sabella pavonina* SAVIGNY, 1822: 79-80.
**TYPE LOCALITY:** Atlantic coast, probably of France ("*Côtes de l'Ocean*"). Neotype designated by KNIGHT-JONES & PERKINS (1998) from St. John's Lake, Tamar Estuary, northwest of Plymouth Sound (England), 4-5 meters.
**SYNONYMS:** *Amphitrite ventilabrum* Gmelin *in* Linnaeus 1791 [in part]; *Amphitrite reniformis* Gmelin *in* Linnaeus 1791 [in part; HOMONYM, not *Amphitrite reniformis* O.F. Müller 1771]; *Sabella penicillus* Savigny 1822 [HOMONYM; not *Serpula penicillus* Linnaeus 1758]; *Sabella savignyi* Johnston 1865 [new name for *Sabella penicillus* Savigny 1822]; *Sabella flabellata* Quatrefages 1866 [not *Sabella flabellata* Savigny 1822, *species inquirendum*]; *Sabella sarsi* Krøyer 1856 [not *Sabella Sarsii* Bidenkap 1894; HOMONYM; indeterminate]; *Sabella longibranchiata* Quatrefages 1866; *Sabella intermedia* Quatrefages 1866; *Sabella cucullus* Quatrefages 1866; *Spirographis brevispira* Quatrefages 1866; *Sabella pavonina* var. *bicoronata* Hornell 1891.
**SELECTED REFERENCES:** *Sabella penicillus* [not *Serpula penicillus* Linnaeus 1758] — MCINTOSH, 1916*a*: 2-7; MCINTOSH, 1922*b*: 223-232, text-fig. 150, pl. 114 fig. 1, pl. 120 fig. 5, pl. 127 fig. 6; JOHANSSON, 1927: 117-119; DAY, 1967: 763, fig. 37.2.*o-s*; HARTMANN-SCHRÖDER, 1996: 546-548, fig. 266. *Sabella pavonina* — MALMGREN, 1866*a*: 398-399, pl. 27 fig. 82; SAINT-JOSEPH, 1894: 267-285, pl. 10 figs. 279-284, pl. 11 figs. 285-288; IROSO, 1921: 75-76; FAUVEL, 1927*a*: 298-300, fig. 102; THOMAS, 1940: 44-60, text-figs. 5-6, pl. 7 fig. 30, pls. 8-9; KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 845,

fig. 4*A-B*; KIRKEGAARD, 1996: 398-401, fig. 229; KNIGHT-JONES & PERKINS, 1998: 397-401, figs. 1, 5, 30*A-M*, 31*M-N*.

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Vila Nova de Milfontes); BELLAN, 1960*a* (off Cape Roca; Cape Espichel; Setúbal Canyon); AMOUREUX, 1974*b* (off Porto); SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1977*a* (as *Sabella penicillus*; Bay of Setúbal); MONTEIRO-MARQUES, 1979 (southern continental shelf of Algarve); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Mira Estuary; Sado Estuary); SALDANHA, 1995 (Portugal).

**MATERIAL: FAUNA 1 — St. 4*A***, Alborán Sea, between Rincón de la Victoria and Vélez-Málaga, 60 m, sand with mud: 1 specimen without crown, 93 mm long, 3 mm wide, with 175 chaetigers, 9 of which are thoracic; crown loose, 47 mm long; radioles with blunt bare tips; collar dorsally in bad condition, with margins scarcely projecting beyond the first fascicles; first segment about twice as long as following ones in thorax; first ventral shields wider than those following, most thoracic shields a little more than twice as broad as long, with gaps of uniform width separating them from adjacent tori; tube of semi-hardened mucus. **St. 17*A***, Alborán Sea, Alborán Island, 70-74 m, stones: 5 specimens, all still inside the tubes; only one was studied, to confirm the identification. **St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse gravel: 2 specimens, one of which incomplete, broken in two, with 8 thoracic chaetigers; the other is complete, with about 230 chaetigers (7 thoracic), body 140 mm long, crown 35 mm long.

**DISTRIBUTION:** Northwest Europe; Mediterranean Sea; Adriatic Sea; Aegean Sea; Cape Province (South Africa). In shallow waters.

**REMARKS:** The complex history of this species was traced by KNIGHT-JONES & PERKINS (1998), whose list of synonymies is presented above. The same publication should be consulted for a more extensive list of references. The same authors redescribed the species and designated a neotype.

## ***Sabella spallanzanii*** (Gmelin *in* Linnaeus 1791)

*Tubularia spallanzanii* GMELIN *in* LINNAEUS, 1791: 3835.

**TYPE LOCALITY:** Italy, Mediterranean Sea, in quiet places. Neotype from Malta, Mediterranean Sea, designated by KNIGHT-JONES & PERKINS (1998).

**SYNONYMS:** *Corallina Tubularia Melitensis* Ellis 1755; *Serpula penicillus* Linnaeus 1758; *Teredo melitensis* Bergius 1765 (1767); *Amphitrite ventilabrum* Gmelin *in* Linnaeus 1791 [in part]; *Sabella unispira* Cuvier 1817; *Spirographis januarii* Krøyer 1856; *Spirographis longispira* Quatrefages 1866; *Spirographis elegans* Quatrefages 1866; *Dystila josephina* Quatrefages 1866; *Sabella gracillima* Kinberg 1867; *Spirographis gracilis* Hansen 1882; *Spirographis nobilis* Hansen 1882; *Spirographis simplex* Hansen 1882; *Spirographis imperialis* Hansen 1882; *Spirographis braziliensis* Treadwell 1932.

**SELECTED REFERENCES:** *Spirographis Spallanzanii* — SAINT-JOSEPH, 1898: 429-433; FAUVEL, 1927*a*: 304-306, fig. 105; JOHANSSON, 1927: 133-135. *Spirographis spallanzani* — MCINTOSH, 1923*a*: 261-263, pl. 133 fig. 7. *Sabella spallanzanii* — KNIGHT-JONES, KNIGHT-JONES & ERGEN, 1991: 844-845, figs. 3*A*, 4*C-D*; KNIGHT-JONES & PERKINS, 1998: 393-396, fig. 4.

**REFERENCES FOR PORTUGAL:** NOBRE, 1937 (as *Spirographis Spallanzanii*; Lagos; Portimão); CARVALHO, 1929 (as *Spirographis Spallanzanii*; Vila Nova de Milfontes; Sines); SALDANHA, 1974 (as *Spirographis spallanzanii*; coast of Arrábida); MONTEIRO-MARQUES, 1987 (as *Spirographis spallanzani*; continental shelf of Algarve); SALDANHA, 1995 (as *Spirographis spallanzanii*; Portugal).

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; east Atlantic, up to St. Vaast-la-Hougue, Cherbourg and Azores; Canary Islands; Indonesia; Australia. Abundant in harbours, generally in silty bottoms, but also among stones. Shallow water to about 15 meters.

**REMARKS:** For a more extensive list of references consult KNIGHT-JONES & PERKINS (1998), who redescribed the species and designated a neotype.

The history of this species was traced by KNIGHT-JONES & PERKINS (1998), whose list of synonymies is presented above. The same authors pointed to the fact that the presence of the species in Indonesia, possibly collected at Djakarta harbour, and also the recent records of its presence in Australia and Canary Islands, can be the result of the spread of the species by ship transport.

## GENUS ***Sabellastarte*** Krøyer 1856

*Sabellastarte* KRØYER, 1856: 13.

**TYPE SPECIES:** *Sabella indica* Savigny 1822 [= *Sabellastarte spectabilis* (Grube 1878)].

**REMARKS:** *Sabella indica* Savigny 1822 is a junior homonym of *Sabella indica* Abildgaard 1789, a Pectinariidae. The following name available for the species is the junior synonym *Sabella spectabilis* Grube 1878.

The genus definition was restricted by KNIGHT-JONES & MACKIE (2003), and a neotype for the type species designated.

### ***Sabellastarte fallax*** (Quatrefages 1866)

*Sabella fallax* QUATREFAGES, 1866*b*: 444.
**TYPE LOCALITY:** Unknown. It was originally described as *Sabella penicillus* Sav.? by GRUBE (1846*a*), with base on a specimen deposited at the Berlin Museum, without indication of its origin.
**SELECTED REFERENCES:** *Sabella penicillus* Sav.? — GRUBE, 1846*a*: 55-57, pl. 2 fig. 2. *Sabellastarte fallax* — KNIGHT-JONES & MACKIE, 2003: 2282-2285, fig. 5.
**DISTRIBUTION:** Unknown.
**REMARKS:** There is no information on the type locality of this species, first temptatively described by GRUBE (1846*a*) as *Sabella penicillus*. As there is a possibility that the origin of the species is the Mediterranean Sea, especially the Adriatic Sea, from where was some of the material studied by Grube during that period, the species is included here.

## *INCERTAE SEDIS*

### ***Potamethus breviuncinatus*** Hartmann-Schröder 1977

*Potamethus breviuncinatus* HARTMANN-SCHRÖDER, 1977*a*: 97-98, figs. 76-82.
**TYPE LOCALITY:** Gorringe Bank, 36º42.1'N, 11º09.0'W, at 72 meters.
**SELECTED REFERENCES:** *Potamethus breviuncinatus* — KNIGHT-JONES, 1983: 273.
**REMARKS:** This species was described in the genus *Potamethus*, but its author pointed already that it probably should be placed in a different genus, when the characters of some of the less known genera were studied. According to KNIGHT-JONES (1983) it can't belong to *Potamethus* on account of the shortness of the first segment and the shortness of the thoracic uncini. The inferior chaetae have the compact spoonshaped hood commonly seen in *Hypsicomus sensu lacto*, but both HARTMANN-SCHRÖDER (1977*a*) and KNIGHT-JONES (1983) agree in that it can not be placed in "*Hypsicomus*", as the first thoracic chaetae are not in a longitudinal row nor are there eyes on the radioles. However, the type material is in poor condition, with much of the anterior epithelium being sloughed off, which would affect eyes and fine webbing first.

## INDETERMINABLE SPECIES

### ***Chone gracilis*** Hofsommer 1913

*Chone gracilis* HOFSOMMER, 1913: 38-41, text-fig. *k*, pl. 4 figs. 16-18, map.
**TYPE LOCALITY:** Eastern North Sea, 56º35'N 6º12'E to 56º30'N 6º6'E, between 30-38 meters, in coarse gravel with stones.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** According to COCHRANE, 2000 *in* TOVAR-HERNÁNDEZ (2007), this species is to be considered as *incertae sedis*. Besides, it is also a junior homonym of *Chone gracilis* Moore 1906, from Alitak bay (Gulf of Alaska).

### ***Chone heterochaeta*** Hofsommer 1913

*Chone heterochaeta* HOFSOMMER, 1913: 41-43, text-fig. *l*, pl. 4 figs. 19-22, map.
**TYPE LOCALITY:** Eastern North Sea, 57º0'N, 8º3'E, at 30 meters, in a sandy ground.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** According to COCHRANE, 2000 *in* TOVAR-HERNÁNDEZ (2007), this species is to be considered as *incertae sedis*.

## ***Sabella brevibarbis*** Grube 1860

*Sabella brevibarbis* GRUBE, 1860: 112-113.
**TYPE LOCALITY:** Pischio, in Cres (= Cherso) Island, Croatia, Adriatic Sea.
**SELECTED REFERENCES:** *Sabella brevibarbis* — KNIGHT-JONES & PERKINS, 1998: 404.
**REMARKS:** This species was considered as being an indeterminate *Sabella* specimen by KNIGHT-JONES & PERKINS (1998), due to the poor condition of the type material.

## ***Sabella hystricis*** McIntosh 1916

*Sabella hystricis* MCINTOSH, 1916*a*: 52-53, pl. 4 figs. 1-3.
**TYPE LOCALITY:** Off South Portugal, 36º37'N, 7º33'W, at 322 fathoms (588.9 meters), in fine grey mud.
**REMARKS:** The species was described by MCINTOSH (1916*a*) with base on a single specimen that appeared to have been dried.

## ***Sabella imberbis*** Grube 1863

*Sabella imberbis* GRUBE, 1863: 64-65, pl. 6 fig. 7.
**TYPE LOCALITY:** Uvala Krivica (= Crivizza), Lošinj Island, Croatia, Adriatic Sea.
**SELECTED REFERENCES:** *Sabella imberbis* — KNIGHT-JONES & PERKINS, 1998: 404.
**REMARKS:** This species was considered as being an indeterminate *Sabella* specimen by KNIGHT-JONES & PERKINS (1998), due to the poor condition of the type material.

## ***Sabella southerni*** McIntosh 1916

*Sabella southerni* MCINTOSH, 1916*a*: 53-54, pl. 1 figs. 10-11, pl. 2 figs. 1-3, pl. 3 figs. 1-2.
**TYPE LOCALITY:** Station 8 of the "Knight Errant" Expedition, on 17th August 1882, at a depth of 540 fathoms (987.6 meters), along with a sponge.

# FAMILY **SACCOCIRRIDAE** Czerniavsky 1881

**AS:** *SACCOCIRRIDAE* CZERNIAVSKY, 1881*b*: 356.

**TYPE GENUS:** *Saccocirrus* Bobretzky 1871.

**REMARKS:** Saccocirridae is a small family of worms living normally in intertidal to shallow subtidal coarse sandy sediments, like in beaches, with the most taxa having been described from warm waters around the world. The family Saccocirridae includes at present one single genus with 22 species considered to be valid (ROUSE, 2001*l*; BAILEY-BROCK, DREYER & BROCK, 2003; JOUIN-TOULMOND & GAMBI, 2007).

Two groups of species in the genus *Saccocirrus* have been recognised by many authors (JOUIN-TOULMOND & GAMBI, 2007, and references in it):

1) The "*papillocercus* group" has bilateral gonads, no muscular pharyngeal organ, no ventral ciliation, longest chaetae with short prongs, medium chaetae with an oar shaped tip, is probably carnivorous and has a world wide distribution; this group comprises at present 10 species.

2) The "*krusadensis* group" possesses unilaterial gonads, a pharyngeal muscular organ, an anterior ventral ciliation, longest chaetae deeply bifid at tip, medium chaetae with a deep median notch at tip, is detritivorous, bacteria-diatom browser and has an Indo-Pacific distribution; this group comprises at present 12 species.

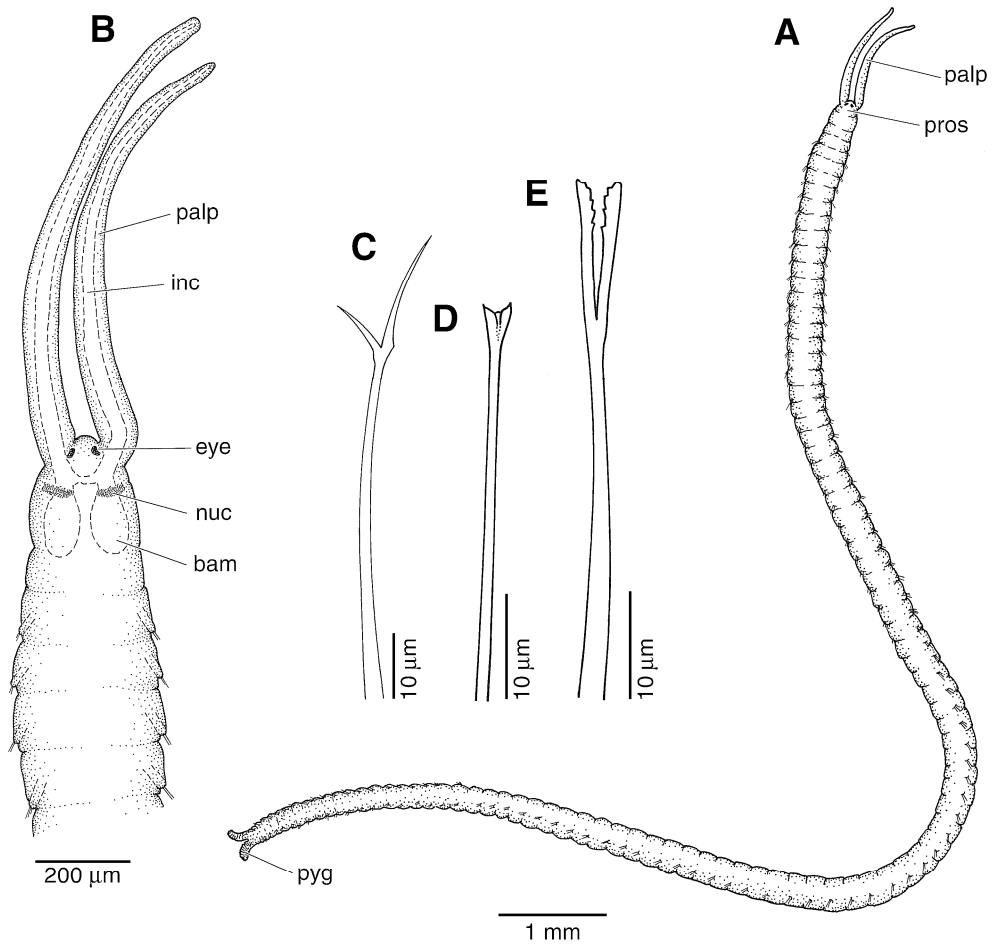


**Figure legend:** Family Saccocirridae. *Saccocirrus* specimen. **A**, entire animal, dorsal view. **B**, anterior end, dorsal view. **C**-**E**, chaetae. **bam**, basal ampulla; **eye**, eye; **inc**, internal canal; **nuc**, nuchal organ; **palp**, palp; **pros**, prostomium; **pyg**, pygidium. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

The authorship of the family Saccocirridae is normally attributed to CZERNIAVSKY (1881*b*), but apparently he ascribed the erection of the new family to BOBRETZKY (1871*b*). As it wasn't possible to check Bobretzky's paper, the authorship of the Saccocirridae remains here as being Czerniavsky 1881.

Recent papers on the taxonomy of the group include BROWN (1981), SASAKI (1981), BAILEY-BROCK, DREYER & BROCK (2003), and JOUIN-TOULMOND & GAMBI (2007). This last paper includes a table with data on some characters of females of 14 *Saccocirrus* species.

## GENUS ***Saccocirrus*** Bobretzky 1871

*Saccocirrus* BOBRETZKY, 1871*b*: 211.

**TYPE SPECIES:** *Saccocirrus papillocercus* Bobretzky 1871.

**REMARKS:** *Saccocirrus maculatus* Tenerelli 1964, from the Gulf of Catania (Mediterranean Sea), is not included in the following key. JOUIN (1971) stated that it is an invalid species, described from one single sterile specimen with only 26 segments (see description in TENERELLI, 1964). It also presents pigment granules in the epidermis, something that, according to JOUIN (1971), is quite often found in juvenile specimens of *Saccocirrus*.

**KEY TO SPECIES:**
(adapted from: FAUVEL, 1927*a*; JOUIN, 1971)

**1a.** Pharyngeal bulb present.....***S. goodrichi***
**1b.** Pharyngeal bulb absent.....**2**

**2a (1b).** No pygidial adhesive papillae; very few adhesive glands; small body size, up to 3 mm long.....***S. parvus***
**2b (1b).** Pygidial adhesive papillae well developed; large forms, usually more than 10 mm long.....**3**

**3a (2b).** 5-6 papillae on each pygidial lobe; long chaetae distally slightly notched; body size up to 25 mm long.....***S. papillocercus***
**3b (2b).** 10-16 papillae on pygidial lobe; long chaetae distally blunt; body size normally up to 45 mm, according to CLAUDE JOUIN-TOULMOND (pers. com. December 2008), but described as up to 70 mm long.....***S. major***

### ***Saccocirrus goodrichi*** Jouin-Toulmond & Gambi 2007

*Saccocirrus goodrichi* JOUIN-TOULMOND & GAMBI, 2007: 382-385, figs. 1-3, table 1.

**TYPE LOCALITY:** Cinito (Gulf of Naples), 8 meters, on coarse sand ("*Amphioxus* sand").

**SELECTED REFERENCES:** *Saccocirrus papillocercus* [not Bobretzky 1871] — GOODRICH, 1901: 414-421, pls. 27-29 figs. 1-6, 8-22. *Saccocirrus krusadensis* [not Alikunhi 1942] — JOUIN 1971: 51-52.

**DISTRIBUTION:** Gulf of Naples (Cinito and Casamiccicola), on infralittoral coarse sand ("*Amphioxus* sand").

**REMARKS:** JOUIN (1971) identified with doubts as *S. krusadensis* some specimens collected at the Gulf of Naples with a pharyngeal muscular pad. These specimens were immature, and their provisional identification was based on the chaetae. Later, the same author (JOUIN, 1975) stated that the specimens from the Gulf of Naples were different from *S. krusadensis*, belonging to a new species near to it. According to JOUIN (1975), the two species differed mainly by the chaetae: *S. krusadensis* had the longer branch of the asymmetrical bifurcated tips of the long chaetae with more than 20 µm, while in the species from Naples the same longer tip had up to 5-7 µm.

This species was finally described as a new species by JOUIN-TOULMOND & GAMBI (2007), under the name *Saccocirrus goodrichi*, as the material studied and pictured by GOODRICH (1901) was partly based on specimens of this species. For the moment it is the only known species of *Saccocirrus* in the European waters to possess a pharyngal bulb.

### ***Saccocirrus major*** Pierantoni 1907

*Saccocirrus major* PIERANTONI, 1907: 5, pl. 8 figs. 11-20.

**TYPE LOCALITY:** Gulf of Naples (Mediterranean Sea), in the sand.

**SELECTED REFERENCES:** *Saccocirrus major* — FAUVEL**,** 1927*a*: 431, fig. 144*a-h*; TENERELLI, 1964: 226-227. *Saccocirrus papillocercus* [not Bobretzky 1871] — MARION & BOBRETZKY, 1875: 69-83, pl. 9 figs. 19, 19*B-G*, pl. 10 fig. 19*A*, 19*H-K*; HEMPELMANN, 1906*b*: 775-784, figs. 1-19; SAN MARTÍN, 1987: 103-104, fig. 1.

**DISTRIBUTION:** Mediterranean Sea (Marseille, Villefranche, Naples, Mallorca). In the sand among the rocks, at the water edge and surf zone.

**REMARKS:** SAN MARTÍN (1987) described two specimens of *Saccocirrus papillocercus* from Mallorca Island, one as being a male and another as a female. These specimens were not sexually mature, and sexes were determined based on the number of posterior achaetous segments, as stated in FAUVEL (1927*a*: 431), an invalid character according to CLAUDE JOUIN-TOULMOND (pers. com. December 2008).

These specimens were at first attributed by me to *S. goodrichi*, but this identification was erroneous, according to CLAUDE JOUIN-TOULMOND (pers. com. December 2008), who stated that the ventral view of the female pictured by SAN MARTÍN (1987) shows the thickening of the lips around the mouth, and not a pharyngeal bulb, which should be located more posteriorly, in segments 1 and 2. The same author corrected the identification of these specimens to *Saccocirrus major*, with base on the size of the chaetae, which are twice than that of *S. papillocercus* (being the width of the apex of the long and medium chaetae respectively around 5.5 µm and 7.2 µm, as in *S. major*, while they are respectively 2 and 3.5 µm in *S. papillocercus*), and on the locality where the specimens were found, near the surf zone, which is more typical for *S. major* ["*a pocos cm. de profundidad, en la zona superior del piso infralitoral*" (SAN MARTÍN, 1987: 103)].

## ***Saccocirrus papillocercus*** Bobretzky 1871

*Saccocirrus papillocercus* BOBRETZKY, 1871: 211, pls. 4-5.

**TYPE LOCALITY:** Bay of Sebastopol (Black Sea).

**SELECTED REFERENCES:** *Saccocirrus papillocercus* — LANGERHANS, 1880*b*: 101-102, pl. 4 fig. 17; PIERANTONI, 1907: 2, pl. 8 figs. 1-10; FAUVEL**,** 1927*a*: 430-431, fig. 145*a-d* [in part; not GOODRICH (1901) in reference list, nor figs. 145*e-f* = *Saccirrus goodrichi* Jouin-Toulmond & Gambi 2007]; TENERELLI, 1964: 225-226; JOUIN *in* CABIOCH, L'HARDY & RULLIER, 1968: 7; SMIGIELSKI & SOUPLET, 1977: 475-480; WESTHEIDE, 1990: 84-86, fig. 26; WESTHEIDE, 2008: 94-96, fig. 56.

**REFERENCES FOR PORTUGAL:** SOUSA-REIS *et al.*, 1982 (Peniche region); MONTEIRO-MARQUES, 1984 (Praia da Falésia); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: continental shelf of Algarve; Lagoon of Albufeira; Peniche; Lagoon of Óbidos; Figueira da Foz).

**DISTRIBUTION:** English Channel (Plymouth, Roscoff area); Irish Sea (Irish coast, North Wales); Madeira Island; Mediterranean Sea (Naples); Aegean Sea; Black Sea (Sebastopol). Mainly in coarse sand. Intertidal and in *Amphioxus*-sand (5-10 meters).

## ***Saccocirrus parvus*** Gerlach 1953

*Saccocirrus parvus* GERLACH, 1953: 249-250, pl. 27 fig. 2*a-c*, pl. 28 fig. 2*d-f*.

**TYPE LOCALITY:** San Rossore, Marina di Pisa, and Tyrrhenian Sea near Pisa (Italy), interstitial in coastal sand.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** *Saccocirrus parvus* is a small species in the group, with the biggest mature worm found by GERLACH (1953) being 2.5 to 3 mm long and 120 to 180 µm wide. The biggest worms are stated to have 48 segments, but GERLACH (1953) also states that specimens with 35 segments show already mature sperm. No pygidial adhesive papillae seems to be present.

# *FAMILY **SCALIBREGMATIDAE** Malmgren 1867

**AS:** *SCALIBREGMIDAE* MALMGREN, 1867*a*: 76.

**TYPE GENUS:** *Scalibregma* Rathke 1843.

**REMARKS:** The family Scalibregmatidae (also called "maggot worms") includes worms which can have a short and stout body, looking like a "maggot" (the larval stage of flies), or a more elongate and tapering body, said to be "arenicoliform", mainly because of the tesselated body surface.

The Scalibregmatidae includes nowadays 18 genera, with 92 species and 3 subspecies, which are distributed as follows: *Asclerocheilus* Ashworth 1902 (14 species); *Cryptosclerocheilus* Blake 1972 (1 species); *Hyboscolex* Schmarda 1861 (8 species, 1 subspecies); *Lipobranchius* Cunningham & Ramage 1888 (1 species); *Mucibregma* Fauchald & Hancock 1981 (1 species); *Neolipobranchius* Hartman & Fauchald 1971 (2 species); *Oligobregma* Kudenov & Blake 1978 (8 species); *Parasclerocheilus* Fauvel 1928 (2 species); *Polyphysia* Quatrefages 1866 (3 species, 1 subspecies); *Proscalibregma* Hartman 1967 (1 species); *Pseudoscalibregma* Ashworth 1902 (5 species); *Scalibregma* Rathke 1843 (5 species); *Scalibregmella* Hartman & Fauchald 1971 (1 species); *Scalibregmides* Hartmann-Schröder 1965 (2 species); *Sclerobregma* Hartman 1965 (1 species); *Sclerocheilus* Grube 1863 (4 species); *Speleobregma* Bertelsen 1986 (3 species); *Travisia* Johnston 1840 (30 species, 3 subspecies). Besides, several new species have already been detected, but remain unnamed.

The genus *Lipobranchius*, with *L. jeffreysii* (McIntosh 1869) as the type and only species, is considered by some authors as being an abranchiate juvenile form of *Polyphysia crassa* (Ørsted 1843), but as this position is not unanimous, both genus and species are here considered as valid. The genus *Cryptosclerocheilus* was synonymised with *Polyphysia* by JIRKOV (2001), but for the moment I prefer to maintain the two genera as separate, as the general shape of the body is quite different. Another genus, *Scalispinigera* Hartman 1967, first described in the Scalibregmatidae, was transfered to Lacydoniidae by PLEIJEL & FAUCHALD (1993).

The genera *Speleobregma* Bertelsen 1986, and *Axiokebuita* Pocklington & Fournier 1987, are here considered as synonymous, with base on the published descriptions.

The first taxonomic reviews on the family can be found at ASHWORTH (1902), and FURREG (1925), while a modern review was performed by KUDENOV & BLAKE (1978), who resumed the previous taxonomy of the Scalibregmatidae. Following KUDENOV & BLAKE (1978), other important taxonomic works, almost all of them describing new taxa, and some of which with keys or comparative tables of species, are BERTELSEN & WESTON (1980) and KUDENOV (1984*a*, 1985), on the scalibregmatids of the Gulf of Mexico, BLAKE (1981*b*), SCHÜLLER & HILBIG (2007), and SCHÜLLER (2008), on the Scalibregmatidae from the Antarctica and Southern Seas, FAUCHALD & HANCOCK (1981), BERTELSEN (1986), and POCKLINGTON & FOURNIER (1987), with the description of new genera and species from off Oregon, Eastern Canada, and Canary Islands, respectively, MACKIE (1991*a*), on the North European *Scalibregma*, HARTMANN-SCHRÖDER (1979*b*, 1994), with new species from the Australian waters, and finally BLAKE (2000*d*), and EIBYE-JACOBSEN (2002*a*), on scaligregmatids from California, and the Andaman Sea, respectively. The phylogenetic relationships between several genera of Scalibregmatidae, and between Scalibregmatidae and *Travisia*, were investigated by several authors (see the *REMARKS* section below, under the genus *Travisia*).

Thirteen genera, including 18 described species and one subspecies, are known to occur in the European and nearby waters, while other 3 new species are already known, but remain unnamed or undescribed. Three species (one of which new but still undescribed), belonging to two genera, were present in the studied material.

### KEY TO GENERA:

(adapted from KUDENOV & BLAKE, 1978; BLAKE, 1981*b*)

**1a.** Body long, arenicoliform, sometimes anteriorly inflated, but always with a slender posterior end; prostomium T-shaped with distinct lateral processes or horns.....**2**
**1b.** Body short, maggot-like and inflated; prostomium incised or entire.....**10**

**2a (1a).** Parapodia of posterior chaetigers reduced; without dorsal and ventral cirri; neuropodia can have a dorsal or a postchaetal cirrus or lamella associated.....**3**
**2b (1a).** Parapodia of posterior chaetigers with, at least, ventral cirri; with or without branchiae.....**6**

**3a (2a).** With branchiae; without acicular spines .....***Cryptosclerocheilus***
**3b (2a).** Without branchiae; with or without acicular spines.....**4**

**4a (3b).** Without neuropodial prolonged postchaetal lamellae or dorsal cirri; with or without acicular spines; with furcate chaetae; pygidium with several elongated digitiform anal cirri.....**5**
**4b (3b).** With neuropodial prolonged postchaetal lamellae or neuropodial dorsal cirri; without acicular spines; without furcate chaetae; pygidium with two pad-shaped lobes, covered by digitate papillae.....***Speleobregma***

**5a (4a).** Without acicular spines.....***Hyboscolex***
**5b (4a).** With acicular spines.....***Asclerocheilus***

**6a (2b).** Parapodia of posterior segments with ventral cirri, without dorsal cirri; without branchiae; with acicular spines.....***Sclerocheilus****
**6b (2b).** Parapodia of posterior segments with dorsal and ventral cirri.....**7**

**7a (6b).** With branchiae.....**8**
**7b (6b).** Without branchiae.....**9**

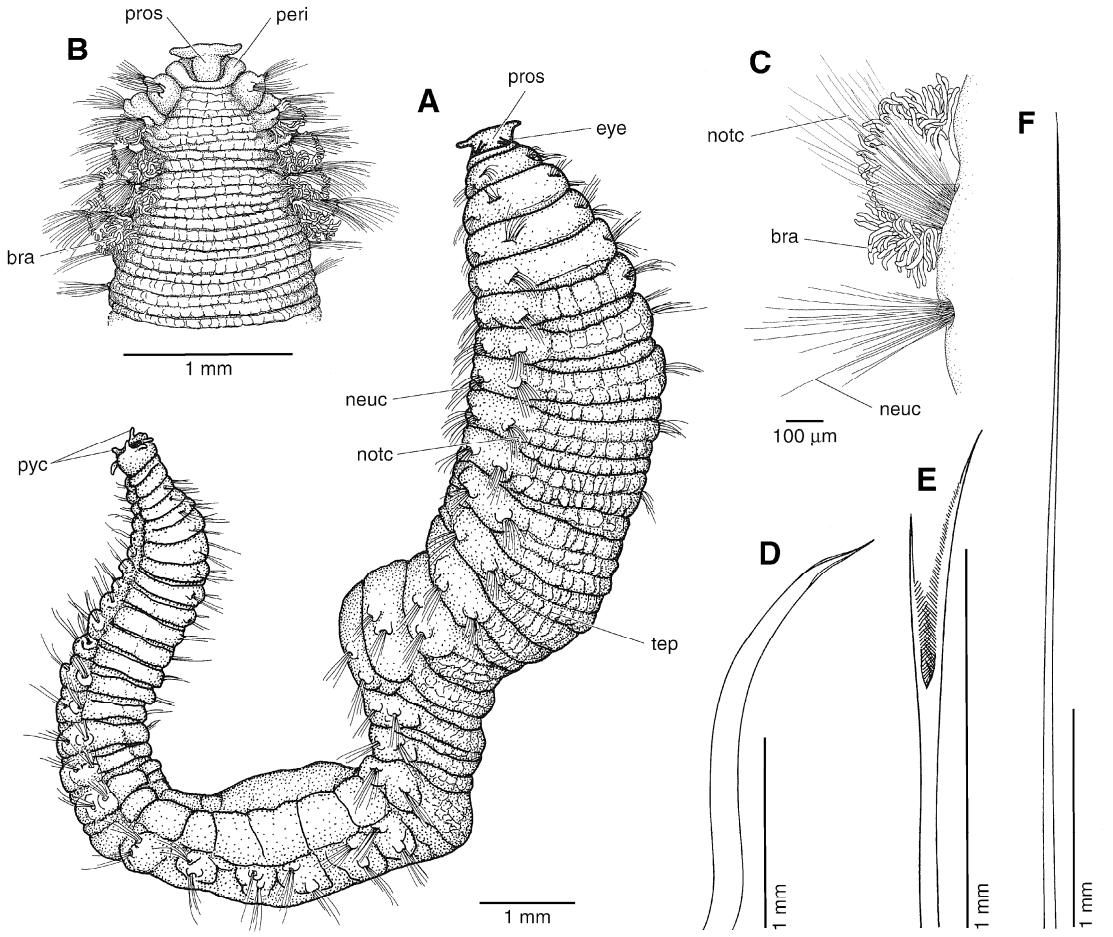


**Figure legend:** Family Scalibregmatidae. **A**, *Hyboscolex* specimen, entire animal, dorso-lateral view; branchiae absent in this genus. **B**, **C**, *Scalibregma* specimen: **B**, anterior end, dorsal view; **C**, parapodium of chaetiger 5, anterior view. **D**-**F**, *Asclerocheilus* specimen: **D**, spine from notopodium of chaetiger 1; **E**, furcate chaeta from parapodium of chaetiger 38; **F**, capillary from parapodium of chaetiger 38. **bra**, branchia; **eye**, eye; **neuc**, neurochaeta; **notc**, notochaeta; **peri**, peristomium; **pros**, prostomium; **pyc**, pygidial cirri; **tep**, tesselated epithelium. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

**8a (7a).** With acicular spines.....***Sclerobregma***
**8b (7a).** Without acicular spines.....***Scalibregma****

**9a (7b).** With acicular spines.....***Oligobregma***
**9b (7b).** Without acicular spines.....***Pseudoscalibregma***

**10a (1b).** Without branchiae; anal papillae present.....***Lipobranchius***
**10b (1b).** With branchiae.....**11**

**11a (10b).** Arborescent branchiae, present in the anteriormost chaetigers; with furcate chaetae; anal papillae absent.....***Polyphysia***
**11b (10b).** Cirriform branchiae, present along most of the body; without furcate chaetae; anal papillae present.....***Travisia***

## GENUS *Asclerocheilus* Ashworth 1902

*Asclerocheilus* ASHWORTH, 1902: 297.
**TYPE SPECIES:** *Lipobranchius intermedius* Saint-Joseph 1894.
**SYNONYMS:** *Gwasitoa* Chamberlin 1919; *Kebuita* Chamberlin 1919.

**KEY TO SPECIES:**

**1a.** Acicular spines present in the notopodium of the first two chaetigers.....***Asclerocheilus* sp. 1**
**1b.** Acicular spines present in the noto- and neuropodium of the first three chaetigers.....**2**

**2a (1b).** Acicular chaetae distally pointed.....***A. intermedius***
**2b (1b).** Acicular chaetae distally blunt.....***Asclerocheilus* sp. 2**

### *Asclerocheilus intermedius* (Saint-Joseph 1894)

*Lipobranchius intermedius* SAINT-JOSEPH, 1894: 113-114, pl. 5 figs. 146-147.
**TYPE LOCALITY:** Îlot de Gleglin, Dinard, France (English Channel).
**SELECTED REFERENCES:** *Asclerocheilus intermedius* — MCINTOSH, 1923*a*: 470, pl. 138 fig. 8; FURREG, 1925: 155-156; DETINOVA, 1985*a*: 122; PARAPAR, BESTEIRO & URGORRI, 1995: table 1; HARTMANN-SCHRÖDER, 1996: 431-432. Not *Lipobranchius intermedius* — FAUVEL, 1914*f*: 238-239, pl. 21 figs. 13-18; FAUVEL, 1927*a*: 125-126, fig. 45*a-e* [= undescribed species of *Asclerocheilus* to be named; see EIBYE-JACOBSEN (2002*a*: 60)].
**DISTRIBUTION:** Iceland; North Sea; English Channel; Ireland; Azores; Mediterranean Sea; Adriatic Sea; Aegean Sea. On shallow water to 1785 meters.

### *Asclerocheilus* sp. 1

*Asclerocheilus* sp. — PARAPAR, BESTEIRO & URGORRI, 1995: 112-115, figs. 3-4, table 1.
**DISTRIBUTION:** Ría de Ferrol (Galicia, Northwest Spain). In muddy sand and gravel with high contents of organic matter. Between 10-13 meters.
**REMARKS:** *Asclerocheilus* sp., from the Ría de Ferrol, is characterized by presenting acicular chaetae in the notopodial rami of the first two chaetigers, lacking eyes or pigmented areas, and having furcate chaetae with relative tine length (relation of one tine length with the other) of 1.52. The most similar species seem to be *A. beringianus* Uschakov 1955, and *A. ashworthi* Blake 1981, from which the Galician species can be differentiated with base on size and number of segments, as well as shape of the acicular chaetae in relation to *A. beringianus*, and relative tine length of furcate chaetae, being of 2.64 in *A. ashworthi*.

### *Asclerocheilus* sp. 2

*Lipobranchius intermedius* [not Saint-Joseph 1887] — FAUVEL, 1914*f*: 238-239, pl. 21 figs. 13-18; FAUVEL, 1927*a*: 125-126, fig. 45*a-e*.
**DISTRIBUTION:** Azores, 37º42'40"N, 25º05'15"W, at 1385 meters, in muddy sand.

**REMARKS:** According to EIBYE-JACOBSEN (2002*a*) this is an undescribed and unamed species of *Asclerocheilus*, differing from *A. intermedius* mainly by its acicular chaetae being distally blunt, against pointed.

## GENUS ***Cryptosclerocheilus*** Blake 1972

*Criptosclerocheilus* BLAKE, 1972*a*: 131.
**TYPE SPECIES:** *Cryptosclerocheilus baffinensis* Blake 1972.
**REMARKS:** As stated above, JIRKOV (2001) proposed the synonymy of *Cryptosclerocheilus* with *Polyphisia*. However, I prefer to maintain both genera as separate, as *Cryptosclerocheilus baffinensis* has an elongated arenicoliform body, with a T-shaped prostomium, while the genus *Polyphysia* is characterized by a maggot-like body, with an incised prostomium, without lateral processes.

When defining the genus BLAKE (1972*a*) stated that it had delicate acicular chaetae in both parapodia of chaetiger 2. In a later work BLAKE (1981*b*) revised the material, and determined that those "acicular spines" were in fact worn capillaries.

### ***Cryptosclerocheilus baffinensis*** (Blake 1972)

*Cryptosclerocheilus baffinensis* BLAKE, 1972*a*: 131, fig. 2.
**TYPE LOCALITY:** Baffin Bay, 67º49'N 60º46'W to 67º38'N 60º38'W, at 1830 meters.
**SELECTED REFERENCES:** *Polyphysia baffinensis* — JIRKOV, 2001: 366-367, 5 figs., 1 map.
**DISTRIBUTION:** Arctic Ocean: Baffin Bay; off Iceland; off Shetland; Norwegian Sea. Between 710-1715 meters.

## GENUS ***Hyboscolex*** Schmarda 1861

*Hyboscolex* SCHMARDA, 1861: 54.
**TYPE SPECIES:** *Hyboscolex longiseta* Schmarda 1861.
**SYNONYMS:** *Oncoscolex* Schmarda 1861; *Eusclerocheilus* Hartman 1967.

### ***Hyboscolex longiseta*** Schmarda 1861

*Hyboscolex longiseta* SCHMARDA, 1861: 54, 2 text-figs., pl. 27 fig. 211.
**TYPE LOCALITY:** Table Bay, near the Cape of Good Hope, South Africa.
**SYNONYMS:** *Lipobranchius capensis* Willey 1904.
**SELECTED REFERENCES:** *Hyboscolex longiseta* — DAY, 1967: 588-589, fig. 27.2.*a-d*.
**DISTRIBUTION:** South Africa; Mozambique; New Zealand; [?] Mediterranean Sea; [?] Adriatic Sea. Between 1-99 meters.
**REMARKS:** This species was recorded to be present in Tunisia, by CANTONE, FASSARI & BRIGANDI (1978), and from the western Mediterranean and upper Adriatic basins of Italy, by CASTELLI *et al.* (1995). These records seem to be dubious, as *Hyboscolex longiseta* is known from southern hemisphere waters (South Africa and New Zealand), and probably are the result of a misidentification, as a consequence of using the South African monography by DAY (1967) to identify European specimens. Until more data is available, I maintain here the species as being only possibly present in European waters.

## GENUS ***Lipobranchius*** Cunningham & Ramage 1888

*Lipobranchius* CUNNINGHAM & RAMAGE, 1888: 655.
**TYPE SPECIES:** *Eumenia Jeffreysii* McIntosh 1869.
**SYNONYMS:** *Lipobranchus* Chamberlin 1919.

### ***Lipobranchius jeffreysii*** (McIntosh 1869)

*Eumenia Jeffreysii* MCINTOSH, 1869: 419, pl. 16 fig. 5.
**TYPE LOCALITY:** Hebrides and Shetland Islands.

**SELECTED REFERENCES:** *Eumenia (Lipobranchius) Jeffreysii* — MCINTOSH, 1915*b*: 41-45, text-figs. 102-103, pl. 95 fig. 6, pl. 103 fig. 5*b*. *Lipobranchius Jeffreysii* — CUNNINGHAM & RAMAGE, 1888: 655, pl. 42 fig. 19; FAUVEL, 1927*a*: 127, fig. 45*f-h*. *Lipobranchus jeffreysii* — WESENBERG-LUND, 1950*a*: 37, chart 46, pl. 8 fig. 37; HARTMANN-SCHRÖDER, 1996: 432; KIRKEGAARD, 1996: 238-239, fig. 127.
**DISTRIBUTION:** Adriatic Sea; western north Atlantic to northern North Sea; Hebrides; Shetland; Scotland; Norway; Skagerrak; Kattegat. On muddy bottoms.
**REMARKS:** ELIASON (1920) suggested that *Lipobranchius jeffreysii* could be a juvenile abranchiate form of *Polyphysia crassa*. The same opinion was later supported by STØP-BOWITZ (1945*b*). However, WESENBERG-LUND (1950*a*) studied specimens from both species and stated that both were valid, being closely related. More recently, KUDENOV & BLAKE (1978) and BLAKE (1981*b*) followed STØP-BOWITZ (*op. cit.*), while HARTMANN-SCHRÖDER (1996) accepted the validity of both species as proposed by WESENBERG-LUND (*op. cit.*). I follow here the proposed by WESENBERG-LUND (1950*a*), and both forms are considered valid, as the synonymy isn't clear neither widely accepted.

## GENUS ***Oligobregma*** Kudenov & Blake 1978

*Oligobregma* KUDENOV & BLAKE, 1978: 430.
**TYPE SPECIES:** *Pseudoscalibregma aciculata* Hartman 1965.

### ***Oligobregma lonchochaeta*** Detinova 1985

*Oligobregma lonchochaeta* DETINOVA, 1985*a*: 122-123, fig. 3*c-e*.
**TYPE LOCALITY:** Reykjanes Ridge (North Atlantic), 58º31'4" to 58º33'9"N, 34º54'5" to 34º52'4"W, 2930-2951 meters.
**SELECTED REFERENCES:** *Pseudoscalibregma aciculata* [not Hartman 1965] — KIRKEGAARD, 1980*b*: 90; AMOUREUX, 1986: 609.
**DISTRIBUTION:** Off Iceland, 2930-2951 meters; Southwest British Isles, 4120-4265 meters; off Western Iberian Peninsula, 4190-5250 meters.

## GENUS ***Polyphysia*** Quatrefages 1866

*Polyphysia* QUATREFAGES, 1866*b*: 268.
**TYPE SPECIES:** *Eumenia crassa* Ørsted 1843.
**SYNONYMS:** *Eumenia* Ørsted 1843 [not Godart 1824 (Lepidoptera)].

**KEY TO SPECIES:**

**1a.** Eyes absent; 4 (to 6?) pairs of branchiae, from chaetiger 2; branchiae arborescent, with the first pair smaller.....***P. crassa***
**1b.** Eyes present; 3 pairs of branchiae, on chaetigers 3-5: in chaetiger 3 the branchiae appear as two postchaetal simple filaments, in chaetiger 4 these filaments bifurcate once, and in chaetiger 5 appears a third postchaetal simple filament.....***P. crassa laubieri***

### ***Polyphysia crassa*** (Ørsted 1843)

*Eumenia crassa* ØRSTED, 1843*a*: 47.
**TYPE LOCALITY:** Øresund (Denmark), in the northern shore of Hveen Island, in a muddy bottom.
**SYNONYMS:** [?] *Eumenia hystricis* McIntosh 1922; *Polyphysia quaterbranchiata* Furreg 1925.
**SELECTED REFERENCES:** *Eumenia crassa* — M. SARS, 1863: 303-305; JOHNSTON, 1865: 221-222; ASHWORTH, 1902: 288-291, pl. 13 fig. 13; MCINTOSH, 1915*b*: 39-41, pl. 95 fig. 13, pl. 103 fig. 5-5*a*; FAUVEL, 1927*a*: 127-128, fi. 45*i-k*; RIOJA, 1931: 178, pl. 57 figs. 6-9; WESENBERG-LUND, 1950*a*: 37, chart 46. *Polyphysia crassa* — FURREG, 1925: 177-179; STØP-BOWITZ, 1945*b*: 75-80, figs. 4-6, 2 maps; [?] DAY, 1967: 588, figs. 27.1.*k*-o; HARTMANN-SCHRÖDER, 1996: 432-433, fig. 212; KIRKEGAARD, 1996: 240-241, fig. 128; JIRKOV, 2001: 367-368, 4 figs., 1 map. *Polyphisia quaterbranchiata* — FURREG, 1925: 179-185, figs. *Y-F*$^{l}$. [?] *Eumenia hystricis* — MCINTOSH, 1922*a*: 2-3, pl. 1 fig. 3, pl. 2 fig. 9 [according to the text, fig. 3 of plate 1 refers to *Eumenia hystricis*, and not to *E. caulleryii*, as stated in the figures caption]; MCINTOSH, 1923*a*: 472.

**DISTRIBUTION:** Arctic Ocean (Greenland, Spitsbergen, Iceland); North Atlantic, from Norway to Mediterranean Sea; Aegean Sea; English Channel; North Sea; Skagerrak; Kattegat; Bælt; Öresund; White Sea; [?] South Africa. On sandy and muddy bottoms. From sublittoral to 2000 meters.
**REMARKS:** *Eumenia hystricis* McIntosh 1922, is normally considered as being a juvenile form of *Polyphisia crassa* (Ørsted 1843), while FAUVEL (1927*a*) considered it as *incertae sedis*. The species is only known from its original description (MCINTOSH, 1922*a*) and type locality, at the English Channel slope, 48º13'N, 9º11'W (off Brittany), at a depth of 257-690 fathoms (470-1261.9 meters). It was described with base on a single fragment deprovided of gills, and without an anterior region, and the original description was repeated in MCINTOSH (1923*a*), but this time without figures. It is possible that the species doesn't belong to Scalibregmatidae.

*Polyphysia crassa* has been reported to have between 4-6 pairs of branchiae, but according to STØP-BOWITZ (1945*b*) the species would have only 4 pairs, being the recorded number of 6 probably the result of an erroneous interpretation of Ørsted.

### ***Polyphysia crassa fauveli*** (Laubier 1959)

*Eumenia crassa fauveli* LAUBIER, 1959*b*: 350-352, fig. 1.
**TYPE LOCALITY:** Near Banyuls-sur-Mer: Cap l'Abeille (20-35 meters), and off Cap Oullestreil (18-25 meters), in coralligenous bottoms.
**SELECTED REFERENCES:** *Eumenia crassa* — LAUBIER, 1966*a*: 258-259.
**DISTRIBUTION:** Near Banyuls-sur-Mer, at 18-35 meters, in coralligenous bottoms. Also reported to be present in the Rech Lacaze-Duthiers (Gulf of Lions), at 300 meters, in mud (PRUVOT, 1895: 655), at the north region of Cannalots (a submarine rocky platform, located off Cap Béar, Gulf of Lions), at 90 meters (PARIS, 1955: tables 2, 4), and at the Adriatic Sea (POŽAR-DOMAC, 1994).

## GENUS ***Pseudoscalibregma*** Ashworth 1902

*Pseudoscalibregma* ASHWORTH, 1902: 296.
**TYPE SPECIES:** *Scalibregma parvum* Hansen 1878.

### ***Pseudoscalibregma parvum*** (Hansen 1878)

*Scalibregma (?) parvum* HANSEN, 1878: 7-8, pl. 5 figs. 7-14.
**TYPE LOCALITY:** Off Norway, at 62º44'N, 01º48'E, at 753 meters, in clay, and at 63º10'N, 05º00'E, at 763 meters, in sabulous clay.
**SYNONYMS:** *Eumenia longisetosa* Théel 1879.
**SELECTED REFERENCES:** *Scalibregma (?) parvum* — HANSEN, 1882: 35-36, pl. 5 figs. 8-19. *Eumenia longisetosa* — THÉEL, 1879: 49-51, pl. 3 figs. 45-47, pl. 4 figs. 46-48. *Pseudoscalibregma longisetosum* — FURREG, 1925: 170-176, figs. *S-X*; WESENBERG-LUND, 1950*a*: 36-37, chart 46. *Pseudoscalibregma parvum* — STØP-BOWITZ, 1945*b*: 72-75, fig. 3, 1 map; HARTMAN, 1965*b*: 183; AMOUREUX, 1982*b*: 195; JIRKOV, 2001: 368, 3 figs., 1 map.
**DISTRIBUTION:** North Atlantic, from off New England to Iceland and Norway; off Brittany; Arctic Ocean; Kara Sea; Novaya Zemlya; Iceland; Spitsbergen; Bering Sea. On muddy and sandy bottoms. Between 18-4860 meters.

## *GENUS ***Scalibregma*** Rathke 1843

*Scalibregma* RATHKE, 1843: 182-184.
**TYPE SPECIES:** *Scalibregma inflatum* Rathke 1843.
**SYNONYMS:** *Oligobranchus* Sars 1846.

**KEY TO SPECIES:**

**1a.** Furcate chaetae absent; prostomial lateral processes poorly developed.....***S. robusta***
**1b.** Furcate chaetae present; prostomial lateral processes well developed.....**2**

**2a (1b).** Four pairs of branchiae, on chaetigers 2-5.....**3**

**2b (1b).** Three pairs of branchiae, on chaetigers 3-5.....***Scalibregma* sp. nov.**

**3a (2a).** Eyes present; short blunt spines in parapodia of chaetigers 1-2; expanded hood-like peristomium obscuring eyes and posterior part of prostomium; medially folded upper lip of mouth; smaller epidermal pads above notopodia and across dorsum of chaetigers 1-5; very long slender anal cirri, ventrally inserted.....***S. celticum***
**3b (2a).** Eyes absent; short pointed spines, often bifurcate in adults, in parapodia of chaetigers 1-2; peristomium narrow dorsally and laterally, but broad ventrally; upper lip a large biannulate and tesselate pad; large epidermal pads above notopodia and across dorsum of chaetigers 1-5; long anal cirri, ventrally and ventrolaterally inserted.....***S. inflatum***

## ***Scalibregma celticum*** Mackie 1991

*Scalibregma celticum* MACKIE, 1991*a*: 271-274, figs. 11-22.
**TYPE LOCALITY:** Milford Haven, Dyfed (Wales, United Kingdom), on muddy sand to muddy sand with shells and gravel, 6-19 meters.
**SELECTED REFERENCES:** *Scalibregma celticum* — JIRKOV, 2001: 368-369, 11 figs. *Scalibregma* — ASHWORTH, 1915: 409 [in part, specimens from Plymouth and Cherbourg; in part *Scalibregma inflatum*]. *Scalibregma inflatum* [not Rathke 1843] — FAGE & LEGENDRE, 1927: 176-183, fig. 29; FAUVEL, 1927*a*: 123-124, fig. 44*b* [in part, at least oculated specimens from Cherbourg, Plymouth, and Concarneau; in part *Scalibregma inflatum*]; HARTMANN-SCHRÖDER, 1971*a*: 382 [in part; in part *Scalibregma inflatum*].
**DISTRIBUTION:** Scotland; Wales; English Channel; Western Mediterranean Sea; Adriatic Sea; Aegean Sea. On muddy and sandy bottoms. From shore to 21 meters.

## ****Scalibregma inflatum*** Rathke 1843

*Scalibregma inflatum* RATHKE, 1843: 184-186, pl. 9 figs. 15-21;
**TYPE LOCALITY:** Molde (Norway).
**SYNONYMS:** *Oligobranchus roseus* Sars 1846; *Scalibregma (?) abyssorum* Hansen 1878; [?] *Scalibregma wiréni* Furreg 1925; [?] *Scalibregma vegae* Furreg 1925.
**SELECTED REFERENCES:** *Scalibregma inflatum* — ASHWORTH, 1902: 239-286, 300-302, pl. 13 figs. 1-12, pls. 14-15; DITLEVSEN, 1911: 423-426, pl. 28 figs. 7-9, pl. 30 fig. 21; MCINTOSH, 1915*b*: 34-39, text-figs. 101, 104, pl. 88 fig. 4, pl. 103 fig. 7; FURREG, 1925: 156-163, figs. *C-H* [in part]; FAUVEL, 1927*a*: 123-124, fig. 44*a*, *c-f* [in part; in part *Scalibregma celticum*, at least oculated specimens from Cherbourg, Plymouth, and Concarneau, and fig. 44*b*]; STØP-BOWITZ, 1945*b*: 67-72, fig. 2, 2 maps; WESENBERG-LUND, 1950*a*: 36, chart 46; HARTMANN-SCHRÖDER, 1971*a*: 382 [in part; in part *Scalibregma celticum*]; MACKIE, 1991*a*: 268-271, figs. 1-10; HARTMANN-SCHRÖDER, 1996: 434-435, fig. 213; KIRKEGAARD, 1996: 241-242, fig. 129; JIRKOV, 2001: 369-370, 10 figs. [?] *Scalibregma wiréni* — FURREG, 1925: 163-166, figs. *J-N*. [?] *Scalibregma vegae* — FURREG, 1925: 166-170, figs. *O-R*.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Sado Estuary); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 51 (A.4056)**, north Sines, 125 m, sand: 1 incomplete specimen with about 18 chaetigers (difficult to count, as the specimen is coiled). **St. 85 (A.4022)**, near Sines, 227 m, sand: 1 incomplete specimen with 21 chaetigers; anterior region in good condition; 4 pairs of branchiae, in chaetigers 2-5; podial cirri appear around chaetiger 16; nuchal organs visible; colour pale-orange; little brown spots on prostomium and peristomium; rest of the worm as normally described. **St. 209 (A.3903)**, SW Sines, 212 m, sand: 1 incomplete specimen with about 16 chaetigers, in poor condition and almost breaking in two pieces; prostomium as described; nuchal organs were not seen; mouth ventral, represented by a short transverse slit at the junction between peristomium and chaetiger 1; upper lip a large biannulate and tessellate pad; lower lip narrower, formed by ventral region of chaetiger 1; annulation and tessellation of chaetigers as normally described; ventral region with distinct mid-ventral row of large epidermal pads; branchiae as described, arborescent, arising posteriorly to notopodia on chaetigers 2-5; dorsal and ventral cirri not evident in this specimen; interramal sense organ from chaetiger 1; short smooth spines at chaetiger 1; furcate chaetae from chaetiger 2; all chaetigers with slender capillaries; colour pale-orange.
**DISTRIBUTION:** Norway; Ireland; Wales and Scotland; North Sea; Iceland; Portugal; [?] Greenland; [?] Arctic Ocean. On muddy and sandy bottoms, from low tide level to 130 meters, maybe down to 600 meters. Other records of the species in Europe might include or refer to *Scalibregma celticum*. Records from elsewhere, probably refer to different species, some of which had been synonymised with *Scalibregma inflatum* [see, for instance, synonymy list and records in FURREG (1925)].

### *Scalibregma robusta* Zachs 1923

*Scalibregma inflatum robusta* ZACHS, 1923*b*: 56.
**TYPE LOCALITY:** White Sea.
**SELECTED REFERENCES:** *Scalibregma robusta* — ZACHS, 1925: 3; JIRKOV, 2001: 370.
**DISTRIBUTION:** White Sea; Sea of Okotsk.

### **Scalibregma* sp. nov.

**MATERIAL: SEPLAT 7 (2nd part) — St. 194 (A.3918)**, south Sines, 84 m, sand: 1 complete specimen, apparently a juvenile, with about 25 chaetigers for 2.8 mm long; width of anterior region 250 µm, of median region 700 µm, and of posterior region 200 µm; anterior region of the body inflated, but the posterior region is not as slender as in the other specimens; pygidium with 4 short cirri; glandular pattern with methyl blue as in the other specimens. **St. 254 (A.3877)**, off Cape Sardão, 74 m, sand: 1 incomplete specimen with 19 chaetigers, in poor condition; branchiae on chaetigers 3-5. St. **271 (A.3863)**, off Praia de Odeceixe, 232 m, muddy sand: 1 incomplete specimen with about 32 chaetigrs for 5.4 mm long; width of anterior region 400 µm, of median region 1000 µm, and of posterior region 300 µm; body inflated at chaetigers 5-17; branchiae on chaetigers 3-5. **St. 272 (A.3861)**, off Praia de Odeceixe, 305 m, muddy sand: 2 specimens; color pale, yellowish; tegument pads similar to the described for *Scaligregma stenocerum*; with the methyl blue it is possible to see several spots in the prostomium, peristomium and anterior region of the body, in the inflated region; eyes not seen; prostomium with long slender frontal horns; (1) incomplete, with 32 chaetigers for 6 mm long; width of anterior region 450 µm, of median region 950 µm, and of posterior region 350 µm; 3 pairs of branchiae, at chaetigers 3-5; body inflated at chaetigers 5-15, posteriorly cylindrical and slender; anterior chaetigers with reduced parapodial lobes; from about chaetiger 16 parapodia with inflated dorsal and ventral cirri; small rounded interramal organs from chaetiger 1; all chaetigers quadriannulated; chaetae as in *Scalibregma stenocerum*; glandular cells absent laterally, between the parapodia; (2) incomplete, with 24 chaetigers for 5 mm long; width of anterior region 400 µm, of median region 1150 µm, and of posterior region 350 µm; one branchia on the left notopodia of the second chaetiger, the rest of the branchiae as in the previous specimen; anterior region very inflated at chaetigers 5-11, and still slightly inflated to chaetiger 15.
**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).
**REMARKS:** These specimens seem to belong to an undescribed species. All of them present only three pairs of branchiae, on chaetigers 3-5, with one single exception that seems to be an aberrant specimen, and presents one single branchia in chaetiger 2. No traces or scars of having lost the branchiae of chaetiger 2 were found. The number of pairs of branchiae approaches these specimens to *Scalibregma stenocerum* (Bertelsen & Weston 1980), a species originally described as belonging to *Sclerobregma* (see BERTELSEN & WESTON, 1980; MACKIE, 1991*a*), and found along the Gulf of Mexico and Atlantic coasts of USA (Florida, Georgia, South Carolina, and North Carolina). However, the European specimens are blind, while the North American ones present a pair of large eyes, V-shaped and pointed anteriorly (BERTELSEN & WESTON, 1980; KUDENOV, 1984*a*). For this reason, both populations seem to belong to different species.
**DISTRIBUTION:** Southwest Portugal In sand and muddy sand. Between 74-305 meters.

## GENUS *Sclerobregma* Hartman 1965

*Sclerobregma* HARTMAN, 1965*b*: 184.
**TYPE SPECIES:** *Sclerobregma branchiata* Hartman 1965

### *Sclerobregma branchiata* Hartman 1965

*Sclerobregma branchiata* HARTMAN, 1965*b*: 184-185, pl. 42.
**TYPE LOCALITY:** Continental Slope off New England, 39º42'N, 70º39'W, at 2000 meters.
**SELECTED REFERENCES:** *Sclerobregma branchiata* — KIRKEGAARD, 1983: 602; AMOUREUX, 1982*b*: 195.
**DISTRIBUTION:** Off New England, at 400-2500 meters; Shamrock Canyon (Deep Biscay Bay, SW Bristish Isles), at 1380 meters; off Brittany, at 2000 meters.

## *GENUS *Sclerocheilus* Grube 1863

*Sclerocheilus* GRUBE, 1863: 50.
**TYPE SPECIES:** *Sclerocheilus minutus* Grube 1863.

**KEY TO SPECIES:**

**1a.** Acicular spines on chaetiger 1; 4 filiform anal cirri, clavate at the tip.....***S. minutus****
**1b.** Acicular spines on chaetigers 1 and 2; 4 bulbous anal cirri.....***S. deriugini***

## *Sclerocheilus deriugini* Zachs 1925

*Sclerocheilus deriugeni* ZACHS, 1925: 2.
**TYPE LOCALITY:** Kola Fjord, Murmansk, White Sea.
**DISTRIBUTION:** Know from the type locality.

## **Sclerocheilus minutus* Grube 1863

*Sclerocheilus minutus* GRUBE, 1863: 50-51, pl. 5 fig. 3.
**TYPE LOCALITY:** Lussin Piccolo (= Mali Lošinj), Crivizza (= Uvala Krivica), Neresine (= Nerezine), Lošinj Island, Croatia, Adriatic Sea.
**SELECTED REFERENCES:** *Sclerocheilus minutus* — SAINT-JOSEPH, 1894: 104-112, pl. 5 figs. 126-145; DEHORNE & DEHORNE, 1913: 66-90, 104-122, 127-129, 131-132, 134, text-figs. 1-15, 18-25, pls. 4-7; ASHWORTH, 1915: 410-414, 419-420, text-fig. 3, pl. 37 figs. 7-9; FURREG, 1925: 154; FAUVEL, 1927*a*: 125, fig. 44*g*-*m*; RIOJA, 1931: 176-177, pl. 57 figs. 1-5.
**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 220 (A.3895)**, off NW Porto Covo, 28 m, rock: 1 incomplete specimen with 44 chaetigers, in poor condition; body arenicoliform; prostomium T-shaped with distinct processes; parapodia of posterior segments with ventral cirri; without dorsal cirri; without branchiae; with acicular spines in the first chaetiger; eyes absent; anterior region of the body swollen; in the first chaetiger, besides the acicular spines, occur capillary chaetae in the notopodia; neuropodia of first chaetiger only with capillary chaetae; bifurcated chaetae on both rami, from chaetiger 2; ventral cirri already present on chaetiger 28; lateral organs seen when stained with methyl blue; each segment is divided in 4 rings.
**DISTRIBUTION:** British Channel; Ireland; Atlantic French coast; Mediterranean Sea; Adriatic Sea; Aegean Sea. On muddy bottoms.

## GENUS *Speleobregma* Bertelsen 1986

*Speleobregma* BERTELSEN, 1986: 376.
**TYPE SPECIES:** *Speleobregma lanzaroteum* Bertelsen 1986.
**SYNONYMS:** *Axiokebuita* Pocklington & Fournier 1987.
**REMARKS:** The descriptions of the genera *Speleobregma* Bertelsen 1986, and *Axiokebuita* Pocklington & Fournier 1987 are very similar, and are here considered as being synonymous, especially after the new morphological data on *Axiokebuita* presented by PERSSON & PLEIJEL (2005).

This way, the definition of the genus *Speleobregma* Bertelsen 1986 would be as follows: body elongated, slender and cylindrical; prostomium pentagonal, blunt, entire, with two distinct laterally directed horns or palps; nuchal organs not visible, or at least, evident; branchiae, dorsal and ventral cirri absent; interramal small knob present, normally closer to the notopodial bundle of chaetae; neuropodia with an associated cylindrical to pointed cirrus or lamella, posterior or dorsal to the neurochaetal bundle; pygidium with two pad-shaped lobes, covered by digitate papillae; acicular chaetae and furcate chaetae lacking; capillary chaetae present in both rami; neuropodial hirsute hooded geniculate chaetae may be present.

**KEY TO SPECIES:**

**1a.** Neurochaetae inserted in two rows: anterior row of chaetae shorter than the posterior row, consisting of 5-9 hirsute, distally abruptly tapered, hooded geniculate chaetae, posterior row all capillary chaetae;

neuropodia with cirrus described as being postchaetal (but probably inserted dorsally to the bundle of neurochaetae.....***S. lanzaroteum***

**1b.** Neurochaetae of two types: long, slender capillaries and few (2-6) shorter, stouter serrate chaetae, with very fine bifid tips; neuropodia with a cirrus dorsal to the chaetal bundle.....***S. minuta***

## ***Speleobregma lanzaroteum*** Bertelsen 1986

*Speleobregma lanzaroteum* BERTELSEN, 1986: 376-378, figs. 2-3.

**TYPE LOCALITY:** Jameos del Agua, marine lava tube cave, Lanzarote, Canary Islands (29º12'N, 13º38'W), at 20 meters.

**DISTRIBUTION:** Known from the type locality.

## ***Speleobregma minuta*** (Hartman 1967) **nov. comb.**

*Kebuita minuta* HARTMAN, 1967: 131-132.

**TYPE LOCALITY:** South Orkney Islands, 61º26' to 61º24'S, 41º55'W, 593-598 meters.

**SYNONYMS:** [?] *Axiokebuita millsi* Pocklington & Fournier 1987.

**SELECTED REFERENCES:** *Kebuita minuta* — HARTMAN, 1978: 179, fig. 27 [in part; not specimen from St. 69-21 = *Notomastus* sp., according to BLAKE (1981*b*)]; BLAKE, 1981*b*: 1153-1154, fig. 11. [?] *Axiokebuita* — PERSSON & PLEIJEL, 2005: 7-10, figs. 1-2. [?] *Axiokebuita millsi* — POCKLINGTON & FOURNIER, 1987: 108-110, figs. 1-2.

**DISTRIBUTION:** Antarctic Ocean: South Orkney Islands, Scotia Sea, Antarctic Peninsula, Ross Sea, 300-608 meters; Weddell Sea, 3697 meters; Northern Atlantic: Scotian Slope (Shelf), off Nova Scotia, 680 meters; Davis Strait, 532 meters, on sandy gravel; Norway: Trondheimsfjord, 180-280 meters, on *Lophelia* reefs; Off Séte, South France, Mediterranean Sea, at shallow water.

**REMARKS:** POCKLINGTON & FOURNIER (1987) created the genus *Axiokebuita* to include the previously described *Kebuita minuta* Hartman 1967, and the new species *Axiokebuita millsi*. *A. minuta* was separated from *A. millsi* with base on the absence, against presence of globular notopodial postchaetal lamellae, in having the neuropodial postchaetal lamellae restricted to posterior chaetigers, against presence in all chaetigers, and in having a simple pygidial ring, rather than a bilobed pygidium. Other these differences, POCKLINGTON & FOURNIER (1987) stated that both species were very similar in the form of the prostomium, shape and texture of the body, reduction of the parapodial lobes, size and shape of the postchaetal lamellae in those segments on which they are present, and shape, size and number of neurochaetae. They identified as *A. millsi* specimens from the North Atlantic (Scotian Shelf and Davis Strait), as well as specimens from the Antarctic Ocean (Weddell and Ross Seas), previously identified as *Kebuita minuta* by HARTMAN (1978) and BLAKE (1981*b*).

PERSSON & PLEIJEL (2005) compared newly collected specimens of *Axiokebuita* from *Lophelia* reefs in Norway with the holotype and other material of *A. minuta*, and one Antarctic paratype of *A. millsi*. They found that what POCKLINGTON & FOURNIER (1987) had described as notopodial postchaetal lobes were notopodial knobs, located below, rather than behind, the notochaetae. Besides, Hartman's type showed that the neuropodial cirri were not restricted to posterior segments, occurring also in anterior segments (being the middle segments too poorly preserved to allow observation), and the pygidium was bilobed and papillated, as the described for the newly collected Norwegian specimens of *Axiokebuita*. Finally, it wasn't possible to confirm the presence of the notopodial knobs, as the type is too poorly preserved in order to enable unequivocal assessment on this feature. The lack of better preserved material from the type locality of *A. minuta*, together with the fact that *A. millsi* was based on material from both east Canada and Antarctic, didn't allowed to state if the separation between both species could be corroborated by other characters, and PERSSON & PLEIJEL (2005) decided to allocate the Norwegian species no further than as *Axiokebuita*.

For the moment, and due to the similarities between the described species and the Norwegian population, I decided to include all the records under the oldest name, *Speleobregma minuta*, but it is possible that there are more than one valid species involved. On the other side, *Speleobregma lanzaroteum* is morphologically quite similar to *S. minuta*, and they could be proved to be synonymous.

I also have identified several specimens of Scalibregmatidae collected at the region of Séte (South France, Mediterranean Sea), during monitoring surveys, as *Axiokebuita minuta*, being these specimens similar to the Norwegian ones.

As explained above, the genus *Axiokebuita* Pocklington & Fournier 1987, with *Kebuita minuta* Hartman 1967 as type species, is a junior synonym of *Speleobregma* Bertelsen 1986, and for this reason, *Axiokebuita minuta* (Hartman 1967) is here referred under the new combination *Speleobregma minuta* (Hartman 1967).

## GENUS *Travisia* Johnston 1840

*Travisia* JOHNSTON, 1840: 373.

**TYPE SPECIES:** *Travisia Forbesii* Johnston 1840.

**SYNONYMS:** *Dindymene* Kinberg 1866 [not Hawle & Corda 1847 (Crustacea, Trilobita)]; *Dindymenides* Chamberlin 1919; *Kesun* Chamberlin 1919.

**REMARKS:** It seems that the first time it was suggested that the opheliid genus *Travisia* should be placed among the Scalibregmatidae was done in an anonymous book review of SARS (1846), in the *Annals and Magazine of Natural History*, of 1847 (Volume XX: page 348), where it is stated that: "*There is reason to believe that the genus* Travisia *of Dr. Johnston (1840) will have to merge* (...) *in* Scalibregma*; the* Travisia *apparently having been imperfectly and erroneously characterized from the bad condition of the specimen in the Doctor's possession* (...)*. An examination of a living individual of* Travisia *is required to clear up all doubts.*" The same suggestion was done more than 150 years later by BLAKE (2000*d*), and the close relationship of some genera of Opheliidae, like *Euzonus* and *Travisia*, with Scalibregmatidae, was also referred by ROUSE (2001*b*). BLEIDORN, VOGT & BARTOLOMAEUS (2003) conducted phylogenetic studies with base on 18S rDNA of several Canalipalpata and Scolecida polychaetes, and *Travisia forbesii* from Kristinenberg, Sweden (18S rDNA GenBank no. AF508127) was grouped together with the Scalibregmatidae *Lipobranchus jeffreysii* and *Scalibregma inflata*, instead of being grouped next to the Opheliidae included in the study. The same result was obtained by HALL, HUTCHINGS & COLGAN (2004), using the same sequence of *Travisia forbesii*. PERSSON & PLEIJEL (2005) performed new 18S rDNA analyses, together with 25S rDNA analyses, using *Travisia brevis* collected at Brittany, France (18S rDNA GenBank no. AY966901), together with seven species of Scalibregmatidae, nineteen other species of polychaetes (including three Opheliidae), and a nemertean as outgroup. Once again *Travisia* was placed among the Scalibregmatidae, as a sister group of *Neolipobranchius* Hartman & Fauchald 1971. This way, with base on their own and as previous studies, PERSSON & PLEIJEL (2005) considered the scalibregmatid affinity of *Travisia* as being well corroborated, and confirmed the transference of *Travisia* Johnston 1840 to Scalibregmatidae, as stated previously by BLEIDORN, VOGT & BARTOLOMAEUS (2003), and HALL, HUTCHINGS & COLGAN (2004).

However, analyses performed by ROUSSET *et al.* (2007), using new sequences for *Travisia forbesii* collected at Normandie, France (28S rDNA, Histone H3, and 16S rDNA) contradicted that relationship, and provided a strong support for the monophyly of the traditional Opheliidae, including *Travisia*. ROUSSET *et al.* (2007) suggested that the contradiction found concerning the allocation of the genus *Travisia* could be due to the involvement of a misidentification, stating also that the studies by BLEIDORN, VOGT & BARTOLOMAEUS (2003), HALL, HUTCHINGS & COLGAN (2004), and PERSSON & PLEIJEL (2005), were all based on the same sequences of *Travisia*, which is true for the first two studies, but not for the third. However, in this third study, the species involved was identified as being *Travisia brevis* Moore 1923, a species known from the Pacific coast of North America, and previously not reported to be present in Europe, where the used material was collected (Brittany, France). However this could mean a misidentification at the specific level, not generic or familiar.

Definitely, the matter warrants further investigation, as stated by ROUSSET *et al.* (2007). Besides, and as stated by Dr. Geoff Read in the Annelida mailing list, in a message of 05 April 2007 (http://www.bio.net/bionet/mm/annelida/2007-April/002726.html), "*there seem to be too many artefactual placements present which are unrelated to evolutionary history*" in the same paper. For these reasons, for the moment I prefer to follow the previous studies, and maintain *Travisia* included under the Scalibregmatidae.

In a recent paper, MACIOLEK & BLAKE (2006) refer the close affinity of the genus *Travisia* with the scalibregmatids, but maintained the genus under the *Opheliidae*. Finally, in a phenetic and phylogenetic study of the Opheliidae, BELLAN, BELLAN-SANTINI & DAUVIN (1990) obtained a plesiomorphic clade (Travisiinae) formed by the three genera *Travisia*, *Kesun*, and *Dindymenides* (the last two being today considered as synonyms of *Travisia*), clearly separated from two other clades that gather all the other opheliids (Opheliinae and Ophelininae).

**KEY TO SPECIES:**

(adapted from DAUVIN & BELLAN, 1994)

**1a.** Branchiae absent.....**2**

**1b.** Branchiae present, ≥ 18 pairs, cirriform; 23-26 chaetigers.....***T. forbesii***

**2a (1a).** Lateral groove in the last 10 segments; 23-25 chaetigers.....***T. glandulosa***
**2b (1a).** Lateral groove absent; body grub-shaped; < 25 segments, mid-ventral groove present; very short chaetae.....***T. gravieri***

## ***Travisia forbesii*** Johnston 1840

*Travisia Forbesii* JOHNSTON, 1840*b*: 373-374, pl. 11 figs. 11-18.
**TYPE LOCALITY:** Firth of Clyde, Scotland.
**SYNONYMS:** *Ophelia mamillata* Ørsted 1843; *Ammotrypane œstroïdes* Rathke 1843.
**SELECTED REFERENCES:** *Travisia Forbesii* — JONHSTON, 1865: 220-221, pl. 19 figs. 11-18; FAUVEL, 1914: 239-241, pl. 22 figs. 3-4; MCINTOSH, 1915*b*: 26-29, text-fig. 100, pl. 88 fig. 3, pl. 95 figs. 7, pl. 103 fig. 4; FAUVEL, 1927*a*: 138-139, fig. 48*g-k*; STØP-BOWITZ, 1945*b*: 26-32, fig. 1, 1 map. *Travisia forbesii* — PETTIBONE, 1956: 566-567; HARTMAN, 1965*b*: 190-191; DAY, 1967: 575-576, fig. 25.1*j-m*; DAUVIN & BELLAN, 1994: 172; HARTMANN-SCHRÖDER, 1996: 430-431, fig. 211; KIRKEGAARD, 1996: 236-237, fig. 126.
**DISTRIBUTION:** Arctic, Circumpolar: Novaya Zemlya, Davis Strait, Spitsbergen, Kara Sea, Alaska and Canadian Arctic, North-east America, Siberia, Bering Sea to Washington Sound, North Japan Sea, West and East Greenland, Iceland, Faroes, Norway, North Sea, western Baltic, Great Britain, France; [?] off the mouth of the Amazon river, Brazil; [?] South Africa (False Bay). On muddy and sandy bottoms. Between 0-3000 meters.

## ***Travisia glandulosa*** McIntosh 1878

*Travisia glandulosa* MCINTOSH, 1878*a*: 506, pl. 65 figs. 15-16.
**TYPE LOCALITY:** North-western Atlantic, off Ireland, 55º10'N, 25º58'W, in 1785 fathoms (about 3264.5 meters).
**SYNONYMS:** *Kesun abyssorum* Monro 1930.
**SELECTED REFERENCES:** *Travisia glandulosa* — DAUVIN & BELLAN, 1994: 172. *Kesun abyssorum* — MONRO, 1930: 167-169, fig. 69; KIRKEGAARD, 1956: 71, fig. 10; HARTMAN, 1966*b*: 51-53, pl. 16 figs. 6-7; HARTMAN, 1967: 138; DETINOVA, 1985*a*: 123.
**DISTRIBUTION:** Pacific Ocean, 750-8300 meters; Antarctic Ocean, 193-4685 meters; Atlantic Ocean, 1470-3300 meters.
**REMARKS:** DAUVIN & BELLAN (1994) proposed the synonymy between *Travisia glandulosa* and *Kesun abyssorum*, with base on the observation of the type material of *T. abyssorum* and its comparison with the description of *K. abyssorum*.

## ***Travisia gravieri*** McIntosh 1908

*Travisia Gravieri* MCINTOSH, 1908*a*: 383-384.
**TYPE LOCALITY:** Northeast Atlantic Ocean (48º06'N, 09º18'W), off Brittany, in 539 fathoms (985.7 meters), on a bottom of grey mud.
**SELECTED REFERENCES:** *Travisia Gravieri* — MCINTOSH, 1915: 29-30, text-fig. 101, pl. 95 fig. 8; *Travisia gravieri* — HARTMAN, 1965*b*: 191-192; DAUVIN & BELLAN, 1994: 172. *Kesun gravieri* — HARTMAN & FAUCHALD, 1971: 134; KIRKEGAARD, 1980*b*: 91; AMOUREUX, 1982*b*: 195; DETINOVA 1985*a*: 123.
**DISTRIBUTION:** Atlantic Ocean: off New England; equatorial region; Northeast Atlantic Ocean, off Iceland and SW the British Isles. In soft mud and sand. Between 600-4833 meters.

# *FAMILY **SERPULIDAE** Johnston 1865

**AS:** *SERPULIDÆ* JOHNSTON, 1865: 251.

**TYPE GENUS:** *Serpula* Linnaeus 1767.

**SYNONYMS:** *SERPULÉES* Savigny *in* Lamarck 1818; *SERPULACEA* Grube 1850.

**REMARKS:** The family Serpulidae has been normally divided into subfamilies, not always recognized by all authors. This way, CHAMBERLIN (1919*a*) established the subfamily Spirorbinae for serpulids with asymmetric bodies and a coiled tube, placing this way all the other serpulids in the subfamily Serpulinae. Later RIOJA (1923*c*) created the subfamily Filograninae for serpulids without an operculum, and PILLAI (1960), the subfamily Ficopomatinae for serpulids living in brackish water and with toothed collar chaetae. Afterwards, the same author (PILLAI, 1970) raised the Spirorbinae to the family level, as Spirorbidae. Finally, UCHIDA (1978) created the new subfamilies Floriprotinae, Hyalopomatinae, Josephellinae, Omphalopominae, Protinae, Protulinae, Spirobranchinae, and Vermiliopsinae, but these new families were recognized as valid only by very few authors, like HARTMANN-SCHRÖDER (1996).

The family Spirorbidae was recognized by FAUCHALD (1977*a*), KNIGHT-JONES (1978), UCHIDA (1978), BIANCHI (1981), or MACDONALD (2003), to cite just a few works. ZIBROWIUS (1972*a*: 427), TEN HOVE (1984: 189) and FITZHUGH (1989: 10-11) supported the return of the Spirorbinae to the subfamily level, as otherwise the recognition of Spirorbidae would make the Serpulidae paraphyletic. FAUCHALD & ROUSE (1997) stated that the segregation of the spirorbins into a separated family could not be justified, and considered them as being part of the Serpulidae, in which were followed by most of the recent authors (*e.g.*, TEN HOVE & KUPRIYANOVA, 2009). TEN HOVE & WEERDENBURG (1978) removed the subfamily Ficopomatinae Pillai 1960, and finally the Serpulidae is now considered as being divided into three subfamilies: Serpulinae, Filograninae, and Spirorbinae. The first two are probably paraphyletic (ROUSE, 2000*c*), but are accepted, for the moment. ROUSE (2000*c*) diagnosed the Filograninae as serpulids without an operculum, the Serpulinae as serpulids with an operculum but without a coiled tube, and the Spirorbinae as serpulids with operculum and coiled tube. However, I think that the Filograninae are better diagnosed as being serpulids without operculum or with an "operculum-like" structure carried on a poorly modified branchial radiole, while in Serpulinae the operculum is always carried on a modified stalk, derived from a radiole.

The family Spirorbidae Pillai 1970 was recently considered to be formed by 6 subfamilies: Spirorbinae Knight-Jones 1978; Circeinae Knight-Jones 1978; Pileolariinae Knight-Jones 1978; Romancheliinae Knight-Jones 1978; Januinae Knight-Jones 1978; and Paralaeospirinae Knight-Jones 1978. With the return of Spirorbinae to the subfamily level, its former subfamilies become tribes of Spirorbinae, according to the ICZN, and should be designated as Spirorbini, Circeini, Pileoraniini, Romancheliini, Januini, and Paralaeospirini. This is applied here in order to avoid further confusion, as the designation of the Spirorbinae is used here in the sense of CHAMBERLIN (1919*a*, *i.e.*, as a subfamily), and not in the sense of KNIGHT-JONES (1978, *i.e.*, as a family). The real phyllogenetic value of these tribes should be revised under the scope of a bigger revision of the whole family Serpulidae. However, according to the phylogenetic study performed by MACDONALD (2003), some of the new tribes or clades (and former subfamilies) of spirorbins would be polyphyletic.

One of the spirorbin genera present in European and adjacent waters, *Neomicrorbis* Rovereto 1904, was separated from the rest of the spirorbin genera with base on some characters (including the presence of more than five thoracic segments on both the concave and the convex sides of the body), and it was not possible to include it in any of the previously described subfamilies (now tribes) of spirorbins. Its incubation is unknown, and it forms a monophyletic spirorbin clade, which seems to have some affinity with the Filograninae (MACDONALD, 2003).

Of great importance in the taxonomy of the spirorbins is the method of brood protection or incubation, which can be in the tube (as egg strings fixed to the inside wall of the tube, or eggs adhering individually to the tube), in the opercula, in a thoracic brood pouch (linked anteriorly by a finger-like or a funnel-like stalk to the head region), adhering directly to the surface of the body, or not attached at all to body or tube (BAILEY, 1969*b*; KNIGHT-JONES, KNIGHT-JONES & VINE, 1972; KNIGHT-JONES & THORP, 1984; MCDONALD, 2003).

Other important characters in the taxonomy of spirorbins is the selection of substracta and the chaetal morphology. The selection of substrata by the spirorbins is considered to be a valuable specific character (*e.g.*: KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975; AL-OGILY & KNIGHT-JONES, 1981), and whenever possible, prior to the identification, it is desirable to keep all the spirorbin specimens attached to their substrata, or to register to which kind of substrata they were attached to. The morphology, function, and relevance of chaetae in spirorbin taxonomy were studied in detail by KNIGHT-JONES & FORDY (1979).

Finally, the coiling orientation of worms and tubes in spirorbins (dextral or sinistral) is also of great taxonomical importance, and is subject to erroneous interpretations that can (and in fact did and do) induce to incorrect identifications or descriptions of taxa. According to GEE (1964), the species is regarded as dextral or sinistral in relation to the animal, which lies in the tube with the ventral surface uppermost, i.e. dextral species have tubes that appear to coil anticlockwise from the centre to the mouth, and sinistral species, clockwise. The coiling should always be followed from the apex of the tube, closer to the substratum, to the mouth.

It is quite possible that in the future the number of serpulid species in the studied region increases through the introduction of species (as ship-fouling, for instance), or as Lessepsian migrants. Some cases of Lessepsian migrations are already known (*e.g.*: BEN-ELIAHU, 1991*b*; BEN-ELIAHU & TEN HOVE, 1992) but other candidates, already known to be present at the Gulf of Suez, were pointed by BEN-ELIAHU (1991*b*): *Hydroides albiceps* (Ehrenberg & Grube *in* Grube 1870), *Hydroides dipoma* (Schmarda 1861), *Hydroides perezi* Fauvel 1918, and *Vermiliopsis pygidialis* (Willey 1905). The first one was already found as ship-fouling in a Western Mediterranean harbour.

Only extant species are considered below. The type species of the genera *Neomicrorbis* Rovereto 1904, *Nogrops* Monfort 1808 and *Spiraserpula* Regenhardt 1963 are the fossil species *Serpula crenatostriata* Münster *in* Goldfuss 1831, *Spiraserpula spiraserpula* Regenhardt 1963, and *Nogrops vermicularis* Monfort 1808, respectivelly.

There is a great amount of bibliography concerning serpulids (over 4000 titles). The biggest part of the relevant publications for this chapter is cited below, but it is worth to refer the recent publication of serpulids *sensu stricto*, with some comment on spirorbins, by TEN HOVE & KUPRIYANOVA (2009). This paper is a good starting point for the study of the Serpulidae, excluding spirorbins, with the analysis of the different morphological characters normally used in its taxonomy, and the revision of all the extant genera. A key of genera and a list of valid extant species is also provided.

It is difficult to know exactly how many extant valid genera and species exist, but there are about 70 genera, including 476 species, considered to be valid (MCDONALD, 2003; TEN HOVE & KUPRIYANOVA, 2009). In the European and nearby waters, 45 genera are known to occur, including 121 species (two of which unnamed, and four doubtful), and two subspecies. In the studied material, 9 genera, including 16 species and one subspecies were identified.

**KEY TO SPECIES:**
(adapted from TEN HOVE & KUPRIYANOVA, 2009)

**1a.** Body symmetrical.....**2**
**1b.** Body asymmetrical.....**31**

**2a (1a).** Operculum present.....**3**
**2b (1a).** Operculum absent.....**27**

**3a (2a).** Collar chaetae absent.....**4**
**3b (2a).** Collar chaetae present.....**8**

**4a (3a).** Opercular peduncle without wings.....**5**
**4b (3a).** Peduncle with wings.....***Pomatoleios***

**5a (4a).** Tube free (see 22 as well), tusk-shaped, smooth, thoracic membranes short.....***Ditrupa****
**5b (4a).** Tube otherwise, mostly attached to the substrate.....**6**

**6a (5b).** Operculum inverse conical, with brown(ish) endplate lacking spines.....**7**
**6b (5b)** Operculum pear-shaped, laterally compressed, and if bearing chitinous plate at all, than with multiple spines.....***Rhodopsis***

**7a (6a).** Tube (semi) transparent, apron present, collar region with reniform band of reddish ocelli.....***Placostegus***
**7b (6a).** Tube white opaque, apron absent.....***Marifugia***

**8a (3b).** Opercular peduncle with well developed membranous distal wings.....**9**

**8b (3b).** Opercular peduncle without well developed distal wings.....**10**

**9a (8a).** Collar chaetae few, fine and capillary.....***Pomatoceros****
**9b (8a).** Collar chaetae numerous, *Spirobranchus*-type.....***Spirobranchus****

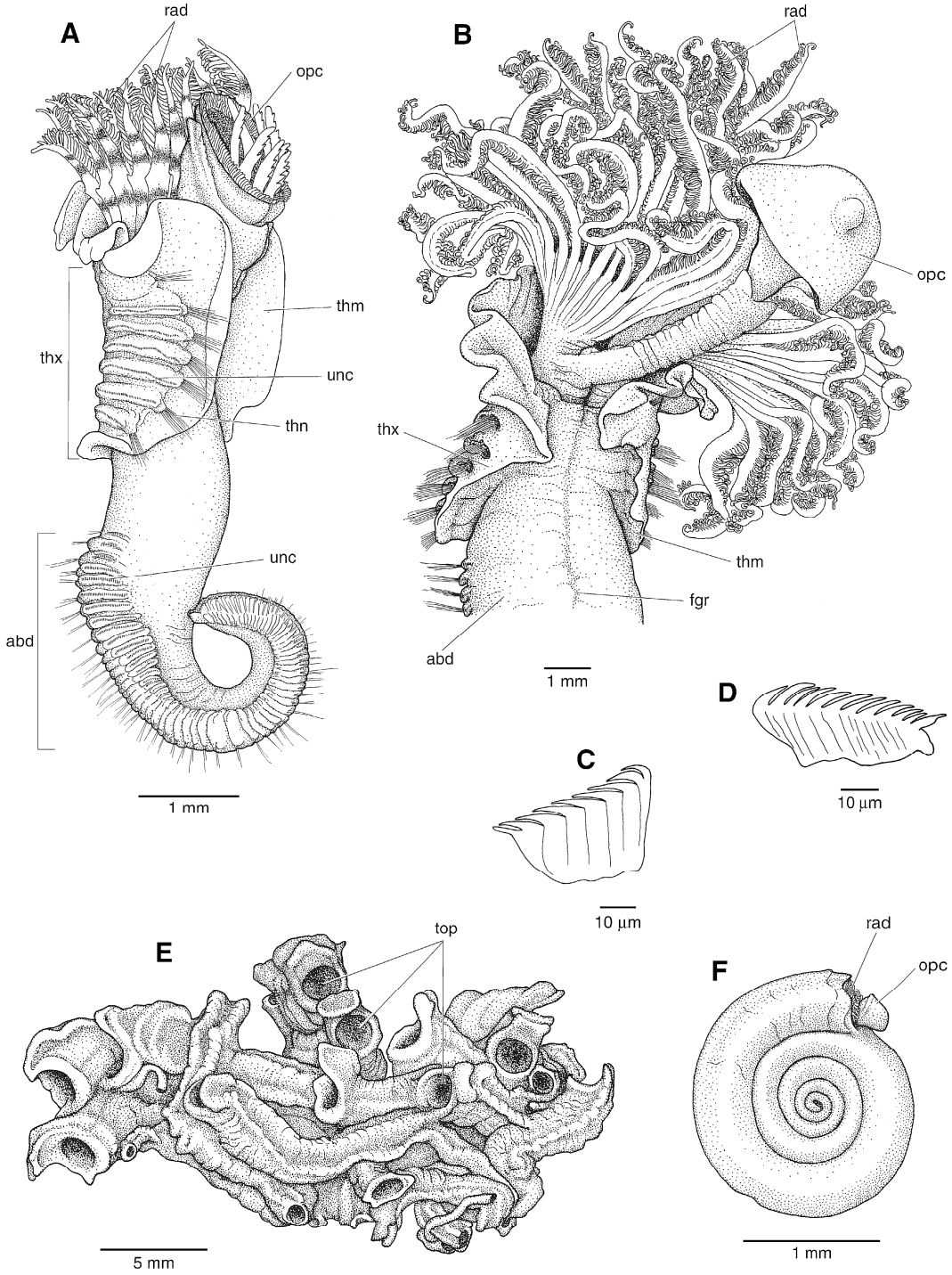


**Figure legend:** Family Serpulidae. **A**, *Galeolaria* specimen entire animal, lateral view. **B**, anterior end of *Neovermilia* specimen, dorsal view. **C**, **D**, uncini of *Galeolaria* specimen: **C**, thoracic neuropodial uncinus from parapodium of chaetiger 6. **D**, notopodial uncinus from the third abdominal chaetiger. **E**, tube aggregation of *Galeolaria*. **F**, tube of spirorbinae *Metalaeospira* specimen, dorsal view. **abd**, abdomen; **fgr**, food groove; **opc**, operculum; **rad**, radioles; **thm**, thoracic membrane; **thn**, thoracic notochaetae; **thx**, thorax; **top**, tube opening; **unc**, uncini. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

**10a (8b).** Pseudoperculum (rudimentary operculum) present.....**11**
**10b (8b).** Pseudoperculum (rudimentary operculum) absent.....**14**

**11a (10a).** Collar chaetae simple, peduncle without winglets, opercular ampulla with brown horny distal cap.....***Vermiliopsis* [in part, *striaticeps*]***
**11b (10a).** Collar chaetae simple and bayonet-type.....**12**

**12a (11b).** Operculum two-tiered (in mature specimens), with proximal funnel of fused radii and distal verticil of spines.....***Hydroides****
**12b (11b).** Operculum a simple funnel made of fused radii..... **13**

**13a (12b).** Tube with internal structures.....***Spiraserpula***
**13b (12b).** Tube without internal structures; Basal processes on opercular funnel absent.....***Serpula****

**14a (10b).** Collar chaetae coarsely serrated and simple.....***Ficopomatus***
**14b (10b).** Collar chaetae fin-and-blade and simple.....**15**
**14c (10b).** Collar chaetae simple only.....**20**

**15a (14b).** Colonies of branching tubes, 2 membranous spoon-shaped opercula on pinnulated radioles.....***Filograna***
**15b (14b).** Tubes do not form colonies of branching tubes, opercula otherwise.....**16**

**16a (15b).** 7 thoracic segments; operculum and peduncle not calcified.....**17**
**16b (15b).** 6 thoracic segments; thoracic membranes reaching segment 2; [tubes with distal part straight and rising from the substrate for a sizeable length; interruptions present along the calcareous tube layer].....***Hyalopomatus* [in part]**

**17a (16a).** Opercular base surrounded by three fleshy processes.....***Janita****
**17b (16a).** Opercular base without fleshy processes.....**18**

**18a (17b).** Tube transparent.....***Vitreotubus***
**18b (17b).** Tube opaque.....**19**

**19a (18b).** Anterior peg of thoracic uncini bifurcate, gouged.....***Filogranula***
**19b (18b).** Anterior peg of thoracic uncini simple, rounded.....***Chitinopoma***

**20a (14c).** Opercular peduncle pinnulate.....**21**
**20b (14c).** Peduncle smooth, without pinnules.....**23**

**21a (20a).** Peduncle non-modified radiole; tube attached.....**22**
**21b (20a).** Peduncle modified, thicker than normal radioles; tube mostly free; 6 thoracic segments.....***Nogrobs***

**22a (21a).** Operculum delicate membranous cup with a flat distal surface surmounted by a marginal crown of fine teeth joined by a transparent membrane, 5 thoracic chaetigerous segments.....***Josephella* [in part]***
**22b (21a).** Operculum simple membranous vesicle, 7 thoracic segments.....***Apomatus***

**23a (20b).** Opercular peduncle flat, ribbon-like; 7 thoracic segments.....***Metavermilia***
**23b (20b).** Peduncle cylindrical or sub-cylindrical.....**24**

**24a (23b).** Peduncle with latero-dorsal winglets; apron present; *Apomatus* chaetae absent.....***Neovermilia***
**24b (23b).** Peduncle without winglets; thoracic membranes not forming apron; *Apomatus* chaetae absent; [tubes with distal part straight and rising from the substrate for a sizeable length; interruptions present along the calcareous tube layer].....***Hyalopomatus* [in part]**
**24c (23b).** Peduncle without winglets; thoracic membranes not forming apron; *Apomatus* chaetae present.....**25**

**25a (24c).** Thoracic uncini saw shaped with blunt anterior peg, thoracic membranes ending at segment 3–5.....***Vermiliopsis*** **[in part]***
**25b (24c).** Thoracic uncini saw shaped with pointed fang, thoracic membranes ending at segment 2–7, depending on species.....***Bathyvermilia***
**25c (24c).** Thoracic uncini rasp-shaped with broadly gouged peg, thoracic membranes ending at segment 1.....***Josephella*** **[in part]***
**25d (24c).** Anterior peg of uncini bifurcate, gouged, thoracic membranes ending at segment 2.....**26**

**26a (25d).** Arrangement of radioles long pectinately; thoracic uncini saw-shaped.....***Pseudovermilia***
**26b (25d).** Arrangement of radioles short pectinately; thoracic uncini saw-to-rasp-shaped....***Semivermilia***

**27a (2b).** Special collar chaetae present; 5-14 thoracic chaetigerous segments.....**28**
**27b (2b).** Special collar chaetae absent; 7 thoracic chaetigerous segments.....***Protula****

**28a (27a).** Special collar chaetae bayonet-type; 5-14 thoracic chaetigerous segments; thoracic uncini with 5–7 teeth only; internal tube structures present.....***Spiraserpula*** **[in part]**
**28b (27a).** Special collar chaetae fin-and-blade; thoracic uncini with 2-10 teeth in profile; internal tube structures absent.....**29**

**29a (28b).** Forms open colonies consisting of large number of tiny tubes; 6-12 thoracic segments; thoracic uncini with 2-10 teeth in profile.....***Salmacina***
**29b (28b).** Solitary tubes; 7 thoracic segments; thoracic uncini with 6 teeth.....***Protis***

**31a (1b).** Five or more thoracic chaetigers.....**32**
**31b (1b).** Less than 5 thoracic chaetigers, tube regularly coiled.....**SPIRORBINAE**.....**33**

**32a (31a).** Thorax with 5–6 chaetigers; operculum with calcified endplate; tube regularly coiled.....***Neomicrorbis***
**32b (31a).** Thorax with 5–14 chaetigers; operculum not calcified or only pseudoperculum/a; tube irregularly coiled.....***Spiraserpula*** **[in part]**

**33a (31b).** Fairly symmetrical distribution of abdominal uncini.....**34**
**33b (31b).** Markedly asymmetrical distribution of abdominal uncini.....**44**

**34a (33a).** Opercular brooding of embryos.....**35**
**34b (33a).** Embryo string attached posteriorly by a filament to inside of tubewall; thoracic uncini with the anterior peg blunt; blades of the abdominal chaetae pennant-shaped, usually with a thick (optically dense) projecting "heel".....**Tribe SPIRORBINI**.....***Spirorbis***

**35a (34a).** Embryos in inverted cuticular cup outside opercular ampulla; thoracic uncini with the anterior peg tapering to a rounded median point; blades of the abdominal chaetae do not taper except terminally and are generally longer than the blades of the collar chaetae.....**Tribe JANUINI**.....**36**
**35b (34a).** Embryos within brood chamber formed by invagination of opercular ampulla; thoracic uncini with the anterior peg blunt, gouge-shaped, often appearing bilobed from some view points; blades of the abdominal chaetae pennant-shaped, tapering uniformly and somewhat shorter than blades of collar chaetae.....**Tribe PILEOLARIINI**.....**39**

**36a (35a).** Brood chamber walls uncalcified and transparent; thoracic collar folds not fused dorsally.....**37**
**36b (35a).** Distal part of brood chamber with calcified walls; thoracic collar folds usually fused dorsally, to form a tunnel over the faecal groove; coiling usually dextral; collar chaetae on the convex side may have cross-striated blades; no sickle chaetae in thorax.....***Neodexiospira***

**37a (36a).** Sickle chaetae present in the third thoracic fascicles; brood chambers usually single, with opercular plates that often lack talons and may bear distal processes; coiling usually dextral.....***Janua***
**37b (36a).** Sickle chaetae absent; brood chambers single or stacked, with opercular plates with talons and without distal opercular processes; coiling dextral or sinistral.....**38**

**38a (37b).** Coiling sinistral; brood chambers usually stacked, with opercular plates with talons and without distal opercular processes.....***Leodora***

**38b (37b).** Coiling dextral; brood chambers single, not stalked.....***Pillaiospira***

**39a (35b).** Talon of distal plate generally small and somewhat eccentric, but not peripheral; distal plate shed during development of the brood chamber.....**40**
**39b (35b).** Talon of distal plate peripheral (can be very small or big and flattened); distal plate usually retained when the brood chamber is formed.....**42**

**40a (39a).** Calcified lining of the brood chamber is always complete proximally and may or may not extend distally; some species brood in an open cup, others in a chamber with a pore.....***Nidificaria***
**40b (39a).** Lining of brood chamber forming a calcified dome distally, but not calcified proximally or on the side which bears a pore; brood chamber a deeply invaginated sac which totally encloses the embryos, except for a pore which is capable of opening and closing.....**41**

**41a (40b).** Sickle chaetae absent.....***Simplaria***
**41b (40b).** Sickle chaetae present.....***Pileolaria***

**42a (39b).** Distal plate retained and developing walls to protect the brood chamber; cup below the brood chamber remaining open, shallow; talon of distal plate peripheral, though very small; brood chamber calcified only proximally, providing no distal calcification or protection.....***Vinearia***
**42b (39b).** Distal plate usually retained and even fused (particularly the talon) to the brood chamber below it; brood chamber a deeply invaginated sac which totally encloses the embryos, except for a pore which is capable of opening and closing; talon peripheral and flattened; lining of brood chamber forming a calcified dome distally, but not calcified proximally or on the side which bears a pore.....**43**

**43a (42b).** Basal part of the collar chaetae clearly separated, to form a fin, from the distal part.....***Jugaria***
**43b (42b).** Collar chaetae lack basal fins, though there is usually a slight marginal indentation which obscurely separates a basal region from the rest of the blade.....***Bushiella***

**44a (33b).** Thoracic epithelial process present at the posterior end of dorsal groove, to which embryo sac is fixed.....**Tribe ROMANCHELLIINI**.....***Protolaeospira***
**44b (33b).** Such an epithelial process absent.....**45**

**45a (44b).** Embryos not fixed to parent or to tube.....**Tribe PARALAEOSPIRINI**.....***Paralaeospira***
**45b (44b).** Embryos adhering to tube.....**Tribe CIRCEINI**.....**46**

**46a (45b).** Sickle chaetae absent.....***Circeis***
**46b (45b).** Sickle chaetae present.....***Paradexiospira***

### KEY FOR *Protis arctica*, *Apomatus*, AND *Protula*:
(from BEN-ELIAHU & FIEGE, 1996)

**REMARKS:** Specimens of the genera *Apomatus*, *Protula*, and *Protis* can be easily misidentified, especially in the case of *Apomatus* specimens which have lost their opercula. For this reason I present here the key given by BEN-ELIAHU & FIEGE (1996), for *Protis arctica* (so far the single *Protis* species known in Europe), *Protula*, and operculated and unoperculated specimens of *Apomatus*. The chaetal formula referred in the key was defined by TEN HOVE & PANTUS (1985) as follows: 1 = fascicle with limbate chaetae only; 2 = limbate + *Apomastus* chaetae, examined on chaetigers 1, 4 and 7, respectively.

**1a.** Collar chaetae of the fin & blade type; thoracic uncini *Serpula*-like, saw-shaped with few (5-6) teeth above pointed fang.....***Protis arctica***
**1b.** Collar chaetae simple limbate (capillary chaetae may be present); profile view of thoracic uncini (if present, often lost in larger specimens) with many teeth above main fang.....**2**

**2a (1b).** With globular operculum (borne on pinnate branchial radiole).....***Apomatus***
**2b (1b).** No operculum, or branchial crown missing.....**3**

**3a (2b).** Thoracic chaetigers 4-7 with *Apomatus* chaetae (chaetal formula 122); outside margins of radioles with clusters of eyes with lenses; uncini rasp-shaped from 2nd chaetiger; in live or fresh material, ventral thoracic bloodvessel-pattern with transseptal vessels extending over the surface of the thorax and joining the ventral vessel.....***Apomatus***
**3b (2b).** Thoracic chaetiger 4 without *Apomatus* chaetae (chaetal formula 112 or 111); outside margins of radioles with rows of simple eyespots or eyespots lacking; uncini from 2nd chaetiger or lacking; sometimes with white persistent spots on branchia; in live or fresh material, ventral boodvessel-pattern with transseptal vessels entering two ventro-lateral vessels which terminate posteriorly in the flange of the thoracic membrane, not communicating the superficial blood system with the ventral vessel....***Protula***

## GENUS *Apomatus* Philippi 1844

*Apomatus* PHILIPPI, 1844: 189.
**TYPE SPECIES:** *Apomatus ampulliferus* Philippi 1844.
**SYNONYMS:** *Apomatopsis* Saint-Joseph 1894.
**REMARKS:** HANSON (1948) introduced the study of the pattern of the superficial blood vessels on the ventral surface of the thorax of larger specimens as a useful character for distinguishing between the different species of the genera *Apomatus* and *Protula*. TEN HOVE & PANTUS (1985) used this character, combined with other characters such as the presence of rows of simple eyespots in the radioles, presence and distribution of *Apomatus*-chaetae at the thoracic chaetigers, and presence or absence of an operculum, to characterize the genera *Apomastus* and *Protula*, and to determine that both genera were valid.

**KEY TO SPECIES:**
(from: FAUVEL, 1927*a*; BEN-ELIAHU & FIEGE, 1996)

**1a.** Abdominal chaetae geniculate; form apparently from deeper water.....***A. ampulliferus***
**1b.** Abdominal chaetae sickle-shaped; form apparently from shallower water.....***A. similis***

### *Apomatus ampulliferus* Philippi 1844

*Apomatus ampulliferus* PHILIPPI, 1844: 197.
**TYPE LOCALITY:** Mediterranean Sea.
**SYNONYMS:** *Apomatus giganteus* Iroso 1921; *Protula marioni* Marenzeller 1893.
**SELECTED REFERENCES:** *Apomatus ampulliferus* — MARION & BOBRETZKY, 1875: 95-96, pl. 11 fig. 24*a*, pl. 12 fig. 24*b-e*; FAUVEL, 1927*a*: 387, fig. 131*c-i*; NELSON-SMITH, 1967: 52; ZIBROWIUS, 1968*c*: 182-184, pl. 10 fig. 17 [in part]; BEN-ELIAHU & FIEGE, 1996: 28. *Apomatus giganteus* — IROSO, 1921: 57-58. *Protula* sp. — BIANCHI, 1981: 140-142, fig. 52, pl. 1 fig. 3 [in part]. *Protula marioni* — MARENZELLER, 1893: 36-38, pl. 3 fig. 10. *Apomatus ampulliferus* — MCINTOSH, 1923*a*: 375-379 [in part; in part = *Apomatus similis* Marion & Bobretzky 1875].
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea. Coralligenous bottoms, attached to stones and shells. Between 50-316 meters. It is difficult to know the exact distribution of the species, as it was considered by many authors as being a synonymy of *Protula intestinum* (Lamarck 1818), and sometimes also as a synonym of *A. similis*.

### *Apomatus similis* Marion & Bobretzky 1875

*Apomatus similis* MARION & BOBRETZKY, 1875: 97, pl. 12 fig. 25.
**TYPE LOCALITY:** Gulf of Marseille.
**SYNONYMS:** [?] *Apomatus globifer* Théel 1879.
**SELECTED REFERENCES:** *Apomatus similis* — MARION, 1879: 29, pl. 17 fig. 9; LANGERHANS, 1884: 277; LO BIANCO, 1893: 89; MARENZELLER, 1893: 39, pl. 3 fig. 12; SAINT-JOSEPH, 1894: 369-375, pl. 13 figs. 415-419; FAUVEL, 1909: 73-74; FAUVEL, 1914*f*: 359-362, pl. 31 figs. 44-46; RIOJA, 1917*c*: 91-92, fig. 28; IROSO, 1921: 56; RIOJA, 1923*c*: 114, figs. 211-215; FAUVEL, 1927*a*: 385-387, fig. 131*k-p*; RIOJA, 1931: 441-442, pl. 145 figs. 1-5; NELSON-SMITH, 1967: 52, figs. 47-48; ZIBROWIUS, 1968*c*: 182-184, pl. 10 figs. 13-16 [in part]; HARTMANN-SCHRÖDER, 1971*a*: 540; ZIBROWIUS, 1977: 291; BEN-ELIAHU & FIEGE, 1996: 27-28, fig. 9*C-D*; KIRKEGAARD, 1996: 402-404, fig. 230. *Apomatus globifer* — MARENZELLER, 1893: 38-39, pl. 3 fig. 11; WOLLEBÆK, 1912: 112-113, pl. 41 figs. 1-3, pl. 50 figs. 4-6.

[?] *Apomatus globifer* — LEVINSEN, 1886: 14, pl. 25 fig. 11; WESENBERG-LUND, 1950*a*: 62, chart 66; USCHAKOV, 1957: 1669; ZIBROWIUS, 1977: 290-291. [?] *Apomatus (?) globifer* — THÉEL, 1879: 66-67, pl. 4 figs. 63-65. [?] *Protula globifera* — KUPRIYANOVA & JIRKOV, 1997: 222-225, fig. 9, map 9. *Apomatus ampullifera* — MCINTOSH, 1923*a*: 375-379, pl. 132 figs. 2-2*c*, pl. 137 fig. 19 [in part]. *Protula* sp. — BIANCHI, 1981: 140-142, fig. 52, pl. 1 fig. 3 [in part].

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Roca); ZIBROWIUS, 1970*a* (previous records: Portugal).

**DISTRIBUTION:** Arctic Ocean; Eastern Greenland; Iceland; Spitsbergen; Northeastern Atlantic; between Norway and Bear Island; [?] Novaya Zemlya; between Azores and Madeira; from Norway to the Mediterranean Sea; Adriatic Sea; Aegean Sea; West Africa; Gulf of Guinea. In coralligenous bottoms and muddy bottoms, attached to rocks, stones, shells, and other hard substracta. Between 10-4400 meters. It is difficult to know the exact distribution of the species, as it was considered by many authors as being a synonym of *Protula tubularia* (Montagu 1803).

## GENUS ***Bathyvermilia*** Zibrowius 1973

*Bathyvermilia* ZIBROWIUS, 1973*b*: 428.

**TYPE SPECIES:** *Bathyvermilia challengeri* Zibrowius 1973.

**KEY TO SPECIES:**
(adapted from SANFILIPPO, 2001)

**1a.** Thoracic membrane short, ending at the 2nd or 3rd thoracic chaetiger; opercular distal cap brown, encrusted by white calcareous deposit; peristomes absent; tube subtriangular in cross-section, smooth and with a median keel irregularly denticulate forming a tooth over the orifice.....***B. langerhansi***

**1b.** Thoracic membrane long, ending at the 7th thoracic chaetiger; opercular distal cap light-yellow, without calcareous deposit; peristomes rare along the tube and around the orifice; tube circular in cross-section.....***B. islandica***

### ***Bathyvermilia islandica*** Sanfilippo 2001

*Bathyvermilia islandica* SANFILIPPO, 2001: 178-181, figs. 1-3.

**TYPE LOCALITY:** South of Iceland, 61º10.10'N, 18º00.50'W, at 2399 meters, on boulders.

**DISTRIBUTION:** South of Iceland, from 61ºN to 64ºN, at depths between 770-2399 meters, encrusted on volcanic rocks, stones of stuffed mud ("soap-stones"), corals, shells of molluscs and brachiopods.

### ***Bathyvermilia langerhansi*** (Fauvel 1909)

*Vermiliopsis Langerhansi* FAUVEL, 1909: 61-62, fig. 6.

**TYPE LOCALITY:** North Atlantic, east of Azores, 38º08'N, 23º18'45"W, at 4020 meters.

**SELECTED REFERENCES:** *Vermiliopsis Langerhansi* — FAUVEL, 1914*f*: 344-346, pl. 29 figs. 22-32 [in part; not *Vermilia clavigera* Langerhans 1884 not Philippi 1844 (= *Vermiliopsis multicristata* Philippi 1844); not specimens from the English Channel]; FAUVEL, 1927*a*: 363-365, fig. 124*h-q* [in part; not *Vermilia clavigera* Langerhans 1884 not Philippi 1844 (= *Vermiliopsis multicristata* Philippi 1844); not specimens from the English Channel]. *Vermiliopsis langerhansi* — ZIBROWIUS, 1968*c*: 124-125. *Bathyvermilia langerhansi* — ZIBROWIUS, 1973*b*: 431-435, fig. 2; ZIBROWIUS, 1977: 291-292. *Vermiliopsis* sp. — ELIASON, 1951: 142, pl. 1 figs. 7-8. [?] *Vermiliopsis* ?*langerhansi* — HARTMAN & FAUCHALD, 1971: 181. Not *Vermiliopsis langerhansi* — BELLAN, 1960*b*: 289 [= *Semivermillia agglutinata* (Marenzeller 1893) (see ZIBROWIUS, 1973*b*: 435)]. Not *Vermiliopsis langheransi* [sic] — BELLAN, 1963*a*: 264 [= *Semivermillia agglutinata* (Marenzeller 1893) (see ZIBROWIUS, 1973*b*: 435)]. Not *Vermiliopsis langerhansi* — SOUTHWARD, 1963*b*: table 1 in page 584 [= *Vermiliopsis eliasoni* Zibrowius 1969]. Not *Vermiliopsis langerhansis* [sic] — BELLAN, 1964*b*: 175. Not *Vermiliopsis langerhansi* — CABIOCH, L'HARDY & RULLIER, 1968: 73; CHAPMAN & DALES, 1954: 682; NELSON-SMITH, 1967: 33, fig. 20 [all = *Vermiliopsis* sp., probably *V. infundibulum* (Philippi 1844) (see ZIBROWIUS, 1973*b*: 435)].

**DISTRIBUTION:** Besides the type locality, this species is known from the North Atlantic south-east Bermuda, 28º25'N, 61º05'W to 28º05'N, 60º49'W, 5500-5987 meters, and probably also from off

Martha's Vineyard, 39º43.6'N, 70º37.4'W, at 2022 meters. There is also a record from the Adriatic Sea (POŽAR-DOMAC, 1994), which requires confirmation.

## GENUS ***Bushiella*** Knight-Jones 1973

*Bushiella* KNIGHT-JONES, 1973: 242.
**TYPE SPECIES:** *Spirorbis evolutus* Bush 1904.
**SYNONYMS:** *Sinistrella* Chamberlin 1919 [not Meyer 1887 (Mollusca)].
**REMARKS:** This genus was redefined by KNIGHT-JONES (1984). RZHAVSKY (1991) considered the genus *Jugaria* Knight-Jones 1978 as being a subgenus of *Bushiella* Knight-Jones 1973, on which was followed by most of the recent authors (*e.g.* KUPRIYANOVA *et al.*, 2001). I maintain here both genera as valid.

**KEY TO SPECIES:**

**1a.** Tubes up to 4.5 mm in coil diameter, with irregular transverse growth rings and no longitudinal ridges; about 13 tentacles; about 15 chaetae per collar bundle; primary operculum with a heart-shaped talon, which is attached to the brood-chamber only by its end and is thus frequently lost.....***B. valida***
**1b.** Tubes with up to 2.5 mm in coil diameter, may be smooth, but frequently bear a median obtuse longitudinal ridge giving a subtriangular cross-section; about 9 tentacles; about 9 chaetae per collar bundle; primary operculum with a peripheral fan-shaped talon, thin in side view, taping away from the opercular peduncle; this operculum remains fused to the helmet-shaped brood-chamber.....***B. verruca***

### ***Bushiella valida*** (Verrill 1874)

*Spirorbis valida* VERRILL, 1874*d*: 44-45.
**TYPE LOCALITY:** Le Have Bank (Eastern Canada, off Nova Scotia), in two localities: 42º56.5'N, 64º51.3'W, at 45 fathoms (82.3 meters), in gravel and stones; and 42º44'N, 64º36'W, at 60 fathoms (109.7 meters), in gravel, stones and sponges.
**SELECTED REFERENCES:** *Spirorbis validus* — BUSH, 1904: 249, pl. 37 figs. 5-8, 10, 32, pl. 44 figs. 11-14. *Sinistrella valida* — KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 446. [?] *Spirorbis verruca* [not Fabricius 1780] — LEVINSEN, 1884: 200, 205-206, pl. 2 fig. 8*h-i*, pl. 3 figs. 2-3; AUGENER, 1928: 816. [?] *Spirorbis verruca* [not Fabricius *in* Mörch 1863] — FAUVEL, 1909: 54-55; FAUVEL, 1914*f*: 333-334 [according to KNIGHT-JONES, KNIGHT-JONES & DALES (1979), the material seems to consist of juvenile specimens of *Bushiella valida*].
**DISTRIBUTION:** Eastern Canada; Newfoundland; Arctic Ocean; [?] Greenland; [?] Spitsbergen. [?] 85 meters.

### ***Bushiella verruca*** (Fabricius *in* Mörch 1863)

*Serpula verruca* O. FABRICIUS *in* MÖRCH, 1863: 431.
**TYPE LOCALITY:** West Greenland, probably vicinity of Fedrikshåb.
**SELECTED REFERENCES:** *Spirorbis verruca* — MOORE, 1902: 277; BUSH, 1904: 247, pl. 41 figs. 3, 12, pl. 44 figs. 1, 16; WESENBERG-LUND, 1950*a*: 62-63, chart 63. *Leodora verruca* — MÖRCH, 1863: 431. *Spirorbis (Romanchella) verruca* — CAULLERY & MESNIL, 1897: 210. *Sinistrella verruca* — KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 446, fig. 6*C*. *Bushiella (Bushiella) verruca* — RZHAVSKY, 2001: 592-593, 1 fig., 1 map. *Serpula glomerata* [not Linnaeus 1758] — FABRICIUS, 1780: 381-382. [?] *Spirorbis (Leodora) valida* [not Verrill 1874] — ANNENKOVA, 1938: 219; USCHAKOV, 1955*a*: 432, figs. 162*I* [not fig 163*L*?].
**DISTRIBUTION:** Newfoundland; Greenland; Pacific coast of North America; Japan; Kuril Islands; [?] Sea of Okhotsk. In shells, sand and pebbles. Between 27-155 meters. According to KNIGHT-JONES, KNIGHT-JONES & DALES (1979), *B. verruca* and *S. valida* probably overlap in Greenland.
**REMARKS:** This species was first described by FABRICIUS (1780) as *Serpula glomerata*. It was later named as *Serpula verruca* by the same author in an unpublished manuscript, cited by MÖRCH (1963). For this reason, the authorship of the species is normally considered to be Fabricius *in* Mörch 1863.

## GENUS *Chitinopoma* Levinsen 1884

*Chitinopoma* LEVINSEN, 1884: 194-195, 196, 199, 203.
**TYPE SPECIES:** *Chitinopoma Fabricii* Levinsen 1884 [= junior synonym of *Vermilia serrula* Stimpson 1853].
**SYNONYMS:** *Miroserpula* Dons 1931.
**REMARKS:** The definition of the genus was emended by ZIBROWIUS (1969*b*).

### *Chitinopoma serrula* (Stimpson 1853)

*Vermilia serrula* STIMPSON, 1853: 29-30.
**TYPE LOCALITY:** Bay of Fundy, frequent on the test of *Ascidia callosa*, and sometimes on *Pectens* from deep water.
**SYNONYMS:** *Chitinopoma Fabricii* Levinsen 1884; *Miroserpula inflata* Dons 1930.
**SELECTED REFERENCES:** *Vermilia serrula* — VERRILL, 1874*a*: 499, 503, text-fig. 3, pl. 6 fig. 1; VERRILL, 1874*b*: 351, 355, 358, 361-362, pl. 4 fig. 3; HARTMAN, 1944*e*: 343, pl. 22 [54] fig. 5. *Serpula (Vermilia) serrula?* — DAWSON, 1860: 28-29, fig. 2. *Chitinopoma serrula* — ZIBROWIUS, 1969*b*: 2-6, fig. 1; HARTMANN-SCHRÖDER, 1996: 569-570, fig. 278; KIRKEGAARD, 1996: 404-406, fig. 231; KUPRIYANOVA & JIRKOV, 1997: 205-207, fig. 1, map 1. *Chitinopoma Fabricii* — LEVINSEN, 1884: 199, 203, pl. 2 figs. 4, 8*f*, pl. 3 fig. 20. *Chitinopoma fabricii* — WESENBERG-LUND, 1953: 7. *Miroserpula inflata* — DONS, 1930: 3-5; BRATTSTRÖM & THORSON, 1941: 21-30, figs. 1-4; THORSON, 1946: 135-136, 141, 145, fig. 77; WESENBERG-LUND, 1950*a*: 61, pl. 10 fig. 49, chart 65; WESENBERG-LUND, 1953*a*: 113, 123, 138, 140, 149, chart 26; WESENBERG-LUND, 1953*b*: 6-7; NELSON-SMITH, 1967: 36, figs. 27-28. *Chitinopoma greenlandica* [not *Hydroides norvegica* var. *groenlandica* Mörch 1863 = indeterminable serpulid (see ZIBROWIUS, 1969*b*)] — BUSH, 1904: 224, 229, pl. 37 figs. 3, 9, pl. 40 fig. 31; PIXELL, 1912: 790-792, pl. 88 fig. 6; NELSON-SMITH, 1967: 37, fig. 29.
**DISTRIBUTION:** Arctic and Boreal North Atlantic; Northeastern coast of America; Greenland; Iceland; Spitsbergen; Faroes; Murmansk; Novaya Zemlya; Norway; west coast of Sweden; Øresund; NW of Jutland; Barents Sea; White Sea; Kara Sea; Siberian coast. Tubes attached to various kinds of hard substrata, as stones, shells or Bryozoa with calcareous skeleton, but also to comparative soft substrata, as the mantle of ascidians or algae. Intertidal down to more than 300 meters.

## GENUS *Circeis* Saint-Joseph 1894

*Circeis* SAINT-JOSEPH, 1894: 261.
**TYPE SPECIES:** *Circeis armoricana* Saint-Joseph 1894.

**KEY TO SPECIES:**
(adapted from KNIGHT-JONES, KNIGHT-JONES & NELSON-SMITH, 2000)

**1a.** Geniculate collar chaetae with cross-striations; tube translucent, often helical; talon longer than radius of plate; on hydroids and bryozoans.....***C. spirillum***
**1b.** Geniculate collar chaetae which lack cross-striations; tube opaque; talon shorter than radius of plate.....**2**

**2a (1b).** On macro-algae, mainly *Laminaria*; larvae with a pair of rounded ocelli anteriorly, and the posterior two pairs of eyes forming a single lobed complex on each side, which is about four times the size of an anterior ocellus.....***C. armoricana fragilis***
**2b (1b).** On crustaceans and shells.....**3**

**3a (2b).** On lobsters and crawfish; generally the tubes are larger and thicker than those of the other species; stomach brownish orange; larvae with a barely distinct pair of anterior ocelli, and with the posterior two pairs of eyes forming a single lobed complex on each side, much bigger than the anterior ocelli.....***C. armoricana***
**3b (2b).** On the telson of hermit-crabs (*Pagurus bernhardus*) or on surrounding shell inhabited by them; stomach pale yellow; larvae with three pairs of simple rounded ocelli, all somewhat similar in size and shape.....***C. paguri***

## *Circeis armoricana* (Saint-Joseph 1894)

*Circeis armoricana* SAINT-JOSEPH, 1894: 350, pl. 13 fig. 387.

**TYPE LOCALITY:** Dinard (French coast of the English Channel), several tubes attached to the carapace of a lobster *Palinurus quadricornis* Fabricius 1798 [= *Palinurus elephas* (Fabricius 1787)].

**SYNONYMS:** *Serpula sinistrorsa* Montagu 1803 [senior synonym].

**SELECTED REFERENCES:** *Spirorbis (Dexiospira) armoricanus* — CAULLERY & MESNIL, 1897: 199, pl. 7 fig. 5; RIOJA, 1925*b*: 59-61, figs. 26-27; RIOJA, 1931: 450-452, pl. 149 figs. 1-7. *Spirorbis armoricanus* — NELSON-SMITH, 1967: 59, figs. 57-58. *Circeis armoricana* — KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 545-546, figs. 1*C*, 2*a*-*b*; KNIGHT-JONES & KNIGHT-JONES, 1977: 468, fig. 5*A*-*C*, *J*-*M*; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 427-428, fig. 3*A* [in part?]; AL-OGILY & KNIGHT-JONES, 1981: 822, fig. 1*C*; RZHAVSKY, 2001: 582-583, 2 figs., 1 map. *Spirorbis spirillum* [not Linnaeus 1758] — GEE, 1964: 417-419, figs. 1, 6, table 10 [in part, specimens from carapace of *Palinurus vulgaris*; not specimen from inside a shell of *Buccinum undatum* inhabited by a *Eupagurus bernhardus* = *Circeis paguri*]. *Spirorbis (Dexiospira) spirillum* [not Fabricius 1780] — FAUVEL, 1927*a*: 392-393 [in part]. *Spirorbis (Dexiospira) spirillum* Var. *armoricanus* — FAUVEL, 1927*a*: 393.

**DISTRIBUTION:** Northwestern Europe. Characteristically found on the ventral side of the carapace of lobsters and crawfish (as *Palinurus* or *Homarus*). Between 20-25 meters. KNIGHT-JONES, KNIGHT-JONES & DALES (1979) recorded the species from Alaska to Western Mexico, mainly attached to algae and hard substracta as shells, serpulid tubes and settlement plates, between 5-72 meters.

## *Circeis armoricana fragilis* Knight-Jones & Knight-Jones 1977

*Circeis armoricana fragilis* KNIGHT-JONES & KNIGHT-JONES, 1977: 469-470, fig. 5*E*-*F*.

**TYPE LOCALITY:** British Isles. On *Laminaria saccharina* by the Fort Bovisand buoy in Plymouth Sound (South England). Besides, original description with base also on material from: more northern harbours as Fishguard, and Holyhead, from just below tidemarks to depths of a few meters; L.W.S.T. south of Bryher, Isles of Scilly, and St. Michael's Island, Isle of Man; on sublittoral *Delesseria* south of Port Erin, and on *Laminaria digitata* near Inverary; on *Saccorhiza* at L.W.O.T. near Oban (KNIGHT-JONES & KNIGHT-JONES, 1977).

**SELECTED REFERENCES:** *Circeis armoricana fragilis* — HARTMANN-SCHRÖDER, 1996: 579-580. *Circeis armoricana* var. *fragilis* — AL-OGILY & KNIGHT-JONES, 1981: 822, fig. 1*B*. *Circeis armoricana* [not Saint-Joseph 1894] — KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 545-548, figs. 1*B*, *D*-*G*, fig. 3

**DISTRIBUTION:** Irish Sea, English Channel, North Sea. Found on *Laminaria* fronds and other algae, particularly in sea-lochs. Between tidemarks to depths of a few meters.

## *Circeis paguri* Knight-Jones & Knight-Jones 1977

*Circeis armoricana paguri* KNIGHT-JONES & KNIGHT-JONES, 1977: 470.

**TYPE LOCALITY:** The subspecies, later raised to species, was described with base on specimens found inside shells occupied by large *Eupagurus bernhardus*, usually attached inside the penultime whorl of the hermit-crab shells, which are mostly *Buccinum*, but small individuals are often attached to the telson of the hermits and even to the soft skin of the abdomen. No reference was made in the original description to the type locality of the subspecies, besides being in British waters.

**SELECTED REFERENCES:** *Circeis paguri* — AL-OGILY & KNIGHT-JONES, 1981: 822-825, figs. 1*A*, 2, tables 1-2. *Circeis armoricana paguri* — HARTMANN-SCHRÖDER, 1996: 580, fig. 283; KIRKEGAARD, 1996: 424-425, fig. 241. *Circeis armoricana* [not Saint-Joseph 1894] — KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 545-547, fig. 2*c*-*d*. *Spirorbis spirillum* [not Linnaeus 1758] — GEE, 1964: 419 [in part, specimen from inside a shell of *Buccinum undatum* inhabited by a *Eupagurus bernhardus*; not specimens from carapace of *Palinurus vulgaris* = *Circeis armoricana*].

**DISTRIBUTION:** Arctic Ocean; Northeastern Atlantic Ocean, from northern North Sea to Brittany and Skagerrak; Nova Scotia; Pacific Ocean from California to Mexico; Japan. Found inside shells (mostly of *Buccinum*) inhabited by hermit-crabs, like *Eupagurus bernhardus*, or on their telson. Between 3-20 meters.

## *Circeis spirillum* (Linnaeus 1758)

*Serpula spirillum* LINNAEUS, 1758: 786.

**TYPE LOCALITY:** "Habitat in *Oceano* super Sertularias & Zoophyta alia". Probably Northeastern Atlantic Ocean.

**SYNONYMS:** *Serpula porrecta* Müller 1776; *Serpula lucida* Montagu 1803.

**SELECTED REFERENCES:** *Serpula spirillum* — FABRICIUS, 1780: 376-377. *Spirorbis (Spirillum) spirillum* — MÖRCH, 1863: 438. *Spirorbis spirillum* — LEVINSEN, 1884: 201, 208, pl. 2 fig. 8*k*, pl. 3 figs. 14-16; MOORE, 1902: 277; BUSH, 1904: 243, pl. 27 fig. 8, pl. 33 fig. 15, pl. 39 figs. 21-23, 28, pl. 40 fig. 7, pl. 42 figs. 1-5, pl. 43 figs. 9-10; FAUVEL, 1909: 53-54; PIXELL, 1912: 796, pl. 88 fig. 8; FAUVEL, 1913*b*: 93; FAUVEL, 1914*f*: 331; BORG, 1917: 20-22, figs. 3-4; MCINTOSH, 1923*a*: 391-396, pl. 122 fig. 9, pl. 132 fig. 6; WESENBERG-LUND, 1950*a*: 62; WESENBERG-LUND, 1953*b*: 9-10, chart 67; HARRIS, 1968*a*: 601. *Spirorbis (Dexiospira) spirillum* — CAULLERY & MESNIL, 1897: 198-199, pl. 7 fig. 4; FAUVEL, 1927*a*: 392-393, fig. 132*f-p* [in part; not *Circeis armoricana* Saint-Joseph 1894]; BERGAN, 1953: 41-42, fig. 6, pl. 1 fig. 9*h-i*; NELSON-SMITH, 1967: 58-59, figs. 55-56; HARTMANN-SCHRÖDER, 1971: 542-543. *Circeis spirillum* — KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 545-546, fig. 1*A*; KNIGHT-JONES & KNIGHT-JONES, 1977: 471, fig. 5*N-U*; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 429, fig. 3*B*; HARTMANN-SCHRÖDER, 1996: 581-582, fig. 284; KIRKEGAARD, 1996: 425-426, fig. 242; RZHAVSKY, 2001: 583-584, 1 fig., 1 map. *Spirorbis (Dexiospira) spirillum* Var. *ascendens* — FAUVEL, 1927*a*: 393. *Serpula porrecta* — FABRICIUS, 1780: 378-379.

**DISTRIBUTION:** Greenland; Iceland; Faroes; Spitsbergen; Kara Sea; Norway; Skagerrak; Kattegat; Øresund; British Isles; North Sea; English Channel; Azores; New England; eastern-coast of North America, from Cape Cod to Greenland; Bering Sea; western-coast of North America, from Santa Barbara, California, to Cape Fox, Alaska; Korean coast; Siberian coast. Typically in strong currents and dim light, found on hydroids, like *Hydrallmania falcata*, *Sertularella gayi*, *S. polyzonias*, and particularly *Abietinaria abietina*, and bryozoans, like *Tricellaria erecta*, *T. gracilis*, *Dendrobeania murrayana*, *Cellaria* sp. or *Crisidia* sp., but sometimes also on algae, like the red alga *Delesseria sanguinea*. FAUVEL (1913*b*) found one specimen attached to the elytrum of an *Eunoe nodosa* (M. Sars 1861). Between 1-430 meters.

## *GENUS ***Ditrupa*** Berkeley 1835

*Ditrupa* BERKELEY, 1835: 425-426.

**TYPE SPECIES:** *Dentalium subulatum* Deshayes 1826 [= junior synonym of *Dentalium arietinum* O.F. Müller 1776].

**SYNONYMS:** *Bonhourella* Gravier 1905.

### **Ditrupa arietina* (O.F. Müller 1776)

*Dentalium arietinum* O.F.MÜLLER, 1776: 236.

**TYPE LOCALITY:** Denmark and/or Norway.

**SYNONYMS:** *Dentalium subulatum* Deshayes 1825; *Dentalium strangulatum* Deshayes 1825 [in part]; *Serpula libera* M. Sars 1835; *Dentalium goreanum* Clessim 1896.

**SELECTED REFERENCES:** *Ditrupa arietina* — LANGERHANS, 1880*b*: 121-122, pl. 5 fig. 39 SAINT-JOSEPH, 1898: 443-447, pl. 23 figs. 249-254; FAUVEL, 1909: 65-66; WOLLEBÆK, 1912: 119-120, pl. 46 figs. 4-9, pl. 51 fig. 4; FAUVEL, 1914*f*: 346-347; RIOJA, 1923*c*: 106, fig. 200; FAUVEL, 1927*a*: 374-375, fig. 128*a-g*; RIOJA, 1931: 435; NELSON-SMITH, 1967: 39, figs. 32, 34; ZIBROWIUS, 1968*b*: 383-385, pl. 1 fig. 18; ZIBROWIUS, 1968*c*: 169-171, pl. 9 figs. 8-13; ZIBROWIUS, 1973*a*: 78-79; BIANCHI, 1981: 124-125, figs. 47, 66*e*, pl. 1 fig. 13; TEN HOVE & SMITH, 1990: 104-107, figs. 19-21, 23, 5454-57, 61; BEN-ELIAHU & FIEGE, 1996: 24; HARTMANN-SCHRÖDER, 1996: 561-562; KIRKEGAARD, 1996: 406, fig. 232; KUPRIYANOVA & JIRKOV, 1997: 207-209, fig. 2, map 2. *Serpula libera* — M. SARS, 1835: 52-54, pl. 13 [erroneously numbered as 12] fig. 33. *Ditrypa arietina* — MCINTOSH, 1923*a*: 380-383, pl. 122 figs. 5-6, pl. 132 fig. 1. *Ditrupa subulata* — LO BIANCO, 1893: 87-88.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Espichel; Setúbal Canyon; Cape São Vicente; Cape Sagres); ZIBROWIUS, 1970*a* (previous records: Portugal); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Arrábida); SALDANHA, 1995 (Portugal); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 169 (A.3091)**, off Vila Nova de Milfontes, 300 m, muddy sand: 1 specimen, in very poor condition, broken in two pieces; fragments of the tube present. **SEPLAT 7 (2nd part) — St. 17 (A.4105)**, north Sines, 33 m, sand: 26 specimens; worms about 7 mm long; calcareous plaques with ornamentation, like the radii of a bicycle wheel. **St. 18 (A.4078)**, north Sines, 41 m, sand: 1 specimen, in poor condition. **St. 21 (A.4081)**, north Sines, 116 m, sand with shells: 3 specimens, 2 still inside the tubes, the third one was very damaged when removed from the tube. **St. 46 (A.4061)**, north Sines, 36 m, sand: 1 specimen, broken in two pieces; anterior region still inside the tube.

**St. 185 (A.3926)**, near Sines, 37 m, sandy mud: 2 specimens in a very poor condition; vial contains a loose operculum. **St. 316 (A.3844)**, off Arrifana, 82 m, sand: 1 specimen; operculum loose; distance between the second and the third chaetiger almost the same than the distance between the third and the seventh.

**DISTRIBUTION:** Boreal to subtropical: East Atlantic, from Iceland and Norway to Azores; Madeira and Porto Santo; Canary Islands; NW Africa; Senegal; Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Black Sea. Lives unattached, in soft marine sediments. Specimens are known to depths down to 150 meters (300 meters, with the above record), but tubes have been found to a depth of 560 meters. The species was recorded by FAUVEL (1909, 1914*f*) at Azores, Canary Islands, Bay of Biscay, and off Monaco between 540-1900 meters, but these records should be confirmed. KUPRIYANOVA & JIRKOV (1997) reported an empty tube from 1320 meters, from near the Faroes. In spite of having been recorded as cosmopolitan, this almost worldwide distribution may include other similar species, as already showed by TEN HOVE & SMITH (1990).

**REMARKS:** The species was originally described by O.F. MÜLLER (1776) with base on an empty tube.

## GENUS ***Ficopomatus*** Southern 1921

*Ficopomatus* SOUTHERN, 1921: 655.

**TYPE SPECIES:** *Ficopomatus macrodon* Southern 1921.

**SYNONYMS:** *Mercierella* Fauvel 1923; *Sphaeropomatus* Treadwell 1934; *Mercierellopsis* Rioja 1945; *Neopomatus* Pillai 1960.

**REMARKS:** A detailed revision of this genus and its synonymies was performed by TEN HOVE & WEERDENBURG (1978), who also emended the genus definition.

### ***Ficopomatus enigmaticus*** (Fauvel 1923)

*Mercierella enigmatica* FAUVEL, 1923*a*: 425-430, fig. 1.

**TYPE LOCALITY:** Channel of Caen (Normandy, France), opened to the sea, between Ouistreham, in the coast, and Hérouville, inland. On the stalks of *Phragmites*, immersed woods, stones and shells, in brackish water, between 0.30 and 1 meter deep. The distribution of the species was stated by MERCIER *in* FAUVEL (1923*a*) as being rare at 150 meters from the canal locks of Ouistreham, and then "*a un kilomètre des écluses, elle devient abondante et forme de belles colonies sur la portion immergée des tiges de* Phragmatides*, des vieux morceaux de bois, sur les charpentes qui maintiennent les berges. Il y en a également sur les pierres, sur les coquilles de* Congeria*. En profondeur, elles se répartissent de 0 m. 30 à 1 mètre, mais ne paraissent pas dépasser un mètre*". FAUVEL (1923*a*) adds that "*Elles présentent un maximum de fréquence vers le pont de Benouville, puis décroissent jusqu'au pont de Hérouville où elles disparaissent. Il n'en existe plus entre ce pont et le port de Caen*". Near the bridge of Hérouville the salinity was stated to be between 1.81 to 2.447 grams of NaCl per liter (FAUVEL, 1923*a*). The species was not present in the channel of Caen before 1897, and FAUVEL (1923*a*) suggested that it had been recently introduced through the fouling, probably after the First World War, and also that its origin was quite probably not European.

**SELECTED REFERENCES:** *Mercierella enigmatica* — MONRO, 1924*a*: 155-159; RIOJA, 1924: 161-168, text-figs. 1-30, pl. 5; FAUVEL, 1927*a*: 360-361, fig. 123; ANNENKOVA, 1930: 41-43, figs. 13-15; RIOJA, 1931: 420-424, pls. 137-139; FAUVEL, 1932*b*: 249-251; FAUVEL, 1933*a*: 185-193; FAUVEL, 1936*b*: 515-516; FAUVEL, 1937: 45-46; FISCHER-PIETTE, 1937: 197-206, figs. 1-3; WESENBERG-LUND, 1942: 43-46, figs. 9-10; RÉMY, 1948: 532-535; COGNETTI, 1953*b*: 37-39, fig. 1; COGNETTI, 1954: 41-44, figs. 1-2; RULLIER, 1955: 74-82, figs. 1-11, maps 1-3; DEW, 1959: 29-31, fig. 8*A-H* [in part; not specimens from Townsville and Noosa (Queensland) = *F. uschakovi* (Pillai 1960)]; GEE, 1963: 712-714, fig. 3; VUILLEMIN, 1964: 514-525, pls. 1-4, pl. 5 figs. *a*, *a1*, *b*; RULLIER, 1966: 95-104; STRAUGHAN, 1966: 139-146, fig. 3*a* [in part; Australia and Berkeley (California); figs. 2 and 3*b-d* = *F. uschakovi* (Pillai 1960)]; DAY, 1967: 812, fig. 38.5.*o-s*; HARTMANN-SCHRÖDER, 1967: 421-456, figs. 1-24; NELSON-SMITH, 1967: 54, figs. 49-50 [tropical localities in the distribution most probably refer to other species]; WOLFF, 1969*b*: 85-92, figs. 1-6; HARRIS, 1970: 107-110, figs. 2-4; HARTMANN-SCHRÖDER, 1971*a*: 526-527; HARTMANN-SCHRÖDER, 1971*b*: 9-18, 21-25, figs. 1, 4, 6, 7*a*, 8-10, 15-17, tables 2-3, map on page 20; ORENSANZ & ESTIVARIZ, 1971: 106-108, figs. 47-56; PILLAI, 1971: 120-125, fig. 10*B-H*; ZIBROWIUS, 1973*a*: 62-64; TEN HOVE, 1974: 46-48; ZIBROWIUS, 1978: 145-146. *Ficopomatus enigmaticus* — TEN HOVE & WERDENBURG, 1978: 114-116, figs. 2*e-i*, 3*d-e*, *l-q*, 4*a-d*, *s*, *aa-bb*, *nn-vv*, 5*c*, 6; BIANCHI, 1981:

129-132, figs. 7*h*, 49, pl. 2 figs. 1-5; ZIBROWIUS & THORP, 1989: 273-274; HARTMANN-SCHRÖDER, 1996: 571-572, fig. 279; KIRKEGAARD, 1996: 407-409, fig. 233.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Mercierella enigmatica*; previous records: Mondego Estuary).
**DISTRIBUTION:** Cosmopolitan in temperate regions: From British Isles to Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Morocco; South Africa; Japan; Hawaii; Australia; California; Texas; Uruguay; Argentina. It is very typical in estuarine and lacunar environments, harbours, and brackish waters, where it occurs attached to hard substrata of diverse nature, like pieces of wood, rocks, stones, shells, hulls of boats, etc. It is invasive, associated with fouling. Intertidal to shallow waters (about 50 meters). It has been recorded in salinities ranging from 6 to 55 ‰.
**REMARKS:** This species has been the object of a large amount of publications and literature citations. For a resumed list of these, as well as of the citations that at least partially refer to one of the other species in the genus, see TEN HOVE & WEERDENBURG (1978).

## GENUS ***Filograna*** Berkeley 1835

*Filograna* BERKELEY, 1835: 426
**TYPE SPECIES:** *Filograna implexa* Berkeley 1835.
**SYNONYMS:** *Filograna* Oken 1815 [nomen rej.; published in a work not accessible for nomenclatorial purposes]; *Filipora* Fleming 1825; *Filograna* Berkeley 1835 (sensu Neave 1939).

### ***Filograna implexa*** Berkeley 1835

*Filograna implexa* BERKELEY, 1835: 426, pl. 19 fig. 1.
**TYPE LOCALITY:** Weymouth, England.
**SYNONYMS:** *Filograna Schleideni* O. Schmidt 1848; *Filograna Berkeleyi* Quatrefages 1866.
**SELECTED REFERENCES:** *Filograna implexa* — QUATREFAGES, 1866*b*: 487; CUNNINGHAM & RAMAGE, 1888: 673, pl. 45 fig. 35; SAINT-JOSEPH, 1894: 335-339, pl. 12 figs. 366-369, pl. 13 figs. 370-374; FAUVEL, 1909: 51; WOLLEBÆK, 1912: 111-112, pl. 40 figs. 1-6, pl. 51 fig. 1; FAUVEL, 1914*f*: 327-328; MCINTOSH, 1923*a*: 339-346, pl. 116 figs. 5*b*, 8, pl. 117 fig. 2*d-e*, pl. 121 fig. 8, pl. 122 fig. 1, pl. 137 fig. 20 [in part]; RIOJA, 1923: 109, fig. 201; FAUVEL, 1927*a*: 376-377, fig. 129*a-b*; RIOJA, 1931: 436-438, pl. 144 fig. not numbered; WESENBERG-LUND, 1950*a*: 61, chart 65; GEE, 1963: 705-709, fig. 1*a-b*, *d*, *f-k*, table 1; NELSON-SMITH, 1967: 48, fig. 42; ZIBROWIUS, 1968*c*: 179-181, pl. 10 figs. 1-12 [in part]; ZIBROWIUS, 1969*a*: 133; HARTMANN-SCHRÖDER, 1971*a*: 538; BEN-ELIAHU & FIEGE, 1996: 25-26, table 2 [in part]; HARTMANN-SCHRÖDER, 1996: 573 [in part; not *Salmacina dysteri* (Huxley 1855); not *Salmacina incrustans* Claparède 1869]; KIRKEGAARD, 1996: 409-411, fig. 234; KUPRIYANOVA & JIRKOV, 1997: 209-211, fig. 3, map 3. *Serpula Filograna* [? not Linnaeus 1767] — BERKELEY, 1828: 230-231, pl. 18 fig. 3. *Filograna Berkeleyi* — QUATREFAGES, 1866*b*: 485-486, pl. 15 figs. 9-12, 25. *Filograna* sp. — BIANCHI, 1981: 137-139, fig. 51, pl. 1 fig. 5 [in part].
**REFERENCES FOR PORTUGAL:** NOBRE, 1937 (Berlengas, Balieira); NOBRE & BRAGA, 1942 (Berlenga); SALDANHA, 1974 (coast of Arrábida); [?] MONTEIRO-MARQUES, 1987 (as *Filograna*; continental shelf of Algarve); [?] SALDANHA, 1995 (as *Filograna* sp.; Portugal); TEN HOVE & KUPRIYANOVA, 2009 (Sesimbra).
**DISTRIBUTION:** Recorded worldwide, but many of the records refer probably to similar species, or to *Salmacina* species. Greenland; Iceland; Spitsbergen; Norway; Faroes; Barents Sea; North Sea; English Channel; Skagerrak; Kattegat; northern Øresund; British Isles; Gulf of Biscay; Lusitanian region; Mediterranean Sea; Adriatic Sea; Aegean Sea; Azores. In hard, detritic bottoms, and sandy and muddy bottoms. From shallow water to about 605 meters, but reported by GEE (1963) to be found mainly subtidally.

## GENUS ***Filogranula*** Langerhans 1884

*Filogranula* LANGERHANS, 1884: 282.
**TYPE SPECIES:** *Filogranula gracilis* Langerhans 1884.

**KEY TO SPECIES:**

**1a.** Operculum with a distal spine more or less ramified; tube with distal erect region with closely tighten bowlshaped peristomes, pilled over each other.....***F. calyculata***
**1b.** Operculum without spines; peristome collar-rings of tube not as above.....**2**

**2a (1b).** Peristomes in erect distal region of tube ring-like, with more or less smooth borders, folded on their own, in order to form a receptacle.....***F. annulata***
**2b (1b).** Peristomes in distal region of tube subdivided by 6-7 teeth.....**3**

**3a (2b).** Operculum funnel-shaped, with radial symmetry.....***F. stellata***
**3b (2b).** Operculum pear-shaped (piriform), zigomorph.....***F. gracilis***

## ***Filogranula annulata*** (O.G. Costa 1861)

*Vermetus annulatus* O.G. COSTA, 1861: 37-38, pl. 5 figs. 1-5, 8-9 [in part; in part (pl. 5 fig. 6) = *Semivermilia torulosa* (Delle Chiaje 1822); in part (pl. 5 figs. 10, 10') = *Filogranula calyculata* (O.G. Costa 1861)].

**TYPE LOCALITY:** Mediterranean Sea.

**SYNONYMS:** *Omphalopoma annulata* Zibrowius 1968; *Caecum bucheri* Parenzan 1979.

**SELECTED REFERENCES:** *Omphalopoma annulata* — ZIBROWIUS, 1968*c*: 145-147, pl. 4 figs. 30-33, pl. 5 figs. 1-7, 33, pl. 6 figs. 1-10. *Filogranula annulata* — ZIBROWIUS, 1972*c*: 120-121; BIANCHI, 1981: 97-98, fig. 37; ZIBROWIUS, 1981: 245-247, fig. 1. *Caecum bucheri* — PARENZAN, 1979: 65-66.

**DISTRIBUTION:** Portugal; Mediterranean Sea; Aegean Sea. In marine caves and coralligenous concretions. From shallow water to about 100 meters.

## ***Filogranula calyculata*** (O.G. Costa 1861)

*Vermetus calyculatus* O.G. COSTA, 1861: 39, pl. 5 fig. 7.

**TYPE LOCALITY:** Mediterranean Sea.

**SYNONYMS:** *Vermetus mirabilis* O.G. Costa 1861; *Vermetus annulatus* O.G. Costa 1861 [in part]; *Omphalopoma cristata* Langerhans 1884; *Omphalopoma aculeata* Fauvel 1909.

**SELECTED REFERENCES:** *Filogranula calyculata* — ZIBROWIUS, 1972*c*: 121; ZIBROWIUS, 1973*a*: 58; BIANCHI, 1981: 95-97, fig. 36; THORP, KNIGHT-JONES & KNIGHT-JONES, 1986: 882-883, fig. 1; BEN-ELIAHU & FIEGE, 1996: 11. *Omphalopoma cristata* — LANGERHANS, 1884: 281-282, pl. 17 fig. 46; ZIBROWIUS, 1968*b*: 378-379, pl. 1 fig. 7; ZIBROWIUS, 1968*c*: 139-143, pl. 5 figs. 11-32, pl. 6 figs. 11-12; ZIBROWIUS, 1969*a*: 131; ZIBROWIUS, 1970*a*: 127. *Omphalopoma aculeata* — FAUVEL, 1909: 58-59, fig. 5; FAUVEL, 1914*f*: 339-341, pl. 29 figs. 33-43; BELLAN, 1964*b*: 176; NELSON-SMITH, 1967: 40, fig. 35. *Vermetus annulatus* [in part] — O.G. COSTA, 1861: 37-38, pl. 5 figs. 10, 10'. *Vermetus mutabilis* — O.G. COSTA, 1861: 39-40, pl. 6 figs. 1-15.

**REFERENCES FOR PORTUGAL:** ZIBROWIUS, 1970*a* (as *Omphalopoma cristata*; Cape São Vicente; Setúbal Canyon); ZIBROWIUS & THORP, 1989 (Setúbal Canyon).

**DISTRIBUTION:** Eastern Atlantic; Portugal; Madeira; Azores; Josephine Bank; Mediterranean Sea; Adriatic Sea; Aegean Sea; Wales (Abereiddy Quarry). On rocks, stones, shells, coralligenous blocks, or colonies of *Cladocora cespitosa*. Common at the bathyal, down to 1200 meters and in marine caves, mainly in the dark regions. Also present at the infralittoral and circalittoral, especially in coralligenous substrata in soft bottoms.

## ***Filogranula gracilis*** Langerhans 1884

*Filogranula gracilis* LANGERHANS, 1884: 282, pl. 17 fig. 47.

**TYPE LOCALITY:** Madeira Island.

**SELECTED REFERENCES:** *Filogranula gracilis* — ZIBROWIUS, 1973*a*: 57; BIANCHI, 1981: 93-95, fig. 35; BAILEY-BROCK, 1991: 204-206, fig. 4; BEN-ELIAHU & FIEGE, 1996: 11. *Omphalopoma gracilis* — ZIBROWIUS, 1968*b*: 379, pl. 1 fig. 8; ZIBROWIUS, 1968*c*: 143-145, pl. 4 figs. 27-29, pl. 5 figs. 8-10; ZIBROWIUS, 1969*a*: 131; ZIBROWIUS, 1970*a*: 127-128.

**REFERENCES FOR PORTUGAL:** ZIBROWIUS, 1970*a* (as *Omphalopoma gracilis*; Setúbal Canyon).

**DISTRIBUTION:** Celtic Sea; Eastern Atlantic, between the Gulf of Gascony, Azores, Madeira, and Gulf of Guinea, Angola, and Congo; Mediterranean Sea; Aegean Sea; Hawaiian Islands. Mainly in deep circalittoral and bathyal (60-1900 meters), in hard substrata, like colonies of madreporarians, shells, or rocks, but also at shallower water (29-45 meters), in concretions in sandy or detritic bottoms.

### ***Filogranula stellata*** (Southward 1963)

*Omphalopoma stellata* SOUTHWARD, 1963*b*: 576-578, fig. 3.
**TYPE LOCALITY:** Northeast Atlantic, continental slope southwestern the British Isles, 48º39'N, 9º45'W, between 935-1060 meters, on dead coral.
**SELECTED REFERENCES:** *Filogranula stellata* — ZIBROWIUS, 1977: 293; BIANCHI, 1979*a*: 276; BIANCHI, 1981: 99, fig. 38; BEN-ELIAHU & FIEGE, 1996: 11-12.
**REFERENCES FOR PORTUGAL:** [?] BOAVENTURA *et al.*, 2006 (as *Filogranula* cf. *stellata*; Ancão, Algarve).
**DISTRIBUTION:** Northeastern Atlantic, continental slope southwestern to Brittany and Ireland; [?] Portugal; Mediterranean Sea. Attached to colonies of madreporians, stones, or other hard substrata. Between 320-3000 meters.

## GENUS ***Hyalopomatus*** Marenzeller 1878

*Hyalopomatus* MARENZELLER, 1878: 393.
**TYPE SPECIES:** *Hyalopomatus claparedii* Marenzeller 1878.
**SYNONYMS:** *Hyalopomatopsis* Saint-Joseph 1894; *Cystopomatus* Gravier 1911.
**REMARKS:** The diagnosis of the genus was emended by KUPRIYANOVA (1993*b*).

#### KEY TO SPECIES BASED ON SPECIMENS:

**NOT INCLUDED IN THE KEY:** *Hyalopomatus madreporae* Sanfilippo 2009, only known from empty tubes of recently dead specimens.

**1a.** Vesiculous operculum with slightly sclerotized convex endplate.....**2**
**2b.** Vesiculous operculum without differentiated cap.....***H. claparedii***

**2a (1a).** Tube smooth; fang of thoracic uncini 2-lobed, with uncini's transverse row above fang with 4-5 teeth; fang of abdominal uncini 4-lobed, with uncini's transverse row above fang with 7 teeth.....***H. marenzelleri***
**2b (1a).** Tube at least partially rugose; fang of thoracic uncini 4-lobed, with uncini's transverse row above fang with 7-8 teeth; fang of abdominal uncini 6-lobed, with uncini's transverse row above fang with 10 teeth.....***H. variorugosus***

#### KEY TO SPECIES BASED ON TUBES:

**1a.** Tube smooth, without ornamentations.....**2**
**1b.** Tube ornamented, with attached part with irregular, rugose sculpturing (appearing as "dotted" under a dissecting microscope, and under a SEM seen as characteristic irregular transverse flaps roughly following the growth lines), apical part of tube with smooth surface, and a peristome collar ring between attached and distal erect part; circular cross section of a diameter of about 120 µm (inner) and 170 µm (outer).....***H. variorugosus***

**2a (1a).** Mean tube diameter of 310 µm (253-397 µm); under SEM, outer surface of tube smooth, with crystals and their arrangement not visible, being covered by a regular cryptocrystalline amorphous film; thin and discontinuous growth lines hardly visible under high SEM magnifications.....***H. madreporae***
**2b (1a).** Mean tube diameter of 480 µm; under SEM, the cryptocrystalline cover is less homogenous than in *H. madreporae*, locally determining areas of loosely-patched crystals along the tube surface.....***H. claparedii***
**2c (1a).** Mean tube diameter of 780 µm; under SEM, tube micromorphology displaying an evident rough surface, especially in the distal part, and well visible traces of growth.....***H. marenzelleri***

### ***Hyalopomatus claparedii*** Marenzeller 1878

*Hyalopomatus claparedii* MARENZELLER, 1878: 393-394, pl. 4 fig. 2.
**TYPE LOCALITY:** Off SW Franz-Joseph Land, 79º13'1"N, 63º21'47"E, at 230 meters, in brownish mud.

**SELECTED REFERENCES:** *Hyalopomatus claparedii* — KNOX, 1959: 110-112, pl. 4 figs. 1-5; ZIBROWIUS, 1969*b*: 11-12; ZIBROWIUS, 1977: 294; KUPRIYANOVA & JIRKOV, 1997: 211-213, fig. 4, map 4. *Hyalopomatus Claparedi* — LEVINSEN, 1886: 14. Unidentified Serpulidae — [?] CLAPARÈDE *in* EHLERS, 1875: 9, pl. 1 fig. 14.

**DISTRIBUTION:** Arctic Basin: Franz-Joseph Land, Kara Sea, north of Ellesmere Land; Siberian coast; north of Alaska; [?] between Hebrides and Iceland. Maybe at 128 meters, and between 142-3622 meters.

## ***Hyalopomatus madreporae*** Sanfilippo 2009

*Hyalopomatus madreporae* SANFILIPPO, 2009: 151-158, figs. 2-4.

**TYPE LOCALITY:** Central Mediterranean Sea, off Santa Maria di Leuca (Puglia, South Italy), 39º34.84'N, 18º23.30'E, 513 meters, substrate of mud with living corals, one entire tube on a *Madrepora oculata* colony.

**DISTRIBUTION:** Central Mediterranean Sea (Northern Ionian Sea), off Santa Maria di Leuca (Puglia, South Italy), 497-1146 meters, in substrates of bioclastic mud, bioclastic sandy mud, or slightly sandy mud, all with living and dead colonies of the coral *Madrepora oculata* (Linnaeus 1758). Only empty tubes of recently dead specimens have been found, on *Madrepora oculata* (Linnaeus 1758) colonies and some of its epibionts: calices, tissue-barren and dead branches of *Madrepora*, and on associated bryozoans and hydrozoans. Tube distal parts have been also delivered from mud entrapped between the coral framework, and from bottom sediments neighbouring the mounds.

**REMARKS:** So far this species is exclusively known from empty tubes of recently dead specimens, living specimens being lacking.

## ***Hyalopomatus marenzelleri*** Langerhans 1884

*Hyalopomatus marenzelleri* LANGERHANS, 1884: 278, pl. 17 fig. 49.

**TYPE LOCALITY:** Madeira Island.

**SELECTED REFERENCES:** *Hyalopomatus Marenzelleri* — FAUVEL, 1909: 59; FAUVEL, 1914*f*: 341. *Hyalopomatus marenzelleri* — ZIBROWIUS, 1969*b*: 12-13, fig. 4; ZIBROWIUS, 1977: 294; BIANCHI, 1981: 121-123, fig. 46; BEN-ELIAHU & FIEGE, 1996: 17, fig. 7, table 1. *Hyalopomatopsis Marenzelleri* — FAUVEL, 1909: 59. *Hyalopomatopsis marenzelleri* — SOUTHWARD, 1963*b*: 578-580, fig. 4; ZIBROWIUS, 1968*b*: 385-386, pl. 1 figs. 19-23; ZIBROWIUS, 1970*a*: 128-129; ZIBROWIUS, 1973*a*: 76-77. *Hyalopomatopsis* sp. — ZIBROWIUS, 1968*c*: 177-178, pl. 9 fig. 36.

**REFERENCES FOR PORTUGAL:** ZIBROWIUS, 1969*b* (Setúbal Canyon); ZIBROWIUS, 1970*a* (as *Hyalopomatopsis marenzelleri*; Setúbal Canyon).

**DISTRIBUTION:** Temperate Northeast Atlantic: Gulf of Biscay, off Brittany; Azores; Madeira Island; Canary Islands; Portugal; Josephine Bank; [?] Western Mediterranean Sea; [?] Tyrrhenian Sea. In several kinds of hard bottoms. Bathyal, common between 200-2800 meters, less frequent between 100-300 meters.

**REMARKS:** SOUTHWARD (1963*b*) stated the presence of two varieties among the material studied by her. These varieties may be distinguished mainly by the shape of the operculum: in ***Variety A*** it is spherical or slightly flattened on top, being a colourless ampulla without a definitive cap, which sometimes presents an alteration of the mosaic pattern of the surface, making the flattened side look darker than the rest; while in ***Variety B*** the operculum is oval, with light brown, convex cap, which is horny and slightly striated. Apparently the *Variety B* included the specimens from Madeira and Azores.

## ***Hyalopomatus variorugosus*** Ben-Eliahu & Fiege 1996

*Hyalopomatus variorugosus* BEN-ELIAHU & FIEGE, 1996: 13-19, figs. 3-6, table 1.

**TYPE LOCALITY:** Off Egypt (Mediterranean Levant Basin), 32º19.59'N and 31º07.34'E, to 32º19.60'N and 31º06.14'E, between 1019-1021 meters.

**SELECTED REFERENCES:** *Hyalopomatus variorugosus* — SANFILIPPO, 1998*a*: 132-136, plates 1-2.

**DISTRIBUTION:** Tyrrhenian Sea; South of Italy; South of Crete; SSW of Cyprus; off Israel; off Egypt; Aegean Sea; Ampere Seamount (between Portugal and Madeira). On pteropod and fossil oyster shells, chunk of burnt coal, slag, pumice, hard calcareous crusts, dead *Lophelia pertusa*, and in muddy bottoms, where it can occur free in the mud. Found at 36 (?) meters, and 195-2474 meters. The species is also known as a fossil from the Pleistocene deep water deposits of Sicily and Calabria.

## *GENUS ***Hydroides*** Gunnerus 1768

*Hydroides* GUNNERUS, 1768: 52.

**TYPE SPECIES:** *Hydroides norvegica* Gunnerus 1768.

**SYNONYMS:** *Eupomatus* Philippi 1844; *Eucarphus* Mörch 1863; *Codonytes* Quatrefages 1866; *Polyphragma* Quatrefages 1866; *Glossopsis* Bush 1904; *Schizocraspedon* Bush 1904; *Olgaharmania* Rioja 1941; *Protohydroides* Uchida 1978.

**REMARKS:** The species *Hydroides grubei* Pillai 1965 was recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of ships at the harbour of Toulon (South France). The sampled ships were the French aircraft carrier *Foch*, after spending seven months at western Indian Ocean, and arriving to the Mediterranean through the Suez Canal, and the *Balny*, after spending ten months in the Indian Ocean, and arriving to the Mediterranean after contouring Africa. It was later recorded by ZIBROWIUS & BITAR (1981: 160) from Beirut (Lebanon), in a rocky bottom at 5 meters, attached to the shells of living pelecypods (Mollusca). The species was later synonymized with *Hydroides novaepommeraniae* Augener 1925, by IMAJIMA & TEN HOVE (1984), and was later cited as so from the Mediterranean Levant coast by BEN-ELIAHU (1991*b*: 522, 527, fig. 3, tables 1-2). All these Mediterranean records of *H. grubei* and *H. novaepommeraniae* were later recognized as being undeterminable juveniles (BEN-ELIAHU & TEN HOVE, 1992: 42; TEN HOVE & BEN-ELIAHU, 2005: 133-134, fig. 4*A-B*, Appendix Table 1 Section II*b*; for more information see this last reference), and for this reason the species is not considered here.

### KEY TO SPECIES:

**1a.** Opercular verticil with all the spines fused, forming a cornified symmetrical vesicle, with six lateral budges and without spinules; opercular funnel with about 12 radii with blunt or pointed tips....***H. steinetzi***
**1b.** Opercular verticil with clearly differentiated spines.....**2**

**2a (1b).** Opercular verticil radially symmetrical, with all the spines of similar size and shape.....**3**
**2b (1b).** Opercular verticil not radially symmetrical, zygomorphic, with some spines of different size or shape, normally with dorsal spines being longer.....**12**

**3a (2a).** Verticil spines with expanded flat T-shaped tips; lateral spinules absent.....***H. diramphus***
**3b (2a).** Verticil spines with pointed or blunt tips, but without distal expansions; lateral spinules in spines can be present or absent.....**4**

**4a (3b).** Verticil spines with lateral spinules; funnel radii with round or blunt tips, sometimes with small lateral processes.....**5**
**4b (3b).** Verticil spines without lateral spinules (internal spinules may be present); funnel radii with pointed tips.....**9**

**5a (4a).** Verticil spines curving inwards, with one single pair of lateral spinules.....**6**
**5b (4a).** Verticil spines generally not curving inwards, with more than one pair of lateral spinules.....**7**

**6a (5a).** About 10-12 verticil spines, being short, with blunt tips, and without internal spinules; funnel radii with round tips.....***H. stoichadon****
**6b (5a).** About 6-7 verticil spines, being long, with pointed tips, and with one internal spinule, at the proximal region; funnel radii with blunt tips and a pair of small lateral processes.....***H. homoceros***

**7a (5b).** Bayonet collar chaetae with a proximal rasp clearly visible, ending in two to several slightly bigger teeth; spines short, with 2-3 (rarely 4) lateral spinules; tips of spines short, of about the same length than the spinules, or a little longer; verticil with a central tooth present, more or less developed.....***H. elegans***
**7b (5b).** Bayonet collar chaetae normally with two big teeth, seldom accompanied by smaller teeth, but without proximal rasp; spines long, with more than 3 lateral spinules; tips of spines short or long; verticil with a central tooth present or absent.....**8**

**8a (7b).** Spines with 3-4 (rarely 5) lateral spinules; tips of spines long, clearly longer than the lateral spinules; tooth at the center of the verticil absent; verticil light coloured; superior face of tube slightly flattened, without longitudinal keel.....***H. norvegicus****

**8b (7b).** Spines with 5-10 lateral spinules; tips of spines short, of about the same length of the spinules; presence of a well developed tooth at the center of the verticil; verticil dark coloured; superior face of tube flattened, delimited by two longitudinal lateral keels.....***H. azoricus***

**9a (4b).** Verticil spines distally curving outwards, numbering 20-35; spines with 5-9 internal spinules; verticil with central tooth present.....***H. ezoensis***
**9b (4b).** Verticil spines distally curving inwards, numbering normally 7-8; spines without internal spinules, or if present, one single basal internal spinule; verticil with central tooth absent.....**10**

**10a (9b).** Spines short, normally light coloured, with one basal internal spine; radii with short tips.....***H. operculatus***
**10b (9b).** Spines long, dark coloured, without internal spinules; radii with very long tips.....**11**

**11a (10b).** Tips of radii bidentate, curved outwards, with an internal secondary subapical tooth curved inwards.....***H. pseudouncinatus pseudouncinatus****
**11b (10b).** Tips of radii unidentate, curved outwards, without any internal secondary subapical tooth.....***H. pseudouncinatus africanus****

**12a (2b).** Dorsal spine vesicular, being globular towards the center of the crown and having two dorso-lateral enlargements, separated by a longitudinal groove; remaining 10-14 spines elongated, bottle-shaped, with a subdistal neck-like constriction and small, blunt, lateral extensions at the tip; radii bottle-shaped, with rounded or blunt tips in juveniles, and club-shaped with semi-circular tips in adults.....***H. albiceps***
**12b (2b).** Vesicular or globular spines absent; radii with or without enlarged tips.....**13**

**13a (12b).** All verticil spines without lateral spinules; radii without enlarged tips.....**14**
**13b (12b).** At least one verticil spine with lateral spinules; radii with enlarged tips.....**17**

**14a (13a).** Verticil with about 6 ventral and lateral small spines, simple, straight, and with rounded tips, surmounted by a much bigger dorsal spine, inflated, and curving inwards; radii with rounded tips.....***H. helmatus****
**14b (13a).** All spines with pointed tips, curving inwards or outwards; radii with pointed tips.....**15**

**15a (14b).** All spines curving inwards.....**16**
**15b (14b).** At least part of the spines curving outwards; opercular verticil with about 9-10 spines, with dorsal spines curving inwards, ventral spines curving outwards; spines with pointed tips; spines can have one basal internal spinule.....***H. dianthus***

**16a (15a).** Verticil with about 7-9 long spines, gently curving inwards; dorsal spines longer than ventral, otherwise of about the same thickness; spines without internal spinules; spines dark or black; radii with long tips; peduncular constriction present, with a dark coloured band.....***H. niger***
**16b (15a).** Verticil with about 7-8 short spines, strongly curving inwards; dorsal spine longer and clearly thicker than ventral spines, surmounting them; spines with one internal basal spinule; spines light coloured; radii with short tips; peduncular constriction ill-defined.....***H. brachyacanthus***

**17a (13b).** Enlarged dorsal spine curved inwards, with a pair of lateral spinules; smaller spines without lateral spinules, curved outwards and increasing in size from dorsal to ventral region; opercular funnel zygomorphic; radii of the opercular funnel bottle-shaped, with slightly enlarged tips, increasing in size from dorsal to ventral and bending outwards.....***H. minax***
**17b (13b).** Enlarged dorsal spine without lateral spinules; smaller spines with a median pair of spinules; all spines curved inwards; opercular funnel with radial symmetry; radii of the opercular funnel of similar size, with blunt tips and a pair of small lateral processes.....***H. heterocerus***

## ***Hydroides albiceps*** (Ehrenberg & Grube *in* Grube 1870)

*Serpula (Eupomatus) albiceps* EHRENBERG & GRUBE *in* GRUBE, 1870*e*: 520-521.
**TYPE LOCALITY:** El-Tor (= El Tur, Egypt), Southern Sinai Peninsula, Gulf of Suez.
**SELECTED REFERENCES:** *Eupomatus albiceps* — WILLEY, 1905: 312, pl. 7 figs. 180-181. *Hydroides albiceps* — FAUVEL, 1953*c*: 460, fig. 241*d-e*; PILLAI, 1960: 12, fig. 4*F-M*; STRAUGHAN, 1967*a*: 220, fig. 6*m*; IMAJIMA, 1976*a*: 234; IMAJIMA, 1976*b*: 133-135, fig. 8; VINE & BAILEY-BROCK, 1984: 139, fig. 2*K*;

TEN HOVE, 1990: 119, figs. 10-12, 20; TEN HOVE, 1994: 107-108; FIEGE & SUN, 1999: 112-114, fig. 2*D-F*, table 1.

**DISTRIBUTION:** Indo-west Pacific: Red Sea; Pakistan; India; Sri Lanka; Seychelles; Indonesia; Philippines; Australia; Japan; Palau; Samoa; South China Sea. On rocks, stones, and in hull's ships. Intertidal to 52 meters. Toulon Harbour (French Mediterranean coast), as a fouling organism.

**REMARKS:** The species *Hydroides albiceps* (Ehrenberg *in* Grube 1870) was recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of a ship at the harbour of Toulon (South France). The sampled ship was the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving the Mediterranean through the Suez Canal.

## ***Hydroides azoricus*** Zibrowius 1972

*Hydroides azorica* ZIBROWIUS, 1972*b*: 435-437, fig. 1.

**TYPE LOCALITY:** Ponta Delgada (São Miguel Island, Azores), east of the harbour, at the wreck of "*Doria*", inside the wreck in a population of *Pycnodonta cochlear*, and outside, at 12-17 meters.

**DISTRIBUTION:** Azores Archipelago: Flores Island, 40 to 1360 (?) meters; Strait Pico-Faial, at 130 meters; São Miguel, 2-18 meters. Attached to hard surfaces in rocky and sandy-mud bottoms, at the infralittoral and circalittoral exposed to the open water.

**REMARKS:** The first reference to this species from Azores, as being a distinct taxon from *Hydroides norvegicus* was done by ZIBROWIUS (1971*b*: 720), with base on material previously identified by FAUVEL (1909, 1914*f*) as *Hydroides norvegica*, and on new material collected by Helmut Zibrowius himself.

## ***Hydroides* cf. *brachyacanthus*** Rioja 1941

*Hydroides brachyacanthus* RIOJA, 1941*a*: 169-172, pl. 3 fig. 2, pl. 4 figs. 1-9.

**TYPE LOCALITY:** Mazatlán (Sinaloa), and Acapulco (Guerrero), Mexico.

**SELECTED REFERENCES:** *Hydroides brachyacantha* — ZIBROWIUS, 1970*b*: 6, pl. 1 figs. 3-4. *Hydroides brachyacanthus* — BASTIDA-ZAVALA & TEN HOVE, 2003: 73-76, figs. 3, 7*a-f*; ÇINAR, 2006: 225-226, fig. 2. *Hydroides* cf. *brachyacanthus* — BEN-ELIAHU & TEN HOVE, 1992: 42-44, 51, tables 2, 4-6. *Hydroides* cf. *brachyacantha* — BEN-ELIAHU, 1991*b*: 520, 522, fig. 3, table 1.

**DISTRIBUTION:** California; Pacific coast of Mexico; Costa Rica; Panama; Ecuador; [?] Hawaiian Islands; [?] Australia. On mollusk shells, algae, corals, and in fouling. Intertidal to about 23 meters. In the Eastern Mediterranean (Israel) the specimens identified as *Hydroides* cf. *brachyacanthus* were found between 1-6 meters, mainly settled on mollusks as *Malleus regula*, *Pinctada radiata* and *Thais haemostoma*, but also under rocks. The species was also recorded as *H. brachyacanthus* from the Levantine coast of Turkey, by ÇINAR (2006), between, 0-9 meters, on rocks and *Cladocora caespitosa*.

**REMARKS:** According to BEN-ELIAHU & TEN HOVE (1992), some differences were found between Central American, Eastern Mediterranean and Australian populations of this species that need to be evaluated. The species was only presumed to be a Lessepsian migrant by BEN-ELIAHU & TEN HOVE (1992), as no corroboratory collections from the Gulf of Suez or the Suez Canal were found.

## ***Hydroides dianthus*** (Verrill 1874)

*Serpula dianthus* VERRILL, 1874*c*: 620-621.

**TYPE LOCALITY:** New England (Atlantic coast of USA), "*Great Egg Harbour to New Haven and Cape Cod*".

**SYNONYMS:** [?] *Serpula hexagona* Bosc 1802; *Serpula dianthus* var. *citrina* Verrill 1874; *Hydroides (Eupomatus) dianthoides* Augener 1922.

**SELECTED REFERENCES:** *Hydroides dianthus* — RIOJA, 1957: 260-262; ZIBROWIUS, 1971*b*: 697-705, figs. 1-5; ZIBROWIUS, 1973*a*: 32-33; ZIBROWIUS, 1973*c*: 683-684; ZIBROWIUS, 1978: 147; BIANCHI, 1979*a*: 271; BIANCHI, 1981: 59-62, figs. 7*n*, 20, pl. 2 fig. 6; TEN HOVE & WOLF, 1984: 55.21, figs. 55.15-55.16; ZIBROWIUS & THORP, 1989: 275-276; BASTIDA-ZAVALA & SALAZAR-VALLEJO, 2000: 845, fig. 1*m-u*; BASTIDA-ZAVALA & TEN HOVE, 2002: 143-146, figs. 23-24, 28. *Eupomatus dianthus* — HARTMAN, 1945: 48, pl. 10 fig. 1. *Serpula dianthus* var. *citrina* — VERRILL, 1874*c*: 620-621. *Hydroides (Eupomatus) dianthoides* — AUGENER, 1924*a*: 49-50. *Hydroides* cf. *dianthus* — BEN-ELIAHU, 1976*a*: 106-107, fig. 1.

**DISTRIBUTION:** Atlantic coasts of North America, from Cape Cod to Gulf of Mexico; Atlantic coasts of Europe and Africa (northern to Senegal, but probably present southernly, at least to Nigeria); Mediterranean Sea, especially in the western basin; Adriatic Sea; Aegean Sea; Levant coast. Common in harbours and coastal lagoons, but also in the coastal infralittoral, and very common in brackish waters. Typical in the fouling, but it is also a fouler organism associated with the American oyster *Crassostrea*

*virginica* (Gmelin 1791). Occurs also attached to stones, rocks, shell fragments or other hard surfaces. Intertidal to about 30 meters.

## ***Hydroides diramphus*** Mörch 1863

*Hydroides (Eucarphus) dirampha* MÖRCH, 1863: 379, pl. 11 fig. 10.

**TYPE LOCALITY:** Harbour of St. Thomas, Antillean Islands.

**SYNONYMS:** *Hydroides (Eucarphus) benzoni* Mörch 1863; [?] *Hydroides cumingii* Mörch 1863; *Hydroides cumingii* var. *navalis* Mörch 1863; *Eupomatus lunulifer* Claparède 1869; *Eucarphus serratus* Bush 1910; [?] *Hydroides malleophora* Rioja 1942.

**SELECTED REFERENCES:** *Hydroides dirampha* — ZIBROWIUS, 1970*b*: 5-6; ZIBROWIUS, 1971*b*: 705-707, figs. 6-9; ZIBROWIUS, 1973*a*: 31-32; ZIBROWIUS, 1973*c*: 684; ZIBROWIUS, 1978: 147; BIANCHI, 1979*a*: 271; BIANCHI, 1981: 63-64, fig. 21. *Hydroides diramphus* — BASTIDA-ZAVALA & SALAZAR-VALLEJO, 2000: 845-846, fig. 2*a-d*; BASTIDA-ZAVALA & TEN HOVE, 2002: 161-164, figs. 34, 36; BASTIDA-ZAVALA & TEN HOVE, 2003: 83-86, fig. 10; ÇINAR, 2006: 226, fig. 3*A-C*. *Eupomatus lunulifer* — CLAPARÈDE, 1869: 181-182, pl. 31 fig. 3; IROSO, 1921: 52. *Hydroides lunulifera* — LO BIANCO, 1893: 85; SAINT-JOSEPH, 1906: 247-248, pl. 5 fig. 114; FAUVEL, 1927*a*: 358-359, fig. 122*p-s*; FAUVEL, 1953*c*: 458-459, fig. 241*h*; NELSON-SMITH, 1967: 31, fig. 16. *Serpula (Hydroides) lunulifera* — RIOJA, 1923*c*: 86, fig. 144; RIOJA, 1931: 412, pl. 132 fig. 5. *Hydroides lunulifera* — DAY, 1967: 807, fig. 38.4.*j-k*. *Hydroides lunulifer* — ZIBROWIUS, 1968*c*: 114. *Eucarphus serratus* — BUSH, 1910: 495-496.

**DISTRIBUTION:** Cosmopolitan in tropical and template seas: Mediterranean Sea; Aegean Sea; Suez Canal; Bermudas; Gulf of Mexico; Caribbean Sea; Antillean Sea; Brazil; Senegal; South Africa; India; Philippines; Indonesia; Yellow Sea; Hawaiian Islands; New Zealand; California; Pacific coast of Mexico; Panama. Intertidal to about 3 meters. In the Mediterranean Sea, it is normally found in the meridional regions. Typical in the fouling. Probably original from the tropical coasts of America.

**REMARKS:** It is interesting to note that the junior synonym *Eupomatus lunulifer*, described y CLAPARÈDE (1869) from the region of the Gulf of Naples, was collected from the hull of a ship.

## ***Hydroides elegans*** (Haswell 1883)

*Eupomatus elegans* HASWELL, 1883: 633, pl. 12 fig. 1.

**TYPE LOCALITY:** Port Jackson, Australia.

**SYNONYMS:** *Hydroides abbreviata* Krøyer *in* Mörch 1863 [*nomen oblitum*]; *Hydroides norvegica* var. *Trypanon* Saint-Joseph 1906; *Hydroides incrustans* Monro 1938; *Hydroides spinalateralis* Straughan 1967; *Hydroides pacifica* Hartman 1969.

**SELECTED REFERENCES:** *Eupomastus elegans* — HASWELL, 1885*a*: 660-662, pl. 31 figs. 3-4, pl. 32 figs. 11-12, pl. 33 figs. 1-6, pl. 34 figs. 6-9, pl. 35 fig. 1. *Hydroides elegans* — ZIBROWIUS, 1971*b*: 721-727, figs. 56-64; ZIBROWIUS, 1972*b*: 433-434, 437, 442-444; ZIBROWIUS, 1973*a*: 42-44; ZIBROWIUS, 1973*c*: 684-685; TEN HOVE, 1974: 46-48, figs. 1-3; ZIBROWIUS, 1978: 147; BIANCHI, 1979*a*: 273, fig. 1*c-d*, table page 270; BIANCHI, 1981: 56-58, figs. 5*c*, 12, 18, pl. 1 fig. 10; ZIBROWIUS & THORP, 1989: 274; BEN-ELIAHU & FIEGE, 1996: 29-30, fig. 10*B*; BASTIDA-ZAVALA & SALAZAR-VALLEJO, 2000: 846-848, fig. 2*e-f*; BASTIDA-ZAVALA & TEN HOVE, 2002: 164-166, figs. 35-36; BASTIDA-ZAVALA & TEN HOVE, 2003: 86-87, fig. 11; ÇINAR, 2006: 226-227, fig. 3*D-E*. *Hydroides pectinata* [not Philippi 1844] — LO BIANCO, 1893: 85; IROSO, 1921: 49-51, pl. 4 figs. 8, 10-14. *Hydroides incrustans* — MONRO, 1938*a*: 74-78, figs. 1-7; GEE, 1963: 709-712, fig. 2*g*, table 3. *Hydroïdes norvegica* [not Gunnerus 1768] — FAUVEL, 1911*a*: 427-428, pl. 21 figs. 55-58. *Hydroides norvegica* [not Gunnerus 1768] — FAUVEL, 1927*a*: 356-357, fig. 122*k* [in part; in part = *Hydroides norvegicus* Gunnerus 1768]; DEW, 1959: 24-25, fig. *A-I*; PILLAI, 1960: 12-14, fig. 5*A-E*; DAY, 1967: 805, fig. 38.4.*a-g*; NELSON-SMITH, 1967: 28-29 [in part; *Hydroides incrustans* Monro 1938]; ZIBROWIUS, 1968*c*: 107-109 [in part]. *Hydroides abbreviata* — KRØYER *in* MÖRCH, 1863: 377, pl. 11 figs. 6-7. *Hydroides norvegica* var. *Trypanon* — SAINT-JOSEPH, 1906: 247, pl. 5 figs. 112-113.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Lagoon of Óbidos).

**DISTRIBUTION:** Cosmopolitan in warm and temperate seas. British Isles; Netherlands; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Suez Canal; Red Sea; Persian Gulf; west coast of Africa, from Senegal to Congo; South Africa; Mozambique; India; Sri Lanka; Indonesia; Phillipines; Australia; New Zealand; Japan; Hawaiian Islands; California; Gulf of Mexico; Caribbean Sea; Antillean Sea; Florida; Puerto Rico. Very common in the fouling, being typical in harbours and in waters artificially heated. Infralittoral, mainly at shallow water (0-1 meters).

**REMARKS:** This species was normally confused with *Hydroides norvegicus*, from which it can be easily separated by the shape of the operculum and of the special chaetae (see the above key). Besides, the two

species ocuppy different habitats in the European waters: *H. elegans* is very typical in harbours and close bodies of water, like coastal lagoons and artificial channels, where it forms dense populations at shallow water, while *H. norvegiicus* inhabitats open waters, being more common between 50-400 meters.

## ***Hydroides ezoensis*** Okuda 1934

*Hydroides ezoensis* OKUDA, 1934: 239-242, figs. 5-7.
**TYPE LOCALITY:** Shores of Akkeshi, Muroran and Oshoro, south of Hokkaido (Japan).
**SYNONYMS:** [?] *Serpula (Hydroides) diplochone* Grube 1878.
**SELECTED REFERENCES:** *Hydroides ezoensis* — IMAJIMA & HARTMAN, 1964: 369; USCHAKOV, 1955*a*: 425-427, fig. 161*A-I*; GRUET, HERAL & ROBERT, 1976: 180, pl. 1 fig. 7, tables 1-4; IMAJIMA, 1976*a*: 236-237, fig. 2; ZIBROWIUS, 1978: 142-145, fig. 1; THORP, PYNE & WEST, 1987: 865-875, figs. 2*a*, 3-8, table 1; ZIBROWIUS & THORP, 1989: 276-277. [?] *Serpula (Hydroides) diplochone* — GRUBE, 1878*b*: 104.
**DISTRIBUTION:** Japan; Russian coast of the Sea of Japan; Yellow Sea; East China Sea; Atlantic coast of France (area around Le Croisic and Baie de Bourgneuf), in oyster beds; South England (Southampton Water and Humble Estuary), forming encrustations on ships' hulls, docks and marina structures, and within industrial cooling systems. Littoral and sublittoral. The species was introduced in the Atlantic coast of France as part of the epifauna of Pacific oysters, *Crassostrea gigas* (Thunberg 1793), imported from Japan, and apparently in the Southampton area through international shipping from far eastern waters, as a fouling organism.

## ****Hydroides helmatus*** (Iroso 1921)

*Eupomatus helmatus* IROSO, 1921: 53-54, pl. 4 fig. 9.
**TYPE LOCALITY:** Gulf of Naples (Italy), in a calcareous rock, with tubes of *Serpula* and *Pomatoceros*.
**SYNONYMS:** *Eupomatus affinis* Marion 1876.
**SELECTED REFERENCES:** *Hydroides helmatus* — FAUVEL, 1927*a*: 359, fig. 122*t*; NELSON-SMITH, 1967: 31, fig. 17; ZIBROWIUS, 1968*c*: 116-117, pl. 2 figs. 18-26; ZIBROWIUS, 1969*a*: 127, fig. 2. *Hydroides helmata* — ZIBROWIUS, 1971*b*: 713-714, figs. 31-37; BIANCHI, 1979*a*: 272; BIANCHI, 1979*b*: 103, fig. 1*f*; BIANCHI, 1981: 68-70, fig. 24. *Eupomatus affinis* — MARION, 1876: 311. *Hydroides affinis* — ZIBROWIUS, 1968*c*: 115-116, pl. 13 fig. 29.
**MATERIAL: FAUNA 1 — St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 incomplete specimen, with operculum, thoracic region, and 3 abdominal chaetigers; operculum on the right side, pseudo-operculum on the left one; transition peduncle-funnel without any constriction; operculum with 6 verticil spines with rounded tips and a seventh spine, more developed, that surmounts the other ones, like a claw; bayonet chaetae normally with 3 subapical teeth
**DISTRIBUTION:** Gulf of Cádiz; Mediterranean Sea; Adriatic Sea; Aegean Sea. In infralittoral concretions and coralligenous bottoms, from intertidal to about 30 meters.

## ***Hydroides heterocerus*** (Grube 1868)

*Serpula (Eupomatus) heterocerus* GRUBE, 1868*c*: 639, pl. 7 fig. 8.
**TYPE LOCALITY:** Red Sea.
**SELECTED REFERENCES:** *Eupomatus heteroceros* — WILLEY, 1905: 313-314. *Hydroïdes heteroceros* — FAUVEL, 1911*a*: 428-429. *Hydroides heteroceros* — PIXELL, 1913: 75-76, pl. 8 fig. 2; WESENBERG-LUND, 1949: 357-358, fig. 46*b*; FAUVEL, 1953*c*: 459-460, fig. 241*c*; PILLAI, 1960: 10, fig. 3*F-K*; LAUBIER, 1966*d*: 17-18; DAY, 1967: 807-808, fig. 38.4.*1*. *Hydroides heterocera* — ZIBROWIUS, 1971*b*: 715-716, figs. 38-39; BEN-ELIAHU, 1991*b*: 520, 522, fig. 3, table 1. *Hydroides heterocerus* — BEN-ELIAHU & TEN HOVE, 1992: 45, 52, tables 2, 4-6; ÇINAR, 2006: 227-228, fig. 4*A-C*. *Serpula (Hydroides) uncinata* [not Philippi 1844] — GRAVIER, 1906*d*: pl. 8 figs. 286-287; GRAVIER, 1908: 114-115, text-figs. 463-466,.
**DISTRIBUTION:** Indian Ocean (Sri Lanka, Madagascar, Channel of Mozambique, Zanzibar, Djibouti); Persian Gulf; Red Sea; Suez Canal. On coralligenous concretions and port fouling, between 3.7-32 meters. Eastern Mediterranean Sea (Beyrouth, Israel, and Levantine coast of Turkey), as a Lessepsian migrant, in concretionary habitats as the *Cladocora caespitosa*-serpulid-algae conglomerate, or *Peyssonnelia* conglomerate, and from rocks and biofouling, between 1-33 meters. At the harbour of Toulon (South France), as ship-fouling.
**REMARKS:** This species was first collected at the Mediterranean Sea in 1965 by Lucien Laubier, in Beyrouth (Lebanon), at 25-30 meters, where it was installed in an exposed area (LAUBIER, 1966*d*). Probably the species is a Lessepsian migrant, as it is also known from the Gulf of Suez (FAUVEL, 1933*b*, 1933*c*; ZIBROWIUS, 1971*b*). It was also found by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of a ship

at the harbour of Toulon (South France). The sampled ship was the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving to the Mediterranean through the Suez Canal.

## ***Hydroides homoceros*** Pixell 1913

*Hydroides homoceros* PIXELL, 1913: 74-75, pl. 8 fig. 1.

**TYPE LOCALITY:** The species was described with base on several specimens collected at the Indian Ocean: Miladumadulu Atoll and Minikoi, Maldive Archipelago, off Ras Osowarmembe, between 10-15 fathoms (18.3-27.4 meters), and from the bottom of the wreck of the steamship *Juba* off Zanzibar (wrecked the 5th March 1892 on the reef to the south of Sii Island, off Vanga, Kenya).

**SELECTED REFERENCES:** *Hydroides homoceros* — MONRO, 1937*c*: 316; WESENBERG-LUND, 1949: 356-357, fig. 46*a*; FAUVEL, 1953*c*: 458, fig. 241*a*; TEN HOVE, 1970*a*: 55-58, figs. 1-8, 26; BEN-ELIAHU & TEN HOVE, 1992: 44, 51-52, tables 2, 4-6; ÇINAR, 2006: 228, fig. 4*D-F*. *Hydroides homocera* — BEN-ELIAHU, 1991*b*: 520, 522, 526-527, figs. 3, 5, table 1.

**DISTRIBUTION:** Maldive Islands; Seychelles; Zanzibar; South Arabian coast; Strait of Ormuz; Persian Gulf; Red Sea; Gulf of Suez; Suez Canal. From intertidal to about 60 meters. Israeli Mediterranean coast, and Levantine coast of Turkey, as a Lessepsian migrant, between 1-55 meters, associated with mollusks (*Chlamys varia*, *Pinctada radiata*, *Aporrhais pespelecani*, *Thais carinifera*, and *Trunculariopsis trunculus*), in gravel with broken mollusk shells, and also as biofouling at 20-24 meters. At the harbour of Toulon (South France), as ship-fouling.

**REMARKS:** As stated by BEN-ELIAHU (1991*b*), the species presents some opercular variability. This way, the species presents the marginal spines of the lower verticil from fully developed double-anchor spines [as in PIXELL (1913: pl. 8 fig. 1*a*), repeated in FAUVEL (1953*c*: fig. 241*a*); populations from Kuwait, Oman, Maldivas, Zanzibar, and Dahlak Archipelago], to reduced single-anchor spines [as in WESENBERG-LUND (1949: fig. 46*a*); populations from Persian Gulf, Suez Canal and Eastern Mediterranean). Both forms and intermediates between them were found from Sudan to the Persian Gulf. This way, and according to BEN-ELIAHU (1991*b*), it seems that a particular strain of *H. homocera* migrated into the Gulf of Suez, colonized the Suez Canal, and finally migrated into the Eastern Mediterranean.

The species *Hydroides homoceros* Pixell 1913 was recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of a ship at the harbour of Toulon (South France). The sampled ship was the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving to the Mediterranean through the Suez Canal.

The species was considered as a Lessepsian migrant in the Israeli Mediterranean coast (BEN-ELIAHU & TEN HOVE, 1992).

## ***Hydroides minax*** (Grube 1878)

*Serpula minax* GRUBE, 1878*c*: 269-271, pl. 15 fig. 5.

**TYPE LOCALITY:** Philippine Islands.

**SYNONYMS:** *Serpula (Hydroides) monoceros* Gravier 1906.

**SELECTED REFERENCES:** *Eupomatus minax* — WILLEY, 1905: 314. *Hydroides minax* — FAUVEL, 1953*c*: 460, fig. 241*f*; PILLAI, 1960: 8-10, fig. 3*A-E*; GIBBS, 1971: 202; IMAJIMA, 1976*a*: 233-234; IMAJIMA, 1976*b*: 129-130, fig. 5; ZIBROWIUS, 1979*b*: 133-134; IMAJIMA & TEN HOVE, 1984: 48; IMAJIMA & TEN HOVE, 1986: 3-4; BEN-ELIAHU, 1991*b*: 520, 522, fig. 3, table 1; BEN-ELIAHU & TEN HOVE, 1992: 45, 52-53, tables 2, 4-6; FIEGE & SUN, 1999: 119-120, fig. 9*A-C*; ÇINAR, 2006: 228-229, fig. 5. *Serpula (Hydroides) monoceros* — GRAVIER, 1906*a*: 110-111; GRAVIER, 1906*d*: pl. 8 fig. 288. *Serpula (Hydroides) monceros* — GRAVIER, 1908: 115-117, text-figs. 467-472. *Hydroides monoceros* — PIXELL, 1913: 76-77; FAUVEL, 1919*c*: 342; FAUVEL, 1953*c*: 460, fig. 241*g*; DAY, 1967: 808, fig. 38.4.*o-p*; STRAUGHAN, 1967*a*: 221, fig. 6*n*; STRAUGHAN, 1967*b*: 31; GIBBS, 1969*b*: 446, table 25; PILLAI, 1971: 110-112, fig. 7*D*; AMOUREUX, RULLIER & FISHELSON, 1978: 145, fig. 12. *Hydroïdes monoceros* — FAUVEL, 1947: 95-96, fig. 89*e*.

**DISTRIBUTION:** Southern Africa; Indian Ocean; Red Sea; Zanzibar; Sri Lanka; Seychelles; Philippines; Vietnam; Taiwan; Japan; Solomon Islands; French Polynesia; Palau Islands; Majuro Atoll; Gilbert Islands; Taiwan; South China Sea; Australia (Queensland). In coral and coral debris, Bivalvia (Pteridae and Osteridae), biofouling, or port fouling. Between 0.2-25 meters. At the Levantine Mediterranean coast (Lebanon, Israel, and Turkey), as a Lessepsian migrant, between 1-20 meters, in concretionary and rocky substrates, and one specimen in a mollusk (*Pteria occa*).

**REMARKS:** The species *Hydroides minax* (Grube 1878) was recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of a ship at the harbour of Toulon (South France). The sampled ship was the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving to the Mediterranean through the Suez Canal. It was later recorded by ZIBROWIUS & BITAR (1981) from Beirut (Lebanon), in a rocky bottom at 5 meters, attached to the shells of living pelecypods (Mollusca), and later by BEN-ELIAHU (1991*b*: 520), from the coast of Israel.

## ***Hydroides niger*** Zibrowius 1971

*Hydroides nigra* ZIBROWIUS, 1971*b*: 711-713, figs. 16-30.

**TYPE LOCALITY:** Tabarka (North Tunisia), off the island and Pointe Meloula, in colonies of *Cladocera cespitosa* in rocks, at 8-10 meters.

**SELECTED REFERENCES:** *Hydroides nigra* — BIANCHI, 1979*a*: 272; BIANCHI, 1979*b*: 103, fig. 1*d*; VACCARELLA, MARANO & PASTORELLI, 1980: 97-99, figs. 2-3; BIANCHI, 1981: 67-68, fig. 23. *Hydroides inornatus?* — ZIBROWIUS, 1968*c*: 117-118, pl. 2 figs. 27-28. *Hydroides* sp. — ZIBROWIUS, 1969*a*: 128, fig. 3.

**REFERENCES FOR PORTUGAL:** [?] BOAVENTURA *et al.*, 2006 (as *Hydroides* cf. *nigra*; Ancão, Algarve).

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Portugal. In all kinds of hard bottoms. Sciaphile infralittoral and circalittoral, including dark caves, down to 30 meters.

## ****Hydroides norvegicus*** Gunnerus 1768

*Hydroides norvegica* GUNNERUS, 1768: 51-53, pl. 2 figs. 11-13.

**TYPE LOCALITY:** Norway.

**SYNONYMS:** [?] *Serpula contortuplicata* Linnaeus 1758; *Serpula Reversa* Montagu 1803; *Eupomatus pectinatus* Philippi 1844; *Eupomatus Trypanon* Claparède 1870.

**SELECTED REFERENCES:** *Hydroides norvegica* — MÖRCH, 1863: 374-377, pl. 11 fig. 5; MARENZELLER, 1893: 43-44, pl. 4 fig. 18; SAINT-JOSEPH, 1898: 440-443, pl. 23 fig. 248; WOLLEBAEK, 1912: 115-116, pl. 43 figs. 1-6, pl. 44 figs. 1-4, pl. 51 fig. 5; RIOJA, 1917*c*: 80-81, fig. 23; MCINTOSH, 1923*a*: 346-352, pl. 116 fig. 3, pl. 121 figs. 6-6*c*, pl. 130 figs. 9-9*c*, pl. 131 fig. 10, pl. 133 figs. 1-1*a*; FAUVEL, 1927*a*: 356-357, fig. 122*i*, *l-o* [in part; in part = *Hydroides pectinans* (Haswell 1883)]; WESENBERG-LUND, 1950*a*: 60, chart 64; GEE, 1963: 709-712, fig. 2*a-f*, table 3; NELSON-SMITH, 1967: 28-29, fig. 13 [in part; not *Hydroides incrustans* Monro 1938 = *Hydroides elegans* (Haswell 1883)]; ZIBROWIUS, 1968*c*: 107-109, pl. 2 figs. 1-7 [in part; in part = *Hydroides elegans* (Haswell 1883)]; ZIBROWIUS, 1970*a*: 121; ZIBROWIUS, 1971*b*: 717-721, figs. 48-55; ZIBROWIUS, 1973*a*: 40; TEN HOVE, 1974: 46-47, figs. 4-9; BIANCHI, 1981: 55-56, figs. 3*c*, 17, pl. 1 fig. 18; HARTMANN-SCHRÖDER, 1996: 562-563, fig. 274; KIRKEGAARD, 1996: 411-413, fig. 235. *Hydroides Norvegica* — FAUVEL, 1914*f*: 324-325, pl. 31 fig. 25. *Hydroides norvegicus* — BEN-ELIAHU & FIEGE, 1996: 7; KUPRIYANOVA & JIRKOV, 1997: 213-215, fig. 5, map 5. *Serpula (Hydroides) norvegica* — RIOJA, 1923*c*: 83-84, figs. 137-140 [in part; only specimens from the Spanish coasts]; RIOJA, 1931: 408-410, pl. 131 [in part; only specimens from the Spanish coasts]. [?] *Serpula contortuplicata* — LINNAEUS, 1758: 787. *Eupomatus pectinatus* — PHILIPPI, 1844: 195, pl. 6 fig. *R*. *Eupomatus Trypanon* — CLAPARÈDE, 1870: 527-528, pl. 14 fig. 4. *Serpula Reversa* — MONTAGU, 1803: 508. *Serpula reversa* — JOHNSTON, 1865: 270-271, pl. 20 fig. 6.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Hydroides norvegica*; Cape Espichel); ZIBROWIUS, 1970*a* (as *Hydroides norvegica*; Setúbal Canyon; previous records: Portugal); ZIBROWIUS, 1971*b* (as *Hydroides norvegica*; Setúbal Canyon); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); QUINTINO & GENTIL, 1987 (as *Hydroides norvegica*; Lagoon of Albufeira); DEXTER, 1992 (as *Hydroides norvegica*; previous records: Ria Formosa; continental shelf of Algarve; Sado Estuary); SALDANHA, 1995 (as *Hydroides norvegica*; Portugal); RAVARA, 1997 (as *Hydroides norvegica*; off Aveiro); [?] BOAVENTURA *et al.*, 2006 (as *Hydroides* cf. *norvegica*; Ancão, Algarve); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 231 (A.3135)**, off Vila Nova de Milfontes, 162 m, sand: 1 specimen, in poor condition; bayonet chaetae with 2-3 subapical teeth; tube missing. **SEPLAT 7 (2nd part) — St. 23 (A.4083)**, north Sines, 127 m, sand: 2 complete specimens; tubes missing. **St. 26 (A.4086)**, north Sines, 140 m, sand: 1 complete specimen, about 4 mm long, without tube; verticil with 14 spines. **St. 34 (A.4073)**, north Sines, 144 m, sand: 1 apparently complete specimen with 7 thoracic and about 32 abdominal chaetigers; verticil with 12 spines; bayonet chaetae with 2 subapical teeth; about 3 mm long (not counting the crown); tube missing. **St. 176 (A.3934*A*)**, off Sines, 157 m, sand: 1 incomplete specimen; 7 thoracic chaetigers; verticil with about 15 spines; special chaetae with two subapical teeth; tube missing. **FAUNA 1 — St. 52*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana

de la Frontera, 22-24 m, rock: 1 specimen, in poor condition; operculum loose. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 specimen, represented only by the operculum, rest of the body missing. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 7 specimens; one still inside the tube; tube white, cylindrical, without carene; operculum with funnel with about 30 radii with round tips; verticil with about 16 spines, with long pointed tips and lateral spinules; verticil implanted just in the center of the funnel; transition peduncle-operculum gradual; special chaetae (or bayonet chaetae) with two subapical teeth; 7 thoracic chaetigers; about 51 chaetigers in one complete specimen 7 mm long.

**DISTRIBUTION:** NW Atlantic, from Norway and Shetland Islands to Portugal and Morocco; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Barents Sea. In "white coral" (*Lophelia prolifera*, *Madrepora oculata*), and on hard substracta as mollusk shells or serpulid tubes, in sandy mud bottoms of the circalittoral, as well as detritic bottoms. Mainly circalittoral and bathyal, being especially common between 50-400 meters, but reaching depths of 1680 meters. However it can also be found in the infralittoral.

**REMARKS:** Specimens from St. 23 (A.4083) from the Seplat 7 (2nd. part) campaign were compared with specimens of *Hydroides elegans* from southern Catalonia, identified by Daniel Martin for his PhD thesis. The two species show differences in the bayonet chaetae and thoracic uncini, besides the conspicuous differences in the opercula. This way, *H. elegans* has thoracic uncini with 6 teeth, while in *H. norvegicus* the uncini have 7 teeth. Besides, the bayonet chaetae in *H. norvegicus* have 2 or 3 big teeth and a subapical denticulate zone, while *H. elegans* shows rows of small teeth in the same zone.

## ***Hydroides operculatus*** (Treadwell 1929)

*Eupomatus operculata* TREADWELL, 1929: 12.

**TYPE LOCALITY:** Berbera, Somalia (Gulf of Aden).

**SYNONYMS:** *Hydroides basispinosa* Straughan 1967; *Hydroides gradata* Straughan 1967.

**SELECTED REFERENCES:** *Hydroides operculatus* — BEN-ELIAHU & TEN HOVE, 1992: 44, 52, tables 2, 4-6; ÇINAR, 2006: 229-230, 233, 234, figs. 6, 10, 12*D-F*. *Hydroides operculata* — BEN-ELIAHU, 1991*b*: 522, fig. 3, table 1. [?] *Hydroides* cf. *operculatus* — BASTIDA-ZAVALA & TEN HOVE, 2002: 171-173, figs. 39*D-O*, 40.

**DISTRIBUTION:** Somalia. Israeli Mediterranean coast, and Levantine coast of Turkey, as a Lessepsian migrant, intertidal to 6 meters, associated with mollusks (*Diodora ruepelli*, *Ostrea edulis*, *Pinctada radiata*, *Pteria occa*, *Dendropoma petraeum* substrate, *Murex thais*, and *Thais haemostoma*), coralligenous concretions, rocks and artificial substrates. At the harbour of Toulon (South France), as ship-fouling. [?] Champotón (Gulf of Mexico), at 1 meter, in sea grass-bed (*Syringodium*) with algae (*Udotea flabellum*, *Penicillus dumetosus* and *Halimeda incrassata*).

**REMARKS:** The species *Hydroides operculatus* (Treadwell 1929) was recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of a ship at the harbour of Toulon (South France). The sampled ship was the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving to the Mediterranean through the Suez Canal. It was later recorded by ZIBROWIUS & BITAR (1981) from Beirut (Lebanon), in a rocky bottom at 5 meters, attached to the shells of living pelecypods (Mollusca).

The specimen described by BASTIDA-ZAVALA & TEN HOVE (2002) as *Hydroides* cf. *operculatus*, differs from the stem species by having less funnel radii (28-33 in the Indo-Pacific, against 17 in the Mexican specimen). The rest of the opercular morphology is very similar between both populations: verticil without a central tooth, and with 7 yellow spines, similar in size and shape, distally curving inwards and with a basal internal spinule.

## ****Hydroides pseudouncinatus africanus*** Zibrowius 1971

*Hydroides pseudouncinata africana* ZIBROWIUS, 1971*b*: 709-711, fig. 13-15.

**TYPE LOCALITY:** Mauritania, Rio de Oro, 21º05'N, 17º14'W, at 43-45 meters, in a bottom of mud.

**SELECTED REFERENCES:** *Hydroïdes* spec. ind. — [?] FAUVEL, 1936*c*: 110-111, fig. 14. *Hydroides pseudouncinata africana* — ZIBROWIUS, 1973*a*: 38-39; AMOUREUX, 1976*b*: 30.

**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 9**, off Praia do Telheiro, 65 m, rock: 2 specimens; constriction between peduncle and funnel, dark-coloured (chitinized); radii and verticil spines chitinized, dark brown; 7 to 8 verticil spines, very long and curved inwards; radii also very long and thin, slightly curved to the exterior, without subapical tooth; rest of the body in poor condition; bayonet chaetae of the first chaetiger with two subapical teeth; bigger specimen 12 mm long, smaller one is 5 to 6 mm long; tube calcareous, without any remarkable ornamentation. **FAUNA 1 — St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and

gravel: 1 specimen, represented by part of the tentacular crown with the operculum; operculum with 8 verticil spines and about 28 radii.

**DISTRIBUTION:** Northwestern Africa, from Morocco to Guinea-Bissau; South Portugal (near Cape São Vincente); South Spain (near Trafalgar, Gulf of Cádiz); Northern Morocco, from both sides of the Strait of Gibraltar (Cape Spartel and Cape Negro). Attached to several kinds of hard surfaces, as rocks, stones, shells, or ascideans, also in muddy bottoms. Between 18-75 meters.

**REMARKS:** *Hydroides pseudouncinatus africanus* and *H. pseudouncinatus pseudouncinatus* are separated mainly by the tips of the radii, which are both curved outwards, but unidentate, without any internal secondary subapical tooth in the first, and bidentate, with an internal secondary subapical tooth curved inwards in the second. Besides, ZIBROWIUS (1971*b*) also states that the subspecies *africanus* would have a bigger number of radii (about 40 against about 30, in the stem form), a bigger number of spines (8 against 7 in the stem form), and that the worms would be bigger than in the stem subspecies.

Both subspecies are sympatric, at least at the South of the Iberian Peninsula and North of Morocco, at both sides of the Strait of Gibraltar. For this reason *H. pseudouncinatus africanus* should be raised to the specific level. However, *H. pseudouncinatus africanus* is here maintained as a subspecies, for the moment, as before raising it to the species level it is desirable to perform a more detailed study comparing the two forms, and to confirm the presence of all the differences observed by Zibrowius in the specimens from the region where the two forms overlap.

## ****Hydroides pseudouncinatus pseudouncinatus*** Zibrowius 1968

*Hydroides pseudouncinata* ZIBROWIUS, 1968*c*: 112-114, pl. 2 figs. 8-17.

**TYPE LOCALITY:** The species was described by ZIBROWIUS (1968*c*) with base on specimens collected at several locations. A holotype wasn't designed, apparently, but the studied specimens that served to erect the new species were from the region of Marseille, Port Cros Island, Villefranche, Malta, and Gulf of Gabès. It was found in marine caves at Marseille and Villefranche (see list under *Type Locality* section of *Spiraserpula massiliensis*), being especially abundant at the cave of Petit Mona, at Rouet, at shallow water, with a high pollution impact, and also at the marine cave of the Station Marine d'Endoume, numerous at the marine caves of the Island of Maïre, of Niolon, and of Villefranche, where the pollution was reduced, and rare at the marine caves of Figuier and Plane. Inside the caves, the species was collected at the facies of *Corallium rubrum* and at madrepores. Besides the marine caves, the species was found at: region of Marseille, in several locations (Cap Caveaux, detritic with mud, at 60 meters; south of Pomègues Island, in detritic, at 30 meters; south of Pomègues Island, in a bottom of *Peyssonnelia*, at 35 meters; at the mouth of Calanque de Sormiou, in detritic, at 39 meters; in front of Mont Rose (Gulf of Marseille), on a brick in a *Posidonia* bed at 12 meters; Veyron, in blocks in a *Posidonia* bed, at 29 meters); at Port Cros Island, among algae at 2 meters; and at Malta, on a shaded cliff with *Astroides calycularis*.

**SYNONYMS:** [?] *Sabella euplaeana* Delle Chiaje 1822; *Eupomatus uncinatus* Phillippi 1844.

**SELECTED REFERENCES:** *Hydroides pseudouncinata* — ZIBROWIUS, 1969*a*: 127, fig. 1. *Hydroides pseudouncinata pseudouncinata* — ZIBROWIUS, 1971*b*: 707-709, figs. 10-12; BIANCHI, 1981: 65-66, figs. 7*c*, 22. *Eupomatus uncinatus* — PHILIPPI, 1844: 195, pl. 6 fig. *Q*; IROSO, 1921: 52-53, pl. 4 fig. 15. *Hydroides uncinata* — LO BIANCO, 1893: 84; SAINT-JOSEPH, 1894: 245-246, pl. 5 figs. 110-111; SAINT-JOSEPH, 1906: 245-247, pl. 5 figs. 110-111; FAUVEL, 1927*a*: 357-358, fig. 122*a-h* [in part]; NELSON-SMITH, 1967: 29-30, figs. 14-15. *Hydroïdes uncinata* — SOULIER, 1902: 152-156, fig. 9. *Serpula (Hydroides) uncinata* — RIOJA, 1923*c*: 84-85, figs. 141-143; RIOJA, 1931: 410-412, pl. 132 figs. 1-4. [?] *Sabella euplaeana* — DELLE CHIAJE, 1822: pl. 48 fig. 21; DELLE CHIAJE, 1828: 226-227.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Hydroides uncinata*; previous records: Mira Estuary).

**MATERIAL: FAUNA 1 — St. 26*A***, Alborán Sea, Djibouti Bank, off Nerja, 296-297 m, sand and mud: 1 specimen, partially still inside the tube; funnel with about 30 radii, all bidentate, with an internal tooth; verticil with 7 spines; transition peduncle-funnel with a constriction; tube white, with 3 longitudinal ridges, attached to a bigger tube of *Serpula vermicularis*; specimen kept in the same vial with the specimen of *S. vermicularis*.

**DISTRIBUTION:** French Atlantic coast to Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea. In algal concretions, rocks, stones, hard surfaces in *Posidonia oceanica* beds and detritic bottoms, ship's hulls, coralligenous bottoms and half-dark caves. Infralittoral and shallow water (0.5-80 meters).

**REMARKS:** ZIBROWIUS (1968*c*) revised the status of *Eupomatus uncinatus* Philippi 1844 (as *Hydroides uncinata*). The species was briefly described by PHILIPPI (1844: 195), as "*animal fuscescens; brachiarum albarum, fusco-fasciatarum filis utrinque 13; margine operculi inciso-dentato; cornubus octo, apice incurvo uncinatis*", and was accompanied by a small figure, representing the operculum. According to ZIBROWIUS (1968*c*), the represented operculum was quite similar to the operculum figured by DELLE

CHIAJE (1822: pl. 48 fig. 21), for *Sabella euplaeana*, a species considered later by CLAPARÈDE (1869: 201) as indeterminable. The tube of this species was described as being an agglomerate of sand grains ["*Testa granulis arenaceis fabrefacta, cylindracea, inferne dupliciter intorta.*" (DELLE CHIAJE, 1828: 227)], and was considered to be from a non serpulid species by ZIBROWIUS (1968*c*), while the operculum was clearly from a *Hydroides*. The same type of operculum was also pictured by QUATREFAGES (1866*b*: pl. 20 fig. 12), for the same species. *Hydroides uncinata* would have the operculum with the radii with the tips simple and pointed, and the verticil with pointed and smooth spines, slightly curved inwards. In the absence of any collected material that could fit the description, ZIBROWIUS (1968*c*) based his description of the species on the description and drawings given by SOULIER (1902), based on specimens from the harbour of Sète and the Étang de Thau.

As in the previous references to *Eupomatus uncinatus*, SOULIER (1902, as *Hydroides uncinata*) also described the opercular funnel with radii with pointed simple teeth. Some of the following authors gave a wider definition of this species, normally as *Hydroides uncinata* (*e.g.* FAUVEL, 1927*a*), in such a way that many different species of *Hydroides* could fit the description of *Hydroides uncinata*, which was considered to be a polymorphic species (MONRO, 1933*a*). However, some authors described a form of *H. uncinata* that presented an operculum very similar to the one previously described, differing in that the opercular funnel had radii with bidentate tips (SAINT-JOSEPH, 1906; IROSO, 1921; RIOJA, 1923*c*). Based in this difference, ZIBROWIUS (1968*c*) described this form as a new species, *Hydroides pseudouncinatus*.

Later, ZIBROWIUS (1971*b*) identified as *Hydroides dianthus* specimens collected at the Étang de Thau, assuming that the specimens described previously by SOULIER (1902) as *H. uncinata* from the same region should belong to that species. However, *H. dianthus* has all the spines of the verticil curving in the ventral direction, with the dorsal spines pointing inwards and the ventral ones outwards, while SOULIER (1902) clearly pictured all the spines pointing inwards, in what is the typical situation of *H. pseudouncinatus*, and also as described by PHILIPPI (1844).

In my oppinion, *Eupomatus uncinatus* Philippi 1844 is a valid species, as *Hydroides uncinatus*, in spite of having being shortly and incorrectly described by PHILIPPI (1844), and it should include *H. pseudouncinatus* as a junior synonym. The species is very common in the Mediterranean Sea, and the small drawing given enables the correct identification of the species. This picture clearly shows that it can not be *H. niger* nor *H. dianthus*, two other species with smooth curving spines that occur in the Mediterranean region.

*Hydroides pseudouncinatus africanus*, as species with unidentate tips of radii, could fit the original description of *H. uncinatus* in what concerns the shape of the tips of radii. However, this species is generally known from the west Africa, and only from very few records from the westernmost region of the Mediterranean Sea, and it is highly improbable that Philippi described *H. uncinatus* with base on a specimen of this form.

In spite of being very unlikely, there is however a possibility that *H. uncinatus* was described from a specimen of *H. pseudouncinatus africanus*. Besides, ZIBROWIUS (1971*b*) proposed not to employ the name *Hydroides uncinatus* again, as it was confused and doubtful, and in fact, since 1971, the name *Hydroides uncinata* was almost not used at all, while the name *H. pseudouncinatus* has been widely used. For these reasons, I maintain here the name *H. pseudouncinatus* as the preferred name, but I do think that this question should be further debated in the future.

## ***Hydroides steinitzi*** Ben-Eliahu 1972

*Hydroides steinitzi* BEN-ELIAHU, 1972*a*: 78-80, figs. 1-2.

**TYPE LOCALITY:** Little Bitter Lake (opposite Kabrit), eastern bank of the Suez Canal (Egypt), in a sandstone rock.

**SELECTED REFERENCES:** *Hydroides steinitzi* — TEN HOVE, 1990: 119, figs. 16-18, 22; BEN-ELIAHU, 1991*b*: 524-525, fig. 4.

**DISTRIBUTION:** Suez Canal; Gulf of Suez and Dahlak Archipelago (Red Sea). At shallow water. On rocks and mollusk substrates. It was also found as ship-fouling in Toulon (South France).

**REMARKS:** The species *Hydroides steinitzi* Ben-Eliahu 1972 was recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of a ship at the harbour of Toulon (South France). The sampled ship was the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving to the Mediterranean through the Suez Canal.

The species was also pointed as a potential Lessepsian migrant by BEN-ELIAHU (1991*b*), as it is seemingly abundant in the Suez Canal, being present as far north as Lake Timsah in 1973.

### **Hydroides stoichadon* Zibrowius 1971

*Hydroides stoichadon* ZIBROWIUS, 1971*b*: 716-717, figs. 40-47.

**TYPE LOCALITY:** Southern France, Parc National de Port Cros, Cap du Merlan, in concretions on coarse sand at *Posidonia* beds, at 28 meters.

**SELECTED REFERENCES:** *Hydroides stoichadon* — BIANCHI, 1979*a*: 272; BIANCHI, 1981: 59, fig. 19.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); BOAVENTURA *et al.*, 2006 (Ancão, Algarve).

**MATERIAL: FAUNA 1 — St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 incomplete specimen, with abdomen missing; two opercula present, one with 10 verticil spines, the other with 9.

**DISTRIBUTION:** Mediterranean Sea: Southern France; Croatia, Adriatic Sea; Aegean Sea. On hard substracta. Between 10-35 meters.

## *GENUS *Janita* Saint-Joseph 1894

*Janita* SAINT-JOSEPH, 1894: 261.

**TYPE SPECIES:** *Omphalopoma spinosa* Langerhans 1884 [= junior synonym of *Serpula fimbriata* Delle Chiaje 1822].

### **Janita fimbriata* (Delle Chiaje 1822)

*Serpula fimbriata* DELLE CHIAJE, 1822: pl. 48 figs. 19-20.

**TYPE LOCALITY:** Mediterranean Sea (probably Gulf of Naples).

**SYNONYMS:** *Serpula frondiculata* O.G. Costa 1861; *Omphalopoma spinosa* Langerhans 1884.

**SELECTED REFERENCES:** *Placostegus fimbriatus* — PHILIPPI, 1844: 192, pl. 6 fig. *E*. *Omphalopoma fimbriata* — LO BIANCO, 1893: 88. *Omphalopoma fimbriatum* — MARENZELLER, 1893: 42-43, pl. 4 fig. 16. *Omphalopomopsis fimbriata* — RIOJA, 1917*c*: 83-84, fig. 24; RIOJA, 1923*c*: 90, figs. 151-163; FAUVEL, 1927*a*: 368-369, fig. 126*n-y*; RIOJA, 1931: 416-420, pls. 135-136; NELSON-SMITH, 1967: 36, fig. 26; ZIBROWIUS, 1968*b*: 379-380, pl. 1 fig. 9; ZIBROWIUS, 1968*c*: 149-151, pl. 6 figs. 13-21; ZIBROWIUS, 1969*a*: 132; ZIBROWIUS, 1970*a*: 13. *Janita fimbriata* — ZIBROWIUS, 1972*c*: 122; ZIBROWIUS, 1973*a*: 59-61, 88, table page 59; BIANCHI, 1981: 101-103, fig. 39; BEN-ELIAHU & FIEGE, 1996: 12-13. *Omphalopoma spinosa* — LANGERHANS, 1884: 281, pl. 17 fig. 45. *Serpula frondiculata* — O.G. COSTA, 1861: 32-33, pl 7 fig. 4.

**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 96 (A.4011)**, near Sines, 118 m, stones: 1 complete specimen, about 4 mm long (without crown), tube missing; operculum as described, with a corneous plaque very concave; peduncle trilobate, with the lobes forming a triangle; bayonet chaetae of the first chaetiger without any subapical tooth; collar with three lobes in the ventral part, being the median one longer; these lobes are separated by a slit from the dorsal (lateral) lobes.

**DISTRIBUTION:** Eastern Atlantic, from the Gulf of Guinea to the Gulf of Gascony; Mediterranean Sea; Madeira; Adriatic Sea; Aegean Sea; Japan; Amirantes; Solomon Islands; Madagascar; Brazil. Rare in coralligenous bottoms, can be found attached to rocks, stones or dead colonies of *Dendrophylla cornigera* (Lamarck). In marine caves, mainly in the dark zone. Between 5-533 meters.

**REMARKS**: According to some authors, the colar chaetae of this species are simply hastate, while others state that they are of fin and blade type (see BEN-ELIAHU & FIEGE, 1996). MARTIN (1987) found both types at the Catalan coast of Spain, and referred them to *Ophalopomopsis fimbriata* (Delle Chiaje 1822), and to *Janita spinosa* (Langerhans 1884). However, BEN-ELIAHU & FIEGE (1996) found both types of collar chaetae within a population from Cyprus, suggesting that the collar chaetae structure could be a "dimorphic" character.

## GENUS *Janua* Saint-Joseph 1894

*Janua* SAINT-JOSEPH, 1894: 260.

**TYPE SPECIES:** *Spirorbis pagenstecheri* Quatrefages 1866.

**REMARKS:** The genus was redefined by KNIGHT-JONES (1972), and emended by VINE (1972), KNIGHT-JONES (1973), and again by KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN (1974).

**KEY TO SPECIES:**
(adapted from NELSON-SMITH, 1967)

**1a.** Tube decorated with three longitudinal rows of conical spines.....***J. echinata***
**1b.** Tube decorated with smooth longitudinal ridges.....***J. pagenstecheri***

## ***Janua echinata*** (Wesenberg-Lund 1953)

*Spirorbis echinatus* WESENBERG-LUND, 1953*b*: 11-12, fig. 3.
**TYPE LOCALITY:** Steinavær (North Lofoten), 300-320 meters, attached to fossil fragments of *Lophelia pertusa* (Linnaeus).
**SELECTED REFERENCES:** *Spirorbis (Dexiospira) echinatus* — NELSON-SMITH, 1967: 62, fig. 63.
**DISTRIBUTION:** Known from the type locality.

## ***Janua pagenstecheri*** (Quatrefages 1866)

*Spirorbis Pagenstecheri* QUATREFAGES, 1866*b*: 491.
**TYPE LOCALITY:** Cette (= Séte), Southern France, Mediterranean Sea, on seaweeds and shells.
**SYNONYMS:** [?] *Serpula heterostropha* Montagu 1803; [?] *Serpula minuta* Montagu 1803; [?] *Spirorbis pusilla* Rathke 1837; *Mera pusilla* Saint-Joseph 1894; *Spirorbis pusilloides* Bush 1904; [?] *Spirorbis pagenstecheri* (var. *incoloris*) Gee 1964; *Spirorbis (Janua) gnomonicus* Bailey 1969; *Spirorbis (Janua) epichysis* Bailey 1970.
**SELECTED REFERENCES:** *Spirorbis Pagenstecherii* — LO BIANCO, 1893: 92; IROSO, 1921: 61. *Spirorbis (Dexiospira) Pagenstecheri* — CAULLERY & MESNIL, 1897: 201-202, pl. 8 fig. 8; FAUVEL, 1927*a*: 394-395, fig. 134*a-k*. *Spirorbis Pagenstecheri* — STERZINGER, 1910: 3-5, 7-8, figs. 4, 6; MCINTOSH, 1923*a*: 399-400, pl. 137 fig. 23. *Spirorbis pagenstecheri* — BORG, 1917: 26-28, fig. 12; WESENBERG-LUND, 1953*b*: 10, fig. 2; DE SILVA & KNIGHT-JONES, 1962: 607; GEE, 1964: 423-425, figs. 1, 9, table 15; BAILEY *in* BAILEY & HARRIS, 1968: 178-180, fig. 5*k*, table 1; HARRIS, 1968*a*: 600; HARRIS, 1968*b*: 194, 205. *Spirorbis (Dexiospira) Pagenstecheri* — RIOJA, 1923*c*: 127, figs. 232-242; RIOJA, 1931: 448-450, pl. 148 figs. 1-11. *Spirorbis (Dexiospira) pagenstecheri* — BERGAN, 1953: 42-43, fig. 7; NELSON-SMITH, 1967: 60, figs. 59, 61; ZIBROWIUS, 1968*c*: 201-203, pl. 13 figs. 6-15; ZIBROWIUS, 1969*a*: 135; HARTMANN-SCHRÖDER, 1971*a*: 543-545, fig. 188. *Spirorbis (Janua) pagenstecheri* — BAILEY, 1969*a*: 375, fig. 13, table 1. *Janua (Janua) pagenstecheri* — VINE, BAILEY-BROCK & STRAUGHAN, 1972: 163-166, figs. 8*a*, 9; KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN, 1974: 130-132, fig. 10; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 111-113, figs. 3*A-H*, 6; KNIGHT-JONES & KNIGHT-JONES, 1977: 486-488, fig. 12*A-H*; VINE, 1977: 52, figs. 25*c*, 31, 32*a*, tables 2-3, 6; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 432, fig. 4*A*; GILLANDT, 1979: 66-67, fig. 27; VINE & BAILEY-BROCK, 1984: 148; HARTMANN-SCHRÖDER, 1996: 583-584, fig. 285. *Janua pagenstecheri* — KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 548; BIANCHI, 1981: 168-170, figs. 3*d*, 64, pl. 1 fig. 15; BAILEY-BROCK, 1985: 215-216; KIRKEGAARD, 1996: 427-428, fig. 243; RZHAVSKY, 2001: 588-589, 1 fig., 1 map. *Mera pusilla* — SAINT-JOSEPH, 1894: 351-353, pl. 13 figs. 388-392. *Spirorbis (Dexiospira) pusillus* — CAULLERY & MESNIL, 1897: 202, text-fig. *D*. *Spirorbis pusilloides* — BUSH, 1904: 250; PIXELL, 1912: 797, pl. 88 fig. 9; SOUTHERN, 1914: 148; MCINTOSH, 1923*a*: 397-398; NELSON-SMITH, 1967: 60, fig. 60; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 115. *Spirorbis (Dexiopsira) pusilloides* — FAUVEL, 1927*a*: 395-396, fig. 134*q-t*. *Spirorbis (Janua) pusilloides* — RIOJA, 1942: 151-152. *Spirorbis (Janua) gnomonicus* — BAILEY, 1969*a*: 376-377, figs. 11, 13, table 1; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 107. *Spirorbis (Janua) epichysis* — BAILEY, 1970: 73-75, figs. 148-159, table 1; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 105. [?] *Spirorbis pagenstecheri* (var. *incoloris*) — GEE, 1964: 424-425, fig. 10. [?] *Spirorbis (Laeospira) laevis* [not Quatrefages 1866] — ZIBROWIUS, 1968: 200-201, pl. 12 fig. 32, pl. 13 figs. 1-5.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Spirorbis pagenstecheri*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Papoa; Ponta do Baleal); SALDANHA, 1995 (Portugal).
**DISTRIBUTION:** Almost cosmopolitan, in temperate and tropical seas. Northeastern Atlantic, from Norway to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Red Sea; Israel; from Angola to South Africa; West Indies; Sri Lanka; Mexico; Galápagos Islands; Tuamotu atolls; Hawaiian Chain; southern Australia; New Zealand; Pacific coast of North America. On rocks, stones, shells, crustacean shields, *Laminaria saccharina* in sheltered inlets, basal parts of *Ascophyllum nodosum* and occasionally on *Fucus serratus*, *F. vesiculosus*, *Chondrus crispus*, *Polyides rotundus*, *Ceramium rubrum*, *Ulva*

*lactuca*, *Enteromorpha intestinalis* and *Cladophora sericea*; very abundant on *Corallina officinalis* in rock pools in the upper half of the shore; from below tide marks to near high water of neap tides in deep, shaded crevices and even higher in rock pools (DE SILVA & KNIGHT-JONES, 1962). From high water of neap tides to 320 meters. Seems to be originary from western Europe, and that it has spread all over the world by fouling in the hulls of ships.

## *GENUS ***Josephella*** Caullery & Mesnil 1896

*Josephella* CAULLERY & MESNIL, 1896: 484.
**TYPE SPECIES:** *Josephella marenzelleri* Caullery & Mesnil 1896.

### ****Josephella marenzelleri*** Caullery & Mesnil 1896

*Josephella marenzelleri* CAULLERY & MESNIL, 1896: 484-486, figs. 3-5.
**TYPE LOCALITY:** Anse St.-Martin (Cap de la Hague, Northern France), among *Lithothamnion* covering the rocks, in the intertidal zone.
**SYNONYMS:** *Josephella humilis* Bush 1904.
**SELECTED REFERENCES:** *Josephella Marenzelleri* — FAUVEL, 1927*a*: 380-381, fig. 129*m-t*. *Josephella marenzelleri* — DEW, 1959: 52-53; NELSON-SMITH, 1967: 50, fig. 45; STRAUGHAN, 1967*a*: 252-253; STRAUGHAN, 1967*c*: 42-43, fig. 5*i*; ZIBROWIUS, 1968*b*: 386; ZIBROWIUS, 1968*c*: 172-174, pl. 9 figs. 14-22; ZIBROWIUS, 1969*a*: 132-133; ZIBROWIUS, 1970*a*: 129; ZIBROWIUS, 1973*a*: 79-80; UCHIDA, 1978: 34-36, pl. 11, table 4; BIANCHI, 1981: 134-135, fig. 50; BAILEY-BROCK, 1991: 199-201, fig. 2; NISHI, 1992: 109-110; HARTMANN-SCHRÖDER, 1996: 574; NISHI, 1996*a*: 309, fig. 4*f*; SANFILIPPO, 1996: 206-211, plates 1-2. *Josephella humilis* — BUSH, 1904: 291.
**REFERENCES FOR PORTUGAL:** ZIBROWIUS, 1970*a* (Setúbal Canyon); SALDANHA, 1974 (coast of Arrábida).
**MATERIAL: FAUNA 1 — St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 very small specimen, in poor condition.
**DISTRIBUTION:** Cosmopolitan. Atlantic coast of Europe; Madeira Island; Mediterranean Sea; Adriatic Sea; Aegean Sea; Brazil; Madagascar; Japan; Hawaiian Islands; Australia. In all kinds of hard substrata, including laminarian and other algae, *Posidonia*, corals, bryozoans, shells, or artificial substrata. Also present in marine caves. Infralittoral to about 300 meters.

## GENUS ***Jugaria*** Knight-Jones 1978

*Jugaria* KNIGHT-JONES, 1978: 227.
**TYPE SPECIES:** *Spirorbis quadrangularis* Stimpson 1853.
**REMARKS:** RZHAVSKY (1991, 1992*a*, 2001) considered the genus *Jugaria* Knight-Jones 1978 as being a subgenus of *Bushiella* Knight-Jones 1973. I consider here both taxa as having the generic rank.

**KEY TO SPECIES:**

**1a.** Opercular plate flat or concave; cross-striations on the collar chaetae present or absent; largest abdominal tori towards the posterior end of the body; operculum can fuse completely with the brood chamber below, or not to do so.....**2**
**1b.** Opercular plate convex; cross-striations on the collar chaetae absent; operculum becomes completely fused to brood chamber formed below.....**3**

**2a (1a).** Talon short (half diameter of plate) and bilobated or fan shaped; after brood chamber formation, the operculum remains attached only by the proximal margin of talon; cross-striations on the collar chaetae absent.....***J. granulata***
**2b (1a).** Talon long (longer than diameter of plate), with rounded lateral wings; the operculum becomes wholly fused to the brood chamber which develops beneath; cross-striations on the collar chaetae present.....***J. atlantica***

**3a (1b).** Talon longer than diameter of plate, irregular rhomboidal, winged, proximally narrow and bifid; talon can present a median constriction.....***J. quadrangularis***
**3ba (1b).** Talon short, trapezoidal; distal region of talon straight, proximal region usually scalloped.....***J. kofiadii***

## ***Jugaria atlantica*** Knight-Jones 1978

*Pileolaria (Jugaria) atlantica* KNIGHT-JONES, 1978: 227-228, fig. 15*A-J*.
**TYPE LOCALITY:** Mid-Atlantic Ridge, 400 miles north of the Azores, 45º12.2'N, 28º54.7'W, depth unknown, on coral.
**DISTRIBUTION:** Mid-Atlantic ridge, north of Azores. Known from the type locality and also from 45º14.2'N, 28º55.2'W, at 1800 meters.

## ***Jugaria granulata*** (Caullery & Mesnil 1897)

*Spirorbis (Læospira) granulatus* CAULLERY & MESNIL, 1897: 216-217, pl. 10 fig. 26.
**TYPE LOCALITY:** [?] Greenland, in hydroids and bryozoans.
**SYNONYMS:** *Spirorbis carinatus* Levinsen 1884; *Spirorbis similis* Bush 1904; [?] *Spirorbis Stimpsoni* Verrill 1880.
**SELECTED REFERENCES:** *Spirorbis granulatus* — LEVINSEN, 1884: 201, 207-208, pl. 3 fig. 9; BUSH, 1904: 247, pl. 40 fig. 24, pl. 43 fig. 32; BORG, 1917: 28-31, fig. 15 [in part; not fig. 14, which belongs to *Pileolaria quadrangularis* (Stimpson 1853); not *Spirorbis quadrangularis* and *Spirorbis affinis* in the synonymy list = *Pileolaria quadrangularis* (Stimpson 1853)]; DE SILVA & KNIGHT-JONES, 1962: 606; GEE, 1964: 419-423, figs. 1, 7-8, tables 11-14. *Spirorbis (Laeospira) granulatus* — FAUVEL, 1927*a*: 403-404, fig. 137*q-u* [in part]; BERGAN, 1953: 35-38, fig. 2, pl. 1 fig. 9*l-n*; HARTMANN-SCHRÖDER, 1971*a*: 548-549, fig. 190. *Pileolaria (Pileolaria) granulata* — THORP, 1975: 217-225, figs. 1-2, 3*A-E*, 4. *Pileolaria granulata* — KNIGHT-JONES & KNIGHT-JONES, 1977: 484-485, fig. 11; KIRKEGAARD, 1996: 430-431, fig. 245. *Pileolaria (Jugaria) granulata* — KNIGHT-JONES, 1978: 229, fig. 15*K*. *Jugaria granulata* — HARTMANN-SCHRÖDER, 1996: 584-585, fig. 286. *Bushiella (Jugaria) granulata* — RZHAVSKY, 2001: 593-594, 1 fig., 1 map. *Spirorbis similis* — BUSH, 1904: 242, pl. 29 fig. 3*c*, pl. 39 figs. 16, 31, pl. 40 figs. 9, 17-18, pl. 43 figs. 27, 31. *Spirorbis granulatus* var. *similis* — BORG, 1917: 30, fig. 16. *Bushiella (Jugaria) similis* — RZHAVSKY, 2001: 596-597, 1 fig., 1 map. *Spirorbis carinatus* — LEVINSEN, 1884: 200-201, 206-207, pl. 2 fig. 8*g*, pl. 3 fig. 8; MCINTOSH, 1923*a*: 419-420, pl. 133 fig. 6. [?] *Spirorbis Stimpsoni* — VERRILL, 1880: 181; BUSH, 1904: 250, pl. 39 fig. 38, pl. 40 fig. 29, pl. 43 figs. 20-22. Not *Spirorbis granulatus* — MCINTOSH, 1923*a*: 400-408, pl. 122 fig. 7, pl. 132 fig. 5, pl. 133 fig. 12, pl. 137 fig. 22, pl. 138 fig. 15 [= *Spirorbis tridentatus* Levinsen 1884]. Not *Spirorbis granulatus* — FABRICIUS, 1780: 380; MONTAGU, 1803: 544; LANGERHANS, 1880*b*: 123, pl. 5 fig. 41; SAINT-JOSEPH, 1894: 260; MOORE, 1902: 276.
**DISTRIBUTION:** From North-west Europe to Roscoff; Arctic Ocean; North Sea; Skagerrak; Kattegat; Øresund; western Baltic Sea; English Channel; Alaska: Sitka, and Prince William Sound, at Virgin Bay and Orca. Sublittoral rocks, shells, and serpulid tubes, in calm conditions, and also on hydrozoans, bryozoans, corals, and algae. Between 5-70 meters, but can extend to shallow water (2 meters) in very sheltered areas.
**REMARKS:** CAULLERY & MESNIL (1897) described adequately *Spirorbis granulatus*, a species which broods in the operculum. The description given by them doesn't agree with the original description of LINNAEUS (1767), but in fact the Linnean description was inadequate (GEE, 1964). Following KNIGHT-JONES & KNIGHT-JONES (1977), the species described by LINNAEUS (1767) and MONTAGU (1803) as *Serpula granulata*, and by MCINTOSH (1923*a*) and THORSON (1946) as *Spirorbis granulatus* is in fact *Spirorbis tridentatus* Borg 1917, which broods in the tube, and the authorship of *Spirorbis granulatus* is normally attributed to Caullery & Mesnil. However, it should be noted that CAULLERY & MESNIL (1897) in their description of the species make reference to *Spirorbis granulatus sensu* LEVINSEN (1884), and probably the authorship of the species in the sense that it is used today should be attributed to him.

## ***Jugaria kofiadii*** Rzhavsky 1988

*Jugaria kofiadii* RZHAVSKY, 1988: 933-935, figs. *A-M*.
**TYPE LOCALITY:** Arctic Basin, 80º58'N, 80º26'E (between Franz Joseph Archipelago and Severnaya Zemlya Archipelago), at 74 meters.
**SELECTED REFERENCES:** *Jugaria kofiadii* — KNIGHT-JONES, KNIGHT-JONES & BUZHINSKAYA, 1991: 194, fig. 3. *Bushiella (Jugaria) kofiadii* — RZHAVSKY, 2001: 594-595, 1 fig., 1 map.

**DISTRIBUTION:** Greenland; Barents Sea; Kara Sea; Laptev Sea; Franz Joseph Land. On gravel, shells, and bryozoans. Between 58-560 meters.

### ***Jugaria quadrangularis*** (Stimpson 1853)

*Spirorbis quadrangularis* STIMPSON, 1853: 29.
**TYPE LOCALITY:** Bay of Fundy, at 10 fathoms (18.3 meters), on shells.
**SYNONYMS:** *Spirorbis affinis* Levinsen 1884; [?] *Spirorbis lineatus* Bush 1904.
**SELECTED REFERENCES:** *Spirorbis quadrangularis* — MÖRCH, 1863: 435; BUSH, 1904: 241-242, pl. 39 fig. 37, pl. 40 figs. 10-11, 21, 23, 26, 30, pl. 42 figs. 23-29, pl. 43 figs. 14-15; PIXELL, 1912: 802-803. *Pileolaria quadrangularis* — KNIGHT-JONES & KNIGHT-JONES, 1977: 485. *Pileolaria (Jugaria) quadrangularis* — KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 443-445, fig. 6*A*. *Bushiella (Jugaria) quadrangularis* — RZHAVSKY, 2001: 595-596, 1 fig., 1 map. *Spirorbis affinis* — LEVINSEN, 1884: 200, 207, pl. 3 fig. 7. [?] *Spirorbis lineatus* — BUSH, 1904: 242, pl. 39 fig. 29. *Spirorbis granulatus* var. *tridentatus* — LEVINSEN, 1884: 208, pl. 3 fig. 10. *Spirorbis granulatus* [not Caullery & Mesnil 1897] — FAUVEL, 1909: 56; FAUVEL, 1913*b*: 93; FAUVEL, 1914*f*: 334-335 [according to KNIGHT-JONES, KNIGHT-JONES & BUZHINSKAYA, 1991: 193].
**DISTRIBUTION:** New England, Bay of Fundy, at 18 meters; Newfoundland; Greenland; Iceland; Norway, as far south as Trondheim; Kuril Islands; Pacific coast of North America, from Alaska to Mexico. On stones and shells, bryozoans, and serpulid tubes.

## GENUS ***Leodora*** Saint-Joseph 1894

*Leodora* SAINT-JOSEPH, 1894: 261.
**TYPE SPECIES:** *Spirorbis laevis* Quatrefages 1866.

### ***Leodora laevis*** (Quatrefages 1866)

*Spirorbis lævis* QUATREFAGES, 1866*b*: 490, pl. 15 fig. 26.
**TYPE LOCALITY:** Guettary, Bay of Biscay.
**SELECTED REFERENCES:** *Spirorbis lævis* — CLAPARÈDE, 1870: 521-523, pl. 12 fig. 3. *Spirorbis lævis* — CAULLERY & MESNIL, 1897: 211. *Spirorbis (Leodora) laevis* — SAINT-JOSEPH, 1894: 261; RIOJA, 1923*c*: 132; FAUVEL, 1927*a*: 397-398, fig. 134*l-p*; RIOJA, 1931: 454-456. *Spirorbis (Laeospira) laevis* — NELSON-SMITH, 1967: 65, fig. 68.
**DISTRIBUTION:** Bay of Biscay; Gulf of Naples.
**REMARKS:** As noted by KNIGHT-JONES, KNIGHT-JONES & KAWAHARA (1975), and following VINE, BAILEY-BROCK & STRAUGHAN (1972), this species is a *nomen dubium et nudum*, as it was inadequately described by QUATREFAGES (1866*b*), as *Spirorbis lævis*, from Guettary. This name was posteriorly used by CLAPARÈDE (1870) for a form collected at the Gulf of Naples with opercular incubation, which may or may not refer to the same species and which presents also some problems in its description. For these reasons KNIGHT-JONES, KNIGHT-JONES & KAWAHARA (1975) stated that this species couldn't be regarded as valid without a confirmation. Other records of the species could refer either to abnormally sinistral specimens of other species, namely of *Janua pagenstecheri* (Quatrefages 1866), to specimens of *Leodora knightjonesi* (De Silva 1965), or to misidentifications (VINE, BAILEY-BROCK & STRAUGHAN, 1972; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975). The specimens described by ZIBROWIUS (1968*c*) as *Spirorbis (Laeospira) laevis* are here tentatively considered as being abnormally sinistral specimens of *Janua pagenstecheri* (Quatrefages 1866).

### ***Leodora knightjonesi*** (De Silva 1965)

*Spirorbis (Leodora) knightjonesi* DE SILVA, 1965: 559-561, fig. 14.
**TYPE LOCALITY:** Kalkuda (Sri Lanka), encrusting pieces of dead coral, at mid-tide level.
**SELECTED REFERENCES:** *Janua (Leodora) knightjonesi* — VINE, BAILEY-BROCK & STRAUGHAN, 1972: 172-175, figs. 8*e*, 13; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 107-110, figs. 3*J-L*, 6. *Spirorbis (Leodora) knightjonesi* — BAILEY, 1970: 66-69, figs. 126-128, table 1. *Spirorbis (Leodora) laevis* — AUGENER, 1936: 351-352, fig. 1.
**DISTRIBUTION:** Sri Lanka; West Indies; Great Barrier Reef; Hawaiian Chain; Curaçao. On rocks, stones, coral debris, or mollusk shells. Intertidal to about 2 meters.

**REMARKS:** This seems to be the only known valid species of this genus. Some of the records of *Leodora laevis* from warm waters refer probably to this species. ZIBROWIUS (1968*c*: pl. 13 fig. 8) represents an operculum of *Janua pagenstecheri*, as *Spirorbis (Dexiospira) pagenstecheri*, that resembles the typical opercula of this species. However, Zibrowius' specimen had a dextral coiling.

VINE, BAILEY-BROCK & STRAUGHAN (1972) suggested that some of the European records of *Leodora laevis* could refer to this species.

## GENUS ***Marifugia*** Absolon & Hrabě 1930

*Marifugia* ABSOLON & HRABĚ, 1930: 250-251.
**TYPE SPECIES:** *Marifugia cavatica* Absolon & Hrabě 1930.

### ***Marifugia cavatica*** Absolon & Hrabě 1930

*Marifugia cavatica* ABSOLON & HRABĚ, 1930: 251-262, figs. 1-15, 17-19.
**TYPE LOCALITY:** Bosnia-Herzegovina, in karstic caves. The species was found at the ponors region of the river (rijeka) Trebišnjica (formerly Trebinjčica), at the polje Popovo, NW of Turkoviči, inside karstic caves at about 200 meters above the sea level.
**SELECTED REFERENCES:** *Marifugia cavatica* — ANNENKOVA, 1930: 44, fig. 16; AUGENER, 1932*c*: 673-675, fig. 1; RÉMY, 1937: 66-71, map on page 70; BIANCHI, 1981: 126-128, fig. 48.
**DISTRIBUTION:** In freshwater of karstic zones near Trieste, Italy (Monfalcone and SE Trieste), and Slovenia, Croatia, and Bosnia-Herzegovina, mainly in the Danube Basin and tributary streams of the Adriatic Sea. The species is known to occur in an area of about 25000 km$^2$. Attached to rocks and in cavities of the karstic rocks, where they can form big masses of tubes.

## GENUS ***Metavermilia*** Bush 1904

*Metavermilia* BUSH, 1904: 223.
**TYPE SPECIES:** *Vermilia multicristata* Philippi 1844.
**REMARKS:** The definition of the genus was emended by ZIBROWIUS (1971*a*).

**KEY TO SPECIES:**

**1a.** Distal horny plate of operculum yellowish and flat or slightly concave in the center; opercular stalk with regular annulations; abdominal chaetae geniculate, with a triangular denticulate blade, being replaced by long capillary chaetae in most posterior chaetigers; tube surface pitted by numerous shallow indentations, each bounded laterally by inconspicuous ridges arranged somewhat irregularly, not forming longitudinal ridges.....***M. arctica***
**1b.** Distal horny plate of operculum distinctly hemispherical.....**2**

**2a (1b).** Abdominal chaetae geniculate, with a triangular denticulate blade, being replaced by long capillary chaetae in most posterior chaetigers; tube with 5-7 longitudinal ridges which often form rows of teeth, and occasionally transverse ridges; opercular horny distal plate brownish to brown-yellowish, being hemispherical or alongated with rounded tip; opercular stalk characteristically flattened, with annulations when contracted.....***M. multicristata***
**2b (1b).** Abdominal chaetae almost straight, with elongated narrow blade, hardly geniculate, being replaced by long capillary chaetae in most posterior chaetigers; tube surface smooth, except for transverse ridges (no longitudinal keels); opercular horny distal plate hemispherical, black and smooth; opercular stalk ribbon-like, flattened.....***M. taenia***

### ***Metavermilia arctica*** Kupriyanova 1993

*Metavermilia arctica* KUPRIYANOVA, 1993*a*: 155-157, fig. 1.
**TYPE LOCALITY:** Southeastern coast of Greenland, 66º29'N, 32º55'W, at 300 meters.
**SELECTED REFERENCES:** *Metavermilia arctica* — KUPRIYANOVA & JIRKOV, 1997: 215.
**DISTRIBUTION:** Southeastern coast of Greenland; near Faroes; Barents Sea. Between 120-350 meters.

### ***Metavermilia multicristata*** (Philippi 1844)

*Vermilia multicristata* PHILIPPI, 1844: 193, pl. 6 fig. *K*.

**TYPE LOCALITY:** Mediterranean Sea.

**SYNONYMS:** *Vermilia clavigera* Phillipi 1844; *Serpula sulcosa* O.G. Costa 1861; *Vermilia multicostata* Langerhans 1884.

**SELECTED REFERENCES:** *Vermilia multicristata* — MARENZELLER, 1893: 41, pl. 4 fig. 14. *Vermiliopsis multicristata* — FAUVEL, 1909: 60-61; FAUVEL, 1914*f*: 344; FAUVEL, 1927*a*: 365-366, fig. 125*k-s*; FAUVEL & RULLIER, 1957*b*: 390-391; BELLAN, 1959*a*: 339; FAUVEL & RULLIER, 1959*a*: 984; SOUTHWARD, 1963*b*: table 1 in page 584; RULLIER, 1964: 206; NELSON-SMITH, 1967: 34, fig. 21; ZIBROWIUS, 1968*b*: 377; ZIBROWIUS, 1968*c*: 128-130, pl. 3 figs. 25-34, pl. 14 fig. *g*; ZIBROWIUS, 1969*a*: 129; ZIBROWIUS, 1970*a*: 121. *Metavermilia multicristata* — ZIBROWIUS, 1971*a*: 1375-1377, fig. 1; ZIBROWIUS, 1972*c*: 118; ZIBROWIUS, 1973*a*: 53-54; BIANCHI, 1981: 80-82, fig. 29; THORP, KNIGHT-JONES & KNIGHT-JONES, 1986: 884, fig. 2; BEN-ELIAHU & FIEGE, 1996: 9-10, fig. 10*D*. *Serpula sulcosa* — O.G. COSTA, 1861: 33, pl. 7 fig. 5. *Vermilia clavigera* — PHILLIPI, 1844: 193, pl. 6 fig. *H*; LANGERHANS, 1884: 279-280, pl. 17 fig. 42. *Vermilia multicostata* — LANGERHANS, 1884: 280, pl. 17 fig. 43 [error for *multicristata*]. Not *Vermiliopsis multicristata* — FAUVEL, 1936*c*: 113 [at least in part = *Omphalopomosis fimbriata* (Delle Chiaje 1822)]. Not *Vermiliopsis multicristata?* — MONRO, 1937*c*: 319 [= *Metavermilia nates* Zibrowius 1971]. Not *Vermiliopsis multicristata* — TEBBLE, 1955: 145-146 [= *Vermiliopsis* sp., *sensu stricto*]; KIRKEGAARD, 1959: 106-107 [= *Vermiliopsis* sp., *sensu stricto*].

**REFERENCES FOR PORTUGAL:** ZIBROWIUS, 1970*a* (as *Vermiliopsis multicristata*; Setúbal Canyon); ZIBROWIUS, 1971*a* (Portugal); SALDANHA, 1974 (as *Vermiliopsis multicristata*; coast of Arrábida).

**DISTRIBUTION:** Northeast Atlantic between Gulf of Guinea, Cape Verde Islands, Canary Islands, Azores, Madeira, Josephine, Gorringe and Seine Banks, Portugal and Gulf of Biscay; Brittany; Wales; Sweden; Mediterranean Sea; Adriatic Sea; Aegean Sea; Amirantes. In *Madrepora oculata*, stones, rocks, shells, and other kinds of hard substracta. From shallow water (where it can be found in caves and in coralligenous bottoms), down to 1600 meters.

### ***Metavermilia taenia*** Zibrowius 1971

*Metavermilia taenia* ZIBROWIUS, 1971*a*: 1379-1380, fig. 3.

**TYPE LOCALITY:** Josephine Bank, northeast Atlantic off Portugal, 36º39'N, 14º13'W, 690 meters, on lower side of slab of calcareous sandstone.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES & ANDRADE, 1981 (southwestern continental shelf).

**DISTRIBUTION:** Known from the type locality and the southwestern continental shelf of Portugal.

## GENUS ***Neodexiospira*** Pillai 1970

*Neodexiospira* PILLAI, 1970: 143.

**TYPE SPECIES:** *Spirorbis pseudocorrugatus* Bush 1904.

**SYNONYMS:** *Dexiospira* Caullery & Mesnil 1897 [not Ehrenberg 1859 (Protozoa)].

**REMARKS:** The history of this genus and its type species in somehow complex, and worth to explain, in order to avoid future misunderstandings.

*Serpula corrugata* was described by MONTAGU (1803), for a sinistral form from Devonshire (U.K.). Later, LANGERHANS (1880*b*: 124-125, pl. 5 fig. 43) used the same name for a dextral form from Madeira Island, and the same was done by CAULLERY & MESNIL (1897: 200-201, pl. 8 fig. 7), for dextral specimens collected at the Anse St-Martin (English Channel, France), and Gulf of Naples. Besides, they created the subgenus *Dexiospira* for *Spirorbis* species with dextral tube and 3 thoracic chaetigers. BUSH (1904: 250) proposed the new name *Spirorbis pseudocorrugatus* for *S. corrugatus* Caullery & Mesnil 1897 not Montagu 1803, stating that due to the different orientation of the tube's spiral, the form studied by CAULLERY & MESNIL (1897) must be different from Montagu's species.

FAUVEL (1914*f*) didn't agree with Bush's decision, stating that it was based on a misunderstanding. According to FAUVEL (1914*f*: 332) "*Caullery et Mesnil donnent le nom de* dextre *(ainsi que tous les auteurs modernes) à l'enroulement considéré comme sénestre par Montagu et Fleming. Le* Spirorbis corrugatus *dextre de Caullery et Mesnil est donc bien le même que le* Sp. Corrugatus *sénestre de Montagu et il n'y a pas lieu de faire deux espèces.*" The synonymy between both species was already used in FAUVEL (1909) and was followed by RIOJA (1923*c*) and again by FAUVEL

(1927*a*), in this case maintaining it under the subgenus *Dexiospira*. However, posterior authors supported Bush's decision (*e.g.* KNIGHT-JONES, 1972: 5), and finally the two forms are considered as different species.

The genus definition was amended by VINE (1972), KNIGHT-JONES (1973), and again by KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN (1974), in all cases as *Dexiospira*.

**KEY TO SPECIES:**

**1a.** Collar chaetae without cross-striations; non-brooding operculum with axe-shaped talon; distal part of brood chamber with opaque walls.....***N. brasiliensis***
**1b.** Collar chaetae with cross-striations.....**2**

**2a (1b).** Non-brooding operculum with short and narrow talon, somewhat triangular or subquadrangular in shape; distal part of brood chamber with transparent walls.....***N. pseudocorrugata***
**2b (1b).** Non-brooding operculum with long talon, with flat angular lateral wings and two terminal lobes; distal part of brood chamber with opaque walls.....***N. steueri***

## *Neodexiospira brasiliensis* (Grube 1872)

*Spirorbis brasiliensis* GRUBE, 1872*b*: 53.
**TYPE LOCALITY:** Desterro, Florianópolis (Brazil), on algae.
**SYNONYMS:** *Spirorbis bellulus* Bush *in* Moore & Bush 1904; *Dexiospira oshoroensis* Uchida 1971; *Janua (Fauveldora) anticorrugata* Vine 1972.
**SELECTED REFERENCES:** *Janua (Dexiospira) brasiliensis* — KNIGHT-JONES *et al*., 1975: 145-146, fig. 2*a-h*; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 94-96, 104, figs. 1, 4*B*; KNIGHT-JONES, KNIGHT-JONES, 1977: 489-490, fig. 1*B*, *E*; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 433, fig. 4*C*; VINE & BAILEY-BROCK, 1984: 148; CRITCHLEY & THORP, 1985: 2-7; ZIBROWIUS & THORP, 1989: 277-278. *Dexiospira oshoroensis* — UCHIDA, 1971*a*: 634-638, figs. 3-4, tables 1, 5, 6; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 111. *Spirorbis bellulus* — BUSH *in* MOORE & BUSH, 1904: 177-178, text-figs. *f-h*; BUSH, 1904: 250; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 104. *Janua (Fauveldora) anticorrugata* — VINE, 1972: 192-193, figs. 8, 10*F*, 11*D*; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 104, fig. 6. *Spirorbis foraminosus* [not Bush *in* Moore & Bush 1904] — DAY, 1961: 556-557, fig. 18*j-k*.
**DISTRIBUTION:** Widespread from tropical to temperate areas. British Isles; Netherlands; from Brazil to North Carolina; Gulf of Mexico; South Africa; Red Sea; Amsterdam Island; Japan; Marshall Islands; New Zealand; California. On shells, stones, algae [as *Sargassum muticum* (Yendo) Fensholt] and seagrasses. From shore to about 137 meters. Quite probably its wide distribution is a consequence of being an organism associated with fouling in ships, or an epiphyte in drift algae, as *Sargassum*.

## *Neodexiospira pseudocorrugata* (Bush 1904)

*Spirorbis pseudocorrugatus* BUSH, 1904: 248, 250.
**TYPE LOCALITY:** Anse St-Martin (Cotentin, Normandie, Northern France), in an algae.
**SYNONYMS:** [?] *Spirorbis rugatus* Bush 1904; [?] *Spirorbis ceylonicus* Pillai 1960; *Spirorbis (Janua) parvulus* Bailey 1969; *Neodexiospira benhami* Pillai 1970; *Neodexiospira mannarensis* Pillai 1970; [?] *Janua (Dexiospira) fenestrata* Knight-Jones 1973.
**SELECTED REFERENCES:** *Janua pseudocorrugata* — KNIGHT-JONES & KNIGHT-JONES, 1977: 489, fig. 12*J-O*; BIANCHI, 1981: 171-172, fig. 65, pl. 1 figs. 8, 17. *Janua (Dexiospira) pseudocorrugata* — VINE, BAILEY-BROCK & STRAUGHAN, 1972: 166-168, figs. 8*b*, 10; KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN, 1974: 132-134, fig. 11; KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 548-550, table 5; KNIGHT-JONES *et al*., 1975: 145-146, fig. 2*k*; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 113-115, figs. 4*A*, 6; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 433, fig. 4*B*; VINE, 1977: 54-57, figs. 25*e*, 32*b*, 33, tables 2, 4-6. *Spirorbis (Dexiospira) corrugatus* [not Montagu 1803] — CAULLERY & MESNIL, 1897: 200-201, pl. 8 fig. 7; FAUVEL, 1927*a*: 393-394, fig. 133*h-p*; RIOJA, 1931: 448, pl. 147 figs. 1-9; ZIBROWIUS, 1968*c*: 203-206, pl. 13 figs. 16-27. *Spirorbis corrugatus* [not Montagu 1803; not Langerhans 1880] — FAUVEL, 1909: 54; STERZINGER, 1910: 3-8, figs. 3, 5, 7-8; FAUVEL, 1914*f*: 332; RIOJA, 1923*c*: 124, figs. 223-231; NELSON-SMITH, 1967: 61, fig. 62; HARRIS, 1968*b*: 192, 197-198, figs. 6-7, table 3. *Spirorbis (Janua) corrugatus* [not Montagu 1803; not Langerhans 1880] — BAILEY, 1969*a*: 375-376, figs. 10, 13, table 1; BAILEY, 1970: 72-73, figs. 131-132, table 1. *Spirorbis (Janua) parvulus* — BAILEY, 1969*a*: 377-378, figs. 12-13, table 1; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 113.

*Neodexiospira benhami* — PILLAI, 1970: 110-114, figs. 6*C-E*, 7*A-H*, 8*A-D*; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 104. *Neodexiospira mannarensis* — PILLAI, 1970: 114-118, figs. 8*E*, 9*A-F*, 10*A-E*; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 110. [?] *Spirorbis (Dexiospira) ceylonicus* — PILLAI, 1960: 35, fig. 13*A-H*. [?] *Spirorbis ceylonicus* — KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 104-105. [?] *Janua (Dexiospira) fenestrata* — KNIGHT-JONES, 1973: 251-253, figs. 6*g*, 7*g*, 8; KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN, 1974: 135; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 105. [?] *Spirorbis rugatus* — BUSH, 1904: 243-244, pl. 29 fig. 3*b*, pl. 35 fig. 14, pl. 44 figs. 18-19; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 115.

**REFERENCES FOR PORTUGAL:** KNIGHT-JONES, 1972 (as *Janua (Dexiospira) pseudocorrugata*; Lisboa).

**DISTRIBUTION:** Considered to be cosmopolitan in warm and temperate seas. Northeastern Atlantic, from the British Isles and English Channel to Morocco; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Azores Archipelago; Madeira; Morocco; Mozambique; Sri Lanka; West Indies; Japan; Hawaiian Chain; southern Australia; [?] Alaska; California to Mexico; Florida; Sargasso Sea. Normally attached to several kinds of vegetal substrata, like *Laminaria saccharina*, but has been also recorded from rocks, stones and shells. Intertidal to 25 meters.

**REMARKS:** *Spirorbis pseudocorrugatus* Bush 1904 is a *nomen novum* for *Spirorbis corrugatus* Caullery & Mesnil not Montagu 1803.

KNIGHT-JONES, KNIGHT-JONES & KAWAHARA (1975) called *Janua (Dexiospira) pseudocorrugata* var. *mannarensis* to a variety present in the Mediterranean and most warm seas that presents a tube with three longitudinal ridges and a peripherical sloping flange, and a talon comparatively broad, often bilobed and somewhat triangular. This variety would be present in the Mediterranean, West Indies, Mozambique, Ceylon, Hawaii, and Catalina Island (off California).

According to the same authors (KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975), another variety would be *Janua (Dexiospira) pseudocorrugata* var. *parvulus*, found at the Aegean Sea, with the tube smooth, the mouth of which would be relatively broad and overlapping, leaving visible only a single whorl.

### ***Neodexiospira steueri*** (Sterzinger 1909)

*Spirorbis Steueri* STERZINGER, 1909: 1447-1450, text-figs. 6-11.

**TYPE LOCALITY:** Suez harbour, on *Cystoseira*, corals and shells.

**SYNONYMS:** *Spirorbis (Dexiospira) treadwelli* Pillai 1965.

**SELECTED REFERENCES:** *Spirorbis (Janua) steueri* — BAILEY, 1970: 75, figs. 133-135, table 1. *Janua (Dexiospira) steueri* — KNIGHT-JONES, 1972: 8-10, figs. 4, 6*d*, 7*d*; KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN, 1974: 141, fig. 14; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 115-116, fig. 4*H*; VINE, 1977: 57, figs. 25*d*, 32*c*, 34, tables 2, 6; VINE & BAILEY-BROCK, 1984: 148-149. *Janua (Dexiospira) steueri* var. *steueri* — VINE, 1972: 188-189, figs. 6, 10*G*, 11*F*. *Neodexiospira steueri* — KNIGHT-JONES & KNIGHT-JONES, 1995: 97. *Spirorbis (Dexiospira) treadwelli* — PILLAI, 1965: 172-175, fig. 24; STRAUGHAN, 1967*c*: 43; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 11, fig. 6. Not *Janua (Dexiospira) steueri* — VINE, BAILEY-BROCK & STRAUGHAN, 1972: 168-170, figs. 8*c*, 11 [= *Janua (Dexiospira) foraminosa* Bush *in* Moore & Bush 1904].

**DISTRIBUTION:** Suez; Red Sea; Kenya; Mozambique; Sri Lanka; Philippines; Vietnam; Hawaiian Islands; Australia; New Zealand; West Indies; Madeira Island; Canary Islands. On algae, corals and shells. At shallow water.

**REMARKS:** The species can present both sinistral and dextral tube forms. The fact that the sinistral form seemed to be restricted to the Red Sea lead VINE (1972) to describe the sinistral variety as *Janua (Dexiospira) steueri* var. *sinistralis*. According to VINE (1972), the differences between the dextral and sinistral varieties, apart from the directions of coiling, are extremely difficult to detect. This way, the sinistral form differed from the dextral one in that the shafts of the abdominal chaetae were narrower, and the wings of the talon less transparent and usually partially or wholly calcified (in spite of this being a variable feature in both varieties).

## GENUS ***Neomicrorbis*** Rovereto 1904

*Neomicrorbis* ROVERETO, 1904: 49-50.

**TYPE SPECIES:** *Serpula crenatostriatus* Goldfuss 1833.

**REMARKS:** The genus *Neomicrorbis* is normally attributed to Rovereto 1904 (*e.g.*: ZIBROWIUS, 1972*a*; TEN HOVE & KUPRIYANOVA, 2009), for the fossil species *Serpula crenatostriatus* Münster *in* Goldfuss

1833. However, the genus was apparently created one year before by ROVERETO (1903: 104), according to the *Nomenclator Zoologicus* database (www.ubio.org/NomenclatorZoologicus). As I was unable to confirm this, I follow here the other authors, by considering the date of the genus as 1904.

### ***Neomicrorbis azoricus*** Zibrowius 1972

*Neomicrorbis azoricus* ZIBROWIUS, 1972*a*: 427-429, fig. 1.
**TYPE LOCALITY:** Azores, SE of Terceira Island, 38º31'N, 26º49'15" to 38º30'30"N, 26º50'15"W, at 845 meters, on a rolled fragment of *Lophelia prolifera* (Pallas): 3 tubes, two of which were empty and partially broken, and only one with the worm.
**SELECTED REFERENCES:** *Neomicrorbis azoricus* — TEN HOVE, 1994: 109.
**DISTRIBUTION:** Azores; Saint Paul Island; Réunion; Comores; Amirantes. On dead corals. Between 150-845 meters.
**REMARKS:** *Neomicrorbis* presents characters typical of the Spirorbinae, as a coiled tube, and a totally calcified operculum, differentiated in a terminal plaque and a talon. However, its high number of thoracic segments (approximately seven) is quite uncommon among Spirorbinae, being normal among the Serpulinae and Filograninae. MACDONALD (2003) suggested that this genus would have some affinity with the smaller-bodied Filograninae, as *Josephella* and *Salmacina*, being separated from the rest of the spirorbins.

## GENUS ***Neovermilia*** Day 1961

*Neovermilia* DAY, 1961: 551.
**TYPE SPECIES:** *Neovermilia capensis* Day 1961.
**SYNONYMS:** *Calcareopomatus* Straughan 1967.

### ***Neovermilia falcigera*** (Roule 1906)

*Vermilia (?) falcigera* ROULE, 1898*a*: 194-195.
**TYPE LOCALITY:** Off Cape Bojador, 26º20'N, 14º52'46"W (West Africa), 782-840 meters.
**SYNONYMS:** [?] *Psygmobranchus firmus* Seguenza 1880; *Serpula ? semisurrecta* Rovereto 1898.
**SELECTED REFERENCES:** *Vermilia (?) falcigera* — ROULE, 1898*b*: 1166; ROULE, 1906: 61-62, pl. 2 fig. 13, pl. 8 figs. 81-84. *Neovermilia falcigera* — SOUTHWARD, 1963*b*: 580-581, fig. 5; AMOUREUX, 1972*b*: 86, fig. 4; ZIBROWIUS, 1973*a*: 55-56, 88; ZIBROWIUS, 1983*b*: 23; ZIBROWIUS & TEN HOVE, 1987: 259-270, figs. 1-2, 4, 5*A*, 5*C*. [?] *Psygmobranchus firmus* — SEGUENZA, 1880: 126, 293, pl. 12 fig. 11. *Serpula ? semisurrecta* — ROVERETO, 1898: 62, pl. 6 fig. 1, 1*a-e*. *Serpula semisurrecta* — ROVERETO, 1904: 19-20, pl. 3 fig. 6*a-c*.
**DISTRIBUTION:** Northeast Atlantic, from Cape Bojador to British Isles; Azores; Ascension Island; NE Saint Paul Island (Atlantic). Attached to hard substrata, generally dead corals like *Madrepora oculata* Linnaeus 1758, *Lophelia pertusa* (Linnaeus 1758), and *Solenosmilia variabilis* Duncan 1873. Between 650-1580 meters. The species is also known from Mediterranean fossil records of the Pliocene and Lower Pleistocene.

## GENUS ***Nidificaria*** Knight-Jones 1984

*Nidificaria* KNIGHT-JONES, 1984: 111-112.
**TYPE SPECIES:** *Spirorbis clavus* Harris 1968.
**SYNONYMS:** *Nidularia* Knight-Jones 1978 [not Targioni-Tozzetti 1868 (Hemiptera)].

### ***Nidificaria clavus*** (Harris 1968)

*Spirorbis clavus* HARRIS, 1968*b*: 189-190, fig. 1, table 1.
**TYPE LOCALITY:** Off Mergellina (Bay of Naples), on a piece of volcanic rock from a depth of 55 meters.
**SELECTED REFERENCES:** *Spirorbis (Pileolaria) clavus* — BAILEY, 1969*a*: 372, fig. 7, table 1. *Pileolaria clavus* — BIANCHI, 1981: 162-164, fig. 61.

**DISTRIBUTION:** Canary Islands; Alboran Sea; Mediterranean Sea, off Mergellina, near Naples; Strait of Messina; Chios, Aegean Sea. On rocks and stones in detritic bottoms, calcareous concretions, and marine caves. Between 10-200 meters.
**REMARKS:** This species shows opercular dimorphism.

## GENUS ***Nogrobs*** Montfort 1808

*Nogrobs* MONFORT, 1808: 274-275.
**TYPE SPECIES:** *Nogrobs vermicularis* Monfort 1808 [fossil taxon].
**SYNONYMS:** *Spirodiscus* Fauvel 1909.

### ***Nogrobs grimaldii*** (Fauvel 1909)

*Spirodiscus Grimaldii* FAUVEL, 1909: 56-57, fig. 4.
**TYPE LOCALITY:** Azores Archipelago: 39º11'N, 30º44'40"W, SE Flores, at 1846 meters, in gray sandy mud; 39º34'N, 29º01'45"W, 55 miles NNW Faial, 1900 meters, in mud with globigerins and volcanic sand.
**SELECTED REFERENCES:** *Spirodiscus Grimaldii* — FAUVEL, 1914*f*: 335-338, pl. 29 figs. 7-21. *Spirodiscus grimaldii* — HARTMAN & FAUCHALD, 1971: 183; ZIBROWIUS, 1977: 299.
**DISTRIBUTION:** Off Azores, in muddy bottoms with sand, between 1846-1900 meters. Off Northeast coast of USA and Bermuda Rise, 1135-4892 meters.

## GENUS ***Paradexiospira*** Caullery & Mesnil 1897

*Paradexiospira* CAULLERY & MESNIL, 1897: 195.
**TYPE SPECIES:** *Spirorbis violaceus* Levinsen 1884.

**KEY TO SUBGENERA AND SPECIES:**

**1a.** Collar chaetae without a distinct gap between a proximal "proto-fin" and the blade.....**SUBGENUS *Paradexiospira***.....***P. (P.) violacea***
**1b.** Collar chaetae with a distinct gap between the fin and the blade.....**SUBGENUS *Spirorbides***.....**2**

**2a (1b).** Calcareous plate of operculum thin and saucer-like.....***P. (S.) vitrea***
**2b (1b).** Calcareous plate thick, without a pronounced rim, with a large proximal process or talon, with a single keel.....***P. (S.) cancellata***

### ***Paradexiospira (Paradexiospira) violacea*** (Levinsen 1884)

*Spirorbis violaceus* LEVINSEN, 1884: 202, 209-210, pl. 2 fig. 8*l*, pl. 3 fig. 19.
**TYPE LOCALITY:** Greenland, in shells.
**SYNONYMS:** [?] *Spirorbis Caulleryi* McIntosh 1916.
**SELECTED REFERENCES:** *Spirorbis violaceus* — BUSH, 1904: 242-243, pl. 41 figs. 1-2, pl. 42 figs. 8-12; FAUVEL, 1909: 53; FAUVEL, 1914*f*: 330-331; [?] MCINTOSH, 1923*a*: 388-391, pl. 132 fig. 3, pl. 136 fig. 20; WESENBERG-LUND, 1953*b*: 9. *Spirorbis (Paradexiospira) violaceus* — CAULLERY & MESNIL, 1897: 197, pl. 7 fig. 3; FAUVEL, 1927*a*: 391-392, fig. 132*a-e*; BERGAN, 1953: 40-41, fig. 5, pl. 1 fig. 9*d-f*; NELSON-SMITH, 1967: 56, fig. 52. *Paradexiospira (Paradexiospira) violacea* — KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 429-430, fig. 3*C*; RZHAVSKY, 2001: 585, 1 fig., 1 map. [?] *Spirorbis Caulleryi* — MCINTOSH, 1916*b*: 187.
**DISTRIBUTION:** Arctic and boreal species: Newfoundland; Kuril Island; Iceland; Spitsbergen; Greenland; Nordland, Norway (most southernly European record); Northwestern coast of America (Aleutian Islands; Alaska; British Columbia). On hard bottoms and bryozoans. Intertidal to 130 meters.

### ***Paradexiospira (Spirorbides) cancellata*** (O. Fabricius 1780)

*Serpula cancellata* O. FABRICIUS, 1780: 383.

**TYPE LOCALITY:** Western Greenland, on stones and rocks, *Balanus*, *Mytilus* and other similar shells, at shallow water.
**SELECTED REFERENCES:** *Spirorbis (Spirillum) cancellatus* — MÖRCH, 1863: 440-441. *Spirorbis cancellatus* — LEVINSEN, 1884: 202, 208-209, pl. 2 fig. 8*d*, pl. 3 figs. 17-18; BUSH, 1904: 248, pl. 39 fig. 36, pl. 40 fig. 27, pl. 42 figs. 30-34; WESENBERG-LUND, 1950*a*: 62, chart 67. *Spirorbis (Paradexiospira) cancellatus* — CAULLERY & MESNIL, 1897: 195-196, pl. 7 fig. 1; BERGAN, 1953: 38, fig. 3, pl. 1 fig. 9*g*; NELSON-SMITH, 1967: 56, fig. 51. *Paradexiospira (Spirorbides) cancellata* — RZHAVSKY, 2001: 586, 1 fig., 1 map.
**DISTRIBUTION:** Greenland; Iceland; Finmark, Norway (most southernly European record). Normally attached to stones and shells, in shallow water.

### ***Paradexiospira (Spirorbides) vitrea*** (O. Fabricius 1780)

*Serpula vitrea* O. FABRICIUS, 1780: 382-383.
**TYPE LOCALITY:** Western Greenland, in hydrozoans, shells, *Fucus*, and stones, at low water.
**SYNONYMS:** [?] *Paradexiospira nakamurai* Uchida 1971.
**SELECTED REFERENCES:** *Spirorbis (Spirillum) vitreus* — MÖRCH, 1863: 440. *Spirorbis vitreus* — LEVINSEN, 1884: 201, 209, pl. 3 figs. 11-13; BUSH, 1904: 247-248, pl. 41 fig. 14, pl. 42 figs. 6-7; PIXELL, 1912: 793-796, pl. 88 fig. 7; BORG, 1917: 19-20, figs. 1-2; WESENBERG-LUND, 1953*b*: 9; QUIÉVREUX, 1962: 1-4, 5-10, figs. 1-2, 5, table page 11; GEE, 1964: 411-412, fig. 3; CRISP, BAILEY & KNIGHT-JONES, 1967: 512-515, fig. 1. *Spirorbis (Paradexiospira) vitreus* — CAULLERY & MESNIL, 1897: 196, pl. 7 fig. 2; FAUVEL, 1927*a*: 390-391, fig. 133*a-g*; BERGAN, 1953: 38-40, fig. 4, pl. 1 fig. 9*a-c*; NELSON-SMITH, 1967: 57, figs. 53-54; HARTMANN-SCHRÖDER, 1971*a*: 541-542. *Paradexiospira (Spirorbides) vitrea* — KNIGHT-JONES & KNIGHT-JONES, 1977: 472-474, fig. 6; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 430, figs. 1*a-b*, 3*D*; HARTMANN-SCHRÖDER, 1996: 582; RZHAVSKY, 2001: 587-588, 1 fig., 1 map. *Paradexiospira vitrea* — KIRKEGAARD, 1996: 428-430, fig. 244. [?] *Paradexiospira nakamurai* — UCHIDA, 1971*a*: 629-633, figs. 1-2, tables 3-4.
**DISTRIBUTION:** Arctic and north temperate regions; Greenland; Iceland; Faroes; Norway; Skagerrak; Kara Sea; Russia; western coasts of British Isles; Northern France; Bay of Fundy; Newfoundland; off Vancouver Island; Washington to Monterey, California; Japan. Attached to rocks, stones or shells, but not algae, on sheltered rocky shores at low water down to 40 meters, or at the bottom of deep mid-tide rock pools, collected only once between 200-250 meters.
**REMARKS:** This species presents the tubes both dextrally coiled (most common form, present in Europe) and sinistrally coiled [San Juan Island (Washington), Newport (Oregon), and Queen Charlotte Island] (KNIGHT-JONES & KNIGHT-JONES, 1977).

## GENUS ***Paralaeospira*** Caullery & Mesnil 1897

*Paralaeospira* CAULLERY & MESNIL, 1897: 202.
**TYPE SPECIES:** *Spirorbis (Paralæospira) aggregatus* Caullery & Mesnil, 1897.
**REMARKS:** The genus definition was redefined by KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN (1974).

### ***Paralaeospira malardi*** Caullery & Mesnil 1897

*Spirorbis (Paralæospira) Malardi* CAULLERY & MESNIL, 1897: 205, pl. 8 fig. 11.
**TYPE LOCALITY:** St. Vaast-La-Hougue (English Channel), on dredged shells.
**SYNONYMS:** [?] *Serpula carinata* Montagu 1803.
**SELECTED REFERENCES:** *Paralaeospira malardi* — RIOJA, 1923*c*: 130, figs. 243-245; RIOJA, 1931: 452-454, pl. 147 figs. 10-12; DE SILVA & KNIGHT-JONES, 1962: 605, 606; QUIÉVREUX, 1962: 2, 4-5, 5-10, figs. 3, 6, table page 11; KNIGHT-JONES & KNIGHT-JONES, 1977: 474-476, figs. 1*C-D*, *F-H*, 7. *Spirorbis (Paralaeospira) Malardi* — FAUVEL, 1927*a*: 396-397, fig. 135*a-d*. *Spirorbis (Paralaeospira) malardi* — NELSON-SMITH, 1967: 64, figs. 66-67. *Spirorbis malardi* — DE SILVA & KNIGHT-JONES, 1962: 606; GEE, 1964: 410-411, figs. 1, 2, table 1; HARRIS, 1968*a*: 600.
**DISTRIBUTION:** From Thurso (Northern Scotland) to Santander (Northern Spain). On rocks and stones of all sizes, in and out of polls near the low water mark. Also on shells embedded in *Laminaria* holdfasts below tide mark, or other hard substrata. Occasionally on *Cancer pagurus*. Intertidal to 25 meters.

## GENUS *Pileolaria* Claparède 1869

*Pileolaria* CLAPARÈDE, 1869: 183-184.
**TYPE SPECIES:** *Pileolaria militaris* Claparède 1869.
**REMARKS:** The genus definition was amended by KNIGHT-JONES (1972), KNIGHT-JONES (1973), and again by KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN (1974).

**KEY TO SPECIES:**

**1a.** Brood chamber surrounded by a distal ridge, normally denticulate, with more or less developed spines; juvenile talon eccentric with lateral wings and median spur; always on algae.....***P. militaris***
**1b.** Brood chamber without a well developed denticulate distal ridge, without developed spines and rounded distally (one smooth ridge, small tubercles or one single distal obtuse spine can be present); juvenile talon small (unknown in *P. moerchi*), more or less central.....**2**

**2a (1b).** Brood chamber more or less bilobed, without any distal spine (a distal ridge and small tubercles may be present).....**3**
**2b (1b).** Brood chamber not bilobed, with a single distal obtuse spine in one side; juvenile talon narrow, like a drawing pin; two dorsal sausage-shaped orange patches on thorax; on shells in depths exceeding 25 meters.....***P. heteropoma***

**3a (2a).** Brood chamber with a distal ridge and small tubercles, or smooth and slightly bilobed; blades of the collar chaetae with about 12 coarse marginal serrations on the proximal half of each blade; juvenile talon tapering gradually; one diffuse orange-pink area covering much of the thorax dorsally; in shallow water, sometimes on algae.....***P. berkeleyana***
**3b (2b).** Brood chamber clearly bilobed; blades of the collar chaetae with about 24 coarse marginal serrations on the proximal half of each blade; juvenile talon unknown; not recorded in algae....***P. moerchi***

### *Pileolaria berkeleyana* (Rioja 1942)

*Spirorbis (Pileolaria) berkeleyana* RIOJA, 1942: 144-147, figs. 53-67.
**TYPE LOCALITY:** Caleta and La Aguada, Acapulco (Mexico), on tubes of *Spirobranchus incrassatus*.
**SYNONYMS:** *Pileolaria rosepigmentata* Uchida 1971; [?] *Pileolaria heteropoma* var. *glabra* Knight-Jones & Knight-Jones 1977.
**SELECTED REFERENCES:** *Spirorbis berkeleyana* — BAILEY *in* BAILEY & HARRIS, 1968: 170-172, figs. 3*e*, 10, table 1. *Pileolaria berkeleyana* — KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 437, fig. 5*A*; KNIGHT-JONES & KNIGHT-JONES, 1980: 461-463; BIANCHI, 1981: 158-160, fig. 59; ZIBROWIUS & BIANCHI, 1981: 163-164; ZIBROWIUS, 1983*a*: 255-256; THORP, KNIGHT-JONES & KNIGHT-JONES, 1986: 885-886, fig. 4; RZHAVSKY, 1992*b*: 12; KNIGHT-JONES & KNIGHT-JONES, 1995: 95. *Pileolaria (Pileolaria) berkeleyana* — ZIBROWIUS & THORP, 1989: 277-278. *Pileolaria rosepigmentata* — UCHIDA, 1971*b*: 212-218, figs. 9-10, tables 7-9; KNIGHT-JONES *et al.*, 1975: 146, fig. 2*m-u*; KNIGHT-JONES & KNIGHT-JONES, 1977: 483, fig. 10*A-L*; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 439-440, fig. 5*E*. [?] *Pileolaria heteropoma* var. *glabra* — KNIGHT-JONES & KNIGHT-JONES, 1977: 480-482, fig. 10*M-U*. Not *Spirorbis berkeleyanus* — HARRIS, 1968*b*: 191, 194-196, figs. 3-4, table 2 [= *Pileolaria pseudomilitaris* Thiriot-Quiévreux 1965]. *Pileolaria (Pileolaria) tegwyni* — VINE, 1977: 40 [in part; not type material; only specimens from Acapulco, Mexico].
**DISTRIBUTION:** Eastern Pacific (from Vancouver Island to Panama;); Japan; Galápagos Islands; some zones of the Eastern Atlantic; Madeira; Canary Islands; some harbours and bays of the French Mediterranean coast, at the region of Marseille; some harbours of the British Isles. On shells, rocks, stones, dead corals, algae [as *Sargassum muticum* (Yendo) Fensholt]. Shallow waters (intertidal to 4 meters). Probably its wide distribution is a consequence of being a species associated with the fouling, or of being epiphyt in drift algae, as the *Sargassum muticum*. The specimens from the British Channel described as *Pileolaria heteropoma* var. *glabra* by KNIGHT-JONES & KNIGHT-JONES (1977) occurred always on stones and shells, between 25-80 meters.

### *Pileolaria heteropoma* (Zibrowius 1968)

*Spirorbis (Laeospira) heteropoma* ZIBROWIUS, 1968*c*: 190-193, pl. 11 figs. 10-22, pl. 14 figs. *j-k*.
**TYPE LOCALITY:** The species was collected at several stations around Marseille (South France), at the Islands of Port Cros and Malta, and at Villefranche, by ZIBROWIUS (1968*c*), who apparently didn't

designate a holotype. The description of the species was based on specimens collected at the following locations: marine caves of Marseille and Villefranche; in the bottoms of "faux maërl" with colonies of *Cladocera cespitosa* (L.), bricks, stones, etc., dispersed among an unidentified melobesian alga, at the end of the Calanque of Port Miou, at Cassis, between 3-5 meters; Brusc, on infralittoral pebbles; Île de Port Cros, on blocks on a coarse sand at 28 meters, and on infralittoral pebbles; Malta, in a sciaphile population of algae and madreporians.

**SELECTED REFERENCES:** *Spirorbis (Laeospira) heteropoma* — ZIBROWIUS, 1969*a*: 134. *Spirorbis (Pileolaria) heteropoma* — BAILEY, 1969*a*: 371-372, figs. 6, 13, table 1. *Pileolaria heteropoma* — KNIGHT-JONES *et al*., 1975: 146; BIANCHI, 1979*b*: 107, fig. 1*k*; BIANCHI, 1981: 157-158, fig. 58; KNIGHT-JONES & KNIGHT-JONES, 1995: 95. *Spirorbis moerchi* [not Levinsen 1884] — HARRIS, 1968*b*: 194, 202-204, fig. 10, table 5. [?] Not *Pileolaria heteropoma* var. *glabra* — KNIGHT-JONES & KNIGHT-JONES, 1977: 480-482, fig. 10*M-U* [= probably *Pileolaria berkeleyana* (Rioja 1942) (see KNIGHT-JONES & KNIGHT-JONES, 1980)].

**DISTRIBUTION:** Eastern Atlantic, from Madeira and Canary Islands to Senegal and Cape Verde; Mediterranean Sea; Aegean Sea. Mainly in the *coralligène*, and marine caves. Infralittoral and circalittoral.

**REMARKS:** This species presents opercular dimorphism, with a primary plate very similar to the one presented by *Pileolaria militaris*.

## ***Pileolaria militaris*** Claparède 1870

*Pileolaria militaris* CLAPARÈDE, 1869: 184-185, pl. 16 fig. 5.

**TYPE LOCALITY:** Gulf of Naples.

**SYNONYMS:** *Spirorbis Cornu Arietis* Philippi 1844; *Spirorbis Beneti* Marion 1879; *Spirorbis serratus* Bush 1910; *Spirorbis mendosus* Bush 1910; *Laeospira papillatus* Pixell 1913; *Spirorbis (Laeospira) superbus* Pillai 1960.

**SELECTED REFERENCES:** *Pileolaria militaris* — LO BIANCO, 1893: 92-93; IROSO, 1921: 62-64, pl. 4 figs. 23-26; KNIGHT-JONES & KNIGHT-JONES, 1977: 479-480, fig. 9; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 436-437, fig. 1*f-h*; BIANCHI, 1981: 154-156, figs. 2, 57, pl. 1 fig. 19; VINE & BAILEY-BROCK, 1984: 147; BAILEY-BROCK, 1985: 213, fig. 16; RZHAVSKY, 1992*b*: 12-13; KNIGHT-JONES & KNIGHT-JONES, 1995: 95. *Spirorbis (Læospira) militaris* — CAULLERY & MESNIL, 1897: 215-216, pl. 10 fig. 25. *Spirorbis militaris* — STERZINGER, 1910: 9, 10-11, fig. 11; MCINTOSH, 1923*a*: 416-418, pl. 122 fig. 12, pl. 132 fig. 7, pl. 138 fig. 16; HARRIS, 1968*b*: 192, 200-202, fig. 9, table 4. *Spirorbis (Laeospira) militaris* — RIOJA, 1923*c*: 137, figs. 256-262; RIOJA, 1931: 459, pl. 151 figs. 5-11; FAUVEL, 1927*a*: 402-403, fig. 137*k-p*; NELSON-SMITH, 1967: 74-75, fig. 83; ZIBROWIUS, 1967: 138-145, unnumbered fig. in page 140, figs. 1-18; ZIBROWIUS, 1968*c*: 193-197, pl. 11 figs. 23-29, pl. 12 figs. 1-11, pl. 14 fig. *i*; ZIBROWIUS, 1969*a*: 134. *Spirorbis (Pileolaria) militaris* — RIOJA, 1942: 139-142, fig. 68; BAILEY, 1969: 369, fig. 4, table 1. *Pileolaria (Pileolaria) militaris* — VINE, 1972: 180-182, figs. 2, 10*A*, 11*A*; VINE, BAILEY-BROCK & STRAUGHAN, 1972: 157-158, figs. 2*c*, 3*c*, 5; KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN, 1974: 124-126, fig. 8. *Spirorbis Cornu Arietis* — PHILIPPI, 1844: 195, pl. 6 fig. *S*. *Spirorbis (Læospira) cornu-arietis* — CAULLERY & MESNIL, 1897: 213, pl. 9 fig. 20. *Spirorbis cornu-arietis* — FAUVEL, 1909: 55; STERZINGER, 1910: 9, figs. 9-10; FAUVEL, 1914*f*: 334. *Spirorbis cornuarietis* — IROSO, 1921: 61-62, pl. 4 figs. 21-22. *Spirorbis (Laeospira) cornu-arietis* — RIOJA, 1923*c*: 135 figs. 253-255; FAUVEL, 1927*a*: 400-401, fig. 136*i-n*; RIOJA, 1931: 458-459, pl. 151 figs. 2-4. *Spirorbis (Laeospira) cornuarietis* — NELSON-SMITH, 1967: 73, fig. 81. *Spirorbis Beneti* — MARION, 1879: 29-31, pl. 17 fig. 8. *Spirorbis (Læospira) Beneti* — CAULLERY & MESNIL, 1897: 213, pl. 9 fig. 21. *Spirorbis (Laeospira) Beneti* — FAUVEL, 1927*a*: 401-402, fig. 137*a-i*. *Spirorbis (Laeospira) beneti* — NELSON-SMITH, 1967: 74, fig. 82. *Laeospira papillatus* — PIXELL, 1913: 89, pl. 9 fig. 12. *Spirorbis (Laeospira) superbus* — PILLAI, 1960: 37-39, fig. 15. [?] *Spirorbis (Læospira) mediterraneus* — CAULLERY & MESNIL, 1897: 212, pl. 9 fig. 19.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Spirorbis militaris*; coast of Arrábida).

**DISTRIBUTION:** Considered to be pantropical: from the English Channel to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Madeira Island; Azores; Red Sea; Sri Lanka; California to Mexico; southeastern Australia; Fiji; Hawaiian Chain. On littoral rocks, coral, algae, stones, concretions, *Posidonia oceanica* beds, detritic bottoms, coralligenous, marine caves. Sometimes occurs at harbours. Infralittoral to 40 meters, dubious in the bathyal. The species seems to be favoured by water movement.

**REMARKS:** This species shows opercular dimorphism, with two types of opercula, which made that two immature stages were described as distinct species: *Spirorbis cornuarietis* Philippi 1844**,** and *Spirorbis beneti* Marion 1879. The first is characterized by a three-pronged talon, while the second stage shows a long talon with a row of projecting spines.

### ***Pileolaria moerchi*** (Levinsen 1884)

*Spirorbis Mörchi* LEVINSEN, 1884: 199, 205, pl. 2 fig. 8*a*, *j*, pl. 3 fig. 1 (also as *Spirorbis Mørchi*).
**TYPE LOCALITY:** Greenland and Iceland.
**SELECTED REFERENCES:** *Spirorbis (Læospira) Mörchi* — CAULLERY & MESNIL, 1897: 218. *Spirorbis mörchi* — BUSH, 1904: 240, pl. 37 figs. 15, 24, pl. 41 figs. 15-16, 21, 24-25, pl. 44 figs. 20-21. *Pileolaria moerchi* — KNIGHT-JONES *et al.*, 1975: 146. *Spirorbis (Pileolaria) morchi* — [?] RIOJA, 1942: 142-143, figs. 9-16. Not *Spirorbis mörchi* — PIXELL, 1912: 801-802, pl. 89 fig. 16 [= *Pileolaria (Simplicaria) postwaldi* Knight-Jones 1978]. Not *Spirorbis (Laeospira) mörchi* — BERKELEY & BERKELEY, 1952: 138, fig. 290 [= *Pileolaria (Simplicaria) postwaldi* Knight-Jones 1978].
**DISTRIBUTION:** Greenland; Iceland; Alaska; British Columbia, Canada; [?] Antarctic. On serpulid tubes and several other hard surfaces.

## GENUS ***Pillaiospira*** Knight-Jones 1973

*Janua (Pillaiospira)* KNIGHT-JONES, 1973: 253-254.
**TYPE SPECIES:** *Janua (Pillaiospira) trifurcata* Knight-Jones 1973.

### ***Pillaiospira*** **sp.**

*Spirorbis corrugatus* [not Montagu 1803] LANGERHANS, 1880*b*: 124-125, pl. 5, fig. 43.
**TYPE LOCALITY:** Madeira Island, in stones.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** LANGERHANS (1880*b*) identified as *Spirorbis corrugatus* dextral specimens collected at Madeira, with collars not fused dorsally, and lacking sickle chaetae. However, *S. corrugatus* had been described by MONTAGU (1803) as being sinistral. Montagu's species has been considered by some authors as being the same species than *Janua pagenstecheri* (DE SILVA & KNIGHT-JONES, 1962; GEE, 1964), and by others, according to the ecological notes given by Montagu, as *Spirorbis rupestris* Gee & Knight-Jones 1962 (KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975).

More recently, KNIGHT-JONES (1973) created the subgenus *Janua (Pillaiospira)*, for the species *J. (P.) trifurcata*, described with base on specimens collected at Southeastern Australia. The subgenus *Pillaiospira* was diagnosed to be as *Janua*, but lacking sickle chaetae, and with collar folds not fused dorsally. *J. (P.) trifurcata* was described as having an unusual and characteristic pattern of fracture in broken opercula, with a tendency to break into sections resembling the staves of a barrel, due to the presence of rather spaced longitudinal markings (KNIGHT-JONES, 1973).

This breaking pattern was similar to the one described by LANGERHANS (1880*b*) for the species from Madeira identified as *S. corrugatus*, with collar with an entire margin split open dorsally, dextral tubes, and simple cylindrical brood chambers which, when smashed, breaked like the staves of a barrel. KNIGHT-JONES (1973) stated that the specimens from Madeira could agree with the Australian *J. (P.) trifurcata*.

A second species of *Pillaiospira*, *J. (P.) natalensis*, was described from South Africa by KNIGHT-JONES & KNIGHT-JONES (1974), with the peculiarity that the collar folds were fused anteriorly in juveniles. Langerhans's species was stated to resemble *P. natalensis* by presenting coarsely serrated collar chaetae, but differing (and resembling the Australian *P. trifurcata*) by having the brood chamber with the characteristic breaking lines described above. Besides, according to KNIGHT-JONES (1974), both Langerhans's species and *P. trifurcata* differ from *P. natalensis* in having the blades of the abdominal chaetae much longer than those of the collar chaetae.

KNIGHT-JONES, KNIGHT-JONES & KAWAHARA (1975) amended the diagnosis of the subgenus as coiling dextral, having sickle chaetae absent, and collar folds mostly separate dorsally, in order to include the juveniles of *P. natalensis*. The usefulness of the character of separate or fused collar folds was considered to be poor if used alone, but the same authors considered that it would be better to retain the validity of *Pillaiospira*, in order to avoid amending the definition of *Neodexiospira*. UCHIDA (1978) added two more species to *Pillaiospira*, from Japan, *P. ainu* (Uchida 1971), and *P. oshoroensis* (Uchida 1971), being apparently the first author to treat the subgenus as a full valid genus, in which was followed by KNIGHT-JONES (1984) and AL-OGAILY & HUSSAIN (1987).

*Pillaiospira* was omitted from the review of spirorbids done by KNIGHT-JONES & FORDY (1979), being *P. trifurcata* and *P. natalensis* included under the genus *Neodexiospira*. However, the authors were

unaware of the fact that UCHIDA (1978) had found the taxon useful (KNIGHT-JONES & KNIGHT-JONES, 1995).

AL-OGAILY & HUSSAIN (1987) also recognized the value of the taxon, in order to avoid redefining *Neodexiospira*, and included a new species from the Red Sea coast of the Saudi Arabia, *P. pentaloba*. The same authors also pointed the fact that the opercular talon was long and peg-like in the two southern hemisphere species, but transversely elongated in the species from Japan and Red Sea. However, Langerhans didn't described or pictured the opercular talon for the species from Madeira.

KNIGHT-JONES & KNIGHT-JONES (1995) didn't find the species described by Langerhans in their visits to the Island of Madeira (1974, 1976, and 1989). The collection of new material, or the study of the type material, if existing, is necessary to confirm the characters of the species, and to determine if it belongs to an already described taxon, or if it represents a new species of *Pillaiospira*. For this reason the species is here referred to only as *Pillaiospira* sp..

## GENUS ***Placostegus*** Philippi 1844

*Placostegus* PHILIPPI, 1844: 188.
**TYPE SPECIES:** *Serpula tridentata* Fabricius 1780.
**SYNONYMS:** *Placostegopsis* Saint-Joseph 1894; *Protoplacostegus* Bush 1904.

**KEY TO SPECIES:**

**1a.** Operculum strongly zygomorphic, obliquely piriform, with proximal region very bulbous, and dorsal region open, funnel-shaped, with the dark brown opercular plaque deeply sunken in the opercular ampulla; tube more or less sinuous, with a median keel with strong teeth, and with a longitudinal series of tubercles or rounded rolls on the lateral sides of the tube; abdominal geniculate chaetae present.....***P. crystallinus*** *sensu* **Zibrowius 1968**
**1b.** Operculum infundibuliform, with more or less radial symmetry, and with the distal horny opercular plaque slightly concave, not sunken into the opercular ampulla.....**2**

**2a (1b).** Opercular plaque with a central downwards styliform extension that sunks into the opercular ampulla; abdominal geniculate chaetae present; tube more or less sinuous, with a single dentate median keel.....***P. tridentatus***
**2b (1b).** Opercular plaque more thick at the center than at the margins, but without a central downwards styliform extension; abdominal chaetae hardly geniculate, having an elongated narrow blade; tube strongly sinistrally coiled, with a median keel poorly marked and more or less dentate.....***P. langerhansi***

### ***Placostegus crystallinus*** *sensu* Zibrowius 1968

*Placostegus crystallinus* ZIBROWIUS, 1968*c*: 166-169, pl. 9 figs. 1-7.
**TYPE LOCALITY:** The species was referred by ZIBROWIUS (1968*c*) from some localities at the Mediterranean coast of France. These regions are the following: Cassis Bay, in a detrictic bottom, at 72 meters; Île de Port Cros, in a block at a bottom of coarse sand ("*Amphioxus*"-sand), at 28 meters; in some marine caves at the region of Marseille; Cassidaigne Canyon, region of Marseille, on shells, *Madrepora oculata* L. and other hard substractes (mud with shells of *Venus casina* and *Terebratula vitrea*, between 350-450 meters, and rocks, between 200-350 meters; blocks and dead *Dendrophyllia cornigera* , between 170-300 meters; blocks and shells at the margin of the canyon, at 250 meters; big colony of *Madrepora oculata* L., at unknown depth); region of Marseille, on hard substracta of detrictic bottoms (4 miles south the eastern point of Riou, in blocks, between 105-110 meters; in blocks, SW Îles des Embiez, near the canyon of Cap Sicié, at 200 meters, and same location but between 155-180 meters); region of Marseille, at the coralligène, at about 30 meters (coralligène with *Halimea tuna*, at the rocky crest in front of the calanques of Envau and Port Pin, at 30 meters, coralligène at Veyron, near the karstic region, between 25-30 meters).
**SELECTED REFERENCES:** *Placostegus crystallinus* [not *Placostegus crystallinus* (Scacchi 1836) = *Placostegus tridentatus* (J.C. Fabricius 1779)] — ZIBROWIUS, 1968*b*: 382, pl. 1 figs. 13-14; ZIBROWIUS, 1969*a*: 132; BIANCHI, 1979*a*: 277; BIANCHI, 1981: 118-120, fig. 45.
**DISTRIBUTION:** Mediterranean Sea; [?] Aegean Sea; [?] California; [?] Brazil; [?] Indian Ocean. In marine caves and in coralligenous concretions, attached to hard surfaces, like rocks, stones, or shells. From shallow water to about 943 meters. Besides the material studied directly by ZIBROWIUS (1968*c*) all

the other records need confirmation about if they represent the same species than the studied and described by that author.

**REMARKS:** The Mediterranean specimens described by ZIBROWIUS (1968*c*) as *Placostegus crystallinus*, differ from *Placostegus tridentatus* by the operculum and shape of the tube (BIANCHI, 1979*a*). However, *Serpula crystallinus* Scacchi 1836 is a junior synonym of *P. tridentatus*. This way, the species described by Zibrowius belongs to a different species. The species belongs to the genus *Placostegus*, but so far it is referred to as *Placostegus crystallinus sensu* Zibrowius 1968.

## ***Placostegus langerhansi*** Marenzeller 1893

*Placostegus langerhansi* MARENZELLER, 1893: 43 [new name for *Placostegus tridentatus* sensu Langerhans 1884].

**TYPE LOCALITY:** Madeira Island.

**SELECTED REFERENCES:** *Placostegus langerhansi* — ZIBROWIUS, 1968*b*: 380-383, pl. 1 figs. 16-17; ZIBROWIUS, 1970*a*: 128; ZIBROWIUS, 1973*a*: 75-76. *Placostegus tridentatus* [not J.C. Fabricius 1779] — LANGERHANS, 1884: 275-276, pl. 16 fig. 39. *Placostegus tricuspidatus* [not Mörch 1863] — LANGERHANS, 1880*b*: 120-121, pl. 5 fig. 38; LANGERHANS, 1884: 275, pl. 16 fig. 38.

**REFERENCES FOR PORTUGAL:** ZIBROWIUS, 1970*a* (Setúbal Canyon).

**DISTRIBUTION:** Madeira Island; Canary Islands; Portugal. In hard bottoms, attached to corals. Shallow water to about 1520 meters.

## ***Placostegus tridentatus*** (J.C. Fabricius 1779)

*Serpula tridentata* J.C. FABRICIUS, 1779: 385.

**TYPE LOCALITY:** Norwegian Sea, at 200? fathoms (365.8? meters).

**SYNONYMS:** *Serpula crystallina* Scacchi 1836; *Serpula armata* Milne-Edwards 1849; *Serpula polita* Sars 1849; *Serpula serrulata* Flemming *in* Mörch 1863; *Placostegus tricuspidatus* Mörch 1863.

**SELECTED REFERENCES:** *Placostegus tridentatus* — MÖRCH, 1863: 414-415; MARENZELLER, 1893: 43, pl. 4 fig. 17; FAUVEL, 1909: 69-70; WOLLEBACK, 1912: 117-118, pl. 47 figs. 1-8, pl. 51 figs. 2-3; FAUVEL, 1914*f*: 351-354; RIOJA, 1917*c*: 89-90, fig. 26; RIOJA, 1923*c*: 104, figs. 193-199; MCINTOSH, 1923*a*: 370-375, pl. 122 fig. 3-3*a*, pl. 131 fig. 8-8*a*; FAUVEL, 1927*a*: 373, fig. 128*h-p*; RIOJA, 1931: 432-434, pl. 134 figs. 7-13; WESENBERG-LUND, 1950*a*: 60, chart 64; NELSON-SMITH, 1967: 38, figs. 30-31, 33; ZIBROWIUS, 1968*c*: 383; ZIBROWIUS, 1970*a*: 128; ZIBROWIUS, 1973*a*: 74-75; ZIBROWIUS, 1977: 296; BIANCHI, 1981: 116-118, fig. 44; BEN-ELIAHU & FIEGE, 1996: 13; HARTMANN-SCHRÖDER, 1996: 565-567, fig. 276; KIRKEGAARD, 1996: 413-414, fig. 236; KUPRIYANOVA & JIRKOV, 1997: 217, fig. 6, map 6; SANFILIPPO, 2003*a*: 172-176, pl. 1, pl. 2 figs. 1-2; ÇINAR, 2006: 230, fig. 7*B-C*. *Serpula crystallina* [not *Placostegus crystallinus* sensu Zibrowius 1968] — SCACCHI, 1836: 18; KUPFFER, 1873: 152. *Placostegus crystallinus* — PHILIPPI, 1844: 192, pl. 6 fig. *D*. *Placostegus tricuspidatus* — MÖRCH, 1863: 415-417; LO BIANCO, 1893: 87. *Serpula polita* — SARS, 1851: 204.

**REFERENCES FOR PORTUGAL:** FAUVEL, 1909 (off Faro); FAUVEL, 1914*f* (off Faro); RIOJA, 1917*c* (previous records: Portuguese coast); BELLAN, 1960*a* (as *Plagostegus tridentatus*; Setúbal Canyon; Cape São Vicente); ZIBROWIUS, 1970*a* (Setúbal Canyon; previous records: Portugal).

**DISTRIBUTION:** North Atlantic; Barents Sea; Iceland; Spitsbergen; from off Norway to Morocco; North Sea; Skagerrak; Kattegat; Azores; Madeira; Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Japan. On stones, shells, algae, madreporians (*Madrepora oculata*, *Lophelia prolifera*), or sponges. Between 4-2044 meters.

**REMARKS:** SANFILIPPO (2003*a*), using differences in size and tube morphology distinguished two morphotypes of *Placostegus tridentatus*, the "*Atlantic*" and the "*Mediterranean*" morphotypes. These morphotypes can be differentiated with base on the following characters (see table):

Tube morphological characters of *Placostegus tridentatus* morphotypes
(from SANFILIPPO, 2003*a*)

| **"*Atlantic*" morphotype** | **"*Mediterranean*" morphotype** |
|---|---|
| a) Large-sized tube (up to 8 cm in length) | a) Small-sized tube (up to 2.5 cm in length) |
| b) Proximal part usually coiled | b) Proximal part usually folding on itself |
| c) Distal end free for a long part | c) Distal end proportionally short |
| d) Distal part triangular to sub-circular in cross section | d) Distal part triangular in cross section |
| e) Onde dorsal toothed keel; lateral keels absent | e) One dorsal spiny keel and two lateral smooth keels |
| f) Three-toothed mouth | f) Three-spiny mouth |
| g) Trilobed peristomes | g) Peristomes absent |

## *GENUS ***Pomatoceros*** Philippi 1844

*Pomatoceros* PHILIPPI, 1844: 189.
**TYPE SPECIES:** *Serpula triquetra* Linnaeus 1767.
**SYNONYMS:** *Conchoserpula* Blainville 1818; *Podioceros* Quatrefages 1866.

**KEY TO SPECIES:**
(adapted from KNIGHT-JONES, KNIGHT-JONES & NELSON-SMITH, 2000)

**1a.** Opercular ampulla somewhat cup-shaped and higher than the distal calcareous cap, which may be flat, concave or slightly arched (seldom conical), with or without distal projections (in this case, with a central cylindrical protuberance from which project 1-3 short tips); peduncle inserted in the operculum in a central position; anterior margin of lateral-dorsal lobes of collar without numerous tonguelets; tube with a well-defined median keel and, in adults, two more vestigial ridges, one on each side.....***P. lamarckii****
**1b.** Opercular ampulla as a disk, flattened and low, normally thinner than the distal calcareous cap, which is usually arched, often conical (can be very high), and with or without projections (in this case, with three teeth, which can be very polymorphic and big); peduncle inserted in the operculum in a dorsal position; anterior margin of lateral-dorsal lobes of collar with numerous tonguelets; tube with only a median keel.....***P. triqueter****

## **Pomatoceros lamarckii* (Quatrefages 1866)

*Vermilia Lamarckii* QUATREFAGES, 1866*b* 513-514, pl. 12 figs. 19-23.
**TYPE LOCALITY:** Guéthary, France (Bay of Biscay, near the border with Spain), attached to stones and rocks.
**SYNONYMS:** *Pomatoceros globiger* Iroso 1921.
**SELECTED REFERENCES:** *Pomatoceros lamarckii* — ZIBROWIUS, 1968*c*: 163-166, pl. 8 figs. 3-8, 19-20, 31; ZIBROWIUS & BELLAN, 1969: 378-379, fig. 1; ZIBROWIUS, 1973*a*: 70-71; BIANCHI, 1981: 113-115, figs. 7*j*, 43; ÇINAR, 2006: 230-231, fig. 7*A*. *Pomatoceros globiger* — IROSO, 1921: 55-56, pl. 4 figs. 16-17.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro); QUINTINO, RODRIGUES & GENTIL, 1989 (as *Pomatoceros lamarkii*; Lagoon of Óbidos); DEXTER, 1992 (previous records: Sado Estuary; Lagoon of Albufeira; Lagoon of Óbidos); SALDANHA, 1995 (Portugal); BOAVENTURA *et al.*, 2006 (Ancão, Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 18 (A.4078)**, north Sines, 41 m, sand: 1 specimen in poor condition, with typical operculum; tube attached to a tube of *Ditrupa arietina*. **St. 187 (A.3924)**, south Sines, 17 m, sand: 1 small specimen, complete, about 3 mm long; operculum as described, with an ampulla more or less conical; opercular peduncle inserted at the center of the lower region of the ampulla; ampulla is higher than in *P. triqueter*, being also more or less globulous; operculum with a calcified cap with a protuberance with two small lateral projections; tube missing. **FAUNA 1 — St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 specimen with tube; section of the tube triangular.

**DISTRIBUTION:** Atlantic Ocean, from Scotland to Rio de Oro; Mediterranean Sea; Adriatic Sea; Aegean Sea. On rocks, stones and shells. Intertidal to about 20 meters.

## **Pomatoceros triqueter* (Linnaeus 1758)

*Serpula triquetra* LINNAEUS, 1758: 787.

**TYPE LOCALITY:** "*Habitat in Oceano*", probably Sweden, on shells, stones, bottoms of ships, and *Fucus*.

**SYNONYMS:** *Serpula porrecta* O.F. Müller 1776; [?] *Pomatoceros triquetroides* Delle Chiaje 1822; *Vermilia elongata* Philippi 1844; *Pomatoceros tricuspis* Philippi 1844; *Vermilia dinema* Mörch 1863; *Vermilia conigera* Quatrefages 1866; *Vermilia humilis* Quatrefages 1866; *Vermilia Lamarckii* Quatrefages 1866; *Vermilia Pennantii* Quatrefages 1866; *Vermilia socialis* Quatrefages 1866; *Vermilia tricuspis* Quatrefages 1866; *Vermilia trifida* Quatrefages 1866; *Serpula tricuspis* Kupffer 1873.

**SELECTED REFERENCES:** *Pomatoceros triqueter* — SAINT-JOSEPH, 1894: 353-361, pl. 13 figs. 393-407; SOULIER, 1902: 138-145, fig. 7; FAUVEL, 1909: 66-67; WOLLEBÆK, 1912: 114-115, pl. 42 figs. 1-6, pl. 49; FAUVEL, 1914*f*: 347-348; RIOJA, 1923*c*: 95, figs. 164-182; FAUVEL, 1927*a*: 370-372, fig. 127*a-k*; RIOJA, 1931: 424-428, pl. 140; THOMAS, 1940: 6-44, text-figs. 1-4, pls. 1-6, pl. 7 figs. 28-29; WESENBERG-LUND, 1950*a*: 60, chart 64; NELSON-SMITH, 1967: 45-46, figs. 39-41; ZIBROWIUS, 1968*c*: 162-163, 164-166, pl. 8 figs. 9-18, 21-30; ZIBROWIUS & BELLAN, 1969: 379-381, fig. 2; ZIBROWIUS, 1973*a*: 69-70; BIANCHI, 1980: 91, fig. 5; BIANCHI, 1981: 110-112, figs. 3*b*, 7*i*, 10*a*, 42; HARTMANN-SCHRÖDER, 1996: 567-568, fig. 277; KIRKEGAARD, 1996: 414-416, fig. 237; KUPRIYANOVA & JIRKOV, 1997: 219, fig. 7, map 7; ÇINAR, 2006: 230-231. *Pomatocerus triqueter* — MCINTOSH, 1923*a*: 362-370, text-figs. 168-170, pl. 117 fig. 1-1*b*, pl. 122 fig. 2-2*a*, pl. 131 fig. 7-7*d*. *Vermilia triquetra* — PHILIPPI, 1844: 192-193, pl. 6 figs. *F*, *T*. *Vermilia elongata* — PHILIPPI, 1844: 193, pl. 6 fig. *L*. *Serpula tricuspis* — KUPFFER, 1873: 152. *Pomatoceros triquetroides* [(?) not Delle Chiaje 1822 = indeterminable species, according to ZIBROWIUS, 1972: 122] — CLAPARÈDE, 1869: 182-183, pl. 20 fig. 3; LO BIANCO, 1893: 86; IROSO, 1921: 54-55. *Pomatoceros tricuspis* — PHILIPPI, 1844: 194-195, pl. 6 fig. *P*. *Vermilia dinema* — MÖRCH, 1863: 388-389.

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Sines); BELLAN, 1960*a* (Cascais; Setúbal Canyon); ZIBROWIUS, 1970*a* (previous records: Portugal); SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche; Lagoon of Óbidos); CASTRO & VIEGAS, 1981 (Tagus Estuary); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); MONTEIRO-MARQUES, 1984 (Praia da Falésia); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); DEXTER, 1992 (previous records: Ria Formosa; Ria de Alvor; continental shelf of Algarve; Mira Estuary; Sines; Sado Estuary; Mondego Estuary); SALDANHA, 1995 (Portugal); RAVARA, 1997 (off Aveiro); BOAVENTURA *et al.*, 2006 (Ancão, Algarve); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 192 (A.3920)**, south Sines, 48 m, schist: 3 specimens, without tubes; opercula as described, with a calcareous plaque, very high and conical; one specimen with 3 small spines at the top of the cone; collar with several projections; chaetae of first chaetiger small. **St. 223 (A.3894)**, off Porto Covo, 38 m, schists: 2 specimens, one of them incomplete, with only the anterior region and without operculum, while the other is complete, with an operculum with 3 horns. **St. 225 (A.3892)**, off Porto Covo, 40 m, rock: 1 specimen; tube missing. **St. 232**, NW Vila Nova de Milfontes, 18 m, rock: 2 specimens, one still inside the tube; opercula as described, with a low base and a conic plaque, very high; chaetae of first chaetiger small; thoracic membrane with several projections; tube white, with a middorsal smooth row. **St. 236**, NW Vila Nova de Milfontes, 34 m, rock: 8 specimens, almost all of them incomplete; opercula with conical calcareous plaques, some with 3 teeth; fragments of tube white, with a middorsal smooth ridge. **St. 253**, near Cape Sardão, 18 m, rock: 2 specimens; both opercula with a conical plaque, one of them with 3 long teeth; thoracic membrane with several projections; tube as described. **St. 312**, off Arrifana, 46 m, rock: 1 complete specimen; operculum with a big conic calcareous plaque; colar with projections; piece of tube present.

**DISTRIBUTION:** Eastern Atlantic, from the Norwegian coast to Angola; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Red Sea. Normally very common only in the first meters of the infralittoral, on stones, shells and rocks, often forming large masses in sheltered places. Common in harbours and coastal lagoons, rare off shore, but recorded to be present from shallow waters down to 5000 meters.

**REMARKS:** Many specimens show a characteristic blue pigmentation on the branchial crown, which eases the identification of the species.

## GENUS ***Pomatoleios*** Pixell 1913

*Pomatoleios* PIXELL, 1913: 85.

**TYPE SPECIES:** *Pomatoleios crosslandi* Pixell 1913 [junior synonym of *Placostegus cariniferus* var. *kraussii* Baird 1865].

### ***Pomatoleios kraussii*** (Baird 1865)

*Placostegus cariniferus* var. *Kraussii* BAIRD, 1865*a*: 14-15.

**TYPE LOCALITY:** Cape of Good Hope, South Africa.

**SYNONYMS:** *Pomatoleios crosslandi* Pixell 1913.

**SELECTED REFERENCES:** *Pomatoleios kraussii* — DAY, 1967: 800-801, fig. 38.3.*a-f*; BEN-ELIAHU, 1991*b*: 520, 525; BEN-ELIAHU & TEN HOVE, 1992: 44, 52, 53, tables 2, 4-6; FIEGE & SUN, 1999: 130-131, fig. 18*A-D*; ÇINAR, 2006: 231-232, 233-234, figs. 8, 11, 12*A-C*. *Pomatoleios crosslandi* — PIXELL, 1913: 85-86, pl. 9 fig. 10; FAUVEL, 1953*c*: 461-462.

**DISTRIBUTION:** South Africa; India; Pakistan; East Africa; Madagascar; Red Sea; Suez Canal; Japan. Infralittoral. Israeli Mediterranean coast, and Levantine coast of Turkey, probably as a Lessepsian migrant, between 0.1-6 meters, from mollusks (*Thais haemostoma*, *Thais rugosa*, *Brachidontes pharaonis*), *Ulva* sp., ropes and tires, rocks, and asbestos samplers. Toulon Harbour (South France), as ship-fouling.

**REMARKS:** The species *Pomatoleios kraussi* (Baird 1865) was recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of ships at the harbour of Toulon (South France). The sampled ships were the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving to the Mediterranean through the Suez Canal, and the *Balny*, after spending ten months in the Indian Ocean, and arriving to the Mediterranean after contouring Africa.

After having colonized the Suez Canal the species was first recorded in the Levant Basin as a Lessepsian migrant by BEN-ELIAHU (1991*b*: 520), and later confirmed by BEN-ELIAHU & TEN HOVE (1992), from the Israeli Mediterranean coast.

## GENUS ***Protis*** Ehlers 1887

*Protis* EHLERS, 1887: 325.

**TYPE SPECIES:** *Protis simplex* Ehlers 1887.

**SYNONYMS:** *Pixellgrana* Uchida 1978.

**REMARKS:** The genus definition was emmended by KUPRIYANOVA (1993*c*) in order to include operculate individuals.

### ***Protis arctica*** (Hansen 1878)

*Protula arctica* HANSEN, 1878: 13-14, pl. 10 figs. 1-10.

**TYPE LOCALITY:** Between Iceland and Norway (65º53'N, 7º18'W), at 2127 meters, in *Biloculina* clay.

**SYNONYMS:** *Protis simplex* Ehlers 1887.

**SELECTED REFERENCES:** *Protula arctica* — HANSEN, 1882: 43, pl. 7 figs. 28-34; WESENBERG-LUND, 1950: 61-62, chart 66. *Protula (?) arctica* — WOLLEBAEK, 1912: 120-122, pl. 48 figs. 1-6, pl. 50 fig. 7. *Protis arctica* — FAUVEL, 1909: 50-51; FAUVEL, 1914*f*: 325-327, pl. 30 figs. 18-25; ELIASON, 1951: 142 ZIBROWIUS, 1969*b*: 16-17, fig. 6; ZIBROWIUS, 1977: 296; KIRKEGAARD, 1982: 257, fig. 2; BEN-ELIAHU & FIEGE, 1996: 19-24, figs. 8, 9*A-B*; KUPRIYANOVA & JIRKOV, 1997: 221-222, fig. 8, map 8. *Protis simplex* — EHLERS, 1887: 325-328, pl. 56 figs. 10-14. Not *Protis arctica* — BELLAN, 1964*b*: 179-180; NELSON-SMITH, 1967: 50 [all = *Hyalopomatus* sp. (see ZIBROWIUS, 1969*b*: 13-14)].

**DISTRIBUTION:** Arctic North Atlantic, between Labrador and Greenland, between Greenland and Iceland, between Iceland and Norway; Azores, and between Azores and Madeira; Mediterranean Sea; Tyrrhenian Sea; Ionian Sea; Romanche Deep, in the Central Atlantic; Gulf of Mexico; off North Alaska. In muddy bottoms, hardened clay, pumice, pteropod shells, slag, pebbles of conglomerate, chunks of burnt coal, and hard calcareous crusts. Between 150-5300 meters.

**REMARKS:** The Mediterranean population of *Protis arctica* studied by BEN-ELIAHU & FIEGE (1996) differs from the Atlantic population described by ZIBROWIUS (1969*b*) in the following points: 1) the body size is smaller; 2) the tube may be slightly flattened on its upper surface; 3) the number of teeth on the thoracic uncini is F + 5-6 rather than F + 5; and 4) the number of opercula, which is 2 in the smaller

specimens. The presence of a thoracic apron in the Atlantic population, absent in the Mediterranean specimens, could be a size related character (BEN-ELIAHU & FIEGE, 1996).

## GENUS ***Protolaeospira*** Pixell 1912

*Protolaeospira* PIXELL, 1912: 798.
**TYPE SPECIES:** *Spirorbis (Protolaeospira) ambilateralis* Pixell 1912.
**SYNONYMS:** *Marsipospira* Bailey 1969; *Pixellia* Pillai 1970.
**REMARKS:** The genus was redefined by VINE, BAILEY-BROCK & STRAUGHAN (1972), KNIGHT-JONES (1973) and finally amended by KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN (1974).

### ***Protolaeospira striata*** (Quiévreux 1963)

*Paralaeospira striata* QUIÉVREUX, 1963: 69-76, figs. 1-7.
**TYPE LOCALITY:** Roscoff (Finistère, Northern France), at the eastern cliff of Pointe de Bloscon, at the bottom of rocky creeks, at the low level of spring tides.
**SELECTED REFERENCES:** *Spirorbis (Paralaeospira) striatus* — NELSON-SMITH, 1967: 63, figs. 64-65; ZIBROWIUS, 1968*c*: 187-188, pl. 10 figs. 8-25. *Spirorbis (Marsipospira) striatus* — BAILEY, 1969*a*: 368-369, figs. 3, 13, table 1. *Spirorbis striatus* — HARRIS, 1968*a*: 601, fig. 5; HARRIS, 1968*b*: 194, 205. *Protolaeospira striata* — KNIGHT-JONES & KNIGHT-JONES, 1977: 476-478, fig. 8; BIANCHI, 1981: 150-152, figs. 10*b*, 11*c*, 56, pl. 1 fig. 11; KNIGHT-JONES & KNIGHT-JONES, 1995: 95.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Spirorbis striata*; coast of Arrábida).
**DISTRIBUTION:** Northeastern Atlantic: Roscoff, Cap Ferrat (France), Isles of Scilly; Madeira; Canary Islands; Cape Verde; Senegal; Western Mediterranean; Aegean Sea; South Carolina. In the lower sides of stable rocks and stones, in coarse gravel, in the coralligenous, and in marine caves. From L.W.S.T. to 45 meters, especially in zones with reduced sedimentation.

## *GENUS ***Protula*** Risso 1826

*Protula* RISSO, 1826: 405-406.
**TYPE SPECIES:** *Serpula tubularia* Montagu 1803.
**SYNONYMS:** *Lemintina* Risso 1826; *Spiramella* Blainville 1828; *Psygmobranchus* Philippi 1844; *Protulopsis* Saint-Joseph 1894; *Membranopsis* Bush 1910; *Salmacinopsis* Bush 1910; *Ehlerprotula* Uchida 1978; *Paraprotula* Uchida 1978; *Philippiprotula* Uchida 1978.
**REMARKS:** TEN HOVE & PANTUS (1985) consider the collar a poor character, due to its variability and fragility. However, I used this character in the following key, as it is traditionally used in order to separate different *Protula* species (*e.g.*: FAUVEL, 1914*f*, 1927*a*).

The *Protula lusitanica* McIntosh 1885 was described from off the Portuguese coast, near Setúbal (38º10'N, 9º14'W), at 470 fathoms (= 860 meters), in green mud (MCINTOSH, 1885*a*: 511, pl. 31*A* fig. 16). However, the species was considered as indeterminable by TEN HOVE & KUPRIYANOVA (2009), and the type material is considered to be lost.

#### KEY TO SPECIES:

**1a.** Abdominal chaetae geniculate, joined by long capillaries at the middle and posterior regions of the abdomen; collar with the inferior lobe divided in two or with an incision in the ventral midline.....***P. intestinum***
**1b.** Abdominal chaetae sickle-shaped, joined by long capillaries at the middle and posterior regions of the abdomen.....**2**

**2a (1b).** Collar trilobed, with inferior lobe entire or, at most, shallower in the ventral midline.....***P. tubularia****
**2b (1b).** Collar developed, divided in four petaloid lobes: two lateral, connected to the thoracic membrane, and two ventral, separated from the first ones by two big lateral incisions; another incision separates them at the middle of the ventral face.....***P. alberti***

## ***Protula alberti*** Fauvel 1909

*Protula Alberti* FAUVEL, 1909: 71-72.

**TYPE LOCALITY:** No holotype was designated by FAUVEL (1909; 1914*f*), and the description of the species is based on material (specimens and tubes) collected on four stations around Azores (Atlantic Ocean): South Faial, 38º26'25"N, 28º38'55"W, at 800 meters, on mud and sand; 36º36'40"N, 27º17'15"W, at 793 meters, on sand; 39º26'10"N, 31º21'30"W, 914-650 meters, on polyps; near Terceira, 38º52'50"N, 27º23'05"W, at 599 meters, on coarse sand (one empty tube).

**SELECTED REFERENCES:** *Protula Alberti* — FAUVEL, 1914*f*: 356-358, pl. 30 figs. 1-8.

**DISTRIBUTION:** Azores, Atlantic Ocean, between 600-914 meters, on sandy bottoms.

## ***Protula intestinum*** (Lamarck 1818)

*Serpula intestinum* LAMARCK, 1818: 363.

**TYPE LOCALITY:** European seas ("*Mers d'Europe*").

**SYNONYMS:** *Sabella protula* Cuvier 1827; *Protula græca* Mörch 1863; *Protula (Psygmobranchus) cinerea* Mörch 1863; *Protula pallida* Iroso 1921; *Protula rubra* Iroso 1921.

**SELECTED REFERENCES:** *Protula intestinum* — PHILIPPI, 1844: 196; CLAPARÈDE, 1869: 171-172, pl. 15 fig. 4; FAUVEL, 1909: 72; FAUVEL, 1914*f*: 358-359; RIOJA, 1923*c*: 119 fig. 221-222; FAUVEL, 1927*a*: 383-384, figs. 130*m*, 131*a-b*; RIOJA, 1931: 445-446, pl. 146 figs. 4, 6; NELSON-SMITH, 1967: 51; ZIBROWIUS, 1968*c*: 182-184, pl. 10 fig. 17 [in part; in part = *Apomatus similis* Marion & Bobretzky 1875]; BEN-ELIAHU & FIEGE, 1996: 27. *Protulopsis intestinum* — SAINT-JOSEPH, 1894: 263, 368. *Protula græca* — MÖRCH, 1863: 357. *Protula (Psygmobranchus) cinerea* — MÖRCH, 1863: 361. *Protula protula* — LO BIANCO, 1893: 89; IROSO, 1921: 66. *Protula pallida* — IROSO, 1921: 66-67. *Protula rubra* — IROSO, 1921: 67-68. *Protula* sp. — BIANCHI, 1981: 140-142, pl. 1 figs. 1-2 [in part].

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; western Indian Ocean. Coralligenous bottoms. Attached to rocks and stones, on *Posidonia* meadows and coralligenous bottoms. Between 5-280 meters.

## ****Protula tubularia*** (Montagu 1803)

*Serpula tubularia* MONTAGU, 1803: 513.

**TYPE LOCALITY:** England.

**SYNONYMS:** [?] *Serpula cinerea* Forskal 1775; [?] *Serpula protensa* Gmelin *in* Linnaeus 1791; *Protula Rudolphii* Risso 1826; *Psygmobranchus protensus* Philippi 1844; *Psygmobranchus elegans* Quatrefages 1866; *Psygmobranchus simplex* Quatrefages 1866; *Protula borealis* M. Sars *in* G.O. Sars 1872; *Protula Meilhaci* Marion 1875; *Psygmobranchus intermedius* Marion 1879.

**SELECTED REFERENCES:** *Protula (Psygmobranchus) tubularia* — MÖRCH, 1863: 359-361. *Protula tubularia* — LO BIANCO, 1893: 89-90; MARENZELLER, 1893: 38, pl. 3 fig. 9; SAINT-JOSEPH, 1894: 362-369, pl. 13 figs. 408-413; FAUVEL, 1909: 70-71; FAUVEL, 1910: 693-698, figs. 3-4; FAUVEL, 1914*f*: 354-356; RIOJA, 1917*c*: 90-91, fig. 27; IROSO, 1921: 65; MCINTOSH, 1923*a*: 332-338, text-figs. 165-166, pl. 115 fig. 6, pl. 116 fig. 2, pl. 121 fig. 5, pl. 130 fig. 7; RIOJA, 1923*c*: 116, figs. 217-220; FAUVEL, 1927*a*: 382-383, fig. 130*a-l*; RIOJA, 1931: 444-445, pl. 145 fig. 6, pl. 146 figs. 1-3, 5; NELSON-SMITH, 1967: 51, fig. 46; ZIBROWIUS, 1968*c*: 182-184, pl. 10 figs. 13-16 [in part; in part = *Apomatus similis* Marion & Bobretzky 1875]; HARTMANN-SCHRÖDER, 1971*a*: 540-541; BEN-ELIAHU & FIEGE, 1996: 28; HARTMANN-SCHRÖDER, 1996: 573-574 [in part; not *Apomatus similis* Marion & Bobretzky 1875]; KIRKEGAARD, 1996: 416-418, fig. 238; KUPRIYANOVA & JIRKOV, 1997: 225-227, fig. 10, map 10. [?] *Serpula protensa* — GMELIN *in* LINNAEUS, 1791: 3744. *Psygmobranchus protensus* — PHILIPPI, 1844: 196; CLAPARÈDE, 1869: 172-175, pl. 30 fig. 7; LANGERHANS, 1884: 276-277; IROSO, 1921: 73. *Protula protensa* — MICHAELSEN, 1896: 184. *Protula Rudolphi* — RISSO, 1826: 406-407. *Protula borealis* — M. SARS, 1869: 253 [*nomen nudum*]; M. SARS *in* G.O. SARS, 1872*a*: 417. *Protula Meilhaci* — MARION, 1875: 476; SOULIER, 1902: 156-163, fig. 10. *Psygmobranchus intermedius* — MARION, 1879: 28-29, pl. 17 fig. 7. *Protula* sp. — BIANCHI, 1981: 140-142, pl. 1 figs. 1-2 [in part].

**REFERENCES FOR PORTUGAL:** FAUVEL, 1909 (off Lagos); FAUVEL, 1914*f* (off Lagos); BELLAN, 1960*a* (Cape Espichel; Cape São Vicente); ZIBROWIUS, 1970*a* (previous records: Portugal); DEXTER, 1992 (previous records: Ria Formosa).

**MATERIAL: FAUNA 1 — St. 26*A***, Alborán Sea, Djibouti Bank, off Nerja, 296-297 m, sand and mud: 1 specimen, identified following BEN-ELIAHU & FIEGE (1996); the specimen lacks operculum, and is poorly preserved; thoracic uncini from the third chaetiger; chaetiger 4 lacks *Apomatus* chaetae; abdominal chaetae sickle-shaped and less curved than in *A. assimilis*; white spots on branchiae; collar

trilobed, without any kind of median slit; tube white, smooth, and circular in cross-section; the specimen fits the description given by FAUVEL (1927*a*).

**DISTRIBUTION:** Recorded worldwide, but many of the records refer probably to similar species. British Isles; North Sea; NW France; North Atlantic; Greenland; Iceland; Spitsbergen; Barents Sea; Norway; Skagerrak; Bay of Bicay; Mediterranean Sea; Adriatic Sea; Aegean Sea; from Azores to South Africa; Persian Gulf; Indian Ocean; Malaysia; Australia; Japan; Panama; Newfoundland. Attached to hard surfaces, in bottoms of several kinds, including sand and gravel. Between 15-943 meters.

## GENUS ***Pseudovermilia*** Bush 1907

*Pseudovermilia* BUSH, 1907*a*: 54.

**TYPE SPECIES:** *Spirobranchus occidentalis* McIntosh 1885.

**SYNONYMS:** *Crosslandiella* Monro 1933.

**REMARKS:** The diagnosis of the genus was emended by ZIBROWIUS (1970*b*), and again by TEN HOVE (1975).

### ***Pseudovermilia occidentalis*** (McIntosh 1885)

*Spirobranchus occidentalis* MCINTOSH, 1885: 529-530, pl. 55 fig. 10, pl. 29*A* figs. 31-32.

**TYPE LOCALITY:** Off Bermudas, 32º21'N, 64º35'W, [?] 435 fathoms (795.5 meters), in coral mud.

**SYNONYMS:** *Pseudovermilia pileum* Bush 1907; *Pomatostegus [?] galeatus* Fauvel 1909; *Vermiliopsis hawaiiensis* Treadwell 1943; *Vermiliopsis cornuta* Rioja 1947.

**SELECTED REFERENCES:** *Pseudovermilia occidentalis* — BUSH, 1907*b*: 135-136; BUSH, 1910: 500, fig. 2; ZIBROWIUS, 1970*a*: 125-127, fig. 2; ZIBROWIUS, 1970*b*: 9-11, pl. 2 figs. 1-11, 15-16 [in part; not specimens from Sta. 1779 (2) and Sta. 1824 (1), figured in figs. 12-14 = *Pseudovermilia holcopleura* ten Hove 1975 (see TEN HOVE, 1975: 60)]; ZIBROWIUS, 1971*a*: 1374; ZIBROWIUS, 1973*a*: 49-51; TEN HOVE, 1975: 59-72, figs. 114-123, 144-145, 155-156, 159, 161-164, 170-172, pl. 1, pl. 2 figs. *a*-*e*, pl. 3, pl. 7; TEN HOVE & WOLF, 1984: 55.31, figs. 55.25-55.26. *Vermiliopsis occidentalis* — HARTMAN, 1942*a*: 90, fig. 156. *Pseudovermilia pileum* — BUSH, 1907*b*: 136. *Pomatostegus [?] galeatus* — FAUVEL, 1909: 68-69. *Pomatostegus galeatus* — FAUVEL, 1914*f*: 350-351, pl. 30 figs. 12-17. *Vermiliopsis hawaiiensis* — TREADWELL, 1943: 3-4, figs. 14-15; STRAUGHAN, 1969*a*: 234-235, fig. 2*c*. *Vermiliopsis cornuta* — RIOJA, 1947: 525-526, figs. 14-21. *Vermiliopsis bermudensis* [not Bush 1907] — HARTMAN, 1942*a*: 90, figs. 154-155 [in part]. *Vermiliopsis acanthophora* [not Augener 1914] — MONRO, 1933*d*: 1085.

**DISTRIBUTION:** California; Galápagos Islands; Hawaii; Gulf of Panama; off Bermudas; Georgia; Florida; Gulf of Mexico; Mexico; Honduras; Puerto Rico; Bahamas; Jamaica; Antillean Islands; Suriname; Brazil; [?] off Flores, Azores; [?] Portugal; Josephine Bank; from Senegal to Gulf of Guinea; St. Helena; Red Sea. Generally attached to many kinds of hard grounds, from rocks and boulders to corals, balanids, bryozoans, calcareous algae, sponges, tunicates, mollusc shells, other serpulids, artificial substrata (ships, panels, iron, wood piles), and also recorded in sand, probably attached to hard substrata. Intertidal-490 meters; [?] 250-795 meters.

**REMARKS:** According to TEN HOVE (1975), the depth of the type locality is doubtful. The species is very common from the subtidal zone down to 250 meters, being the records below that depth rare or doubtful. The same author stated that the specimens from Josephine Bank had atypical tubes, looking like tubes of *Pomatoceros triqueter* (L.). The specimen from Azores also showed an aberrant tube, being extremely flattened, coiled, and with pronounced wavy ridges. However, in both cases the worms inside the tubes were typical of *P. occidentalis*.

## GENUS ***Rhodopsis*** Bush 1904

*Rhodopsis* BUSH, 1904: 289.

**TYPE SPECIES:** *Rhodopsis pusilla* Bush 1904.

**SYNONYMS:** *Apomatolos* Uchida 1978.

### ***Rhodopsis pusilla*** Bush 1904

*Rhodopsis pusilla* BUSH, 1904: 289-290.

**TYPE LOCALITY:** Bermuda (Atlantic Ocean), over the under surface of the common hat-coral *Agaricia fragilis*.
**SELECTED REFERENCES:** *Rhodopsis pusilla* — BEN-ELIAHU & TEN HOVE, 1989: 383-394, figs. 1-11, table 2; BAILEY-BROCK, 1991: 201-204, fig. 3; NISHI & YAMASU, 1992: 94-98, figs. 1-6; NISHI, 1996*a*: 312, fig. 4*a-d*.
**DISTRIBUTION:** Bermuda; Bonaire; Mediterranean Sea (Cyprus); Red Sea; Indian Ocean (Reunion); Seychelles; Indonesia; Japan; Hawaiian Islands; Australia. In sponges, under coral heads (*Agaricia fragilis*), from dead corals in sand, in coral rubble, from mollusk shells, pebbles, or algae. Intertidal to about 20 meters.

## GENUS ***Salmacina*** Claparède 1869

*Salmacina* CLAPARÈDE, 1869: 176.
**TYPE SPECIES:** *Salmacina incrustans* Claparède 1869.
**REMARKS:** A comparative table with the main diagnostic characters of the described species of *Salmacina* is given in NOGUEIRA & TEN HOVE (2000).

**KEY TO SPECIES:**

**1a.** Teeth on the basal fin of the collar chaetae numerous and small.....***S. dysteri***
**1b.** Teeth on the basal fin of the collar chaetae numbering 4-6 and coarse.....***S. incrustans***

### ***Salmacina dysteri*** (Huxley 1855)

*Protula Dysteri* HUXLEY, 1855: 118, figs. 1-11.
**TYPE LOCALITY:** Scotland.
**SYNONYMS:** *Filipora filograna* Dalyell 1853; *Salmacina ædificatrix* Claparède 1870.
**SELECTED REFERENCES:** *Protula Dysteri* — CLAPARÈDE, 1863: 31-34, pl. 15 figs. 16-23. *Salmacina Dysteri* — SAINT-JOSEPH, 1894: 340-345, pl. 13 figs. 375-380; FAUVEL, 1909: 52-53; FAUVEL, 1914*f*: 329, pl. 30 fig. 28; IROSO, 1921: 64-65; RIOJA, 1923*c*: 111, figs. 202-209; FAUVEL, 1927*a*: 377-378, fig. 129*c-k*; RIOJA, 1931: 440, pl. 144 figs. 1-8. *Salmacina dysteri* — HARTMANN-SCHRÖDER, 1971*a*: 538-539 [in part; not *Salmacina incrustans* Claparède 1869]; BEN-ELIAHU & FIEGE, 1996: 25-26, table 2 [in part]; KIRKEGAARD, 1996: 418-420, fig. 239. *Filograna Dysteri* — QUATREFAGES, 1866*b*: 487-488. *Filograna dysteri* — GEE, 1963: 705-709, fig. 1*c*, *e*, table 2. *Filograna (Salmacina) dysteri* — NELSON-SMITH, 1967: 49, figs. 43-44. *Salmacina ædificatrix* — CLAPARÈDE, 1870: 519-521, pl. 13 fig. 1. *Salmacina aedificatrix* — LANGERHANS, 1880*b*: 122, pl. 5 fig. 40; LO BIANCO, 1893: 91-92. *Filipora filograna* — DALYELL, 1853: 250-251, pl. 34. *Filograna implexa* [not Berkeley 1835] — MCINTOSH, 1923*a*: 339-346, pl. 116 figs. 5-5*a*, pl. 117 fig. 2-2*c*, pl. 121 fig. 8, pl. 122 fig. 1 [in part]; ZIBROWIUS, 1968*c*: 179-181 [in part]; HARTMANN-SCHRÖDER, 1996: 573 [in part]. *Filograna* sp. — BIANCHI, 1981: 137-139, pl. 1 fig. 5 [in part].
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Roca; Cascais; Setúbal Canyon; Cape Sagres); ZIBROWIUS, 1970*a* (previous records: Portugal); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Ponta do Surdão).
**DISTRIBUTION:** North Sea; English Channel to Mediterranean Sea; Adriatic Sea; Madeira Island; Red Sea. Hard and detritic bottoms. In shallow water to about 748 meters, but reported by GEE (1963) to be found mainly littorally. It is difficult to know the exact distribution of the species, as it was considered by many authors as being synonymous with *Filograna implexa* Berkeley 1835.

### ***Salmacina incrustans*** Claparède 1869

*Salmacina incrustans* CLAPARÈDE, 1869: 176-177, pl. 30 fig. 5.
**TYPE LOCALITY:** Gulf of Naples.
**SYNONYMS:** [?] *Serpula intricata* Grube 1840; [?] *Salmacina setosa* Langerhans 1884.
**SELECTED REFERENCES:** *Salmacina incrustans* — LANGERHANS, 1880*b*: 122-123, pl. 6 fig. 45; LO BIANCO, 1893: 91; FAUVEL, 1909: 52; FAUVEL, 1914*f*: 328, pl. 30 figs. 26-27; IROSO, 1921: 64; RIOJA, 1923*c*: 112, fig. 210; FAUVEL, 1927*a*: 378-380, fig. 129*l*; RIOJA, 1931: 440-441, pl. 144 fig. 9. [?] *Serpula intricata* — GRUBE, 1840: 62. *Filograna implexa* [not Berkeley 1835] — MCINTOSH, 1923*a*: 339-346, pl. 137 fig. 21 [in part]; ZIBROWIUS, 1968*c*: 179-181 [in part]; HARTMANN-SCHRÖDER, 1996:

573 [in part]. *Filograna* sp. — BIANCHI, 1981: 137-139, pl. 1 fig. 5 [in part]. [?] *Salmacina setosa* — LANGERHANS, 1884: 276, pl. 16 fig. 40; NÚÑEZ & TALAVERA, 1995: 528. [?] *?Salmacina setosa* — SOUTHWARD, 1963*b*: 581-582, fig. 6.
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Black Sea; Madeira Island; Cape Verde. Hard bottoms. Between 2-52 meters, but also recorded between 390-680 meters. It is difficult to know the exact distribution of the species, as it was considered by many authors as being synonymous with *Filograna implexa* Berkeley 1835.
**REMARKS:** *Salmacina setosa* was described from Madeira by LANGERHANS (1884), from corals of great depths ("*An Korallen aus größerer Tiefe*"). According to its main diagnostic characters, given by NOGUEIRA & TEN HOVE (2000), the species is quite close to *Salmacina incrustans*, and is considered here as a possible synonym of that species.

## GENUS ***Semivermilia*** ten Hove 1975

*Semivermilia* TEN HOVE, 1975: 56.
**TYPE SPECIES:** *Vermiliopsis pomatostegoides* Zibrowius 1969.
**SYNONYMS:** *Isovermilia* Rosenfeldt 1979.

**KEY TO SPECIES:**

**1a.** Opercular corneous cup, not calcified, with one or more levels, with a distal rough central spike; tube almost circular in cross section, with 5 undulating longitudinal keels.....***S. crenata***
**1b.** Opercular cup without spikes; tube triangular in cross section..... **2**

**2a (1b).** Opercular corneous cup in several levels, with large discs alternating with cylindrical portions; tube with a wide rounded median keel, bordered by a pair of lateral smaller keels.....***S. pomatostegoides***
**2b (1b).** Opercular cup simple, in one single level.....**3**

**3a (2b).** Tube with a succession of median longitudinal rounded tubercles, at a more or less regular distance between them; opercular cup flat or slightly convex.....***S. torulosa***
**3b (2b).** Tube with a median smooth or dentate keel.....**4**

**4a (3b).** Opercular cup flat or clearly convex; tube with median longitudinal keel smooth or undulated, with numerous small perforations (alveola) on the sides and at the base, separated by slender septa.....***S. cribrata***
**4b (3b).** Opercular cup cylindrical or troncoconical; tube with median keel dentate, bordered by one or two pairs of small smooth lateral keels.....***S. agglutinata***

### ***Semivermilia agglutinata*** (Marenzeller 1893)

*Vermilia agglutinata* MARENZELLER, 1893: 41-42, pl. 4 fig. 15.
**TYPE LOCALITY:** The species was described with base on several specimens collected at different localities in the Mediterranean Sea. However, MARENZELLER (1893) apparently didn't designate a holotype. The data of the different stations is as follows: 1) 32°46'40"N, 19°58'30"E (off north Banghazi, Lybia), at 680 meters, in sand and concretions; 2) 32°25'14"N, 19°49'57"E (southwards the anterior station), at 700 meters, in mud with rocks; 3) 36°5'30"N, 23°9'30"E [southeast the Island of Kythira (= Cerigo)], at 415 meters, in mud with rocks; 4) 35°39'30"N, 24°22'10"E [northwards Heraklion (= Candia), Crete], at 805 meters, in mud with rocks; 5) 35°36'30"N, 24°32'10"E [northwards Heraklion (= Candia), Crete], at 943 meters, in hard mud with pumices and fragments of rock.
**SELECTED REFERENCES:** *Vermiliopsis agglutinata* — FAUVEL, 1927*a*: 366, fig. 125*a-i, t*; NELSON-SMITH, 1967: 34, fig. 22; ZIBROWIUS, 1968*c*: 130-132, pl. 4 figs. 1-12. *Semivermilia agglutinata* — TEN HOVE, 1975: 56; BIANCHI, 1981: 89-90, fig. 33; BEN-ELIAHU & FIEGE, 1996: 10. Not *Vermiliopsis agglutinata* — RULLIER, 1964: 206 [= *Pseudovermilia occidentalis* (McIntosh 1885) (see ZIBROWIUS, 1973*a*: 49)].
**DISTRIBUTION:** At present only known from the Mediterranean Sea and Aegean Sea. On stones, shells, or dead blocks of *Dendrophyllia cornigera*. Bathyal, between 300-1600 meters. The species is also known from Pleistocene deep-water deposits of Sicily and Calabria.

### ***Semivermilia crenata*** (O.G. Costa 1861)

*Serpula crenata* O.G. COSTA, 1861: 33-34, pl. 7 fig. 3.
**TYPE LOCALITY:** Mediterranean Sea, in coralligenous bottoms in North Africa and Sardinia.
**SYNONYMS:** *Vermiliopsis undulata* Zibrowius 1968.
**SELECTED REFERENCES:** *Semivermilia crenata* — TEN HOVE, 1975: 56; BIANCHI, 1979*b*: 105, fig. 1*h*; BIANCHI, 1981: 86-87, fig. 31; BEN-ELIAHU & FIEGE, 1996: 10. *Vermiliopsis undulata* — ZIBROWIUS, 1968*b*: 378; ZIBROWIUS, 1968*c*: 134-136, pl. 4 figs. 16-26, pl. 14 fig. *f*; ZIBROWIUS, 1969*a*: 129. [*Vermiliopsis?*] *crenata* — ZIBROWIUS, 1972*c*: 119-120.
**DISTRIBUTION:** Eastern Atlantic: Morocco, Madeira and Canary Islands, Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea. Common in caves, especially in the dark regions, can also occur in the bathyal (down to 1520 meters), and in infralittoral and circalittoral concretions, mainly in coralligenous bottoms or disperse hard substrata in detritic bottoms.

### ***Semivermilia cribrata*** (O.G. Costa 1861)

*Serpula cribrata* O.G. COSTA, 1861: 31, pl. 7 fig. 1.
**TYPE LOCALITY:** Mediterranean Sea, in coralligenous bottoms in North Africa and Sardinia.
**SYNONYMS:** *Josephella carenata* Zibrowius 1968.
**SELECTED REFERENCES:** *Semivermilia cribrata* — TEN HOVE, 1975: 56; BIANCHI, 1981: 87-89, fig. 32; BEN-ELIAHU & FIEGE, 1996: 10. *Josephella carenata* — ZIBROWIUS, 1968*c*: 175-177, pl. 9 figs. 23-25; ZIBROWIUS, 1969*a*: 133. [*Vermiliopsis?*] *cribrata* — ZIBROWIUS, 1972*c*: 120.
**DISTRIBUTION:** Western Mediterranean Sea. In hard substrata in *Posidonia* beds and sandy bottoms, like *Amphioxus*-sand, can be also present in detritic bottoms and in the inferior side of stones and shells in the muddy bottoms of marine caves. Between 4-150 meters.

### ***Semivermilia pomatostegoides*** (Zibrowius 1969)

*Vermiliopsis pomatostegoides* ZIBROWIUS, 1969*a*: 129-131, figs. 4-10.
**TYPE LOCALITY:** Tripolitaine (Lybia), 6.6 miles off Ras El Msenn, in a muddy sand detritic bottom with concretions of calcareous algae, at 140 meters.
**SELECTED REFERENCES:** *Semivermilia pomatostegoides* — TEN HOVE, 1975: 56; BIANCHI, 1981: 91-92, fig. 34; BAILEY-BROCK, 1985: 208-209, fig. 10; TEN HOVE, 1994: 110.
**DISTRIBUTION:** Mediterranean Sea; low Adriatic Sea; Aegean Sea; subtropical Atlantic Ocean; Red Sea; Seychelles and Amirantes; Central Pacific; Fiji. Deep circalittoral and dark marine caves.

### ***Semivermilia torulosa*** (Delle Chiaje 1822)

*Serpula torulosa* DELLE CHIAJE, 1822: pl. 49 fig. 35.
**TYPE LOCALITY:** Mediterranean Sea (Kingdom of Naples).
**SYNONYMS:** *Vermilia rugosa* Langerhans 1884.
**SELECTED REFERENCES:** *Semivermilia torulosa* — TEN HOVE, 1975: 56; BIANCHI, 1981: 84-85, fig. 30. *Vermilia rugosa* — LANGERHANS, 1884: 280-281, pl. 17 fig. 44. *Vermiliopsis rugosa* — ZIBROWIUS, 1968*b*: 377-378, pl. 1 figs. 4-6; ZIBROWIUS, 1968*c*: 132-134, pl. 4 figs. 13-15. [*Vermiliopsis?*] *torulosa* — ZIBROWIUS, 1972*c*: 118-119.
**DISTRIBUTION:** Northwestern Mediterranean Sea; Eastern Atlantic Ocean: Madeira and Canary Islands, Morocco. In many kinds of bottoms, normally attached to hard substrata like rocks, stones, or shells. Between 30-1520, mainly in the bathyal (130-1520 meters), it is rare in dark caves and low circalittoral.

## *GENUS ***Serpula*** Linnaeus 1758

*Serpula* LINNAEUS, 1758: 786.
**TYPE SPECIES:** *Serpula vermicularis* Linnaeus 1767.
**SYNONYMS:** *Helena* Castelnau 1842; *Zopyrus* Kinberg 1867; *Dipomatus* Ehlers 1913; *Paraserpula* Southward 1963; *Amphiserpula* Uchida 1978; *Crinoserpula* Uchida 1978; *Semiserpula* Imajima 1979.

**KEY TO SPECIES:**

**1a.** Collar chaetae basally minutely hirsute.....***S. planorbis***
**1b.** Collar chaetae basally dentate or smooth.....**2**

**2a (1b).** Collar chaetae with smooth shaft, without teeth, being the basal boss or fin distinguished as the point from where the thinner pointed distal portion, or blade, emerges at a different angle from the shaft; number of thoracic segments between 8-12; tube white, smooth, and cylindrical.....***S. israelitica***
**2b (1b).** Collar chaetae with well marked basal boss with teeth; number of thoracic segments 7.....**3**

**3a (2b).** Operculum shaped like a distorted bell, zygomorphic, oval in section, with about 20 marginal teeth, inserted eccentrically on its stalk, with a marked constriction at the insertion; tube red, cylindrical.....***S. lobiancoi****
**3b (2b).** Operculum of regular shape, circular in section.....**4**

**4a (3b).** Operculum shaped like a straight-sided funnel usually with more than 20 marginal teeth (can have 40-80 teeth); stalk with little or no constriction at the insertion.....**5**
**4b (3b).** Operculum shaped like a wineglass or inverted bell with about 20 marginal teeth (can vary between 15-25); stalk constricted at the insertion. Tube white or yellowish (never pink) with 5 ridges, usually toothed.....***S. concharum****

**5a (4a).** Collar chaetae with basal boss bearing 2 big teeth and some accessory smaller teeth, especially on juveniles, and serrated blade; operculum with little or no constriction, with about 40 marginal teeth; tube pink, variable but usually with 5 bluntly toothed ridges.....***S. vermicularis****
**5b (4a).** Collar chaetae with basal boss bearing one big tooth and some accessory smaller teeth, disposed laterally and internally to the big one, and smooth blade; operculum with no constriction, with 45-80 marginal teeth; tube white, smooth.....***S. cavernicola***

## ***Serpula cavernicola*** Fassari & Mòllica 1991

*Serpula cavernicola* FASSARI & MÒLLICA, 1991: 264-267, figs. 2-3, 4*a*-*b*, 5.
**TYPE LOCALITY:** Cave Maraviglia, Mazzarò Bay (Messina, Eastern Sicily, Italy), at 12 meters, in rocks, in a complete dark region of the cave.
**SELECTED REFERENCES:** *Serpula cavernicola* — SANFILIPPO & MÓLLICA, 2000: 28-32, figs. 1-2.
**REFERENCES FOR PORTUGAL:** SANFILIPPO & MÒLLICA, 2000 (Southern Portugal).
**DISTRIBUTION:** Shallow water caves in Eastern Sicily, Southern Tyrrhenian Sea, near Marseille, Gibraltar Straits, and Southern Portugal. In rocks, on the dark regions of the caves with still intense water movements. Between 6-20 meters.

## ****Serpula concharum*** Langerhans 1880

*Serpula concharum* LANGERHANS, 1880*b*: 118-119, pl. 5 fig. 35.
**TYPE LOCALITY:** Madeira, at great depth ("*In größerer Tiefe*").
**SYNONYMS:** *Serpula subquadrangula* Philippi 1844; [?] *Serpula lactea* Milne-Edwards 1849; [?] *Serpula sulfurata* Milne-Edwards 1849; *Serpula octocostata* Quatrefages 1866.
**SELECTED REFERENCES:** *Serpula concharum* — FAUVEL, 1909: 48; FAUVEL, 1914*f*: 323-324, pl. 31 figs. 19-23; RIOJA, 1917*c*: 74-76, fig. 21; FAUVEL, 1927*a*: 352-353, fig. 121*a*-*i*; NELSON-SMITH, 1967: 26, figs. 8-10; ZIBROWIUS, 1968*b*: 376; ZIBROWIUS, 1968*c*: 98-100, pl. 1 figs. 6-15, pl. 14 fig. *a*; ZIBROWIUS, 1970*a*: 120; ZIBROWIUS, 1973*a*: 21-23; BIANCHI, 1979*a*: 268-270, fig. 1*a*-*b*, table page 270; BIANCHI, 1981: 47-49, figs. 5*b*, 7*d*, 14, pl. 1 fig. 7; BEN-ELIAHU & FIEGE, 1996: 6; ÇINAR, 2006: 231-232. *Serpula (Serpula) concharum* — RIOJA, 1923*c*: 78, figs. 117-126; RIOJA, 1931: 404-406, pl. 128. *Serpula subquadrangula* — PHILIPPI, 1844: 191-192, pl. 6 fig. *C*. *Serpula octocostata* — QUATREFAGES, 1866*b*: 496-497, pl. 14 figs. 17-23. *Serpula aspera* [not Philippi 1844] — CLAPARÈDE, 1869: 179-180, pl. 19 fig. 4; IROSO, 1921: 48.
**REFERENCES FOR PORTUGAL:** ZIBROWIUS, 1970*a* (Cape São Vicente; Setúbal Canyon); SALDANHA, 1974 (coast of Arrábida); SALDANHA, 1995 (Portugal); RAVARA, 1997 (off Aveiro); BOAVENTURA *et al.*, 2006 (Ancão, Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 26 (A.4086)**, north Sines, 140 m, sand: 1 specimen, without ventral dark brown spot; tube white, without marked rows. **St. 175 (A.3935)**, off Sines, 205 m, gravelly sand: 1 small specimen, about 3 mm long; branchial crown loose; bayonet chaetae with 2 subapical teeth; dark brown spot present on ventral side of thorax; tube missing. **St. 176 (A.3934*A*)**, off Sines, 157 m, sand: 1 small specimen, 2.5 mm long, with about 36 abdominal chaetigers, in poor condition; tube missing; verticil with about 30 radii; bayonet chaetae with 2 subapical teeth; dark brown spot absent. **St. 210 (A.3902)**, off Porto Covo, 163 m, sand: 1 small specimen, 4 mm long and with about 30 abdominal

chaetigers; bayonet chaetae with 2 big subapical teeth and numerous small teeth; verticil with 17 radii; dark brown spot absent; tube missing. **St. 232**, NW Vila Nova de Milfontes, 18 m, rock: 1 specimen with tube; worms broken in two, just at the end of the thorax; operculum with a constriction at the base, where it connects with the peduncle; funnel with 16 big and rounded radii; bayonet chaetae with 2-3 subapical teeth; dark brown spot present at the ventral side of the thorax; tube white, with five longitudinal rows. **FAUNA 1 — St. 66*A***, Gulf of Cádiz, off Cádiz, 25-28 m, muddy sand: 2 specimens, incrusted in the tube of a *Serpula vermicularis*; specimens still inside their own tubes; one of the specimens losted the crown, but it is possible to see the dark brown spot in the anterior region; tubes white, with several longitudinal rows.

**DISTRIBUTION:** Eastern Atlantic, in the region delimited by the British Channel, NW Africa, Madeira and Azores Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; West Africa, from Morocco to the Gulf of Guinea; Japan. Very common in caves, in the *coralligène*, and on other hard bottoms and detritic bottoms. From upper infralittoral, where it is more abundant, to the bathyal.

**REMARKS:** Two different tube forms of *S. concharum*, occurring at different bathymetric depths, are known, at least from the Levant coast of the Mediterranean Sea (BEN-ELIAHU & TEN HOVE, 1992). BEN-ELIAHU & FIEGE (1996), following personal communications by H. Zibrowius, designated them provisionally as ***Type A*** and ***Type B***, with both forms having the bell-shaped operculum with a constriction at the base. ***Type A*** tube has the surface rounded, with 5 similar keels, equidistant and more or less dentate, occurring at greater depths (10-200 meters); ***Type B*** tube has a flattened upper surface, massive smooth keels lateral to median keel which may be hardly visible, smaller lower lateral keels appearing dentate, being the superficial appearance of 3 keels, and occurring in shallower waters (1-40 meters; 165 meters?) (BEN-ELIAHU & FIEGE, 1996; see also table 6 in the same paper). Besides, and according to H. ZIBROWIUS (pers. comm., July 1998) and H. ZIBROWIUS pers. comm. *in* BEN-ELIAHU & FIEGE, (1996), the shallow water type presents a dark spot on the ventral side. H. TEN HOVE (pers. comm. *in* BEN-ELIAHU & FIEGE, 1996) regards *Serpula concharum* as a species complex.

*Serpula subquadrangula* Philippi 1844 seems to be a senior synonym of *Serpula concharum* Langerhans 1880, having priority over the second name. However, it is quite possible that it should be considered as a *nomen oblitum*, according to the rules of the International Code of Zoological Nomenclature. No attempt is made here in order to solve this case.

## ***Serpula israelitica*** Amoureux 1977

*Serpula (Paraserpula) israelitica* AMOUREUX, 1977*a*: 1056-1058, fig. 2.

**TYPE LOCALITY:** The species was described with base on 5 specimens collected at 4 stations. AMOUREUX (1977*a*) apparently designated as holotype the only specimen that was entire and in good condition, but didn't state in which station it was collected. The collection data of the stations is as follows: Haïfa (Mediterranean coast of Israel): a) in a bottom of muddy sand with biogenic blocks and *Caulerpa scalpelliformis*, at 45 meters; b) bottom of mud, with biogenic blocks and some algae, at 50 meters; c) bottom of mud at 60-63 meters, with few blocks and no vegetation; d) bottom of mud with numerous blocks and sponges, at 65 meters.

**SELECTED REFERENCES:** *Serpula israelitica* — BEN-ELIAHU, 1991*b*: table 1; BEN-ELIAHU & TEN HOVE, 1992: table 3; BEN-ELIAHU & FIEGE, 1996: 6-7; SANFILIPPO, 2003*b*: 47. *Semiserpula israelitica* — TEN HOVE & AARTS, 1986: 35.

**DISTRIBUTION:** Off Israel (Eastern Mediterranean); Ionian Sea; Canary Islands; Cape Verde Archipelago. Hard substrata, mainly located in muddy bottoms. From a cave and lower circalittoral depths, registered between 45-110 meters.

## ****Serpula lobiancoi*** Rioja 1917

*Serpula Lo-Biancoi* RIOJA, 1917*c*: 77-79, fig. 22.

**TYPE LOCALITY:** Cierzo and Ramo, Santander (Cantabric Sea, Northern Spain).

**SELECTED REFERENCES:** *Serpula Lo-Biancoi* — FAUVEL, 1927*a*: 353-355, fig. 121*k-r*. *Serpula lobiancoi* — NELSON-SMITH, 1967: 27, fig. 11; ZIBROWIUS, 1968*c*: 100-102, pl. 1 figs. 16-23, pl. 14 fig. *d*; ZIBROWIUS, 1970*a*: 120-121; BIANCHI, 1981: 49-50, figs. 7*e-f*, 15. *Serpula (Serpula) Lo Biancoi* — RIOJA, 1923*c*: 81, figs. 127-134; RIOJA, 1931: 406, pls. 129-130.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Setúbal Canyon); ZIBROWIUS, 1970*a* (Setúbal Canyon; previous records: Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 74 (A.2558)**, off Carrapateira, 67 m, sand: 1 specimen in very poor condition, without branchial crown and operculum; body very long and thin, being rolled up; bayonet

chaetae with 2-3 big subapical teeth and numerous smaller teeth; tube pinkish with small, thin dark stripes.
**DISTRIBUTION:** Atlantic coasts of Portugal and Spain; Mediterranean Sea; Adriatic Sea; Aegean Sea; off Morocco. In hard surfaces as shells and stones, being common in the *coralligène*. Present from the infralittoral to about 300 meters.

## ***Serpula planorbis*** (Southward 1963)

*Paraserpula planorbis* SOUTHWARD, 1963*b*: 573-576, fig. 2.
**TYPE LOCALITY:** Northeast Atlantic, southwestern the British Isles, 48º33'N, 10º07'W, 1220-1280 meters, attached to stones.
**DISTRIBUTION:** Northeast Atlantic, continental slope SW the British Isles and Brittany, attached to stones. Between 1030-1370 meters.

## ****Serpula vermicularis*** Linnaeus 1767

*Serpula vermicularis* LINNAEUS, 1767: 1267.
**TYPE LOCALITY:** Western Europe.
**SYNONYMS:** *Serpula echinata* Gmelin *in* Linnaeus 1791; *Serpula imbutiformis* Delle Chiaje 1841; *Serpula aspera* Philippi 1844; *Serpula pallida* Philippi 1844; *Serpula venusta* Philippi 1844; *Serpula contortuplicata* Grube 1862; *Serpula Philippi* Mörch 1863; *Serpula interrupta* Quatrefages 1866; *Serpula octocostata* Quatrefages 1866; *Serpula Crater* Claparède 1870.
**SELECTED REFERENCES:** *Serpula vermicularis* — LANGERHANS, 1880*b*: 118, pl. 5 fig. 34; SAINT-JOSEPH, 1894: 328-335, pl. 12 figs. 358-365; FAUVEL, 1909: 47-48; FAUVEL, 1910: 691-693, figs. 1-2; WOLLEBÆK, 1912: 116-117, pl. 45 figs. 1-5, pl. 46 figs. 1-3, pl. 50 figs. 1-3; FAUVEL, 1914*f*: 320-322, pl. 31 fig. 24; MCINTOSH, 1923*a*: 353-361, text-fig. 167, pl. 116 fig. 4-4*a*, pl. 121 fig. 7-7*a*, pl. 130 fig. 10-10*c*, pl. 131 fig. 3-3*a*; FAUVEL, 1927*a*: 351-352, fig. 120*a-q*; WESENBERG-LUND, 1950*a*: 59-60, chart 64; WESENBERG-LUND, 1953*b*: 4-5, fig. 1; NELSON-SMITH, 1967: 24, figs. 5-7; ZIBROWIUS, 1968*b*: 375-376; ZIBROWIUS, 1968*c*: 96-98, pl. 1 figs. 1-5; ZIBROWIUS, 1970*a*: 120; ZIBROWIUS, 1973*a*: 18-21; BIANCHI, 1981: 45-47, figs. 1, 5*a*, 7*m*, 13, pl. 1 figs. 4, 16; KUPRIYANOVA & RZHAVSKY, 1993: fig. 1*C-D*, table 1; HARTMANN-SCHRÖDER, 1996: 563-565, fig. 275; KIRKEGAARD, 1996: 420-422, fig. 240; KUPRIYANOVA & JIRKOV, 1997: 227-229, fig. 11, map. 11; KUPRIYANOVA, 1999: table 1; ÇINAR, 2006: 232, fig. 7*F*. *Serpula (Serpula) vermicularis* — RIOJA, 1923*c*: 73, figs. 107-116; RIOJA, 1931: 400-402, pls. 125-127. *Serpula vermicularis* var. *echinata* — SAINT-JOSEPH, 1906: 245. *Serpula* cf. *vermicularis* — BEN-ELIAHU & FIEGE, 1996: 5 [at least in part]. *Serpula vermicularis?* — PHILIPPI, 1844: 191, pl. 6 fig. *A*. *Serpula echinata* — GMELIN *in* LINNAEUS, 1791: 3744; PHILIPPI, 1844: 190. *Serpula imbutiformis* — DELLE CHIAJE 1841*a*: 70. *Serpula aspera* — PHILIPPI, 1844: 191, pl. 6 fig. *B*; CLAPARÈDE, 1869: 179-180, pl. 19 fig. 4; LO BIANCO, 1893: 82-83. *Serpula pallida* — PHILIPPI, 1844: 190. *Serpula venusta* — PHILIPPI, 1844: 192. *Serpula Philippi* — MÖRCH, 1863: 385; CLAPARÈDE, 1869: 178-179, pl. 31 fig. 2; LO BIANCO, 1893: 82; IROSO, 1921: 48. *Serpula Crater* — CLAPARÈDE, 1870: 525-527, pl. 13 fig. 2. *Serpula crater* — SOULIER, 1902: 145-151, fig. 8. *Serpula infundibulum* [not Gmelin *in* Linnaeus 1791] — DELLE CHIAJE, 1828: 226; LO BIANCO, 1893: 83; IROSO, 1921: 48 [according to ZIBROWIUS (1972*c*), *Serpula infundibulum* Delle Chiaje 1828 = *Vermiliopsis labiata* (O.G. Costa 1861)].
**REFERENCES FOR PORTUGAL:** NOBRE, 1903*a* (Matosinhos; Póvoa de Varzim); FAUVEL, 1909 (off Lagos); FAUVEL, 1914*f* (off Lagos); CARVALHO, 1929 (Sines; Buarcos); NOBRE, 1937 (Setúbal); BELLAN, 1960*a* (Cape Roca; Cascais; Cape Espichel, Setúbal Canyon; Cape São Vicente); ZIBROWIUS, 1970*a* (Setúbal Canyon; previous records: Portugal); SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (western continental shelf of Algarve); MONTEIRO-MARQUES, 1979 (southern continental shelf of Algarve); MONTEIRO-MARQUES *et al.*, 1982 (Cape Papoa); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: Ria Formosa; continental shelf of Algarve; Mira Estuary); SALDANHA, 1995 (Portugal); BOAVENTURA *et al.*, 2006 (Ancão, Algarve); MACHADO & CANCELA DA FONSECA, 2007 (Algarve).
**MATERIAL: FAUNA 1 — St. 4*A***, Alborán Sea, between Rincón de la Victoria and Vélez-Málaga, 60 m, sand with mud: 1 specimen, still inside the tube; tube pinkish, with a more pronounced longitudinal row. **St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 1 specimen in good condition, without tube. **St. 26*A***, Alborán Sea, Djibouti Bank, off Nerja, 296-297 m, sand and mud: 1 specimen, about 25 mm long, and with about 100 abdominal chaetigers; operculum as described, funnel with about 60 radii; transition operculum-peduncle seems to be gradual; bayonet chaetae with 2 subapical teeth; dorsal region of the abdomen with a mass of what seems to be eggs; tube pinkish, with circular section and several longitudinal ridges, with the middorsal one more pronounced. **St. 43*A***, Gulf of Cádiz, near Rota, 20-24

m, rocks with white coral: 1 very small specimen, about 2 mm long; bayonet chaetae with 2-3 subapical teeth; tube missing. **St. 55*A***, Gulf of Cádiz, off Cape Trafalgar, 38-42 m, gravel: 1 complete specimen; half crown, with operculum, loose; tube missing. **St. 66*A***, Gulf of Cádiz, off Cádiz, 25-28 m, muddy sand: 1 specimen; tube pinkish, with a more pronounced longitudinal ridge; part of the tube with specimens of *Serpula concharum* attached was kept in a separate vial. **Unknown station**, polychaetes associated to *Flustra* sp. ("*Poliquetos asociados a* Flustra *sp.*"): 2 specimens, one still inside the tube; the tube is pinkish, with about 6 longitudinal keels, weakly marked.

**DISTRIBUTION:** Stated to be cosmopolitan. From Greenland to Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Azores; Madeira; Porto Santo Island; Canary Islands; from Morocco to Angola; Cape Verde Archipelago; São Tomé and Principe; South Africa; Persian Gulf; Red Sea; Indian Ocean; Australia; Antarctic Ocean. In hard bottoms of all kinds, and detritic bottoms. From the superior limit of the infralittoral to 2505 meters.

**REMARKS:** *Serpula vermicularis* sensu lacto is considered as being a complex of species (H. TEN HOVE, pers. comm. *in* BEN-ELIAHU & FIEGE, 1996). The Levant populations studied by BEN-ELIAHU & FIEGE (1996) showed some differences both in colour and shape of the tubes, which could be echinate or non-echinate, as well as salmon pink or white, but those authors could not state whether that differences were of intra- or interspecific level. H. ZIBROWIUS (pers. comm., July 1998) also considers *S. vermicularis* as a complex of species, suggesting that *Serpula echinata* Gmelin *in* Linnaeus 1791 could be a valid species, very close to *S. vermicularis*, being represented by the echinate tubes.

Besides, recent taxonomic studies have shown that the presumed cosmopolitan status of the species is unjustified (KUPRIYANOVA, 1999, and references therein).

## GENUS ***Simplaria*** Knight-Jones 1984

*Simplaria* KNIGHT-JONES, 1984: 112.

**TYPE SPECIES:** *Spirorbis pseudomilitaris* Thiriot-Quiévreux 1965.

**SYNONYMS:** *Simplicaria* Vine, Bailey-Brock & Straughan 1972 [not Suter 1891 (Gastropoda)].

**REMARKS:** The authorship of the subgenus *Simplicaria* (later raised to genus and preoccupied in Gastropoda) is normally attributed to KNIGHT-JONES (1973), but its publication was preceded by VINE, BAILEY-BROCK & STRAUGHAN (1972).

### ***Simplaria pseudomilitaris*** (Thiriot-Quiévreux 1965)

*Spirorbis pseudomilitaris* THIRIOT-QUIÉVREUX, 1965: 495-499, figs. 1-3, table 2.

**TYPE LOCALITY:** The species was described with base on specimens collected at three different locations, all of them at the Mediterranean coast of France: 1) Villefranche-sur-Mer, in front of the Station Zoologique, on stones, at 2-3 meters, where it was very numerous; 2) Toulon Harbour, attached to "wild" mussels, at a depth not exceeding 2 meters, at a reduced number; 3) Tamaris-sur-Mer, in front of the Station de Biologie, fixed on stones and irons, at a depth not exceeding 2 meters, at a reduced number.

**SYNONYMS:** *Spirorbis regalis* Bailey *in* Bailey & Harris 1968.

**SELECTED REFERENCES:** *Spirorbis (Laeospira) pseudomilitaris* — ZIBROWIUS, 1968*c*: 207. *Spirorbis (Pileolaria) pseudomilitaris* — BAILEY, 1969*a*: 369-371, fig. 5, table 1. *Pileolaria pseudomilitaris* — BIANCHI, 1979*b*: 109, fig. 1*a*; BECKWITT, 1981: 239, figs. 1-2, tables 1-3; BIANCHI, 1981: 160-162, figs. 7*a*, 60, pl. 1 fig. 8. *Pileolaria (Simplicaria) pseudomilitaris* — VINE, BAILEY-BROCK & STRAUGHAN, 1972: 158-161, figs. 2*d*, 3*e*, 6; KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN, 1974: 126-128, fig. 9; VINE, 1977: 42, figs. 21*e*, 24, 25*a*, tables 2, 4, 6; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 441, fig. 5*H*. *Simplaria pseudomilitaris* — KNIGHT-JONES & KNIGHT-JONES, 1995: 95-96. *Spirorbis regalis* — BAILEY *in* BAILEY & HARRIS, 1968: 172-174, figs. 3*f*, 11, table 1. *Spirorbis berkeleyanus* [not Rioja 1942] — HARRIS, 1968*b*: 191, 194-196, figs. 3-4, table 2 [check KNIGHT-JONES & KNIGHT-JONES, 1980: 462].

**DISTRIBUTION:** Considered to be cosmopolitan. Mediterranean Sea; Adriatic Sea; Aegean Sea; Madeira; Canary Islands; Senegal; Florida; West Indies; Japan; Australia; New Zealand; Hawaiian Chain; Galápagos Islands; from California to Panama; Chile. On rocks, stones, and mussels, can occur in harbours and coastal lagoons. Shallow waters, normally intertidal to the first 10 meters.

**REMARKS:** This species presents opercular dimorphism, with one type of primary operculum, in which the opercular plate is concave, with an eccentric peg talon.

## GENUS ***Spiraserpula*** Regenhardt 1961

*Spiraserpula* REGENHARDT, 1961: 44.
**TYPE SPECIES:** *Spiraserpula spiraserpula* Regenhardt 1961.

### ***Spiraserpula massiliensis*** (Zibrowius 1968)

*Serpula massiliensis* ZIBROWIUS, 1968*c*: 102-105, pl. 1 figs. 24-37, pl. 14 fig. *d*.
**TYPE LOCALITY:** The species was collected at several stations around Marseille (South France), at the Islands of Port Cros, and at Villefranche, by ZIBROWIUS (1968*c*), who apparently didn't designate a holotype. The description of the species was based on specimens collected at the following locations: in all studied marine caves, mainly in the lighter regions, at shallow depth (to about 10 meters), and subject, at least temporarily, to a certain disturbance [marine caves of: Plane; unnamed marine cave at the rocky cliff of Grand Conglu; marine cave of the Station Marine d'Endoume; Petit Mona, in Rouet; Veyron; l'Oule; Port Miou; Farillons; Callelongue; Riou; Moyade; G. Congloué; Capellan; Figuier; Triperie]; tunnel of Niolon; between the Empereurs, of Riou, in 40-45 meters, in *coralligène*; at the rocks in front of the *calanques* of Envau and Port Pin, in *coralligène* with *Halimeda tuna*, at 30 meters; in shells of *Spondylus gaederopus* L., near Petit Conglu, at 35-40 meters; in hard bottoms of the Islet of Gabinière, at the Island of Port Cros, in 22 meters.
**SELECTED REFERENCES:** *Serpula massiliensis* — ZIBROWIUS, 1969*a*: 126-127; BIANCHI, 1979*a*: 270; BIANCHI, 1979*b*: 102, fig. 1*e*; BIANCHI, 1981: 51-52, figs. 7*g*, 16. *Spiraserpula massiliensis* — PILLAI & TEN HOVE, 1994: 49-54, figs. 3 *D*, 4, pl. 2 figs. *A-D*, tables 1-2.
**REFERENCES FOR PORTUGAL:** PILLAI & TEN HOVE, 1994 (Sagres).
**DISTRIBUTION:** Adriatic Sea; Mediterranean Sea; Portugal; west coast of Sahara; Madeira Archipelago; Gorringe Bank. Typical from caves, can occur also in the infra- and circalittoral, attached to hard grounds. Between 0.5-60 meters, rarely down to about 200 meters.

## *GENUS ***Spirobranchus*** Blainville 1818

*Spirobranche* BLAINVILLE, 1818: 79.
**TYPE SPECIES:** *Serpula gigantea* Pallas 1766.
**SYNONYMS:** *Vermilia* Lamarck 1818; *Cymospira* Blainville 1828; *Pomatoceropsis* Gravier 1905; *Pomatoceropsis* Holly 1935 [homonym]; *Pseudopomatoceros* Holly 1936; *Conopomatus* Pillai 1960; *Olga* Jones 1962; *Temporaria* Straughan 1967.
**REMARKS:** The definition of this genus was emended by TEN HOVE & NISHI (1996).

**KEY TO SPECIES:**

**1a.** Opercular plate with a circular, calcareous basal plate, which may be flat, concave, convex, or even conical; this plate bears on its surface 3 groups of dichotomously branched spines, which can appear only as 3 spines, especially in the forms with a conical operculum; the position of the spines is always the same: 1 or 1 group medio-ventrally and 2 or 2 groups latero-dorsally; the most common form appears to have 6 or 8 spines; opercular peduncle with wide and broad wings, lobed or fringed; tubes reddish or pink (but possibly colour fades in preserved material), with a more or less serrated ridge (a secondary ridge may be present), ending in a median tooth-like projection over the mouth of the tube....***S. tetraceros***
**1b.** No spines or groups of spines are present at the opercular plate.....**2**

**2a (1b).** Opercular plaque plane or concave; opercular peduncle with large and wide wings, normally with numerous fringes at the tip; tube rose and very sculpted; total length can be more than 40 mm.....***S. lima***
**2b (1b).** Opercular plaque always convex, often with two obtuse tubercles on the dorsal margin, but also conical or horn-shaped; opercular peduncle with narrow and sharpen wings, rarely bifid; tube white, with three keels and with a series of lateral alveoli; total length up to 15 mm.....***S. polytrema****

### ***Spirobranchus lima*** (Grube 1862)

*Serpula (Placostegus) lima* GRUBE, 1862*b*: 63.

**TYPE LOCALITY:** Losinj (= Lussin) Island, at the south of the Gulf of Rijeka (= Fiume), Croatia, Adriatic Sea.
**SELECTED REFERENCES:** *Serpula (Placostegus) lima* — GRUBE, 1863: 65-66, pl. 6 fig. 9. *Spirobranchus lima* — BELLAN & ZIBROWIUS, 1968: 204-205; ZIBROWIUS, 1968*c*: 154-157, pl. 6 figs. 29-32, pl. 7 figs. 1-9, pl. 14 figs. *c*, *e*; BIANCHI, 1980: 89-91, fig. 4; BIANCHI, 1981: 105-106, fig. 40.
**DISTRIBUTION:** NW Mediterranean Sea; Northern Adriatic Sea. In marine caves, in the *coralligène*, detritic bottoms, in rocks, stones, algae, and other hard surfaces. Between 12-66 meters.

## ****Spirobranchus polytrema*** (Philippi 1844)

*Vermilia polytrema* PHILIPPI, 1844: 194, pl. 6 fig. *N*.
**TYPE LOCALITY:** Mediterranean Sea.
**SYNONYMS:** *Vermilia polytrema* var. *digitata* Langerhans 1884.
**SELECTED REFERENCES:** *Vermilia polytrema* — LANGERHANS, 1880*b*: 119-120, pl. 5 fig. 37. *Pomatostegus polytrema* — SAINT-JOSEPH, 1906: 252, pl. 5 figs. 118-119; FAUVEL, 1909: 67-68; FAUVEL, 1914*f*: 348-350, pl. 30 figs. 9-11; RIOJA, 1917*c*: 87-89, fig. 25; RIOJA, 1923*c*: 101, figs. 183-192; FAUVEL, 1927*a*: 369-370, 127*l-u*; RIOJA, 1931: 430-432, pl. 143; FAUVEL, 1953*c*: 465, fig. 245*l-q*; NELSON-SMITH, 1967: 42-43, figs. 36-38. *Spirobranchus polytrema* — ZIBROWIUS, 1968*b*: 380, pl. 1 figs. 10-12; ZIBROWIUS, 1968*c*: 157-160, pl. 7 figs. 10-24; ZIBROWIUS, 1973*a*: 65-66; BIANCHI, 1981: 107-109, figs. 7*o*, 41, pl. 1 fig. 6; BEN-ELIAHU & TEN HOVE, 1996: 29, fig. 10*A*. *Temporaria polytrema* — STRAUGHAN, 1967*a*: 239. *Vermilia polytrema* var. *digitata* — LANGERHANS, 1884: 282, pl. 17 fig. 48.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); MONTEIRO-MARQUES, 1987 (as *Pomatostegus polytrema*; continental shelf of Algarve); DEXTER, 1992 (as *Pomatostegus polytrema*; previous records: continental shelf of Algarve); SALDANHA, 1995 (Portugal); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 223 (A.3894)**, off Porto Covo, 38 m, schists: 1 small, complete specimen, about 4 mm long, in poor condition; operculum with a small protuberance; special chaetae of first chaetiger without subapical big teeth, but with several small teeth instead; unicni with a single vertical row of teeth. **St. 236**, NW Vila Nova de Milfontes, 34 m, rock: 3 specimens, two of which are still inside the tubes; bayonet chaetae as described. **FAUNA 1 — St. 18*A***, Alborán Sea, Alborán Island, 45-52 m, stones: 1 specimen in poor condition; operculum with a convex calcareous plaque; bayonet chaetae as described.
**DISTRIBUTION:** Northeastern Atlantic Ocean; Bay of Biscay; Azores; Madeira; Canary Islands; Gorringe Bank; Morocco; Cape Verde Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea. Attached to superficial algae and calcareous algae, is present also in *Posidonia* beds, in the *coralligène*, artificial substrata, or marine caves, being able to form concretions of tubes. Intertidal to 1940 meters.

## ***Spirobranchus tetraceros*** (Schmarda 1861)

*Pomatoceros tetraceros* SCHMARDA, 1861: 30, pl. 21 fig. 179.
**TYPE LOCALITY:** New South Wales, Australia.
**SYNONYMS:** *Serpula multicornis* Grube 1862; *Spirobranchus dendropoma* Mörch 1863; *Spirobranchus giganteus* var. *tricornis* Mörch 1863; *Spirobranchus semperi* Mörch 1863; *Serpula quadricornis* Grube 1878; *Serpula tricornigera* Grube 1878; *Pomatoceros elaphus* Haswell 1885; *Pomatoceropsis Coutierei* Gravier 1905; [?] *Spirobranchus cervicornis* Willey 1905; *Spirobranchus semperi* var. *acroceros* Willey 1905; [?] *Pomatoceropsis Jousseaumei* Gravier 1906; *Spirobranchus semperi* var. *aceros* Pixell 1913; [?] *Spirabranchus spinosus* Moore 1923; *Spirobranchus giganteus* var. *arabica* Monro 1937; *Spirobranchus semperi* var. *papillosus* Wesenberg-Lund 1949; *Spirobranchus ceylonensis* Pillai 1960; *Conopomatus acuiconus* Pillai 1960; *Conopomatus sectoconus* Pillai 1960.
**SELECTED REFERENCES:** *Spirobranchus tetraceros* — JOHANSSON, 1918: 7-10, fig. 2; DAY, 1967: 803-804, fig. 38.3.*l-n*; TEN HOVE, 1970*b*: 3-14, 47-49, text-figs. 1-27, plate 1, plate 5 figs. *C*, *F-G*; IMAJIMA, 1979: 177-178, fig. 8; ZIBROWIUS, 1979*b*: 133-134; IMAJIMA, 1982*b*: 48; IMAJIMA & TEN HOVE, 1984: 51-52; BAILEY-BROCK, 1985: 204-207, figs. 7-8; IMAJIMA & TEN HOVE, 1986: 8; BEN-ELIAHU, 1991*b*: 520, 522, figs. 2-3, tables 1, 4; BEN-ELIAHU & TEN HOVE, 1992: 45, 52, 53, tables 2, 4-6; ÇINAR, 2006: 232, fig. 9. *Spirobranchus tetlaceros* [sic] — NISHI, 1996*a*: 315-316, fig. 1*l*. *Serpula multicornis* — GRUBE, 1862*b*: 67, fig. 3. *Serpula (Pomatoceros) multicornis* — GRUBE, 1868*c*: 639-640; GRUBE, 1870*e*: 519. *Spirobranchus multicornis* — FAUVEL, 1911*a*: 430-433, pl. 21 figs. 59-60. *Spirobranchus Semperi* — MÖRCH, 1863: 405-406, pl. 11 figs. 24-25; AUGENER, 1913*b*: 300-302; AUGENER, 1914: 148-152. *Spirobranchus semperi* — WILLEY, 1905: 318; PIXELL, 1913: 82; WESENBERG-LUND, 1949: 359, fig. 47*b*; PILLAI, 1960: 17-18, fig. 6*E-I*; STRAUGHAN, 1967*a*: 246-247. *Spirobranchus semperi* var.

*acroceros* — WILLEY, 1905: 318, pl. 7 fig. 193; PIXELL, 1913: 82-83; WESENBERG-LUND, 1949: 359-360, fig. 47*c*; PILLAI, 1960: 18-20, fig. 7*A-C*. *Spirobranchus semperi* var. *papillosus* — WESENBERG-LUND, 1949: 361, fig. 47*a*. *Spirobranchus dendropoma* — MÖRCH, 1863: 406-407. *Spirobranchus dendropomus* — BENEDICT, 1887: 553, pl. 24 figs. 57-58, pl. 25 figs. 50-56. *Serpula tricornigera* — GRUBE, 1878*c*: 273-275, pl. 15 fig. 7. *Spirobranchus tricornigerus* — PILLAI, 1960: 20, fig. 7*D-G*. *Serpula quadricornis* — GRUBE, 1878*c*: 275-276, pl. 15 fig. 6. *Serpula (Pomatoceros) tricornis* — GRUBE, 1881: 115-116. *Spirobranchus tricornis* — STRAUGHAN, 1967*a*: 244, fig. 14*b-d*; STRAUGHAN, 1967*c*: 39. *Pomatoceros elaphus* — HASWELL, 1885*a*: 663-665, pl. 31 fig. 7, pl. 32 figs. 9-10. *Pomatoceropsis Coutierei* — GRAVIER, 1905*b*: 445-448. *Pomatoceropsis Coutierei* — GRAVIER, 1906*d*: pl. 8 figs. 294-299. *Pomatoceropsis Contierei* — GRAVIER, 1908: 125-130, text-figs. 482-487. *Spirobranchus contieri* — PIXELL, 1913: 83-84, pl. 9 fig. 8. *Spirobranchus contierei* — MONRO, 1933*d*: 1080-1081, fig. 24. *Spirobranchus coutieri* — STRAUGHAN, 1967*b*: 224, fig. 1*a-d*. *Spirobranchus giganteus coutieri* — LAUBIER, 1966*d*: 18-19. [?] *Spirobranchus cervicornis* — WILLEY, 1905: 317-318, pl. 7 figs. 188-192. [?] *Pomatoceropsis Jousseaumei* — GRAVIER, 1906*a*: 114; GRAVIER, 1906*d*: pl. 8 figs. 292-293; GRAVIER, 1908: 130-132, figs. 488-491. *Spirobranchus semperi* var. *aceros* — PIXELL, 1913: 83. [?] *Spirabranchus spinosus* — MOORE, 1923: 248-250, pl. 18 fig. 47. *Spirobranchus giganteus* var. *tricornis* — MÖRCH, 1863: 404. *Spirobranchus giganteus* var. *arabica* — MONRO, 1937*c*: 317, fig. 28. *Spirobranchus ceylonensis* — PILLAI, 1960: 20-21, fig. 7*H-K*. *Conopomatus acuiconus* — PILLAI, 1960: 21-23, fig. 8*A-E*. *Conopomatus sectoconus* — PILLAI, 1960: 23, fig. 8*F-I*.

**DISTRIBUTION:** Circumtropical (apparently absent from the west coast of Africa and the Mid-Pacific Islands); Caribbean Sea; Natal; Red Sea; Persian Gulf; South Arabian coast; Zanzibar; Gulf of Manaar; Sri Lanka; Banda Sea; Philippine Islands; Malaysian Archipelago; Australia; Japan; Fiji; Solomon Islands; tropical Pacific coast of America; [?] California. In corals, sponges on mangrove roots, on *Rhizophora* on sandy beaches, on dead shells, as biofouling of Bivalvia, and as port fouling. Intertidal to about 80 meters. Levant Mediterranean Basin and Aegean Sea (Lebanon, Israel, Rhodes, Turkey), as a Lessepsian migrant, between 0.1-27 meters, on artificial and concretionary substrates, and as part of the serpulid fouling assemblage on Bivalvia (*Pinctada radiata* and *Pteria occa*).

**REMARKS:** The species was recorded by LAUBIER (1966*d*) in the Eastern Mediterranean, for the region of Beirut (Lebanon), at 25-30 meters deep, where it arrived probably as a Lessepsian migrant. This record was later confirmed by TEN HOVE (1970*b*). It was also recorded by ZIBROWIUS (1979*b*: 133) as a fouler in the hull of a ship at the harbour of Toulon (South France). The sampled ship was the French aircraft carrier *Foch*, after spending seven months at the western Indian Ocean, and arriving to the Mediterranean through the Suez Canal. Finally, it was found in the Mediterranean coast of Israel (BEN-ELIAHU & TEN HOVE, 1992).

## GENUS ***Spirorbis*** Daudin 1800

*Spirorbis* DAUDIN, 1800: 37.

**TYPE SPECIES:** *Spirorbis borealis* Daudin 1800.

**SYNONYMS:** *Laeospira* Caullery & Mesnil 1897.

**REMARKS:** The type species of the genus is normally referred as being *Spirorbis borealis* Daudin 1800 (*e.g.*: HARTMAN, 1959*a*; FAUCHALD, 1977*a*). However, KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN (1974) state that the type species is *Serpula spirorbis* Linnaeus 1758.

KNIGHT-JONES, KNIGHT-JONES & LLEWELLYN (1974) amended the definition of the genus

### KEY TO SUBGENERA AND SPECIES:

**NOT INCLUDED IN THE KEY:** *Spirorbis corrugatus* (Montagu 1803); *Spirorbis mediterraneus* Caullery & Mesnil 1897.

**1a.** Coiling of the tube dextral.....**SUBGENUS *Spirorbella*.....*S. (Spirorbella) marioni***
**1b.** Coiling of the tube sinistral.....**2**

**2a (1b).** Collar undivided mid-dorsally, forming a tunnel over anterior end of faecal groove.....**SUBGENUS *Velorbis*.....3**
**2b (1b).** Collar divided mid-dorsally, not fused over the faecal groove.....**SUBGENUS *Spirorbis*.....4**

**3a (2a).** Opercular plate flat, with a cylindrical talon extending almost into the peduncle, with a membranous wing running down one side of the operculum and peduncle; collar chaetae with a very small notch in the finely serrated wing; tube without keels or other ornament.....***S. (Velorbis) sarsiae***
**3b (2a).** Opercular plate oblique and often strongly concave at the region of the peduncle, with no talon except for proximal thickening at base of concavity, but sometimes much thicker so that distal concavity becomes more shallow; collar chaetae with distinctly toothed fin or basal boss; tube somewhat square in cross-section, because of two widely separated longitudinal ridges, lined by transparent, thin, but tough membrane, which continues to enclose the body when the tube is broken.....***S. (Velorbis) gesae***

**4a (2b).** Opercular plate with a massive talon extending proximally down the opercular stalk for a distance equal to or exceeding the radius of the plate.....**6**
**4b (2b).** Opercular plate with talon absent or rudimentary, protruding less than half radius of the plate.....**5**
**4c (2b).** Opercular plate deeply cupped terminally, with a submarginal circular canal and a calcified opercular plate resembling an ice-cream cornet or a pierrot's cap; a new plate can be formed below the old one, so that occasional specimens can be found with two caps, one within the other; tube often partially uncoiled; collar chaetae with cross-striations.....***S. infundibulum***

**5a (4b).** Tube sometimes with peripheral attachment flange; generally on *Fucus*; body pale greenish-brown; abdominal chaetae with heels not protruding beyond line of shaft.....***S. spirorbis***
**5b (4b).** Tube never with peripheral flange; on stones or 'lithothamnion'; body red; abdominal chaetae with protruding heels.....***S. rupestris***

**6a (4a).** Talon bilobed or like horse hoof; tube without longitudinal ridges; usually on algae.....**7**
**6b (4a).** Talon rounded or pointed terminally; tube usually with longitudinal ridges; on stones or shells...**8**

**7a (6a).** Usually on *Corallina*; dorsal collar flaps only slightly asymmetrical; larvae with two pairs of eyes.....***S. corallinae***
**7b (6a).** Usually on other algae; dorsal collar flap on convex side much larger than on other side; larvae with one pair of eyes, lacking the anterior pair, having insted two groups of much smaller reddish granules.....***S. inornatus***

**8a (6b).** Tube with two longitudinal ridges, one nearly peripheral and one toward the inner edge of the whorl, giving the tube a somewhat quadrangular cross-section; the largest abdominal torus lies posteriorly; all collar chaetae with gaps between fin and blade; abdominal chaetae without heels; collar chaetae without cross-striations.....***S. strigatus***
**8b (6b).** Tube with three longitudinal ridges, normally well marked; the largest abdominal torus doesn't lie posteriorly; gaps between fin and blade of collar chaetae normally present (can be absent in *S. tridentatus*); abdominal chaetae with or without heels; collar chaetae with or without cross-striations.....**9**

**9a (8b).** Collar chaetae blades bear cross-striations; collar chaetae always with gaps between fin and blade; abdominal chaetae without heels; talon usually with three pointed processes, two lateral and one proximal; last whorl of tube widens gradually, leaving about a quarter of the previous whorl uncovered; never on shore.....***S. cuneatus***
**9b (8b).** Collar chaetae blades without cross-striations; gaps between fin and blade in collar chaetae sometimes absent; abdominal chaetae with large heels; often on shore.....**10**

**10a (9b).** One hooked capillary chaetae in each abdominal bundle; talon usually massive and narrowing near the free end, which is bifid, or has a median longitudinally thickened ridge on dorsal side; collar chaetae always with gaps between fin and blade; last whorl of tube does not obscure previous whorls.....***S. bidentatus***
**10b (9b).** Hooked capillary chaetae not present in all abdominal bundles; talon usually with three blunt lobes; collar chaetae of the concave side lacks gaps between fin and blade; last whorl of tube widens abruptly and obscures previous whorls.....***S. tridentatus***

## ***Spirorbis bidentatus*** Bailey *in* Bailey & Harris 1968

*Spirorbis bidentatus* BAILEY *in* BAILEY & HARRIS, 1968: 169-170, figs. 3*c*, 8, table 1.
**TYPE LOCALITY:** Plaza and Academy Bay reef, Santa Cruz Island (Galápagos Islands), at low water, on stones and rock chippings.

**SELECTED REFERENCES:** *Spirorbis (Spirorbis) bidentatus* — VINE, 1977: 9-11, figs. 1, 2*a*, 6*b*, tables 2, 6. *Spirorbis bidentatus* — KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 425, fig. 2*A*.
**DISTRIBUTION:** Galápagos Islands; Panama; New Zealand; Aruba and Eustatius (West Indies); Grand Canary (Canary Islands). At low water to about 50 meters. On stones and rocks.

## ***Spirorbis corallinae*** De Silva & Knight-Jones 1962

*Spirorbis (Laeospira) corallinae* DE SILVA & KNIGHT-JONES, 1962: 602, 606, fig. 1*I-L*.
**TYPE LOCALITY:** Mumbles, Swansea (Wales), on *Corallina officinalis*.
**SYNONYMS:** *Spirorbis inornatus* var. *scandens* L'Hardy & Quiévreux 1962.
**SELECTED REFERENCES:** *Spirorbis (Laeospira) corallinae* — L'HARDY & QUIÉVREUX, 1964: 290, table; RASMUSSEN, 1973: 124-125, fig. 41. *Spirorbis corallinae* — GEE, 1964: 415-416, fig. 1, table 4; NELSON-SMITH, 1967: 71, figs. 77-79; HARRIS, 1968*a*: 598; KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 541-543, table 1; KNIGHT-JONES & KNIGHT-JONES, 1977: 461-463, fig. 3*A-K*; PARAPAR *et al.*, 1994*a*: 42-44, fig. 1, table 1; HARTMANN-SCHRÖDER, 1996: 575-576, fig. 280; KIRKEGAARD, 1996: 432-434, fig. 246; SANFILIPPO, 1998*b*: 280-285, pl. 1 figs. 3-8. *Spirorbis (Spirorbis) corallinae* — RZHAVSKY, 2001: 601-602, 1 fig., 1 map. *Spirorbis inornatus* var. *scandens* [not *Spirorbis inornatus* L'Hardy & Quiévreux 1962] — L'HARDY & QUIÉVREUX, 1962: 2175, figs. 9-10. *Spirorbis corallinae* forma *scandens* — L'HARDY & QUIÉVREUX, 1964: 291, fig. 2.
**DISTRIBUTION:** From north Scotland (Dunnet Head) to northwest Spain (Ría de Ferrol, Galicia); Ireland; Scilly Islands; Skagerrak; Øresund; Norway; Barents Sea. Almost exclusively on the algae *Corallina officinalis* Linnaeus and *C. elongata* Ellis & Solander; sparsely on *Chondrus crispus*, in areas where there is too much sand-abrasion for *Spirorbis inornatus* (KNIGHT-JONES & KNIGHT-JONES, 1977). It can also be found on *Bifurcaria bifurcata* and on *Himanthalia elongata*. In shallow water and shore pools.
**REMARKS:** Presently *Spirorbis corallinae* is known to occur at shallow water in Northern Europe, being its southernmost record from Galicia. However, SANFILIPPO (1998*b*) reports its presence in Early and Middle Pleistocene deposits in Sicily and submerged Late Glacial sediments off Sardinia, suggesting its presence in the Mediterranean Pleistocene as a Boreal Guest.

## ***Spirorbis corrugatus*** (Montagu 1803)

*Serpula Corrugata* MONTAGU, 1803: 502.
**TYPE LOCALITY:** Bristol Channel, England.
**SELECTED REFERENCES:** *Spirorbis corrugatus* — BUSH, 1904: 248; GEE, 1964: 425; KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 105.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida).
**DISTRIBUTION:** Bristol Channel; Ireland.
**REMARKS:** According to DE SILVA & KNIGHT-JONES (1962) and GEE (1964), Montagu's description could have applied to *Janua pagenstecheri*. According to KNIGHT-JONES, KNIGHT-JONES & KAWAHARA (1975), the species was inadequately described by MONTAGU (1803) for a sinistral species, possibly *Spirorbis rupestris* Gee & Knight-Jones 1962, according to the ecological notes given by Montagu. *S. corrugatus sensu* Langerhans 1880 was a dextral form and seems to be a species of *Pillaiospira*, a genus originally described as *Janua (Pillaiospira)* by KNIGHT-JONES (1973). Finally, *S. corrugatus sensu* Caullery & Mesnil 1897 and most modern authors, including FAUVEL (1927*a*), is also a dextral form, renamed as *S. pseudocorrugata* by BUSH (1904), who realized that the previous name was already preoccupied (for more details see KNIGHT-JONES, KNIGHT-JONES & KAWAHARA, 1975: 113).

Bush's record only refers the description of the tube, which is also stated to be sinistral. According to GEE (1964), both the records by Montagu and Bush are misleading. Probably it should be considered as a *nomen dubium*.

The name *Spirorbis corrugatus* was applied for the first time to a species described adequately by LANGERHANS (1880*b*), with base on specimens collected at Madeira. However, the usage of that name was done as the consequence of an erroneous identification. Taking this into account, and also that the name *Spirorbis corrugatus* is problematical, it should be avoided, and a new name given to the species from Madeira, whenever more material is collected from the type locality and it is showed that it is still an unnamed species. According to KNIGHT-JONES (1973), the species from Madeira should be placed in *Pillaiospira*, being close to the Australian species *P. trifurcata* Knight-Jones 1973 (see *REMARKS* section above, under *Pillaiospira* sp.).

## ***Spirorbis cuneatus*** Gee 1964

*Spirorbis cuneatus* GEE, 1964: 412-415, figs. 1, 4-5, table 2.

**TYPE LOCALITY:** Watwick Point, Dale, Pembrokeshire (Wales), in deep shade crevices formed by vertical dipping bedrock, 30 feet (9 meters) below L.W.S.T., among polyzoans, sponges and serpulids.
**SELECTED REFERENCES:** *Spirorbis cuneatus* — HARRIS, 1968*b*: 192, 198-200, fig. 8. *Spirorbis (Laeospira) cuneatus* — ZIBROWIUS, 1968*c*: 190, pl. 11 figs. 5-9. *Spirorbis (Spirorbis) cuneatus* — BAILEY, 1969*a*: 366-367, figs. 2, 13, table 1; KNIGHT-JONES & KNIGHT-JONES, 1977: 466-467, fig. 4*L-S*; BIANCHI, 1981: 146-147, fig. 54. *Spirorbis mediterraneus* [not Caullery & Mesnil 1897] — NELSON-SMITH, 1967: 73, fig. 80.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida).
**DISTRIBUTION:** Northeastern Atlantic, from the British Isles to the Mediterranean Sea; Aegean Sea. Attached to rocks, stones, shells, and other kinds of hard substrata. Very common in marine caves. Intertidal to 30 meters.
**REMARKS:** BAILEY (1969*a*) reports numerous specimens from Chios (Aegean Sea). According to her, this species could had provided the specimens on which CAULLERY & MESNIL (1897) based their description of *Spirorbis mediterraneus*, name that would have priority over *S. cuneatus*. However, ZIBROWIUS (1968*c*) reported from Marseille two specimens that agreed perfectly with the original description of *S. mediterraneus* and which seemed to represent juvenile specimens of *S. militaris*. According to BAILEY (1969*a*) the older name maybe should lapse, as it is based on a inadequate description.

Check also the *REMARKS* section under *Spirorbis mediterraneus*.

## ***Spirorbis (Velorbis) gesae*** Knight-Jones & Knight-Jones 1985

*Spirorbis (Velorbis) gesae* KNIGHT-JONES & KNIGHT-JONES, 1995: 91-93, figs. 1-13.
**TYPE LOCALITY:** Funchal (Madeira Island), 32º38.38'N, 16º55.29'W, on shore rocks alongside boat jetty at Sheraton Hotel (nowadays Pestana Carlton Hotel), 24/1/1982. The species was the most abundant spirorbid species above the MTL, not existing below the LW.
**DISTRIBUTION:** Besides the type locality, the species was collected at two other stations, also in the southern side of Madeira, on shore rocks, in sheltered places: 1) east of Lazareto (Funchal), 32º38.65'N, 16º53.2'W, in shore rocks, 25/1/1982; 2) north of Machico Bay, 32º43'N, 16º45.6'W, on stones at 2 meters by jetty, 27/10/1989.
**REMARKS:** *Spirorbis (Velorbis) gesae* is characterized by having a continuous collar over the mid-dorsal groove, and also by the presence of a tough tube lining that enclosures the body and the brooded embryos, persisting even after the removal of the calcified part of the tube.

The species was particularly studied with base on the specimens collected in January 1982 at the Sheraton Hotel station, located between a jetty from the hotel and an adjoining barranca. The authors visited again the type locality in October 1989, and found out that it had been concreted over, to make an extending sunbathing area (KNIGHT-JONES & KNIGHT-JONES, 1995). The species was either not found at the station from Lazareto, which was affected by the dumping of excavated soil from a cliff onto neighbouring waters. However, numerous specimens were found in the new station located near Machico Bay.

According to KNIGHT-JONES & KNIGHT-JONES (1995), this species could be endangered, due to competition from other spirorbid species, some of which are recently immigrants, and endemic. However, before considering it as endemic, the authors suggested a careful search for it in similar habitats at Portugal and Azores, to which I add here the rest of the Macaronesian Islands, and even the northwestern coast of Morocco.

## ***Spirorbis infundibulum*** Harris & Knight-Jones 1964

*Spirorbis infundibulum* HARRIS & KNIGHT-JONES, 1964: 348-350, fig. 1.
**TYPE LOCALITY:** Cala Montgó, near La Escala (Catalonia, NW Spain, Mediterranean Sea), in the small pockets and tunnels which honeycomb the calcareous shelves formed at the water's edge by the coralline alga *Lithophyllum* [identified in the original paper as *Tenarea tortuosa* (Esper) Lemoine 1910].
**SELECTED REFERENCES:** *Spirorbis infundibulum* — NELSON-SMITH, 1967: 66, fig. 70; BIANCHI, 1981: 145-146, fig. 53. *Spirorbis (Laeospira) infundibulum* — ZIBROWIUS, 1968*c*: 189, pl. 10 figs. 26-27.
**DISTRIBUTION:** Western Mediterranean; Adriatic Sea. In *Lythophyllum*, and other calcareous algae. Mesolittoral.

## ***Spirorbis inornatus*** L'Hardy & Quiévreux 1962

*Spirorbis inornatus* var. *procumbens* L'HARDY & QUIÉVREUX, 1962: 2175, figs. 4, 9.
**TYPE LOCALITY:** Roscoff (Northern France), on *Laminaria*, *Saccorhizza*, and *Chondrus*, at lower littoral.

**SYNONYMS:** *Spirorbis corallinae* forma *reptans* L'Hardy & Quiévreux 1964; *Spirorbis inornatus* race *himanthaliae* Knight-Jones & Knight-Jones 1977.
**SELECTED REFERENCES:** *Spirorbis (Laeospira) inornatus* — L'HARDY & QUIÉVREUX, 1964: 288-289, figs. 1, 4-6, table; NELSON-SMITH, 1967: 72. *Spirorbis inornatus* — GEE, 1964: 416; KNIGHT-JONES, KNIGHT-JONES & AL-OGILY, 1975: 541-544, tables 2-3; KNIGHT-JONES & KNIGHT-JONES, 1977: 463-464, figs. 1*A*, 3*L-T*; PARAPAR *et al.*, 1994*a*: 44-45, fig. 2*A-B*, table 1. *Spirorbis inornatus* race *reptans* — KNIGHT-JONES & KNIGHT-JONES, 1977: 463-464. *Spirorbis (Spirorbis) inornatus* — RZHAVSKY, 2001: 602, 1 fig., 1 map. *Spirorbis inornatus* race *himanthaliae* — KNIGHT-JONES & KNIGHT-JONES, 1977: 463. *Spirorbis (Laeospira)*, "forme des Laminaires" — L'HARDY, 1962: 116, 118, 125, tables 1-5. *Spirorbis corallinae* forma *reptans* [not De Silva & Knight-Jones 1962] — L'HARDY & QUIÉVREUX, 1964: 291, fig. 3. *Spirorbis borealis* (local variety) [not Linnaeus 1758] — DE SILVA & KNIGHT-JONES, 1962: 604.
**DISTRIBUTION:** Galicia; Brittany; English Channel; British Isles; Norway. Can be found on western promontories, wherever the sand table is low, and also sheltered on inner surfaces of *Laminaria* holdfasts. It is characteristically found on *Laminaria*, but occurs also on *Saccorhiza* and *Chondrus*, at Roscoff; and, besides *Laminaria hyperborea*, on *Fucus serratus* and *Gigartina stellata*, on Wales. In Galicia it was found on *Chondrus crispus* and *Mastocarpus stellatus*, and less numerous on *Bifurcaria bifurcata* and *Himanthalia elongata*. It can also be found on *Ascophyllum*, *Ceramium*, *Furcellaria*, *Gigartina*, *Gymnogongrus*, *Laurencia pinnatifida*, *Lomentaria*, *Phycodrys*, *Polysiphonia*, *Rhodymenia*, or *Ulva*. Occurs from 2 meters to mean low water mark on open shores, and to the midlittoral in rock pools. It can stand wave action, but only if the water is clear of sediment.
**REMARKS:** KNIGHT-JONES & KNIGHT-JONES (1977), based on laboratory experiments performed by KNIGHT-JONES, KNIGHT-JONES & AL-OGILY (1975), designated two ecological races for this species. The race *reptans*, from red algae, is generally smaller and redder than the other forms of the species, having an opercular plate sometimes convex distally. The race *himanthaliae* is generally found on *Himanthalia*.

## ***Spirorbis (Spirorbella) marioni*** Caullery & Mesnil 1897

*Spirorbis (Dexiospira) Marioni* CAULLERY & MESNIL, 1897: 199-200, pl. 7 fig. 6.
**TYPE LOCALITY:** Panama, in the spines of a *Cidaris thouarsii*.
**SYNONYMS:** *Spirorbis bushi* Rioja 1942; *Spirorbis tricornigerus* Rioja 1942.
**SELECTED REFERENCES:** *Spirorbis marioni* — BUSH, 1904: 239, pl. 39 figs. 26-27, pl. 40 fig. 16; BAILEY *in* BAILEY & HARRIS, 1968: 175-177, figs. 5*j*, 15, table 1; VINE, BAILEY-BROCK & STRAUGHAN, 1972: 151-153, figs. 1, 2*a*, 3*a*; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 426, fig. 2*C*; KNIGHT-JONES & KNIGHT-JONES, 1980: 461-463; BIANCHI, 1981: 148-149, fig. 55; ZIBROWIUS & BIANCHI, 1981: 163-164; ZIBROWIUS, 1983*a*: 255-256. *Spirorbis (Spirorbella) marioni* — RIOJA, 1942: 148-149, figs. 17-24; KNIGHT-JONES & KNIGHT-JONES, 1995: 94. *Spirorbis (Spirorbella) bushi* — RIOJA, 1942: 149-150, figs. 25-35; BAILEY *in* BAILEY & HARRIS, 1968: 175, figs. 5*h*, 13, table 1. *Spirorbis (Spirorbella) tricornigerus* — RIOJA, 1942: 150-151, figs. 36-44; BAILEY *in* BAILEY & HARRIS, 1968: 175, figs. 5*i*, 14, table 1.
**DISTRIBUTION:** Japan; Hawaiian Chain; Galápagos Islands; Easter Island; Australia; from California to Panama; some regions of the Eastern Atlantic; Azores; Madeira; Canary Islands; St. Helena; Western Mediterranean Sea, in harbours and bays from Gibraltar Straits to western Italy; Aegean Sea. On rocks, stones, shell fragments and crawfish carapaces. Intertidal to 30 meters.
**REMARKS**: VINE, BAILEY-BROCK & STRAUGHAN (1972) remarked the fact that *Spirorbis marioni* has a variable operculum, including the form *tricornigerus* (which distal excrescences seem to be formed only in warm waters) and the simple form *bushi* (so far the only form found in the European Atlantic and Mediterranean material) (see also KNIGHT-JONES & KNIGHT-JONES, 1980).

## ***Spirorbis mediterraneus*** Caullery & Mesnil 1897

*Spirorbis mediterraneus* CAULLERY & MESNIL, 1897: 212, pl. 9 fig. 19.
**TYPE LOCALITY:** La Ciotat (Southern France), on tubes of serpulids.
**SELECTED REFERENCES:** *Spirorbis (Laeospira) mediterraneus* — FAUVEL, 1927*a*: 399-400, fig. 136*f-h*; ZIBROWIUS, 1968*c*: 189, pl. 10 figs. 28-31, pl. 11 figs. 1-4. *Spirorbis mediterraneus* — GEE, 1964: 414-415.
**DISTRIBUTION:** La Ciotat (Southern France). Sublittoral.
**REMARKS:** GEE (1964) examined the contents of a vial labelled *S. mediterraneus* from the Paris Museum. Most of the tubes present, originally attached to *Posidonia*, were empty and one contained one operculum of *Pileolaria militaris*. Apparently the description of this species was based upon juveniles of *P. militaris* (see: ZIBROWIUS, 1968*c*; KNIGHT-JONES & KNIGHT-JONES, 1977: 467). The species was

considered by GEE (1964) to be very close to his new species *Spirorbis cuneatus* Gee 1964, but the lack of comparative material didn't enable a definitive statement on the matter. BAILEY (1969*a*) also suggested that the description of *S. mediterraneus* was based on specimens of *S. cuneatus*. The description of *S. mediterraneus* given by CAULLERY & MESNIL (1897) did not state the method of incubation, but the descriptions of the tube and chaetae of the first thoracic segment were almost identical. However, the fin of *S. mediterraneus* was described as being very accused, which is not the case in *S. cuneatus*, and the three terminal expansions to the talon described to be present in *S. mediterraneus* are usually not present in *S. cuneatus* (GEE, 1964).

## ***Spirorbis rupestris*** Gee & Knight-Jones 1962

*Spirorbis (Laeospira) rupestris* GEE & KNIGHT-JONES, 1962: 642-649, figs. 1-4, tables 1-3, 5-6.

**TYPE LOCALITY:** South-west Britain and Wales, on fairly well iluminated rocks, stones and shells, in the lower half of the tidal zone, particularly on sheltered shores, or where the sea water is free from silt, usually associated with *Lithophyllum*-like algae (larvae do not settle on *Fucus serratus*). Several places are cited (Plymouth; Dale Fort; 15 miles up Milford Haven; Combe Martin, North Devon), but the map of fig. 4 in GEE & KNIGHT-JONES (1962) makes reference to at least 12 places where specimens of the new species were collected, in Southwest England and Wales.

**SYNONYMS:** *Spirorbis umbilicatus* L'Hardy & Quiévreux 1962.

**SELECTED REFERENCES:** *Spirorbis (Laeospira) rupestris* — DE SILVA & KNIGHT-JONES, 1962: 607; GEE, 1964: 416-417, fig. 1, table 5; NELSON-SMITH, 1967: 69, figs. 73-74; HARRIS, 1968*a*: 600. *Spirorbis rupestris* — KNIGHT-JONES & KNIGHT-JONES, 1977: 460-461, fig. 2*K-P*. *Spirorbis (Spirorbis) rupestris* — RZHAVSKY, 2001: 603, 1 fig., 1 map. *Spirorbis umbilicatus* — L'HARDY & QUIÉVREUX, 1962: 2174-2175, figs. 3, 8. [?] *Serpula corrugata* [not *Spirorbis corrugatus* Langerhans 1880] — MONTAGU, 1803: 502.

**DISTRIBUTION:** From north Scotland to Le Croisic (south Brittany); Ireland; English Channel; Norway. On stones and rocks, generally on concavities and crevices which are well iluminated but protected from abrasion; usually associated with the encrusting coralline alga *Phymatolithon polymorphum* L., in which the tubes are often deeply embedded; the highest groups occur in shaded crannies or under *Ascophyllum*. In the lower half of the intertidal zone, in silt free waters.

**REMARKS:** According to KNIGHT-JONES & KNIGHT-JONES (1977), *Serpula corrugata* Montagu 1803, which is not the same species than *Spirorbis corrugatus* of the following authors, may have been this species, but no type material exists and the original description is too vague in order to consider it as an older synonym of *S. rupestris*.

## ***Spirorbis (Velorbis) sarsiae*** Southward 1963

*Spirorbis (Laeospira) sarsiae* SOUTHWARD, 1963*b*: 582-583, fig. 7.

**TYPE LOCALITY:** Off the British Isles, at the southwestern continental slope, 51º10'N, 11º47'W, between 1350-1570 meters, on dead coral.

**DISTRIBUTION:** Off the British Isles, at the southwestern continental slope, between 1000-1570 meters, on dead coral.

**REMARKS:** *Spirorbis sarsiae* is here considered as belonging to the subgenus *Velorbis*, as SOUTHWARD (1963*b*) described the species as having the collar undivided.

## ***Spirorbis spirorbis*** (Linnaeus 1758)

*Serpula spirorbis* LINNAEUS, 1758: 787.

**TYPE LOCALITY:** "Habitat in *Oceani & Pelagi* Fucis, Zoophytis". Probably Northeastern Atlantic Ocean, in *Fucus*.

**SYNONYMS:** *Spirorbis borealis* Daudin 1800; *Spirorbis nautiloides* Lamarck 1801; *Spirorbis communis* Fleming 1825; *Spirorbis Linnei* Malm 1874; *Spirorbis borealis* var. *fucorum* L'Hardy & Quiévreux 1962.

**SELECTED REFERENCES:** *Serpula spiriorbis* — FABRICIUS, 1780: 377-378. *Spirorbis spirorbis* — BUSH, 1904: 236, 262, pl. 39 fig. 34, pl. 40 figs. 5-6, 8, 12-15, pl. 42 figs. 15-19; SOUTHERN, 1914: 148; WESENBERG-LUND, 1950*a*: 63, chart 67; WESENBERG-LUND, 1953*b*: 12; KNIGHT-JONES & KNIGHT-JONES, 1977: 457-460, fig. 2*A-J*; HARTMANN-SCHRÖDER, 1996: 576-578, fig. 281; KIRKEGAARD, 1996: 434-436, fig. 247; SANFILIPPO, 1998*b*: 280-285, pl. 1 figs. 1-2, pl. 2. *Spirorbis (Spirorbis) Spirorbis* — RZHAVSKY, 2001: 604-605, 1 fig., 1 map. *Spirorbis borealis* — MÖRCH, 1863: 429-431; VERRILL, 1874*c*: 621; LEVINSEN, 1884: 200, 206, pl. 2 fig. 8*e*, pl. 3 figs. 4-6; CUNNINGHAM & RAMAGE, 1888: 674, pls. 45-46; SAINT-JOSEPH, 1894: 345-350, pl. 13 figs. 381-386; FAUVEL, 1909: 55; FAUVEL, 1914*f*: 334; BORG, 1917: 22-26, figs. 5-9; MCINTOSH, 1923*a*: 409-416, pl. 122 fig. 10, pl. 132 fig. 4, pl. 133 fig. 11;

L'HARDY & QUIÉVREUX, 1962: 2173-2174, figs. 2, 7; GEE, 1964: 415, fig. 1, table 3; HARRIS, 1968*a*: 598; RASMUSSEN, 1973: 123; PARAPAR *et al.*, 1994*a*: 45-46, fig. 2*C-E*, table 1. *Spirorbis borealis* var. *fucorum* — L'HARDY & QUIÉVREUX, 1962: 2173. *Spirorbis (Læospira) borealis* — CAULLERY & MESNIL, 1897: 211-212, text-fig. 1*A*, pl. 9 fig. 18. *Spirorbis (Laeospira) borealis* — RIOJA, 1923*c*: 133, figs. 246-252; FAUVEL, 1927*a*: 399, fig. 135*e-n*; RIOJA, 1931: 456-458, pl. 150 figs. 1-7, pl. 151 fig. 1; BERGAN, 1953: 33-35 [in part; in part = *Spirorbis tridentatus* Borg 1917], fig. 1*a*, *c-d*, pl. 1 fig. 9*j*; DE SILVA & KNIGHT-JONES, 1962: 602-603, 606, fig. 1*A-D* [in part; not the "local variety" from Milford Haven = *Spirorbis inornatus* L'Hardy & Quiévreux 1962]; NELSON-SMITH, 1967: 68, figs. 71-72. *Spirorbis (Laeospira) spirorbis* — HARTMANN-SCHRÖDER, 1971*a*: 546-547, fig. 189 [in part]. *Spirorbis linnei* — MALM, 1874: 103.

**REFERENCES FOR PORTUGAL:** NOBRE, 1937 (as *Spirorbis communis*; Mouth of Douro; all northern Portugal); NOBRE & BRAGA, 1942 (as *Spirorbis communis*; Berlenga).

**DISTRIBUTION:** North Atlantic: Norway, Sweden, Brittany, British Isles and New Scotia; most southernly records at Galicia (northwest Spain) and northern Portugal, and Rhode Island (U.S.A.); may extend to the Arctic but probably not to the Pacific. Found mostly on *Fucus serratus*, but may also occur on *Fucus vesiculosus*, *Laminaria saccharina*, *Ulva lactuca* and some other algae, but not on *Corallina* or *Lithophyllum*; occasionally on stones or shells (DE SILVA & KNIGHT-JONES, 1962). Generally below low water neap tides, but higher in pools, being locally abundant, particularly in sheltered places and pools. Scarce or absent on many wave-exposed shores (DE SILVA & KNIGHT-JONES, 1962). Recorded to be present down to 230 meters, by WESENBERG-LUND (1953*b*).

**REMARKS:** According to KNIGHT-JONES & KNIGHT-JONES (1977), this species is so typical of *Fucus* in north-western Europe that the brief description by LINNAEUS (1758) must be regarded as adequated.

L'HARDY & QUIÉVREUX (1962) attributed the authorship of the variety *Spirorbis borealis* var. *fucorum* to CAULLERY & MESNIL (1897). However, I was unable to find any reference to this name in the later publication, and so I attribute here the authorship of the variety to L'Hardy & Quiévreux 1962.

*Spirorbis spirorbis* is presently known from boreal-arctic waters, being its southernmost European record from Galicia. However, as in the case of *S. corallinae* (see above), SANFILIPPO (1998*b*) reports its presence in Early and Middle Pleistocene deposits in Sicily and submerged Late Glacial sediments off Sardinia, suggesting its presence in the Mediterranean Pleistocene as a Boreal Guest.

## ***Spirorbis strigatus*** Knight-Jones 1978

*Spirorbis strigatus* KNIGHT-JONES, 1978: 208-209, fig. 4.

**TYPE LOCALITY:** Seaward side of Funchal Harbour wall, Madeira Island, 25-30 meters, in rocks. In the original description there is a reference also to 3 specimens from off Punta do Espinbaco (= Ponta do Espinhaço?), 2 Km west of Funchal, at 15 meters, but the type locality is probably the first one indicated.

**SELECTED REFERENCES:** *Spirorbis strigatus* — KNIGHT-JONES & KNIGHT-JONES, 1995: 93-94.

**DISTRIBUTION:** Madeira and Fuerteventura Islands. On rocks. Between shore-30 meters.

## ***Spirorbis tridentatus*** Borg 1917

*Spirorbis borealis* var. *tridentatus* BORG, 1917: 23-26, figs. 10-11.

**TYPE LOCALITY:** Gullmarfjord (Western Sweden), Skagerrak, in stones, between 5-20 meters.

**SYNONYMS:** *Spirorbis glossoeides* Harris 1968; *Spirorbis inaequalis* Harris 1968.

**SELECTED REFERENCES:** *Spirorbis (Laeospira) tridentatus* — DE SILVA & KNIGHT-JONES, 1962: 603-604, 607, fig. 1*E-H*; NELSON-SMITH, 1967: 70, figs. 75-76; HARTMANN-SCHRÖDER, 1971*a*: 545-546; RASMUSSEN, 1973: 123; GILLANDT, 1979: 67-69, fig. 28. *Spirorbis tridentatus* — HÖGLUND, 1951: 272; L'HARDY & QUIÉVREUX, 1962: 2173, figs. 1, 6; GEE, 1964: 417, fig. 1, tables 6-9; HARRIS, 1968*a*: 597-598, 601, fig. 3; KNIGHT-JONES & KNIGHT-JONES, 1977: 464-466, fig. 4*A-K*; PARAPAR *et al.*, 1994*a*: 46-47, fig. 3, table 1; HARTMANN-SCHRÖDER, 1996: 578-579, fig. 282; KIRKEGAARD, 1996: 436-438, fig. 248. *Spirorbis (Spirorbis) tridentatus* — RZHAVSKY, 2001: 605-606, 1 fig., 1 map. *Serpula granulata* [not *Jugaria granulata* (Caullery & Mesnil 1897)] — LINNAEUS, 1767: 1266; FABRICIUS, 1780: 380; MONTAGU, 1803: 544. *Spirorbis (Laeospira) borealis* var. *tridentatus* — BERGAN, 1953: 33-35 [in part; in part = *Spirorbis spirorbis* (Linneus 1758)], fig. 1*b*, *e-f*, pl. 1 fig. 9*k*. *Spirorbis granulatus* [not *Jugaria granulata* (Caullery & Mesnil 1897)] — MCINTOSH, 1916*b*: 189; MCINTOSH, 1923*a*: 400-408, pl. 122 fig. 7, pl. 132 fig. 5, pl. 133 fig. 12, pl. 137 fig. 22, pl. 138 fig. 15; WESENBERG-LUND, 1950*a*: 63, chart 63; WESENBERG-LUND, 1953: 12-13; ZIBROWIUS, 1977: 300. *Spirorbis (Laeospira) granulatus* [not *Jugaria granulata* (Caullery & Mesnil 1897)] — NELSON-SMITH, 1967: 76, fig. 85. *Spirorbis medius* [not Pixell 1912] — SOUTHERN, 1914: 149; MCINTOSH, 1923*a*: 396-397, pl. 133 fig. 3; GEE, 1964: 425. *Spirorbis (Laeospira) medius* [not Pixell 1912] — FAUVEL, 1927*a*: 398, fig. 136*a-e*; NELSON-SMITH,

1967: 65 [not fig. 69]. *Spirorbis inaequalis* — HARRIS, 1968*a*: 595-598, fig. 2, table 2. *Spirorbis glossoeides* — HARRIS, 1968*a*: 593-595, 598, fig. 1, table 1. Not *Spirorbis granulatus* var. *tridentatus* — LEVINSEN, 1884: 208, pl. 3 fig. 10 [= *Pileolaria quadrangularis* (Stimpson 1853)].

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Spirorbis medius*; previous records: Arrábida).

**DISTRIBUTION:** Arctic Ocean; Norway; Sweden; Denmark; British Isles; Brittany; North Spain, from Euskadi to Galicia. On rocks, stones and shells in shaded gullies, crevices, deep pools and caves; not found on algae, except occasionally on the basal parts of *Corallina officinalis*. From below tide marks to about half tide. Also recorded from deeper depths, between 100-2530 meters.

**REMARKS:** KNIGHT-JONES & KNIGHT-JONES (1977) exposed the complex history of this species. According to them, this species could be the same named as *Serpula granulata* by LINNAEUS (1767) and MONTAGU (1803), and certainly as *Spirorbis granulatus* by MCINTOSH (1916*b*, 1923*a*), THORSON (1946) and LAVERACK & BLACKLER (1974). The present usage of this name results from the fact that CAULLERY & MESNIL (1897) decided to designate as *granulatus* a species that broods in the operculum, in which were followed by most of the authors. This usage is now commonly accepted, in order to stabilise the nomenclature. CAULLERY & MESNIL (1897) also stated that their species was not found in Greenland, locality of Levinsen's *Spirobis granulatus* var. *tridentatus*.

A single specimen without tube, identified by Levinsen and labbed "*tricarinatus*" and posteriorly amended to "*granulatus*", which could be Levinsen's variety *tridentatus*, was examined by KNIGHT-JONES & KNIGHT-JONES (1977). After its examination they stated that it was an immature specimen of *Pileolaria quadrangularis* (Stimpson 1853). The following description of this variety after LEVINSEN (1884) was done by BORG (1917) as *Spirorbis borealis* var. *tridentatus*, based in Swedish material. Later HÖGLUND (1951) raised it to the specific level. For the given reasons, I think that the authorship of this species should be attributed to BORG (1917), as Levinsen's 1884 description referred to a different species (*Pileolaria quadrangularis*).

However, a species named *Spirorbis tridentatus* had already been previously described from Port Phillip (Australia) by BUSH (1904). In case this species remains in the genus *Spirorbis*, *S. tridentatus* Borg 1917 will become a senior homonym, and a new name will be necessary for it. A revision of the type material of *S. tridentatus* Bush 1904 is desirable before a new name is attributed to Borg's species.

## *GENUS ***Vermiliopsis*** Saint-Joseph 1894

*Vermiliopsis* SAINT-JOSEPH, 1894: 262.

**TYPE SPECIES:** *Vermilia infundibulum* Philippi 1844 [not *Serpula infundibulum* Gmelin *in* Linnaeus 1791 = indeterminable; see ZIBROWIUS, 1971: 1374].

**SYNONYMS:** *Conchoserpula* Oken 1818; *Paravermilia* Bush 1904; *Pseudovermilia* Bush 1904; [?] *Subprotula* Bush 1910.

**REMARKS:** The definition of the genus was emended by ZIBROWIUS (1971*a*).

### KEY TO SPECIES:

**1a.** Operculum with a massive calcareous plate, with a flat distal surface divided by 6-10 radial ridges ending at the rim in square teeth, resembling the crenellations of a fortified tower; body with a series of pigmentary patches all along the lateral sides; tube pierced by 10-12 longitudinal canals opening just within the flanged mouth; tube with weak and smooth longitudinal keels, and successive spread peristomes.....***V. labiata****

**1b.** Operculum incrustated or not with chalk, but never with a calcareous cap as described above; body without lateral pigmentary patches; tube not pierced by longitudinal canals.....**2**

**2a (1b).** Opercular plate flat or slightly concave, with or without incrusted chalk, sometimes with a central small conical point; opercular ampulla clearly higher that wider.....**3**

**2b (1b).** Opercular plate conical and horny, often incrusted with chalk, composed by several superimposed levels, and bearing sometimes a distal spine; opercular ampulla short, almost hemispherical.....**4**

**3a (2a).** Opercular plate brown and horny, thick, always without chalk, flat or slightly concave, seldom with a small central conical point; abdominal chaetae strongly geniculate; tube with 4 longitudinal keels more or less marked, and successive spread peristomes.....***V. monodiscus***

**3b (2a).** Opercular plate calcareous, white and flat, without a visible horny level below, and with a small boss at the dorsal margin, or near it; abdominal chaetae not strongly geniculate; tube with 3 superior longitudinal dentate keels, connected from time to time by transversal ridges and, occasionally, one lateral keel, sometimes dentate, on each side of the tube.....***V. eliasoni***

**4a (2b).** Opercular plate conical, with few superimposed levels, marked laterally by longitudinal grooves and ribs, and without a thick distal spine; tube rugous, with poorly marked longitudinal ridges and spread peristomes.....***V. striaticeps***

**4b (2b).** Opercular plate conical, with many superimposed levels, without lateral longitudinal grooves, and bearing sometimes a thick distal spine; tube with 2-7 longitudinal keels more or less developed and a series of spread peristomes.....***V. infundibulum****

## *Vermiliopsis eliasoni* Zibrowius 1970

*Vermiliopsis* (gen. ?) *eliasoni* ZIBROWIUS, 1970*a*: 121-125, fig. 1.

**TYPE LOCALITY:** Josephine Bank, 36º40'N, 14º15'W, at 225 meters, in hard bottoms covered with stones.

**SELECTED REFERENCES:** *Vermiliopsis langerhansi* [not Fauvel 1909] — SOUTHWARD, 1963*b*: table 1 in page 584.

**DISTRIBUTION:** Josephine Bank, 225 meters. Southwestern British Isles, between 1590-1775 meters. In hard bottoms.

## **Vermiliopsis infundibulum* (Philippi 1844)

*Vermilia infundibulum* PHILIPPI, 1844: 193.

**TYPE LOCALITY:** Mediterranean Sea.

**SYNONYMS:** *Serpula (Vermilia) galeata* Grube 1860; *Vermilia multivaricosa* Mörch 1863; *Vermilia spirorbis* Langerhans 1884; *Vermilia ctenophora* Moore *in* Moore & Bush 1904; *Vermilia pleuriannulata* Moore *in* Moore & Bush 1904; *Vermiliopsis glandigerus* Gravier 1906.

**SELECTED REFERENCES:** *Vermiliopsis infundibulum* — SAINT-JOSEPH, 1906: 249-251, pl. 5 figs. 115-117; FAUVEL, 1909: 59-60; FAUVEL, 1914*f*: 343-344; IROSO, 1921: 59-60; RIOJA, 1923*c*: 88, figs. 145-150; FAUVEL, 1927*a*: 362-363, fig. 124*a-g*; RIOJA, 1931: 414-416, pl. 133 figs. 1-2, pl. 134 figs. 1-6; NELSON-SMITH, 1967: 32, figs. 18-19; STRAUGHAN, 1967*a*: 233-234; STRAUGHAN, 1967*c*: 35; ZIBROWIUS, 1968*b*: 376-377, pl. 1 figs. 1-3; ZIBROWIUS, 1968*c*: 121-124, pl. 2 figs. 30-33, pl. 3 figs. 1-5, 9-15; ZIBROWIUS, 1969*a*: 128; BIANCHI, 1980: 85, fig. 1; BIANCHI, 1981: 71-73, figs. 3*a*, 7*p*, 25; NISHI, 1995: 28-29, fig. 1*A-G*; BEN-ELIAHU & FIEGE, 1996: 7-8; ÇINAR, 2006: 233, fig. 7*D*. *Vermilia infundibulum* — PHILIPPI, 1844: 193, pl. 6 fig. *G*; MARION & BOBRETZKY, 1875: 98-99, pl. 12 fig. 26; LANGERHANS, 1880*b*: 119, pl. 5 fig. 36; LANGERHANS, 1884: 278. *Vermilia Infundibulum* — CLAPARÈDE, 1870: 523-525, pl. 13 fig. 3. *Vermiliopsis infundibulum glandigera*-group — IMAJIMA, 1976*b*: 139-141, fig. 11. *Vermiliopsis infundibulum/glandigera* group — IMAJIMA, 1977*b*: 95, fig. 4*a*. *Serpula (Vermilia) galeata* — GRUBE, 1860: 113-114, pl. 4 fig. 9. *Vermilia multivaricosa* — MÖRCH, 1863: 389; LO BIANCO, 1893: 93-94; MARENZELLER, 1893: 39-40, pl. 3 fig. 13. [?] Not *Serpula Infundibulum* — GMELIN *in* LINNAEUS, 1791: 3745-3746. *Vermilia spirorbis* — LANGERHANS, 1884: 279, pl. 16 fig. 41*a-d*, *f*, pl. 17 fig. 41*e*. *Vermilia ctenophora* — MOORE *in* MOORE & BUSH, 1904: 169-171, pl. 12 figs. 21-25. *Vermiliopsis ctenophora* — TAKAHASHI, 1938: 216-217, text-fig. 17, pl. 20 fig. *G*. *Vermilia pleuriannulata* — MOORE *in* MOORE & BUSH, 1904: 171-173, pl. 11 fig. 19, pl. 12 figs. 26-32, 45. *Vermiliopsis pluriannulata* — IMAJIMA & HARTMAN, 1964: 374-375. *Vermiliopsis glandigerus* — GRAVIER, 1906*a*: 112-113; GRAVIER, 1906*d*: pl. 8 figs. 290-291; GRAVIER, 1908: 121-124, text-figs. 476-481; FAUVEL, 1919*a*: 465; FAUVEL, 1953*c*: 467, fig. 242*k*; DAY, 1967: 813-814, fig. 38.6.*g-i*; TEN HOVE, 1970*a*: 59-60; BAILEY-BROCK, 1985: 212-213, fig. 14. *Vermiliopsis glandigera* — BAILEY-BROCK, 1987*a*: 283-284.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro); SALDANHA, 1995 (Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 231**, off Praia do Malhão, 32 m, rock: 1 specimen, complete and in good condition, about 12 mm long (not counting the crown); operculum ambar colored, with a corneous plaque, conical and with several internal septa; tip of operculum like a curved claw; peduncle cylindrical and wrinkled; a piece of tube present. **FAUNA 1 — St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 2 specimens in poor condition, without abdomen; tubes missing; opercula formed by an ampulla, short and globulous, with a very developed cap,

produced by several piled plaques, forming a long cone, which can have calcareous incrustations; cap is dark brown; first chaetiger without bayonet chaetae; *Apomatus* chaetae from the 4th chaetiger; thoracic uncini with about 12 teeth. **Unknown station**, polychaetes associated with Sabellariidae ("*Polychaeta-Sabellariidae*"): 1 specimen.

**DISTRIBUTION:** Apparently cosmopolitan; from the Gulf of Gascony to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Azores; Madeira; Canary Islands; from Morocco to South Africa; Persian Gulf; Red Sea; Japan; Fiji; Bermudas; Antillean Sea; Brazil; Indian Ocean; Pacific Ocean; Australia; Tasmania. In coastal detritic bottoms, attached to shell fragments, stones, shells, and small hard substrata, in coralligenous bottoms, caves, and in living corals. Intertidal to bathyal bottoms (500 meters), recorded at the Mediterranean Levant Basin at 1034 meters.

**REMARKS:** According to BEN-ELIAHU & FIEGE (1996), and following QUATREFAGES (1866*b*) and CLAPARÈDE (1870), the first author to report *Vermiliopsis infundibulum* (as *Vermilia*) in an identifiable way was PHILIPPI (1844), while the *V. infundibulum* of the earlier authors is not recognizable. For this reason, the name is normally ascribed to Philippi.

Taken into account the broad range of the depth distribution normally attributed to the species, TEN HOVE (pers. comm. *in* BEN-ELIAHU & FIEGE, 1996) points the possibility of the existence of a species complex with a depth-related distribution.

## ****Vermiliopsis labiata*** (O.G. Costa 1861)

*Serpula labiata* O.G. COSTA, 1861: 32, pl. 7 fig. 2.

**TYPE LOCALITY:** Mediterranean Sea, in coralligenous bottoms in North Africa and Sardinia.

**SYNONYMS:** *Serpula infundibulum* Delle Chiaje 1828 [HOMONYM; not Gmelin *in* Linnaeus 1791]; *Vermiliopsis Richardi* Fauvel 1909.

**SELECTED REFERENCES:** *Vermiliopsis labiata* — ZIBROWIUS, 1972*c*: 117-118; ZIBROWIUS, 1973*a*: 45-47; IMAJIMA, 1977*b*: 95-97, fig. 4; BIANCHI, 1981: 76-78, fig. 27; BEN-ELIAHU & FIEGE, 1996: 8. *Vermiliopsis Richardi* — FAUVEL, 1909: 62-65, fig. 7; IROSO, 1921: 58-59, pl. 4 figs. 18-20; FAUVEL, 1927*a*: 366-368, fig. 126*a-m*. *Vermiliopsis richardi* — NELSON-SMITH, 1967: 34-35, figs. 23-25; ZIBROWIUS, 1968*c*: 125-127, pl. 3 figs. 16-24; ZIBROWIUS, 1969*a*: 128-129. *Vermiliopsis richardi* var. *fauveli* — MONRO, 1930: 212, fig. 89. *Serpula infundibulum* [not Gmelin *in* Linnaeus 1791] — DELLE CHIAJE, 1828: 226 [according to ZIBROWIUS (1972*c*)].

**MATERIAL: FAUNA 1 — St. 18*A***, Alborán Sea, Alborán Island, 45-52 m, stones: 2 specimens, very small, one about 2.5 mm long, in poor condition, the other about 4 mm long, broken in two pieces; the bigger specimen bears a callous region near the pygidium; opercula as described, but in poor condition; short and globulous ampulla, covered by a corneous plaque, calcareous, with teeth; seen from above the opercula show the same kind of drawings than the represented by BIANCHI (1981); some fragments of tube present.

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; Eastern Atlantic; from Morocco to Gulf of Guinea; Red Sea; Persian Gulf; Indian Ocean; Japan. In caves, coralligenous bottoms, rocks, bryozoans, and corals. Infralittoral to circalittoral, but can be present also in the bathyal (to about 660 meters). One dubious record from the Levant Basin of Mediterranean from 1033-1034 meters.

## ***Vermiliopsis monodiscus*** Zibrowius 1968

*Vermiliopsis monodiscus* ZIBROWIUS, 1968*a*: 1202-1209, figs. *A-L*.

**TYPE LOCALITY:** Described with base on specimens from three regions: a) in the darkest zones of submarine caves of the region of Marseille, between 3-37 meters; b) at the Canyon of Cassidaigne, east of Marseille, between 300-600 meters, attached to solid grounds, as empty shells; c) at the Tyrrhenian Sea, SW the Island of Gorgona, between 600-660 meters, and between Corsica and the Island of Montecristo, at 450 meters, attached to colonies of *Madrepora oculata* and *Lophelia prolifera*.

**SELECTED REFERENCES:** *Vermiliopsis monodiscus* — BIANCHI, 1981: 78-79, figs. 7*k*, 28; BARATECH, SAN MARTÍN & AGUIRRE, 1985: 389-390, fig. 1; BEN-ELIAHU & FIEGE, 1996: 8-9, fig. 2.

**REFERENCES FOR PORTUGAL:** [?] BOAVENTURA *et al.*, 2006 (as *Vermiliopsis* cf. *monodiscus*; Ancão, Algarve).

**DISTRIBUTION:** Known only from some locations in the Mediterranean Sea: Gulf of Marseille; Tyrrhenian Sea; Gulf of Taranto; South of Karpathos (Greece). In caves between 3-37 meters, attached to nacked rocks, circallitoral between 70-100 meters, in coralligenous bottoms, and bathyal between 300-1278 meters, attached to shells and colonies of *Madrepora oculata* and *Lophelia prolifera*, and other hard surfaces. [?] Portugal.

## *Vermiliopsis striaticeps* (Grube 1862)

*Vermilia striaticeps* GRUBE, 1862*b*: 65.
**TYPE LOCALITY:** Mediterranean Sea.
**SYNONYMS:** *Vermilia incrustata* Iroso 1921.
**SELECTED REFERENCES:** *Vermiliopsis striaticeps* — ZIBROWIUS, 1979*a*: 216-217; BIANCHI, 1979*a*: 273; BIANCHI, 1979*b*: 103, fig. 1*j*; BIANCHI, 1980: 85-89, figs. 2-3; BIANCHI, 1981: 74-75, figs. 7b, 26, pl. 1 fig. 9; SARDÁ, 1984*a*: 132, fig. 4; THORP, KNIGHT-JONES & KNIGHT-JONES, 1986: 884-885, fig. 3; BEN-ELIAHU & FIEGE, 1996: 8; ÇINAR, 2006: 233, fig. 7*E*. *Vermilia incrustata* — IROSO, 1921: 60-61.
**DISTRIBUTION:** Atlantic (Lusitanian and Mauritanian provinces to the Gulf of Guinea); Mediterranean Sea; Adriatic Sea; Aegean Sea; Roscoff; Falmouth (Cornwall, England). Among infralittoral algae, bryozoans, in harbours and costal lagoons, caves, and coralligenous bottoms. Intertidal to about 67 meters.
**REMARKS:** According to BIANCHI (1979*a*, 1979*b*), the records of *Bathyvermilia langerhansi* (Fauvel 1909) (as *Vermiliopsis*) from the Mediterranean infralittoral, probably should be referred to this species. The species was considered as indeterminable by HARTMAN (1959*a*).

## GENUS *Vinearia* Knight-Jones 1984

*Vinearia* KNIGHT-JONES, 1984: 111.
**TYPE SPECIES:** *Spirorbis koehleri* Caullery & Mesnil 1897.
**SYNONYMS:** *Duplicaria* Vine 1972 [not Dall 1908 (Gastropoda)].

**KEY TO SPECIES:**
(adapted from BIANCHI, 1981)

**1a.** Operculum composed by several plates superposed, slightly concave, with long and flattened talons inserted dorsally on the underneath plate; brood chamber located below the basal plate.....***V. koehleri***
**1b.** Operculum composed by two superposed plates, strongly concave, and without differentiated talons; brood chamber located between the two plates.....***V. endoumensis***

## *Vinearia endoumensis* (Zibrowius 1968)

*Spirorbis (Laeospira) endoumensis* ZIBROWIUS, 1968*c*: 198-200, pl. 12 figs. 21-31, table page 199.
**TYPE LOCALITY:** Marseille. The species was collected at several stations around Marseille (South France), at the Islands of Port Cros, and at the Gulf of Taranto, by ZIBROWIUS (1968*c*), who apparently didn't designate a holotype. The description of the species was based on specimens collected at the following locations: a) in the bottoms of "faux maërl" with colonies of *Cladocera cespitosa* (L.), bricks, stones, etc., dispersed among an unidentified melobesian alga, at the end of the Calanque of Port Miou, at Cassis, between 3-5 meters; b) at the Anse des Cuivres, in front of the Station Marine d'Endoume, in Marseille, on stones; c) Île de Port Cros on infralittoral pebbles, between 4-6 meters; d) Gulf of Taranto.
**SELECTED REFERENCES:** *Spirorbis (Pileolaria) endoumensis* — BAILEY, 1969*a*: 374, fig. 9, table 1. *Pileolaria endoumensis* — BIANCHI, 1981: 166-167, fig. 63.
**DISTRIBUTION:** Western Mediterranean (Marseille); Aegean Sea (Chios). On rocks and stones. Infralittoral.

## *Vinearia koehleri* (Caullery & Mesnil 1897)

*Spirorbis (Læospira) Kœhleri* CAULLERY & MESNIL, 1897: 214, pl. 10 fig. 23.
**TYPE LOCALITY:** La Ciotat (South France), on dredged bryozoans.
**SYNONYMS:** *Spirorbis Bernardi* Caullery & Mesnil 1897; *Spirorbis (Pileolaria) polyoperculata* Straughan 1969; *Pileolaria gelasinifera* Pillai 1970.
**SELECTED REFERENCES:** *Spirorbis (Laeospira) Koehleri* — FAUVEL, 1927*a*: 401, fig. 136*o-s*. *Spirorbis (Laeospira) koehleri* — NELSON-SMITH, 1967: 75, fig. 84; ZIBROWIUS, 1968*c*: 197-198, pl. 12 figs. 15-20, pl. 14 fig. *h*, table page 199; ZIBROWIUS, 1969*a*: 134-135. *Spirorbis (Pileolaria) koehleri* — BAILEY, 1969*a*: 373, figs. 8, 13, table 1; BAILEY, 1970: 69-70, figs. 129-130, table 1. *Pileolaria (Duplicaria) koehleri* — VINE, 1972: 184-186, figs. 4, 10*C*, 11*B*; VINE, BAILEY-BROCK & STRAUGHAN, 1972: 161-163, figs. 2*e*, 3*d*, 7; VINE, 1977: 46, figs. 20*e*, 21*g*, 27, tables 2-3, 6; KNIGHT-JONES, KNIGHT-JONES & DALES, 1979: 422, fig. 1*j*. *Pileolaria koehleri* — BIANCHI, 1979*b*: 107, fig. 11; BIANCHI, 1981: 164-166,

fig. 62; VINE & BAILEY-BROCK, 1984: 147. *Vinearia koehleri* — BAILEY-BROCK, 1985: 213, fig. 15. *Spirorbis Bernardi* — CAULLERY & MESNIL, 1897: 214-215, pl. 10 fig. 24. *Spirorbis (Pileolaria) polyoperculatus* — STRAUGHAN, 1969*b*: 151-153. *Pileolaria gelasinifera* — PILLAI, 1970: 101-102, fig. 1*A-G*.

**DISTRIBUTION:** Cosmopolitan in temperate seas. Mediterranean Sea; Aegean Sea; Red Sea; West Indies; Sri Lanka; Fiji; New Zealand; Australia; Hawaiian Chain. On rocks, coralligenous bottoms, dead corals, marine caves, and algae. Intertidal to 30 meters.

## GENUS ***Vitreotubus*** Zibrowius 1979

*Vitreotubus* ZIBROWIUS, 1979*c*: 183-184.

**TYPE SPECIES:** *Vitreotubus digeronimoi* Zibrowius 1979.

### ***Vitreotubus digeronimoi*** Zibrowius 1979

*Vitreotubus digeronimoi* ZIBROWIUS, 1979*c*: 184-189, figs. 1-2.

**TYPE LOCALITY:** Atlantic Ocean, NW Santa Maria Island (Azores), 37º01.5'N, 29º14'W, 600 meters, in a piece of sandstone.

**SELECTED REFERENCES:** *Vitreotubus digeronimoi* — TEN HOVE, 1994: 113.

**DISTRIBUTION:** Azores, 600-900 meters; South Arabia (Oman), 1415 meters; Comores, 500 meters. Also found as fossils from the Lower Pleistocene of Sicily. Attached to hard grounds, as corals, rocks or stones.

# FAMILY **SIBOGLINIDAE** Caullery 1914

**AS:** *SIBOGLINIDAE* CAULLERY, 1914*a*: 2014-2017, fig. 1.

**TYPE GENUS:** *Siboglinum* Caullery 1914.

**REMARKS:** The Siboglinidae Caullery 1914, also known as beard-worms, include the subgroups of the pogonophores, the vestimentiferans, and the recently discovered whalebone eating worms. The Siboglinidae inhabit normally the deep sea, down to about 10 000 meters, but exceptionally can occur at shallower depths of about 20-100 meters.

The history, systematics, and morphology of this family are not going be discussed here in detail. Good accounts on the group can be found in IVANOV (1960) and its posterior English translation by D.B. Carlisle, revised and with additional material by E.C. Southward (IVANOV, 1963), SOUTHWARD (2000), ROUSE (2001*e*, and especially 2001*n*), SOUTHWARD, SCHULZE & GARDINER (2005), and a good resume in available in HILÁRIO & CUNHA (2008). Details on the taxonomy of the Vestimentifera can be found in DESBRUYÈRES, SEGONZAC & BRIGHT (2006).

The position of the Siboglinidae has been a matter of discussion ever since its discovery. They were recently placed in the Polychaeta by ROUSE & FAUCHALD (1997), and the name Pogonophora was replaced by Siboglinidae. However, this nomenclatural change was not supported by all authors (*e.g.*: BARTOLOMAEUS, PURSCHKE & HAUSEN, 2005; SOUTHWARD, SCHULZE & GARDINER, 2005). The molecular phylogeny of siboglinids was revised by HALANYCH (2005).

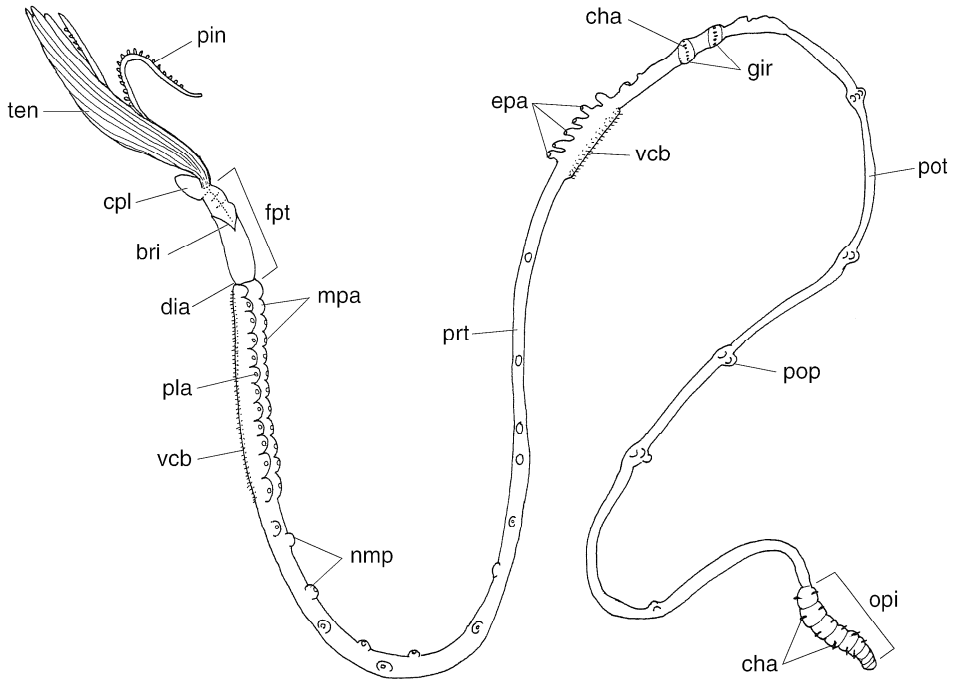


**Figure legend:** Family Siboglinidae. External features of a generalised frenulate pogonophore. **bri**, bridle; **cha**, chaetae; **cpl**, cephalic lobe; **dia**, diaphragm; **epa**, enlarged papillae; **fpt**, forepart; **gir**, girdles; **mpa**, metameric papillae; **nmp**, non-metameric papillae; **opi**, opisthosoma; **pin**, pinnules; **pla**, plaque; **pop**, postannular papilla; **pot**, postannular region of trunk; **prt**, pre-annular region of trunk; **ten**, tentacles; **vcb**, ventral ciliated band. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by E.C. Southward, after SOUTHWARD, 1984).

The first known species of the Siboglinidae, a pogonophoran, was described in 1914 in the new genus *Siboglinum* with base on material collected during the *Siboga* Expedition, from the Indonesian deep sea (CAULLERY, 1914*a*). This species was named as *Siboglinum weberi* only in 1944 (CAULLERY, 1944*b*). A second species, *Lamellisabella zachsi*, had been described by USCHAKOV (1933) in the meantime. However, the biggest part of the family's taxa were described only after 1960, with the increasing interest in the deep-sea exploration, together with the development of new technology that made that exploration possible, allowing the collection of material in good condition. The first vestimentiferan, *Lamellibrachia barhami*, was described in 1969 from slope depths off California

(WEBB, 1969), in what is now considered as a cold seep environment, while in 2004 two species of *Osedax* were described from the bones of dead whales, on which they feed through ramifying roots that invade the bone marrow (ROUSE, GOFFREDI & VRIJENHOEK, 2004).

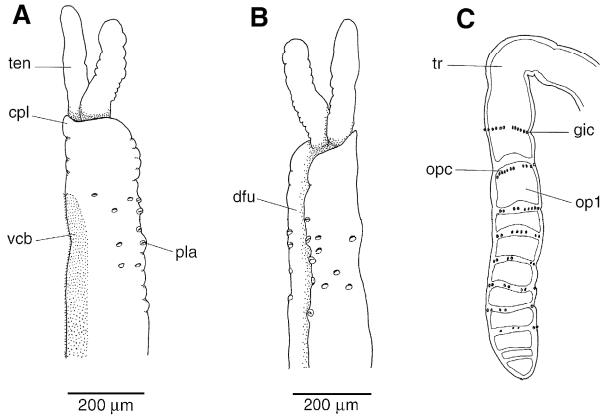


**Figure legend:** Family Siboglinidae. External features of a *Sclerolinum* specimen (Monilifera). **A**, **B**, anterior end of animal: **A**, ventro-lateral view; **B**, dorso-lateral view. **C**, opisthosoma. **cpl**, cephalic lobe; **dfu**, dorsal furrow; **gic**, girdle chaetae; **opc**, opisthosomal chaetae; **op1**, first opisthosomal segment; **pla**, plaque; **ten**, tentacle; **tr**, trunk; **vcb**, ventral ciliated band. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by E.C. Southward, adapted from SOUTHWARD, 1972).

The members of this family lack mouth, and the gut lumen is almost completely occluded by the endoderm. Their nutritional requirements are met through the presence of chemoautotrophic bacteria, which occupy cells (bacteriocytes) in the expanded endoderm. The bacteria require carbon dioxide and either sulfide, thiosulfate or methane, which are supplied by the host, and in return the host obtains nutrition from the bacteria, or diggests them (SOUTHWARD, 1993; ROUSE, 2001*e*). The need for reduced sulfur compounds or methane limits Siboglinidae to live in reducing sediments, near methane seeps, at hydrothermal vents, rotting vegetation, or on bones of whale carcasses.

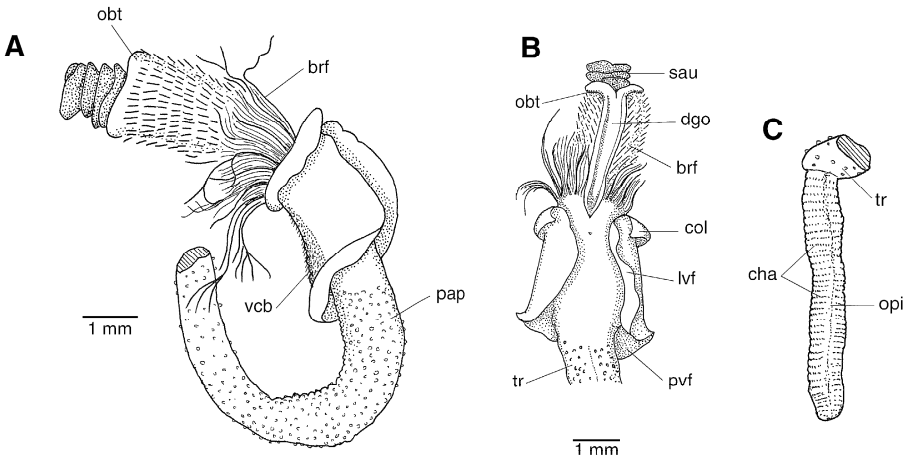


**Figure legend:** Family Siboglinidae. External features of a *Ridgeia* specimen (Vestimentifera): **A**, lateral view of anterior end and part of trunk; **B**, dorsal view of anterior end; **C**, lateral view of opisthosoma. Cut surfaces are shown by cross hatching. **cha**, rows of chaetae; **col**, collar; **brf**, branchial filaments; **dgo**, dorsal groove of obturaculum; **lvf**, lateral vestimental fold; **obt**, obturaculum; **opi**, opisthosoma; **pap**, papillae; **pvf**, posterior vestimental fold; **sau**, saucer of brown cuticular material; **tr**, trunk; **vcb**, ventral ciliated band. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by E.C. Southward).

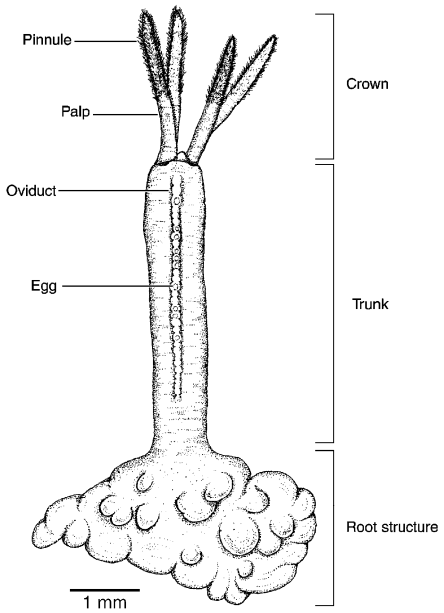


**Figure legend:** Family Siboglinidae. *Osedax* female specimen, ventral view. Gelatinous translucent cylindrical tube and transparent mucus removed. (Adapted from FUJIKURA, FUJIWARA & KAWATO, 2006).

The peculiarities of the recently described *Osedax* (ROUSE, GOFFREDI & VRIJENHOEK, 2004) has rapidly attracted a great interest of the scientific community, and the description of several new other species followed the original one shortly after (GLOVER *et al.*, 2005; FUJIKURA, FUJIWARA & KAWATO, 2006; ROUSE *et al.*, 2008). Several different research groups are involved in the study of the *Osedax*, sometimes with some controversy (JONES *et al.*, 2008; GLOVER *et al.*, 2008; VRIJENHOEK, COLLINS & VAN DOVER, 2008). The number of known species, as well as the knowledge of the biology of this group, is expected to greatly increase in the near future.

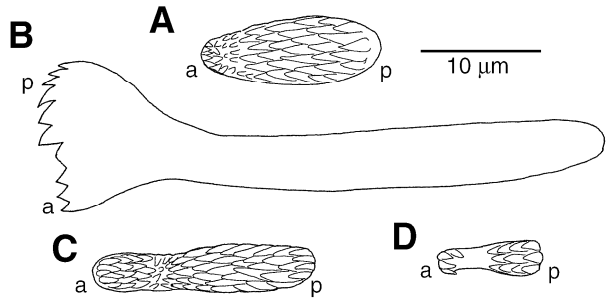


**Figure legend:** Chaetae of Siboglinidae. **A**-**C**, girdle chaetae of frenulates: **A**, *Siboglinum atlanticum*; **B**, *Siboglinum fiordicum*; **C**, *Lamellisabella* specimen. **D**, an opisthosomal chaeta of a vestimentiferan *Lamellibrachia* specimen. **A**, **C**, **D**, oval toothed heads; **B**, head and shaft in lateral view. **a**, anterior; **p**, posterior. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by E.C. Southward).

One major problem with siboglinids, especially pogonophorans, for a long period, was the question of the orientation of the body, on which side was dorsal and which one was ventral. Some authors, in their descriptions, considered that the dorsal side of the pogonophorans was the one on which lay the cephalic lobe (containing the brain), the tract of ciliated epithelium, and the one along which ran the median nerve chord, while the ventral side was taken to be that to which the tentacles were attached

and along which were disposed the metameric adhesive papillae of the trunk (*e.g.*, among others: JOHANSSON, 1939; IVANOV, 1954, 1960, 1961, 1963, 1970, 1971; SOUTHWARD & SOUTHWARD, 1958; SOUTHWARD, 1959, 1961, 1963*a*, 1971; WEBB, 1963, 1964*a*, 1964*b*; BRATTEGARD, 1966; SOUTHWARD & BRATTEGARD, 1968). Other authors took the opposite view of the orientation of the body, and the median nerve chord and the ciliated epithelium would be ventral, while the insertion of the tentacles, and the position of the metameric papillae dorsal (*e.g.*: CAULLERY, 1914*a*, 1944*b*; USCHAKOV, 1933; JÄGERSTEN, 1956; FLÜGEL & CALLSEN-CENCIC, 1993; SMIRNOV, 2000*a*, 2000*b*, 2005; HILÁRIO & CUNHA, 2008). Finally, other authors make their description making reference to the neural side and anti-neural side of the worm, without stating which one of them would be dorsal or ventral (SOUTHWARD, 1978*a*, 1978*b*; FLÜGEL & LANGHOF, 1983; FLÜGEL, 1990). Today it is clear that the Siboglinidae are protostomes, and that the nerve chord is ventral.

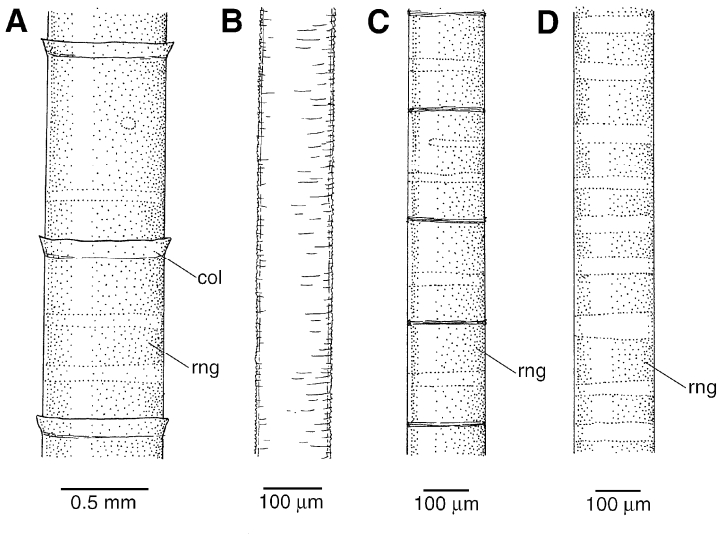


**Figure legend:** Sections of tubes of frenulate pogonophores. **A**, anterior part of tube showing the collars of overlapping segments of *Polybrachia* specimen. **B**, a generalised non-ringed 'type' tube of various *Siboglinum* species and juveniles of other species in different genera. **C**, **D**, *Diplobrachia* specimen tube: **C**, anterior part of tube showing segmentation; **D**, middle part of tube. **col**, collar; **rng**, ring. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by E.C. Southward).

The confusion on which side of the worm was dorsal and which was ventral should be taken into account when following descriptions in the bibliography. In order to orientate the description correctly, it should be taken into account that the insertion of the tentacles and the metameric papillae in the anterior region of the trunk are always dorsal, while the ciliary band of epithelium in the opposite side of the metameric papillae is always ventral. It should also be noted that in the dorsal side of siboglinids, the ridges of the bridle or frenulum, when present, always point backwards, while in the ventral side they point forwards.

The family Siboglinidae includes at present 32 genera, 162 species and one described variety, considered to be valid. No species was found among the identified material. In the European and nearby waters, 10 genera of Siboglinidae are known to occur, including 27 species. So far, only one species is known from the Mediterranean Sea, but probably this number is much higher, as revealed by the recent description of two new species from the Gulf of Cádiz (HILÁRIO & CUNHA, 2008).

## KEY TO GENERA:

(adapted from: IVANOV, 1963; SOUTHWARD, 1978*a*; SOUTHWARD, 2000)

**1a.** Associated with whale (or other mammals) bones, in carcasses at the sea floor; males paedomorphic (dwarf), microscopic, clustering around oviduct in female tubes; trophosome absent; bulbous posterior

ovisac present, covered by a sheath of green-colored tissue that branches into a vascularized ramified system that invades the bone marrow.....***Osedax***
**1b.** Not associated to whale (or other mammals) bones, in carcasses at the sea floor; males and females of about the same size; trophosome present; posterior vascularized ramified ovisac not present.....**2**

**2a (1b).** Tubes regular, variously coloured; cephalic lobe distinct, one to >200 tentacles; forepart with obvious bridle; trunk demarcated from forepart.....**FRENULATA**.....**3**
**2b (1b).** Tubes narrow and curled or sinuous, walls transparent yellow or brown, of irregular thickness; cephalic lobe indistinct, two tentacles, no pinnules; forepart and trunk not clearly separated; usually in decaying wood or plant debris.....**MONOLIFERA**.....***Sclerolinum***

**3a (2a).** Anterior part of trunk with two wide ridges, each containing two or more rows of pyriform glands.....**4**
**3b (2a).** Anterior part of the trunk with two rows of papillae or two ridges, each containing a single row of internal glands.....**5**

**4a (3a).** Tentacles 2-18, with or without pinnules; spermatophores have pair of wings at base of filament; tubes black, brown, or brown and white.....***Oligobrachia***
**4b (3a).** Two tentacles, with or without pinnules; spermatophores spindle-shaped, no wings at base of filament; tubes whitish or yellowish, with wide brown rings.....***Nereilinum***

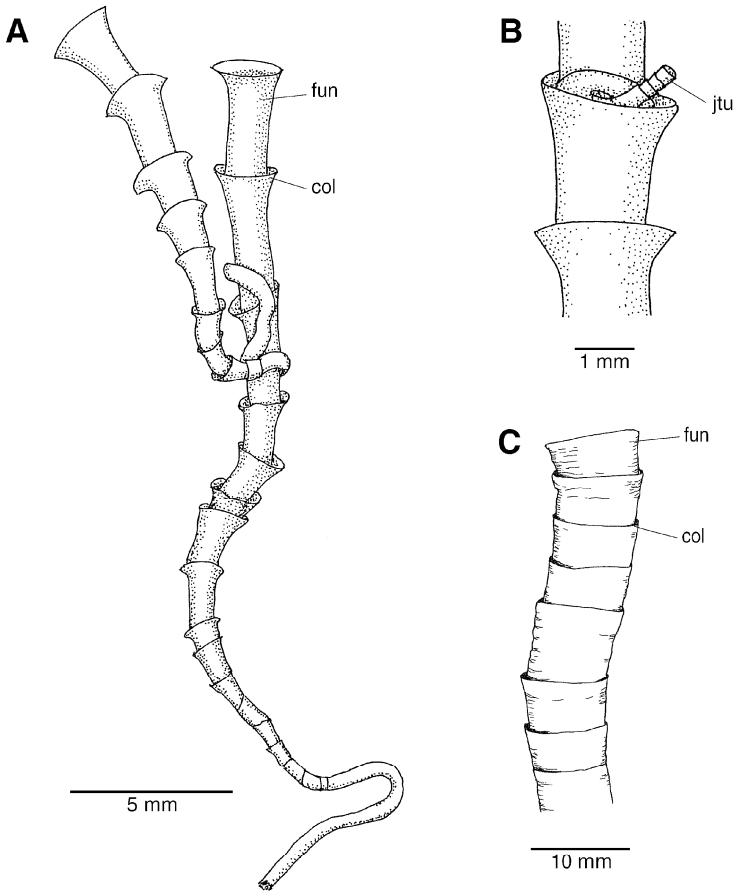


**Figure legend:** Tubes of vestimentiferan siboglinids. **A**, **B**, *Ridgeia* specimen: **A**, two entire tubes, one entwined around the other; **B**, tube of a juvenile which had settled on the collar of an older tube. **C**, anterior section of tube of *Lamellibrachia* specimen. **col**, collar or flange; **fun**, funnel; **jtu**, juvenile tube. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by E.C. Southward).

**5a (3b).** Tentacles firmly joined together in parallel.....**6**
**5b (3b).** Tentacles not firmly joined together.....**7**

**6a (5a).** Tentacles joined, forming a cylinder.....***Lamellisabella***
**6b (5a).** Tentacles joined, forming a spiral plate.....***Spirobrachia***

**7a (5b).** Tentacles one or two; spermatophores narrow; plaques usually absent from metameric papillae.....***Siboglinum***
**7b (5b).** Tentacles two to many.....**8**

**8a (7b).** Spermatophores narrow, spindle-like; plaques absent from metameric papillae; more than 30 tentacles packed in a regular arrangement at their base.....***Bobmarleya***
**8b (7b).** Spermatophores leaf-shaped; plaques usually present in metameric papillae.....**9**

**9a (8b).** Tentacles 2-4; the cephalic lobe merges into the protosoma.....***Diplobrachia***
**9b (8b).** Tentacles 18-70 or more; the cephalic lobe is divided from the protosoma by a pretentacular groove, or at least in some measure (in individuals with the body extended) the two are sharply distinguished by the colour and character of the integument.....***Polybrachia***

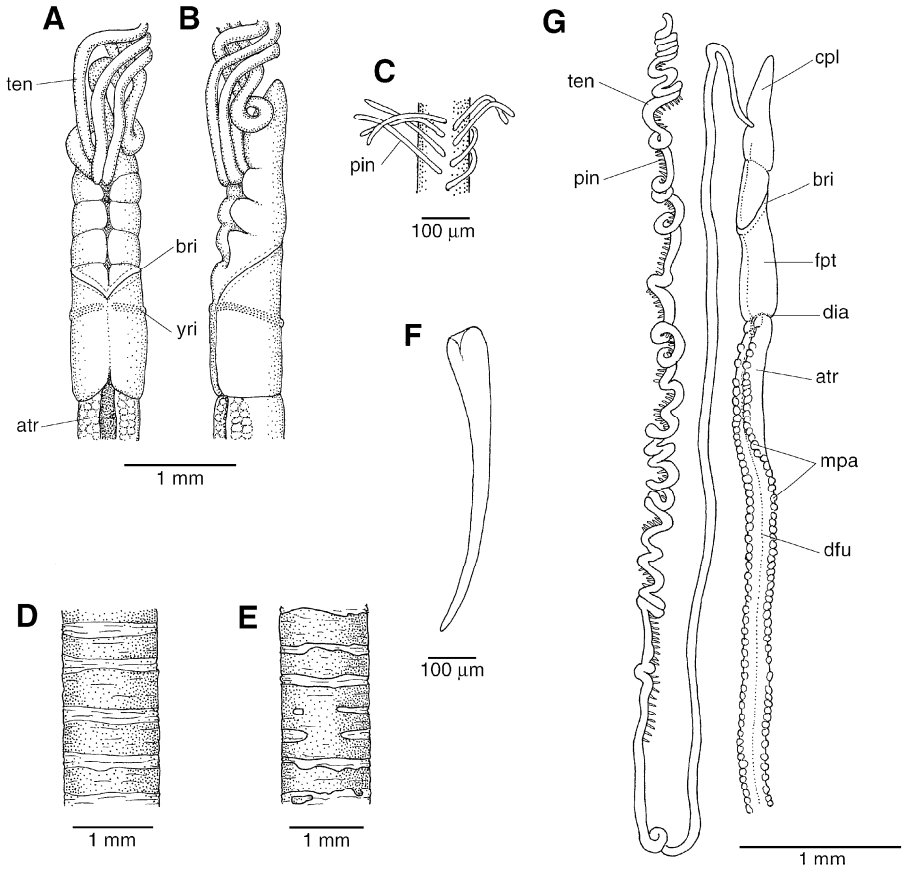


**Figure legend:** Frenulate siboglinids. **A**-**F**, *Oligobrachia* specimen. **A**, **B**, anterior end of animal: **A**, dorsal view; **B**, lateral view. **C**, part of tentacle showing pinnules. **D**, **E**, brown ringed tube showing regular (**D**) and irregular (**E**) rings. **F**, spermatophore. **G**, *Siboglinum* specimen, showing the long tentacle (partly pinnulated), short forepart and anterior part of trunk with many metameric papillae. **atr**, anterior region of trunk; **bri**, bridle; **cpl**, cephalic lobe; **dia**, diaphragm; **dfu**, dorsal furrow; **fpt**, forepart; **mpa**, metameric papillae; **pin**, pinnule; **ten**, tentacle; **yri**, yellow ring. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by E.C. Southward; A-F adapted from BATHAM, 1973; G, after IVANOV, 1963).

## GENUS ***Bobmarleya*** Hilário & Cunha 2008

*Bobmarleya* HILÁRIO & CUNHA, 2008: 363.
**TYPE SPECIES:** *Bobmarleya gadensis* Hilário & Cunha 2008.

### ***Bobmarleya gadensis*** Hilário & Cunha 2008

*Bobmarleya gadensis* HILÁRIO & CUNHA, 2008: 363-365, figs. 1-2, 4*A-D*, 5*A*, *C*.
**TYPE LOCALITY:** NE Atlantic Ocean, Gulf of Cádiz, Carlos Ribeiro mud vulcano, 35º47.23'N, 08º25.27'W, at 2200 meters.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Diplobrachia*** Ivanov 1960

*Diplobrachia* IVANOV, 1960: 219-220.
**TYPE SPECIES:** *Diplobrachia japonica* Ivanov 1960.

**KEY TO SPECIES:**

**1a.** Tube diameter between 0.12-0.17 mm (usually 0.13-0.14 mm); diameter of the worm between 0.10-0.12 mm; forepart length between 0.5-1.0 mm; length of coiled tentacles between 0.5-2.2 mm; no complete groove present just in front of the bridle; separation between mesosoma and metasoma without external groove; 6-13 pairs of metameric papillae, with the first 4-5 devoid of plaques; postannular region with transverse rows of 2 or 3 papillae at regular intervals.....***D. capillaris***
**1b.** Tube diameter of about 0.27 mm; diameter of the worm between 0.19-0.24 mm; forepart length between 0.9-1.36 mm; tentacle length between 5-6 mm; a complete groove encircles the forepart just in front of the bridle; mesosoma and metasoma separated by a sharp groove; 20-25 pairs of metameric papillae, all with plaques; postannular region with transverse rows of 5-7 papillae at more or less regular intervals.....***D. similis***

### ***Diplobrachia capillaris*** (Southward 1959)

*Polybrachia capillaris* SOUTHWARD, 1959: 441-443, fig. 2.
**TYPE LOCALITY:** The species was originally described from specimens collected at fives stations: 47º50'N 7º57'W, at 300-450 fathoms (549-823 meters); 43º43'N 4º02'W, at 680-970 fathoms (1243.5-1774 meters); 48º26'N 10º08'W, at 730-780 fathoms (1335-1426.5 meters); 48º39'N 9º50'W, at 750-850 fathoms (1371.5-1554.5 meters); 48º40'N 9º48'W, at 600-680 fathoms (1097-1243.5 meters). In the following station, only empty tubes were collected: 47º56'N 7º57'W, at 340-350 fathoms (622-640 meters).
**SELECTED REFERENCES:** *Diplobrachia capillaris* — IVANOV, 1963: 378-381, figs. *A*152, *YZ*133, table 4.
**DISTRIBUTION:** Southwest British Isles; Bay of Biscay. Between 550-1780 meters.

### ***Diplobrachia similis*** Southward & Brattegard 1968

*Diplobrachia similis* SOUTHWARD & BRATTEGARD, 1968: 863-866, figs. 13-14.
**TYPE LOCALITY:** South of Cape Hatteras (North Carolina), 33º26.3'N, 75º55.2'W, at 2600 meters.
**DISTRIBUTION:** South of Cape Hatteras (North Carolina), 2000-3000 meters, empty tubes found between 1125-5350 meters; Off New England, between 1500-3700 meters; Bay of Biscay, between about 1700-4500 meters (SOUTHWARD, 1979).

## GENUS ***Lamellisabella*** Uschakov 1933

*Lamellisabella* USCHAKOV, 1933: 205-206.
**TYPE SPECIES:** *Lamellisabella zachsi* Uschakov 1933.

### ***Lamellisabella denticulata*** Southward 1978

*Lamellisabella denticulata* SOUTHWARD, 1978*b*: 713-716, figs. 1-2, table 1.
**TYPE LOCALITY:** Bay of Biscay, 45º35.2'N, 03º51.6'W, at 4250 meters.

**SELECTED REFERENCES:** *Lamellisabella denticulata* — HILÁRIO & CUNHA, 2008: 365.
**DISTRIBUTION:** Bay of Biscay, at depths of 4050 and 4250 meters; empty tubes were also found in north Biscay, at 2695 meters. Tubes apparently belonging to the same species were collected off Gibraltar and West Africa, at 3050-4250 meters. Probably the species is distributed from the Bay of Biscay to the Gulf of Guinea. The presence of the species at the Gulf of Cádiz was confirmed by HILÁRIO & CUNHA (2008), at the Porto mud vulcano, at 3863 meters.

## GENUS *Nereilinum* Ivanov 1961

*Nereilinum* IVANOV, 1961: 388.
**TYPE SPECIES:** *Nereilinum murmanicum* Ivanov 1961.

### *Nereilinum murmanicum* Ivanov 1961

*Nereilinum murmanicum* IVANOV, 1961: 382-388, figs. 1-3.
**TYPE LOCALITY:** Southern part of the Barents Sea (near the Murmansk Institute of Marine Biology), in the area 69ºN to 75ºN, and 35ºE to 40ºE, between 170-325 meters, on sand or sandy mud.
**SELECTED REFERENCES:** *Nereilinum murmanicum* — IVANOV, 1963: 163-169, figs. *B*92, *C*92, *D*92, *YZ*133; FLÜGEL, 1990: 237-240, figs. 4-5, 6*B*.
**DISTRIBUTION:** Southern part of the Barents Sea (near the Murmansk Institute of Marine Biology), in the area 69º to 75ºN, and 35º to 40ºE, between 170-325 meters, on sand or sandy mud; Norwegian Sea, at 1274 meters, on silty clay.

## GENUS *Oligobrachia* Ivanov 1957

*Oligobrachia* IVANOV, 1957: 433.
**TYPE SPECIES:** *Oligobrachia dogieli* Ivanov 1957.

**KEY TO SPECIES:**
(adapted from SOUTHWARD, 1978*a*)

**1a.** Two to four tentacles; tube black or brown-ringed.....***O. gracilis***
**1b.** Five to 12 tentacles.....**2**

**2a (1b).** Tentacles have pinnules; tube opaque black.....***O. ivanovi***
**2b (1b).** Tentacles without pinnules; tube opaque brown to black or with brown or black rings.....**3**

**3a (2b).** White patch on the ventral side of the cephalic lobe absent; patches of glandular epidermis in the forepart (not including the cephalic lobe) present; white-coloured bands covering the pyriform glands present; tube has black or brown rings.....***O. webbi***
**3b (2b).** White patch on the ventral side of the cephalic lobe present; patches of glandular epidermis in the forepart (not including the cephalic lobe) absent; white-coloured bands covering the pyriform glands absent; tube is darker than in the preceeding species, being opaque brown to black..***O. haakonmosbiensis***

### *Oligobrachia gracilis* Southward 1978

*Oligobranchia gracilis* SOUTHWARD, 1978*a*: 358-361, figs. 1-3.
**TYPE LOCALITY:** Northern Bay of Biscay, 48º23.4'N, 51.4'W, at 2215 meters.
**DISTRIBUTION:** Northern Bay of Biscay in depths from 720 to 2215 meters.

### *Oligobrachia haakonmosbiensis* Smirnov 2000

*Oligobrachia haakonmosbiensis* SMIRNOV, 2000*b*: 147-149, figs. 6-7.
**TYPE LOCALITY:** Norwegian Sea, Haakon Mosby Mud Volcano (72º00.5'N, 14º43.35'E), 1250-1260 meters, on mud.
**DISTRIBUTION:** Norwegian Sea, Haakon Mosby Mud Volcano: 72º00.46'N, 14º43.91'E, 1257-1303 meters; 72º00.5'N, 14º43.35'E, 1250-1260 meters. On mud.

### ***Oligobrachia ivanovi*** Southward 1959

*Oligobrachia ivanovi* SOUTHWARD, 1959: 439-441, 444, fig. 1.
**TYPE LOCALITY:** Off the mouth of the English Channel (48º26'N, 10º8'W), at 730-780 fathoms (1335-1426.5 meters).
**SELECTED REFERENCES:** *Oligobrachia ivanovi* — IVANOV, 1963: 160-162, figs. *A*92, *YZ*133; SOUTHWARD, 1978*a*: 361-362.
**DISTRIBUTION:** Bay of Biscay, in depths between 1300-2466 meters.

### ***Oligobrachia webbi*** Brattegard 1966

*Oligobrachia webbi* BRATTEGARD, 1966: 56-61, figs. 1-3.
**TYPE LOCALITY:** Northern Norway, Northwest of Gåsvær (69º57'N, 18º34'E), off Kvalöy near Tromsö, at 270 meters, on sandy mud.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Osedax*** Rouse, Godffredi & Vrijenhoek 2004

*Osedax* ROUSE, GOFFREDI & VRIJENHOEK, 2004: 670.
**TYPE SPECIES:** *Osedax rubiplumus* Rouse, Godffredi & Vrijenhoek 2004.
**REMARKS:** This genus, recently described, includes remarkable polychaete species that live imbedded in the bones of dead whales. The worms consume these bones, via ramifying roots of its body, which invade the bone marrow. The ramifications contain bacteriocytes including large rodshaped bacteria of the microbial order Oceanospirillales, which are known for heterotrophic degradation of complex organic compounds (ROUSE, GODFFREDI & VRIJENHOEK, 2004). These endosymbionts are the responsible for the nutrition of the worms, through the degradation of the bones.

### ***Osedax mucofloris*** Glover, Källström, Smith & Dahlgren 2005

*Osedax mucofloris* GLOVER *et al.*, 2005: 2589-2590, fig. 1.
**TYPE LOCALITY:** Kosterfjord, Skagerrak, Western Sweden, 58º53.1'N, 11º06.4'E, 125 meters, collected from vertebrae of 5.3 meters Minke whale carcass (*Balaenoptera acutorostrata*).
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Polybrachia*** Ivanov, 1952

*Polybrachia* IVANOV, 1952: 379.
**TYPE SPECIES:** *Polybrachia annulata* Ivanov 1952.
**REMARKS:** This genus was recorded to be present in the Bay of Biscay by SOUTHWARD (1979), as *Polybrachia* n. sp., without further indication on characters of the species. The species remains apparently undescribed, but the genus is here recorded as being present in European waters.

## GENUS ***Sclerolinum*** Southward 1961

*Sclerolinium* SOUTHWARD, 1961: 16-18.
**TYPE SPECIES:** *Sclerolinum sibogae* Southward 1961.

**KEY TO SPECIES:**

**1a.** Tube 32 µm thick, uneven; tube diameter 0.128 mm; ciliated band broad, heterogenous; plaques of the bridle elongated; distance from the apex of cephalic lobe to bridle of 0.133-0.159 mm; breath of anterior zone of 0.09 mm; dorsal groove on anterior zone absent; habits decaying wood.....***S. brattstromi***

**1b.** Tube 56 µm thick, even; tube diameter 0.2-0.39 mm; ciliated band narrow, homogenous; plaques of the bridle oval; distance from the apex of cephalic lobe to bridle of 0.27-0.3 mm; breath of anterior zone of 0.13-0.24 mm; dorsal groove on anterior zone strongly developed, habits mud.....***S. contortum***

### ***Sclerolinum brattstromi*** Webb 1964

*Sclerolinum brattstromi* WEBB, 1964*a*: 49-54, figs. 1-3.
**TYPE LOCALITY:** Western Norway, Indre Samlafjorden (part of Hardangerfjorden, south of Ålvik), 60º23'50"N, 6º25'30"E, at 870 meters, and associated to wood debris, deposited over a bottom of soft clay and mud.
**SELECTED REFERENCES:** *Sclerolinum brattstromi* — WEBB, 1964*b*: 47-55, figs. 1-7; SMIRNOV, 2000*b*: table 1.
**DISTRIBUTION:** Western Norway, inhabiting all sorts of wood in different stages of decay, ropes, cardboards, or leather, between 90-870 meters.

### ***Sclerolinum contortum*** Smirnov 2000

*Sclerolinum contortum* SMIRNOV, 2000*b*: 142-147, figs. 1-5, table 1.
**TYPE LOCALITY:** Norwegian Sea, Haakon Mosby Mud Volcano (72º00.46'N, 14º43.91'E), 1257-1303 meters, on mud.
**DISTRIBUTION:** Norwegian Sea, Haakon Mosby Mud Volcano: 72º00.46'N, 14º43.91'E, 1257-1303 meters; 72º00.5'N, 14º43.35'E, 1250-1260 meters. On mud.

## GENUS ***Siboglinum*** Caullery 1914

*Siboglinum* CAULLERY, 1914*a*: 2015.
**TYPE SPECIES:** *Siboglinum weberi* Caullery 1944.

**KEY TO SPECIES:**

**1a.** Keels of bridle divided on the dorsal side (sometimes can be very close but do not fuse).....**2**
**1b.** Keels of bridle fused on the dorsal side.....**8**

**2a (1a).** Pinnules absent in the tentacle [two anterior circular glandular bands in the forepart of the body; metameric anterior region of trunk with 35-41 pairs of papillae; zone of thickened papillae with 2 large papillae; 2 girdles of uncini, which lie in one row; tube orange red, with irregular rings that become more distinct and tend to fuse, and clear interspaces appearing to be wrinckled].....***S. poseidoni***
**2b (1a).** Pinnules present in the tentacle.....**3**

**3a (2b).** Metameric anterior region of trunk with more than 130 pairs of papillae (153-166); zone of thickened papillae with about 30-40 large papillae [a pair of dorsal triangular glandular patches in front of bridle, and two dorsal glandular ribbons to the hind part of mesosome; tentacle with 2 dense rows of papillae; 2-3 girdles of uncini, which lie in 3-4 rows; the thickwalled tube has complete, or partially incomplete, short brownish-grey rings, sometimes anastomosing one with another].....***S. atlanticum***
**3b (2b).** Metameric anterior region of trunk with 12-75 pairs of papillae; zone of thickened papillae with 2-13 large papillae (unknown in *S. carpinei*).....**4**

**4a (3b).** 3 girdles of uncini, which lie in 1-2 rows; tentacle with 2 rows of dense pinnulae [metameric anterior region of trunk with 12-40 pairs of papillae; unknown number of large papillae present in the zone of thickened papillae; tube ringed and segmented anteriorly, with brown rings, which become longer and denser posteriorly, where the segments disappear].....***S. carpinei***
**4b (3b).** 2 girdles of uncini; tentacle with one, two, or one semidouble row of sparse pinnulae.....**5**

**5a (4b).** Dorsal triangular glandular patches present in front of bridle; behind the bridle two glandular stripes extend back dorsally, almost to the end of the mesosoma.....**6**
**5b (4b).** No glandular patches in front of the gridle or stripes on mesosoma.....**7**

**6a (5a).** Tube yellowish-grey to greenish, ringed; metameric anterior region of trunk with 35-40 pairs of papillae; zone of thickened papillae with 7-13 large papillae; girdles with 1-2 rows of uncini.....***S. leucopleurum***
**6b (5a).** Tube milky-white, unringed; metameric anterior region of trunk with about 75 pairs of papillae, poorly differentiated; zone of thickened papillae with 2-3 large papillae; girdles with 2-3 rows of uncini.....***S. lacteum***

**7a (5b).** Pair of dorsolateral white glandular patches behind the bridle; tubes in the middle part usually ringed, greenish-brown [metameric anterior region of trunk with 50-70 pairs of papillae; zone of thickened papillae with 2-8 large papillae; girdles with 1 row of uncini].....***S. holmei***
**7b (5b).** White glandular patches behind the bridle absent; tubes in the middle part usually ringed, light yellowish-brown, being darker at the middle region of the tube [metameric anterior region of trunk with 50-70 pairs of papillae; zone of thickened papillae with 3-7 large papillae (usually 5); girdles with 1 row of uncini].....***S. fiordicum***

**8a (1b).** Pinnules absent in the tentacle; 2 or 3 girdles of uncini, which lie in 1 to 4 rows.....**9**
**8b (1b).** Pinnules present in the tentacle; 3 girdles of uncini, which lie in 1 single row.....**11**

**9a (8a).** There is an incomplete glandular girdle behind the bridle; prostomium blunt.....**10**
**9b (8a).** There is no glandular structure behind the bridle; postomium pointed [3 girdles of uncini, which lie in 2 rows; number of metameric papillae and of enlarged papillae unknown; tube unsegmented, fibrous, with simple or split (double) rings].....***S. hyperboreum***

**10a (9a).** The glandular girdle behind the bridle is broken both dorsally and ventrally, and a long mid-dorsal furrow runs in front of the bridle; 2 or 3 girdles of uncini, which lie in a single row (normally two uncinigerous girdles are present, three in some individuals); metameric anterior region of trunk with up to 47 pairs of papillae (usually between 30-40); tube unsegmented with close irregular brown rings very variable in length.....***S. inerme***
**10b (9a).** The glandular girdle behind the bridle is broken only on the ventral side; no mid-dorsal furrow in front of the bridle; 3 girdles of uncini, which lie in 2-4 rows; unknown number of papillae in the metameric anterior region of trunk; tube with fibres in the anterior part, absent in the middle region, where the tube is ringed, with the rather long rings standing out from an homogeneous ground.....***S. norvegicum***

**11a (8b).** Two small glandular patches present behind the bridle, slightly connected dorsally but widely separated ventrally; metameric anterior region of trunk with only very faint divisions into papillae; tube not segmented, with light brown rings, widely spaced, becoming paler and often subdivided into doublets.....***S. angustum***
**11b (8b).** Glandular patches behind the gridle absent; metameric anterior region of trunk with 35-50 papillae.....**12**

**12a (11b).** Metameric anterior region of trunk with 35-40 papillae, with oval cuticular adhesive plaques; under high magnification bridle keels seem to be made of blocks of varying lengths; tube brown ringed, faintly segmented, with 2 to 4 rings per segment.....***S. pholidotum***
**12b (11b).** Metameric anterior region of trunk with 40-50 papillae, without plaques; bridle keel apparently not made of blocks of varying lengths.....**13**

**13a (12b).** Cephalic lobe short, truncated and slightly lobed; breadth/length ratio of forepart of 1:3; dark ring, presumely glandular, present in the cephalic lobe; tube segmented, dark brown, with irregular rings, with narrow rings, often incomplete and reduced to isolated patches, alternating with wider rings.....***S. brevicephalum***
**13b (12b).** Cephalic lobe elongated, conical; breadth/length ratio of forepart of 1:8; dark ring absent in cephalic lobe; tube segmented, with dark reddish brown, golden-brown or brown rings numbering seven or rarely six per segment, sometimes irregular in form or incomplete, sometimes joined by bridges or split into pairs, and regularly alternating with transparent colorless intervals.....***S. ekmani***

## ***Siboglinum angustum*** Southward & Brattegard 1968

*Siboglinum angustum* SOUTHWARD & BRATTEGARD, 1968: 844-846, fig. 4.
**TYPE LOCALITY:** North of Cape Hatteras (North Carolina), 36º08.8'N, 74º35.8'W, at 1560 meters.

**DISTRIBUTION:** Western Atlantic: Off Cape Hatteras (North Carolina), at 610-5350 meters; Off New England; Bay of Biscay, between about 1200-4500 meters (SOUTHWARD, 1979).

## ***Siboglinum atlanticum*** Southward & Southward 1958

*Siboglinum atlanticum* SOUTHWARD & SOUTHWARD, 1958: 629-630, figs. 1*C-D*, 2.
**TYPE LOCALITY:** Atlantic Ocean, southwest the British Isles, in two stations: 1) 48º28'N, 10º04'W, at 700 fathoms (1280 meters), in mud containing a little sand and foraminiferan shells; 2) 47º50'N, 8º08'W, at 670-710 fathoms (1225-1300 meters), in mud and cretaceous rocks. In two other stations were found only tubes: 1) 48º32'N, 10º10'W, at 670-720 fathoms (1225.3-1316.7 meters); 2) 48º31'N, 10º11'W, 520-680 fathoms (951-1243.6 meters).
**SELECTED REFERENCES:** *Siboglinum atlanticum* — IVANOV, 1960: 192-195, figs. 87, 131-132, table 2; IVANOV, 1963: 263-268, figs. 87, 131, *A*131, 132, pl. 4 fig. *c*; FLÜGEL & CALLSEN-CENCIC, 1993: table 1.
**DISTRIBUTION:** Southwest British Isles and Bay of Biscay, in muddy bottoms, between 1225-2200 meters. Besides the stations where specimens were found, empty tubes were also collected between 1225-1317 meters, on mud and a few stones or gravel.

## ***Siboglinum brevicephalum*** Flügel 1990

*Siboglinum brevicephalum* FLÜGEL, 1990: 233-236, figs. 1-3, 6*A*, table 1
**TYPE LOCALITY:** Norwegian Sea (67º46'N, 06º01'E), at 1274 meters, on silty clay.
**DISTRIBUTION:** Known from the type locality.

## ***Siboglinum carpinei*** Ivanov 1970

*Siboglinum carpinei* IVANOV, 1970: 3-8, figs. 1-4, table.
**TYPE LOCALITY:** Mediterranean Sea, westward of Corsica, at 380-1000 meters, in yellow, more or less liquid mud.
**DISTRIBUTION:** Known from the type locality.

## ***Siboglinum ekmani*** Jägersten 1956

*Siboglinum ekmani* JÄGERSTEN, 1956: 211-244, figs. 1-8, pls. 1-3.
**TYPE LOCALITY:** JÄGERSTEN (1956) based his description of the species on specimens collected at the Skagerrak, in the following two localities: 1) 58º18.8'N, 9º57'E, at 487 meters, on greyish brown clay; and 2) 58º09'N, 9º17'E, at 650 meters, on dark brown clay. According to the same author, the two larger and more closely examined pieces, on which the description was mostly based, came from the first locality.
**SELECTED REFERENCES:** *Siboglinum ekmani* — SOUTHWARD & SOUTHWARD, 1958: 631-632, fig. 1*B*; IVANOV, 1960: 131-134, figs. 87, 97-99, table 2; KIRKEGAARD, 1961: 223-226, figs. 2-3; IVANOV, 1963: 185-190, figs. 87, 97-99, table 2; SOUTHWARD & BRATTEGARD, 1968: 841, fig. 1; IVANOV, 1970: table; FLÜGEL, 1990: table 1.
**DISTRIBUTION:** Norway; Skagerrak, Southwest Great Britain, and Bay of Biscay, at 90-1280 meters, in muddy bottoms; Western Atlantic, off Cape Hatteras (North Carolina) and New England, 470-2425 meters.

## ***Siboglinum fiordicum*** Webb 1963

*Siboglinum fiordicum* WEBB, 1963: 33-40, figs. 1-5.
**TYPE LOCALITY:** Western Norway, Raunefjord, off Skogsvåg (60º16.5'N, 4º09'E), near Bergen, at 240 meters, in mud.
**DISTRIBUTION:** Norway: Raunefjord; Hardangerfjorden; Brufjorden; Fanafjorden; Ypsesund; Skagerrak. In mud. Between 25-240 meters.
**REMARKS:** The description of *S. fiordicum* Webb 1963 is very close to the one of *S. holmei* Southward 1963, a species described in the same year, and both taxa could represent the same species. The main difference between the two descriptions is the presence of a pair of dorsolateral white glandular patches just behind the bridle in *S. holmei*, which seems to be absent in *S. fiordicum*. All the other differences could be the result of intraspecific variability or of the state of contraction of the studied specimens.

## ***Siboglinum holmei*** Southward 1963

*Siboglinum holmei* SOUTHWARD, 1963*a*: 514-517, fig. 1, table 2.
**TYPE LOCALITY:** Off Dingle Bay, S.W. Ireland, 51º54'N, 11º00'W, between 143-174 meters.

**SELECTED REFERENCES:** *Siboglinum holmei* — SOUTHWARD & BRATTEGARD, 1968: 854, fig. 8.
**DISTRIBUTION:** Northern European Seas and Bay of Biscay, 100-1300 meters; Western Atlantic: Off Cape Hatteras (North Carolina), 365-504 meters, empty tubes found at 43 meters; off New England, 366-567 meters.
**REMARKS:** See the *Remarks* section under *Siboglinum fiordicum*.

## ***Siboglinum hyperboreum*** Ivanov 1960

*Siboglinum hyperboreum* IVANOV, 1960: 170-172, figs. 87, 120, table 2.
**TYPE LOCALITY:** Greenland Sea to the east of Lambert Land (79ºN 20ºW), at 217 meters, on brown silt with pebbles.
**SELECTED REFERENCES:** *Siboglinum hyperboreum* — IVANOV, 1963: 236-238, figs. 87, 120, table 2.
**DISTRIBUTION:** Known from the type locality.

## ***Siboglinum inerme*** Southward & Southward 1958

*Siboglinum inermis* SOUTHWARD & SOUTHWARD, 1958: 630-631, figs. 1*A*, 3, table 2.
**TYPE LOCALITY:** Atlantic Ocean, southwest the British Isles and near the west coast of Europe, in two stations: 1) 48º28'N, 10º04'W, at 700 fathoms (1280 meters), on mud containing a little sand and foraminiferan shells; 2) 47º50'N, 7º57'W, at 300-450 fathoms (548.5-823 meters), on mud containing sand and foraminiferan shells.
**SELECTED REFERENCES:** *Siboglinum inermis* — IVANOV, 1960: 195-198, figs. 87, 133. *Siboglinum inerme* — IVANOV, 1963: 268-270, figs. 87, 133, *A*133, pl. 4 fig. *d*, table 2.
**DISTRIBUTION:** Southwest the British Isles; Bay of Biscay. In muddy bottoms. Between 550-1280 meters.

## ***Siboglinum lacteum*** Southward *in* Ivanov 1963

*Siboglinum lacteum* SOUTHWARD *in* IVANOV, 1963: 322-325, fig. *XY*133, pl. 4 figs. *a*-*b*, table 2.
**TYPE LOCALITY:** Within 10-mile radius of 48º30'N, 10º0'W (slope off the British Channel mouth), at 1100-1250 meters.
**SELECTED REFERENCES:** FLÜGEL & CALLSEN-CENCIC, 1993: table 1.
**DISTRIBUTION:** Known from the type locality.

## ***Siboglinum leucopleurum*** Flügel & Callsen-Cencic 1993

*Siboglinum leucopleurum* FLÜGEL & CALLSEN-CENCIC, 1993: 255-261, figs. 1-6, table 1.
**TYPE LOCALITY:** Atlantic Ocean off Setúbal (Portugal), southwest the mouth of the river Tejo (Tagus), 38º12.2'N, 9º22.1'W, at 1138 meters, on greyish clay with soft brownish surface.
**REFERENCES FOR PORTUGAL:** FLÜGEL & CALLSEN-CENCIC, 1993 (off Cape Espichel).
**DISTRIBUTION:** Known from the type locality.

## ***Siboglinum norvegicum*** Ivanov 1960

*Siboglinum norvegicum* IVANOV, 1960: 183-186, figs. 87, 126, table 2.
**TYPE LOCALITY:** Norwegian Sea to the west of the Shetland Isles, at a depth of 120 meters, and to the west of the Norwegian coast at a depth of 1165 meters.
**SELECTED REFERENCES:** *Siboglinum norvegicum* — IVANOV, 1963: 251-254, figs. 87, 126, table 2.
**DISTRIBUTION:** Known from the type locality.

## ***Siboglinum pholidotum*** Southward & Brattegard 1968

*Siboglinum pholidotum* SOUTHWARD & BRATTEGARD, 1968: 841-844, figs. 2-3.
**TYPE LOCALITY:** South of Cape Hatteras (North Carolina), 33º59.2'N, 75º46.0'W, at 1125-1325 meters.
**DISTRIBUTION:** North and South Cape Hatteras (North Carolina), 1125-2900 meters; off New England, 2151 meters; Bay of Biscay, between about 1800-3200 meters (SOUTHWARD, 1979).

## ***Siboglinum poseidoni*** Flügel & Langhof 1983

*Siboglinum poseidoni* FLÜGEL & LANGHOF, 1983: 131-137, figs. 1-7.
**TYPE LOCALITY:** Southern Skagerrak (58º01.3'N, 09º34.6'E), at 294 meters, in sandy mud.
**DISTRIBUTION:** Southern and eastern Skagerrak, between 230-294 meters, in sandy mud.

## GENUS ***Spirobrachia*** Ivanov 1952

*Spirobrachia* IVANOV, 1952: 384-390.
**TYPE SPECIES:** *Spirobrachia grandis* Ivanov 1952.

### ***Spirobrachia tripeira*** Hilário & Cunha 2008

*Spirobrachia tripeira* HILÁRIO & CUNHA, 2008: 365-368, figs. 3, 4*E-F*, 5*B*, *D*.
**TYPE LOCALITY:** NE Atlantic Ocean, Gulf of Cádiz, Porto mud vulcano, 35º33.77'N, 09º30.42'W, at 3902 meters.
**DISTRIBUTION:** Known from the type locality.

# *FAMILY **SIGALIONIDAE** Malmgren 1867

**AS:** *SIGALIONIDÆ* MALMGREN, 1867*a*: 16.
**TYPE GENUS:** *Sigalion* Audouin & Milne-Edwards in Cuvier 1830.
**SYNONYMS:** *SIGALIONINA* Kinberg 1855.
**REMARKS:** The family Sigalionidae includes at present 24 genera and about 190 species considered to be valid. It is divided in two main subfamilies, the Pelogeniinae, created by PETTIBONE (1992*a*) to include the genera *Claparedopelogenia*, *Dayipsammolyce*, *Hartmanipsammolyce*, *Heteropelogenia*, *Neopsammolyce*, *Pelogenia*, *Pottsipelogenia*, and *Psammolyce*, and the nominal subfamily Sigalioninae, more numerous and gathering all the other genera.

The biggest part of the relevant taxonomic papers on European Sigalionidae are cited below. Among these and others, particular emphasis must be given to the series of works published by PETTIBONE (1969*b*, 1970*a*, 1970*b*, 1970*c*, 1971*a*, 1971*c*, 1992*a*, 1997), in which the family is partially revised. AUNGTONYA (2002) made an overview of the biggest part of the recognized genera, including a key, and the same author (AUNGTONYA, 2003) evaluated the most important characters generally used in the identification of the Sigalionidae, using both light and electron (SEM) microscopy. Finally, AUNGTONYA (2007) described a new species of *Labiosthenolepis* from the Andaman Sea, and WEHE (2007) revised the Sigalionidae from the region surrounding the Arabian Peninsula.

In European and nearby waters, 10 genera and 15 described species are known to occur. *Willeysthenelais*, represented by *W. suezensis* and known from the Suez Canal, is considered below, as it may be present in the Eastern Mediterranean Sea as a Lessepsian migrant. Another species was recorded with doubts. Among the studied material the Sigalionidae were represented by 7 genera and 10 species.

**KEY TO GENERA:**
(adapted from FAUCHALD, 1977*a*)

**1a.** Three antennae present, being the median one very small and inserted on posterior half of the prostomium (may be dislodged, leaving a scar); auricles absent; neurochaetae simple and spinose or composite with appendages of varying lengths, multiarticulated and bidentate.....***Sigalion****
**1b.** Three antennae present, being the median one inserted on the anterior margin of the prostomium.....**2**

**2a (1b).** Lateral antennae on the prostomium proper; all antennae with short ceratophores; two pairs of large eyes; neuropodia with large foliose lobes anteriorly; neurochaetae slender, composite with multiarticulated distally bidentate appendages.....***Euthalenessa****
**2b (1b).** Lateral antennae fused to first chaetiger; median antenna with large median ceratophore.....**3**

**3a (2b).** Median ceratophore without auricles.....**4**
**3b (2b).** Median ceratophore with auricles; auricles small, absent from tentacular segment.....**6**

**4a (3a).** Dorsal cirri absent on chaetiger 3; elytrae not sand-incrusted; neurochaetae composite spinigers with short, canaliculated appendages.....***Leanira***
**4b (3a).** Dorsal cirri present on chaetiger 3; elytrae sand-incrusted; neurochaetae compound falcigers.....**5**

**5a (4b).** Neuropodia of segment II with long filiform appendages.....***Claparedepelogenia****
**5b (4b).** Neuropodia of segment II without long appendages.....***Pelogenia****

**6a (3b).** Ventral cirri covered medially by long papillae; no dorsal cirri on chaetiger 3; neurochaetae simple spinose or composite falcigers with thick, short appendages or more slender with articulated appendages.....***Willeysthenelais***
**6b (3b).** Ventral cirri smooth.....**7**

**7a (6b).** Parapodial lobes and stylodes covered with fine fimbrinae; no dorsal cirri on chaetiger 3; neurochaetae either simple and spinose or composite with distally bidentate, short, slender and articulated appendages.....***Fimbriosthenelais****
**7b (6b).** Parapodial lobes and stylodes smooth.....**8**

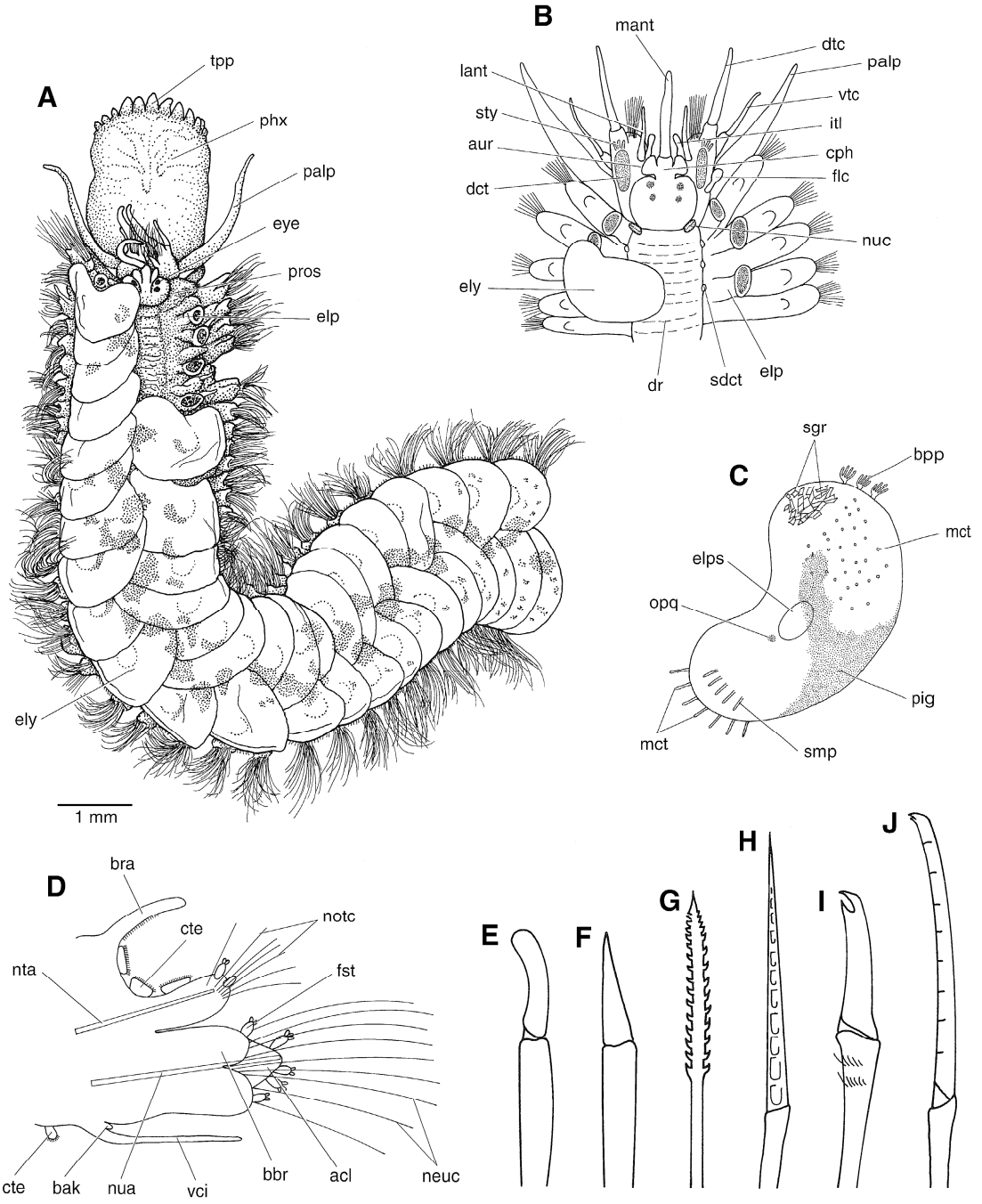


**Figure legend:** Family Sigalionidae. **A**, *Fimbriosthenelais* specimen, anterior end, dorsal view with pharynx everted; some elytra and parapodia 2 and 7 removed. **B**-**J**, diagrammatic figures of a generalised sigalionid: **B**, anterior end, dorsal view. **C**, elytron. **D**, parapodium. **E**-**J**, types of neurochaetae: **E**, compound chaeta with blunt-tipped blade; **F**, compound chaeta with conical-tipped blade; **G**, bipinnate spine; **H**, canaliculate spiniger; **I**, compound falciger with no articles on blade; **J**, compound falciger with articulated blade. **acl**, acicular lobe; **aur**, auricule; **bak**, basal knob; **bbr**, bilobed bract; **bra**, branchia; **bpp**, branched papilla; **cph**, ceratophore; **cte**, ctenidium; **dct**, dorsal ctenidium (segment I); **dr**, dorsal ridges on segments II-IV; **dtc**, dorsal tentacular cirrus; **elp**, elytrophore; **elps**, elytrophore attachment scar; **ely**, elytron; **eye**, eye; **flc**, flap-like modified ctenidium; **fst**, fimbriated stylode; **itl**, inner tentacular lobe; **lant**, lateral antenna; **mant**, median antenna; **mct**, microtubule; **neuc**, neurochaetae; **notc**, notochaetae; **nta**, notoacicula; **nua**, neuroacicula; **nuc**, nuchal organ; **opq**, opaque spot; **palp**, palp; **phx**, pharynx, everted; **pig**, pigment; **pros**, prostomium; **sdct**, small dorsal ctenidium; **sgr**, sand grains; **smp**, submarginal papilla; **sty**, stylode; **tpp**, terminal papilla; **vci**, ventral cirrus; **vtc**, ventral tentacular cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

**8a (7b).** Long dorsal cirri on chaetiger 3.....**9**
**8b (7b).** Dorsal cirri absent from chaetiger 3 (reported to be present in *Sthenelais jeffreysii*, but see *REMARKS* under this species).....**10**

**9a (8a).** Neurochaetae composite spinigers, with canaliculated, relatively short appendages.....***Neoleanira***
**9b (8a).** Neurochaetae composite falcigers, with articulated appendages and bidentate tips..***Eusthenelais****

**10a (8b).** Dorsal tubercle present on chaetiger 3; at least some neuropodial falcigers present, of two kinds, stout with short, bidentate appendages, and slenderer with articulated appendages; labial lobes absent.....***Sthenelais****
**10b (8b).** Dorsal tubercle absent on chaetiger 3; neuropodial falcigers absent, neurochaetae as compound spinigers, with blades rather short, canaliculate, tapering to fine tips, with or without few additional simple spinose neurochaetae; labial lobes present.....***Labioleanira****

## *GENUS ***Claparedepelogenia*** Pettibone 1997

*Claparedopelogenia* PETTIBONE, 1997: 68.
**TYPE SPECIES:** *Lepidopleurus inclusus* Claparède 1868.
**SYNONYMS:** *Lepidopleurus* Claparède 1868 [not Risso 1826 (Mollusca)].

### ****Claparedepelogenia inclusa*** (Claparède 1868)

*Lepidopleurus inclusus* CLAPARÈDE, 1868: 415-417, pl. 6 fig. 4*A-E*.
**TYPE LOCALITY:** Gulf of Naples (West Italy).
**SYNONYMS:** *Psammolyce carpenteri* McIntosh 1876; *Psammolyce umbonifera* Grube 1878.
**SELECTED REFERENCES:** *Lepidopleurus inclusus* — DARBOUX, 1899: 73, 118. *Psammolyce (Lepidopleurus) inclusa* — PRUVOT, 1895: 646. *Psammolyce inclusa* — FAUVEL, 1923*c*: 107-109, fig. 40*n*; FAUVEL, 1934: 15; BELLAN, 1964*b*: 34; ANTON-ERXLEBEN, 1977: 42, pl. 6 fig. 6, table 2; CHAMBERS & MUIR, 1997: 148, fig. 47. *Claparedepelogenia inclusa* — PETTIBONE, 1997: 68-71, figs. 49-50; BARNICH & FIEGE, 2003: 134, fig. 66. *Psammolyce carpenteri* — MCINTOSH, 1876*c*: 410 [footnote under *P. herminiæ?*]. *Psammolyce umbonifera* — GRUBE, 1878*d*: 521-522. *Psammolyce herminæ* Aud. & Ed.? [not *Sigalion herminiae* Audouin & Milne-Edwards 1832 = *Pelogenia arenosa* (Delle Chiaje 1830)] — MCINTOSH, 1876*b*: 410-414, pl. 73 figs. 10-16. *Psammolyce Herminiae* [not *Sigalion herminiae* Audouin & Milne-Edwards 1832 = *Pelogenia arenosa* (Delle Chiaje 1830)] — LANGERHANS, 1880*a*: 277, pl. 14 fig. 7. *Psammolyce arenosa*? [not *Pelogenia arenosa* (Delle Chiaje 1830)] — BERNARDI, 1912: 98-104, figs. 1-2.
**MATERIAL: FAUNA 1 — St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 1 specimen; dorsal cirri on segment 3; neurochaetae as compound chaetigers; neuropodia of segment 2 with long appendages; first elytra greatly enlarged, enclosing prostomium and tentaculophores, anterior parapodia and mouth region; elytra mainly covered with sand.
**DISTRIBUTION:** Off Greenland; Northern Brittany; Madeira Island; Mediterranean Sea; Adriatic Sea; Aegean Sea. On muddy and sandy bottoms. Between 13-93 meters.

## *GENUS ***Eusthenelais*** McIntosh 1876

*Eusthenelais* MCINTOSH, 1876*c*: 407.
**TYPE SPECIES:** *Eusthenelais hibernica* McIntosh 1876.
**SYNONYMS:** *Parasthenelais* Amoureux 1972.
**REMARKS:** Check the *REMARKS* section under *Eusthenelais hibernica*.

### ****Eusthenelais hibernica*** McIntosh 1876

*Eusthenelais hibernica* MCINTOSH, 1876*c*: 407, pl. 73, figs. 4-5.
**TYPE LOCALITY:** Off the west coast of Ireland, at 106 fathoms (193.8 meters), and off Cape Sagres (Portugal), at 45 fathoms (82.3 meters).

**SELECTED REFERENCES:** *Eusthenelais hibernica* — MCINTOSH, 1900*a*: 425-427, pl. 29 fig. 5, pl. 31 fig. 9, pl. 42 figs. 9-10. *Parasthenelais hibernica* — AMOUREUX, 1972*b*: 68-70, fig. 1; CAMPOY, 1982: 99-101; KIRKEGAARD, 1983*b*: 594.
**REFERENCES FOR PORTUGAL:** MCINTOSH, 1876*c* (off Cape Sagres); RIOJA, 1918*b* (previous records: Cape Sagres); AMOUREUX, 1974*b* (as *Parasthenelais hibernica*; off Aveiro); CAMPOY, 1982 (as *Parasthenelais hibernica*; previous records: Cape Sagres; Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (1st part) — St. 139 (A.3066)**, off Almograve Beach, 380 m, sandy mud: 1 incomplete specimen, with 70 chaetigers for about 3 cm long, plus one fragment with 12 chaetigers. **SEPLAT 7 (2nd part) — St. 274 (A.3862)**, off Odeceixe Beach, 327 m, muddy sand: 1 incomplete specimen with 41 chaetigers, plus three fragments, with 6, 9, and 24 chaetigers; proboscis partially everted; nuchal organs visible. **FAUNA 1 — St. 72*A***, Gulf of Cádiz, off Isla Cristina, 450-468 m, muddy sand: 2 specimens, one with 70 chaetigers for about 3.5 cm long, and the other with 48 chaetigers for about 3 cm long.
**DISTRIBUTION:** From the Irish Sea to south of Portugal; Gulf of Cádiz. On muddy bottoms. Between 75-1500 meters.
**REMARKS:** The genus and species were created by MCINTOSH (1876*c*) for specimens collected off the Irish west coast, at 193.8 meters, and off Cape Sagres (Portugal), at 82.3 meters. AMOUREUX (1972*b*) redescribed the species based on specimens collected off the Galician coast (300-600 m), changing the generic name to *Parasthenelais*, without giving a valid reason for that. This redescription also presents some errors, like the description of the first chaetiger being in an upside down position, as well as the figure 1*A*. In addition, figure 1*B* represents the third parapodium and not the second, as it is referred.

I consider as invalid the generic name *Parasthenelais*, being replaced here by the senior name *Eusthenelais*.

For more records of the species check CAMPOY (1982).

## *GENUS ***Euthalenessa*** Darboux 1899

*Euthalenessa* DARBOUX, 1899: 114.
**TYPE SPECIES:** *Thalenessa digitata* McIntosh 1885.
**SYNONYMS:** *Thalenessa* McIntosh 1885 [not Baird 1866 (Polychaeta)]; *Haswellia* Darboux 1899.
**REMARKS:** The genus Euthalenessa was revised by PETTIBONE (1970*c*).

**KEY TO SPECIES:**

**1a.** Eyes absent; presence of anterior prostomial extensions fused to the peristomium....**cf. *E. dendrolepis***
**1b.** Eyes present; absence of prostomial extensions fused to the peristomium.....***E. oculata****

### cf. *Euthalenessa dendrolepis* (Claparède 1868)

cf. *Euthalenessa dendrolepis* — CHAMBERS & MUIR, 1997: 142-143, fig. 44.
**DISTRIBUTION:** Roscoff area, Northern France (English Channel).
**REMARKS:** CHAMBERS & MUIR (1997) identified as cf. *Euthalenessa dendrolepis* a single specimen collected at the Roscoff area. This specimen differed from the material described from the Mediterranean Sea by the absence of eyes and the presence of anterior extensions of the prostomium fused to the peristomium. The same authors stated that more material was required in order to confirm the identity of this species. The unusual presence of anterior prostomial extensions fused to the peristomium could be also due to a malformation of the specimen.

### **Euthalenessa oculata* (Peters 1854)

*Sigalion oculatum* PETERS, 1855: 610.
**TYPE LOCALITY:** Inhambane harbor, southeast Mozambique, 24ºS.
**SYNONYMS:** *Sthenelais dendrolepis* Claparède 1868; *Leanira Giardi* Darboux 1899; *Euthalenessa insignis* Ehlers 1908.
**SELECTED REFERENCES:** *Euthalenessa oculata* — PETTIBONE, 1970*c*: 6-12, figs. 1-5; HARTMANN-SCHRÖDER, 1979*a*: 70-71; KIRKEGAARD, 1983*a*: 197; BARNICH & FIEGE, 2003: 113-115, fig. 57. *Thalenessa oculata* — DAY, 1967: 107-108, fig. 1.19.*m-q*. *Sthenelais dendrolepis* — CLAPARÈDE, 1868:

409-410, pl. 4 fig. 4, pl. 5 fig. 1; MARENZELLER, 1904*a*: 301-302; FAUVEL, 1913*a*: 30; FAUVEL, 1914*f*: 84, pl. 4 fig. 20; FAUVEL, 1916*c*: 44-45. *Euthalenessa dendrolepis* — FAUVEL, 1923*c*: 114-116, fig. 42*h-o*; FAUVEL, 1934: 16; RIOJA, 1935: 18-21, figs. 27-36; BELLAN, 1964*b*: 36-37; RULLIER, 1965*a*: 19. *Euthalanessa dendrolepis* — MONRO, 1930: 70. *Leanira Giardi* — DARBOUX, 1899: 123-134, figs. 24-28. *Euthalenessa insignis* — EHLERS, 1908: 52-55, pl. 1 figs. 10-11, pl. 2 figs. 1-9; AUGENER, 1918: 108-112, pl. 3 fig. 53. Not *Sthenelais dendrolepis* — MCINTOSH, 1869: 409, pl. 12 fig. 12, pl. 15 figs. 4-5; MCINTOSH, 1924: 13; MCINTOSH, 1925: 36 [= *Sigalion squamosus* Delle Chiaje 1830]. Not *Thalenessa oculata* [homonym] — MCINTOSH, 1885*a*: 142-144, pl. 21 figs. 1-2, pl. 23 fig. 12, pl. 25 fig. 3, pl. 13*A* figs. 11-12; IZUKA, 1912: 86-88, pl. 10 figs. 1-2 [= *Euthalenessa festiva* (Grube 1875)]. Not *Thalanessa oculata* — MOORE, 1903: 426; BENHAM, 1915: 201-202, pl. 45 figs. 118-123 [= *Euthalenessa festiva* (Grube 1875)]. Not *Euthalenessa oculata* — OKUDA, 1939*b*: 226; WESENBERG-LUND, 1949: 258, fig. 3 [= *Euthalenessa festiva* (Grube 1875)]. Not *Thalenessa oculata* — TREADWELL 1906: 1157 [= *Euthalenessa chacei* Pettibone 1970].

**REFERENCES FOR PORTUGAL:** FAUVEL, 1913*a* (as *Sthenelais dendrolepis*; off Faro); FAUVEL, 1914*f* (as *Sthenelaïs dendrolepis*; off Faro); BELLAN, 1960*a* (as *Euthalenessa dendrolepis*; Cape Espichel); HARTMANN-SCHRÖDER, 1979*a* (western continental shelf of Algarve); CAMPOY, 1982 (as *Thalenessa dendrolepis*; previous records: Portuguese coast); MONTEIRO-MARQUES, 1984 (as *Euthalenessa dendrolepis*; Praia da Falésia); MONTEIRO-MARQUES, 1987 (as *Euthalenessa dendrolepis*; continental shelf of Algarve); DEXTER, 1992 (as *Euthalenessa dendrolepis*; previous records: continental shelf of Algarve); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 20 (A.4080)**, north Sines, 89 m, sand: 3 fragments, headless, with 21, 25, and about 85 chaetigers with pygidium, with one anal cirri longer than the other; parapodia as described for middle region; reddish brown coloration. **St. 70 (A.4037)**, north Sines, 69 m, gravelly sand: 1 incomplete specimen, almost breaking in two pieces, with 66 chaetigers; body variously pigmented, with reddish brown pigmentation, with conspicuous darker bands on segments 14-16; elytra with the pigment confined to crescent-shaped bands; first pair of elytra lacking papillae; most of the papillae are irregularly, palmately or dichotomously branched, with 2-9 filaments per papilla, while in middle body they reach 12 papillae; branchiae from chaetiger 6; notopodial bracks of medium parapodia with a single posterior stylode and 3 anterior stylodes. **St. 71 (A.4036)**, north Sines, 49 m, gravelly sand: 1 fragment, incomplete specimen without head; pygidium lost the anal cirri; 150 chaetigers; elytra with pigmentation. **St. 182 (A.3929)**, near Sines, 61 m, gravelly sand: 1 middle fragment, with about 50 chaetigers. **St. 229 (A.3889)**, off Pessegueiro Island, 45 m, sand: 1 specimen, broken in two pieces and incomplete; colorless; anterior fragment with 67 chaetigers for about 5 cm long; posterior fragment with 52 chaetigers, without pygidium and about the same length than the anterior one. **St. 316 (A.3844)**, off Arrifana, 82 m, sand: 1 incomplete specimen, with about 35 chaetigers. **FAUNA 1 — St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 2 incomplete specimens, with 42, and about 28 chaetigers. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 1 incomplete specimen, 1.5 cm long for about 41 chaetigers; colour as normally described; palps very long, extending posteriorly to about chaetiger 15; branchiae from chaetiger 6.

**DISTRIBUTION:** East Atlantic, from Bay of Biscay to West, South and East Africa; Mediterranean Sea; Adriatic Sea; Aegean Sea. On fine gravel, coarse sand, with bryozoans, coralline algae, shells, detritus, sandy and muddy bottoms, rocks, and between *Posidonia* rhizomes and algae. Between 12-1500 meters; sometimes at the surface.

**REMARKS:** The first Portuguese record of this species as *E. oculata* was made by HARTMANN-SCHRÖDER (1979*a*), but it was already well known previously in these waters as *E. dendrolepis*.

## *GENUS ***Fimbriosthenelais*** Pettibone 1971

*Fimbriosthenelais* PETTIBONE, 1971*c*: 25.

**TYPE SPECIES:** *Sthenelais longipinnis* Grube 1870.

**KEY TO SPECIES:**

(adapted from: PETTIBONE, 1971*c*; BARNICH & FIEGE, 2003)

**1a.** Ventral surface smooth; neuropodial posterior bracts bilobed, without or with single papillate stylode; compound falcigerous neurochaetae differing markedly in length and width; blades of compound

falcigerous neurochaetae of upper and lower groups with 1-3 articles, those of middle group with one article; nuchal organs indistinct; branchiae beginning on segment IV; lateral borders of elytra with long papillae; elytra with few, scattered microtubercles on surface, characteristically encrusted with sand grains.....***F. minor***
**1b.** Ventral surface papillate.....**2**

**2a (1b).** Ventral surface finely papillate; neuropodial posterior bracts bilobed, usually with papillate stylodes; compound falcigerous neurochaetae differing markedly in length and width; blades of compound falcigerous neurochaetae of upper and lower groups with 2-8 articles, those of middle group with 1-3 articles; nuchal organs distinct; branchiae from segment VI; elytra with simple lateral fringes of papillae; elytra with microtubercles confined to areas near anterior and outer lateral margins.....***F. longipinnis***
**2b (1b).** Ventral surface thickly papillate; neuropodial posterior bracts truncate, with many papillate stylodes; compound falcigerous neurochaetae similar, not differing markedly in length and width; blades of upper and lower neurochaetae with 2-3 articles, middle ones with 2 articles; nuchal organs inconspicuous; branchiae from segment IV; elytra with lateral and posterior borders with short clavate to globular micropapillae; elytra with numerous microtubercles on surface.....***F. zetlandica****

## ***Fimbriosthenelais longipinnis*** (Grube 1870)

*Sthenelais longipinnis* GRUBE, 1870*e*: 490-491.
**TYPE LOCALITY:** Red Sea.
**SELECTED REFERENCES:** *Fimbriosthenelais longipinnis* — PETTIBONE, 197*c*: 26-29, figs. 15-17; AUNGTONYA, 2002: 217-218, figs. 7-8; BARNICH & FIEGE, 2003: 117, fig. 58. *Sthenelais dubiosa* — HORST, 1917: 112, pl. 22 fig. 7. [?] *Sthenelais minor* var. *digitata* — FAUVEL, 1919*a*: 344-345.
**DISTRIBUTION:** Eastern Mediterranean Sea: Cyprus; [?] Western Mediterranean Sea: Spain, Catalonian coast; Red Sea; Maldive Islands; Zanzibar; Indonesia; Mariana Islands. From low water to 75 meters.
**REMARKS:** Some doubts remain concerning the identity of at least the Western Mediterranean specimens identified as *Fimbriosthenelais longipinnis*. I was able to study four specimens, collected at shallow waters (exact depth unknown), from Blanes (Spain), and Cape Sicié and Séte (France).

These specimens have the ventral surface finely papillate. The elytra present the lateral margins with filiform papillae of different lenghts, and smaller microtubercles. These microtubercles are also scattered throughout the surface of the elytra, but are more concentrated in the anterior and median regions of it, and are chitinous. The marginal elytral papillae have minute tactile hairs at the tip (1-5, maybe more), and generally the elytra have foreign material attached to the surface. The compound falcigerous neurochaetae differ clearly in length and width, and have 1-5 articles in the first 6-7 chaetigers, but only 1-3 articles at the median and posterior region. The branchiae are difficult to observe in the studied material, as they are very small, but apparently start at chaetiger 6 in one of the specimens from Séte. Finally, the neuropodial stylodes are fewer than the described for *F. longipinnis*, and they are normally not papillated, presenting instead sensorial hairs at the tips.

The reduced number of articles (no more than 3) of the neuropodial falcigers of the middle and posterior regions of the body, the apparent presence of sensorial hairs instead of papillae at the tips of the parapodial stylodes, as well as the reduced number of parapodial stylodes, seems to indicate that these specimens belong to a different species from *F. longipinnis*. However, the presently available material doesn't allow a definitive statement on the matter.

## ***Fimbriosthenelais minor*** (Pruvot & Racovitza 1895)

*Sthenelais minor* PRUVOT & RACOVITZA, 1895: 465-472, pl. 20 figs. 111-121.
**TYPE LOCALITY:** Banyuls-sur-Mer (Southern France): near the coast, at the Cap du Troc, at 35 meters, in crevices of blocks of coralligenous, filled with sand; at the rocks of Cerbère, at 43 meters, in the grey mud surrounding the rocks; at the end of the Rech Lacaze-Duthiers, between 240-333 meters, in the mud with corals and fragments of shells, near the rocks Fountaindrau.
**SELECTED REFERENCES:** *Sthenelais minor* — SAINT-JOSEPH, 1906: 195-197; FAUVEL, 1923*c*: 112-113, fig. 41*m-q*; CAMPOY, 1982: 102-103 [in part; in part = *Fimbriosthenelais zetlandica* (McIntosh 1876); in part = *Sthenelais boa* (Johnston 1833), according to CHAMBERS & MUIR (1997)]. *Sthenelaïs minor* — FAUVEL**,** 1914*f*: 83. *Fimbriosthenelais minor* — PETTIBONE, 1971*c*: 35-37, fig. 23 [= juvenile specimen of *Sthenelais boa* (Johnston 1833), according to CHAMBERS & MUIR (1997)]; BARNICH & FIEGE, 2003: 117-119, fig. 59. [?Not] *Sthenelais minor* variété *digitata* — FAUVEL, 1919*a*: 344-345 [? =

*Fimbriosthenelais longipinnis* (Grube 1870)]. Not *Sthenelais minor*? — SAINT-JOSEPH, 1899*b*: 171 [= juvenile specimen of *Sthenelais boa* (Johnston 1833), according to CHAMBERS & MUIR (1997)].

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Sthenelais minor*; continental shelf of Algarve); DEXTER, 1992 (as *Sthenelais minor*; previous records: continental shelf of Algarve).

**DISTRIBUTION:** English Channel; Portugal; Morocco, off Casablanca; Mediterranean Sea; Adriatic Sea; Aegean Sea. On muddy sand. Shallow water to 851 meters.

**REMARKS:** SAINT-JOSEPH (1899*b*) questionably referred a specimen collected at Brest to *Sthenelais minor*, as it didn't show the simple spinous neurochaetae described by PRUVOT & RACOVITZA (1895). FAUVEL (1914*f*: 83), about his single specimen found off Morocco, stated that it was a real *Sthenenalis minor* (later *Fimbriosthenelais*), as it didn't present any simple spinous neurochaeta on the neuropodia, while these chaetae were already present on juveniles of *Sthenelais boa* studied by him, from Monaco. Besides, he considered the possibility of both species being only varieties of the same species. Later, he also stated that Saint-Joseph's specimen from Brest was an intermediate state between both species, as it showed only a single simple spinous neurochaeta, and the elytra had encrusted sand grains only from the 25th chaetiger (FAUVEL, 1923*c*). PETTIBONE (1971*c*) used the specimen from Brest to redescribe the species as a new combination, *Fimbriosthenelais minor*, as the type-specimens were not available for study. However, CHAMBERS & MUIR (1997) re-examined this specimen, and were unable to confirm the presence of well defined papillae on the stylodes. With basis on this, on the presence of simple neuropodial spinous chaetae, an on the fact that small *S. boa* also present sand grains on the scales, they identified the specimen as a young *S. boa*. The same authors stated that they had examined several specimens from the west coast of Ireland, with few papillae on 1-2 stylodes, sand grains on the scales and simple neuropodial chaetae, and had identified them as young *Sthenelais boa*.

BARNICH & FIEGE (2003) remarked that there are little differences to be noted between *Fimbriosthenelais minor* sensu PETTIBONE (1971*c*) and *Sthenelais boa* sensu CHAMBERS & MUIR (1997), besides the presence of papillate stylodes. However, the Mediterranean material studied by them showed that not only the papillae of the stylodes of their specimen of *F. minor* was very distinct, but also that small specimens of *S. boa* of similar size of that specimen of *F. minor* clearly had smooth stylodes. These authors accepted the validity of *F. minor*, and the same will be followed here, until a new redescription of the species is available, or further material from the Mediterranean and Atlantic studied, and a conclusion achieved on the validity of the species.

PETTIBONE's (1971*c*) description enables to distinguish *F. minor* from similar species present in the European waters, always taking into account that the neuropodial simple spinous chaetae described for *F. minor* can be absent or present. Some of the records of *F. minor* could refer to *F. zetlandica* or *F. longipinnis*, according to BARNICH & FIEGE (2003).

## **Fimbriosthenelais zetlandica* (McIntosh 1876)

*Sthenelais? zetlandica* MCINTOSH, 1876*b*: 390-391, pl. 70 figs. 15-17.

**TYPE LOCALITY:** North Atlantic, off Shetland Island.

**SYNONYMS:** *Sthenelais atlantica* McIntosh 1876; *Sthenelais Sarsi* McIntosh 1897; *Sthenelais papillosa* Day 1960; *Sthenelais vachoni* Rullier 1964.

**SELECTED REFERENCES:** *Sthenelais zetlandica* — MCINTOSH, 1900*a*: 414-415, pl. 30 fig. 14, pl. 34 fig. 7, pl. 41 figs. 24-26; SOUTHERN, 1914: 55-56, pl. 6 fig. 13*A-B*; ELIASON, 1962*b*: 228-229; CHAMBERS, 1985: 26-27, fig. 20*a-b*; CHAMBERS & MUIR, 1997: 160, fig. 52. *Sthenelais atlantica* — MCINTOSH, 1876*c*: 405-406, pl. 72 figs. 16-17; MCINTOSH, 1900*a*: 415-417, pl. 29 fig. 2, pl. 34 fig. 8, pl. 41 figs. 27-28. *Sthenelais Sarsi* — MCINTOSH, 1897: 174-176, pl. 3 figs. 1-5. *Fimbriosthenelais zetlandica* — PETTIBONE, 1971*c*: 32-35, figs. 21-22; HARTMANN-SCHRÖDER, 1996: 77; KIRKEGAARD, 1996: 87-88, fig. 36; BARNICH & FIEGE, 2003: 119-121, fig. 60. *Sthenelais papillosa* — DAY, 1960: 289-290, fig. 3*e-j*; DAY, 1967: 108-109, fig. 1.20.*a-e*. *Sthenelais vachoni* — RULLIER, 1964: 139-142, fig. 6.

**MATERIAL: FAUNA 1 — St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 incomplete specimen with 32 chaetigers, 9 mm long and 1 mm wide; wide middorsal ridge on segments 2-5, almost indistinct, with two pairs of small ctenidia alongside; ventral surface thickly papillate with small globular papillae; dorsal surface with some ctenidia between the parapodia; elytra missing, but scars on chaetigers 2, 4, 5, 7 and alternate segments to 27, and then continuing on all segments; branchiae beginning on segment 4; prostomium with median antenna with small auricles and large ceratophore, with short tapered style; four large eyes disposed in a square; peristomium (first chaetiger) with numerous capillary chaetae; dorsal tentacular cirri subequal or slightly longer than median antenna; ventral tentacular cirri about half as long as dorsal cirri; inner tentacular lobes (lateral antennae) shorter than ventral tentacular cirri, fused to shorter, rounded inner palpal sheaths; left palp present, extending to about segment 9; dorsal ctenidia elongate-oval; parapodia as

described; neurochaetae all falcigers; blades with 2-9 articles and bifid tips in the anterior parapodia, and with 2-3 articles in the others; parapodial stylodes papillated.
**DISTRIBUTION:** North and South Atlantic: off Norway; Skagerrak; Shetland Islands; Great Britain; Isle of Man; North Sea; Irish Sea; Celtic Sea; Western Mediterranean Sea; NW Africa (Cape Verde Islands); South Africa (False Bay). On coarse sand, and shelly and muddy bottoms. Between 33-558 meters.
**REMARKS:** This is the first record of the species for the Iberian Peninsula.

## *GENUS ***Labioleanira*** Pettibone 1992

*Labioleanira* PETTIBONE, 1992*a*: 619-621.
**TYPE SPECIES:** *Leanira Yhleni* Malmgren 1867.

## ****Labioleanira yhleni*** (Malmgren 1867)

*Leanira Yhleni* MALMGREN, 1867*a*: 17.
**TYPE LOCALITY:** Island of Ré, near La Rochelle, France.
**SELECTED REFERENCES:** *Leanira Yhleni* — MARENZELLER, 1875: 142-143. *Leanira yhleni* — MARENZELLER, 1904*a*: 304; FAUVEL, 1923*c*: 117-118. *Leanira yhleni* Malmgren? — MCINTOSH, 1876*c*: 409-410, pl. 73 fig. 9. *Sthenolepis yhleni* — CAMPOY, 1982: 98-99, pl. 6 figs. *h-i*; KIRKEGAARD, 1983*a*: 200, fig. 3. *Labioleanira yhleni* — PETTIBONE, 1992*a*: 621-623, figs. 5-6; BARNICH & FIEGE, 2003: 121-124, fig. 61.
**REFERENCES FOR PORTUGAL:** [?] MCINTOSH, 1876*c* (as *Leanira yhleni?*; off Cape Sagres); BELLAN, 1960*a* (as *Leanira yhleni*; Cape Roca; off Cascais; Setúbal Canyon; NW Cape Sardão); AMOUREUX, 1974*b* (as *Leanira yhleni*; off Porto); MONTEIRO-MARQUES, 1979 (as *Leanira yhleni*; southern continental shelf of Algarve); CAMPOY, 1982 (as *Sthenolepis yhleni*; previous records: Porto; Portuguese coast); MONTEIRO-MARQUES, 1987 (as *Leanira yhleni*; continental shelf of Algarve); DEXTER, 1992 (as *Leanira yhleni*; previous records: continental shelf of Algarve); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 6 — St. 173*A* (A.2646)**, off Arrifana, 130 m, sand: 1 incomplete specimen in very good condition, with about 64 chaetigers. **SEPLAT 7 (1st part) — St. 150 (A.3078)**, off Almograve Beach, 115 m, sandy mud: 1 incomplete specimen with about 69 chaetigers, almost breaking in two pieces, with branchiae from chaetiger 6, and one middle fragment with 29 chaetigers. **St. 151 (A.3079)**, off Almograve Beach, 89 m, sandy mud: 1 incomplete specimen with 59 chaetigers. **St. 258 (A.3160)**, southwestern Pessegueiro Island, 89 m, muddy sand: 1 fragment with 20 chaetigers, in a very bad condition, identified here as belonging to this species due to its chaetae; dried aspect. **St. 259 (A.3161)**, southwestern Pessegueiro Island, 113 m, sandy mud: 1 small specimen, with about 32 chaetigers and in bad condition, and 2 fragments of a bigger specimen, with about 20 and 35 chaetigers, in a very bad condition; elytra without papillae; parapodia with ctenidia; dried aspect. **St. 260 (A.3162)**, southwestern Pessegueiro Island, 127 m, muddy sand: 1 specimen, broken in four pieces, with dried aspect; anterior region with about 62 chaetigers, other fragments with about 30, 27, and 33 (posterior region) chaetigers. **SEPLAT 7 (2nd part) — St. 196 (A.3916)**, off Sines, 125 m, muddy sand: 1 small specimen, about 0.5 cm long, with 34 chaetigers. **FAUNA 1 — St. 14*A***, Alborán Sea, off Castell de Ferro, Granada, 285-290 m, mud: 1 incomplete specimen, about 4 cm long for 51 chaetigers; lateral antennae with a constriction at about half its length; palps very long; dorsal tentacular cirri missing; dorsal side of left chaetiger 1 with one short stylode, right one with two, between the base of dorsal tentacular cirrus and lateral antenna; chaetiger 2 with large oval labial lobes; branchiae from chaetiger 6; ventral cirri short, with basal knob and articulated tip; elytra smooth, without papillae or tubercles; notochaetae capillary, finely to coarsely spinose; neurochaetae and other characters as described. **St. 25*A***, Alborán Sea, off Fuengirola, 227-233 m, mud: 2 incomplete specimens, with 69 chaetigers and 5 cm long, and 57 chaetigers, about 3.5 cm long and proboscis everted; anterior region with 5-7 stylodes between the base of dorsal tentacular cirri and lateral antennae; branchiae beginning at about chaetigers 7-8. **St. 28*R***, Alborán Sea, Djibouti Bank, off Nerja, 308 m, sand with mud: 1 fragment with about 50 chaetigers.
**DISTRIBUTION:** North-east Atlantic Ocean, from France to the Mediterranean Sea; Adriatic Sea; Aegean Sea; West Africa. On muddy bottoms. Between 1-1900 meters.
**REMARKS:** The genus *Labioleanira* was created by PETTIBONE (1992*a*), to include the Sigalionidae species *L. yhleni* (Malmgren 1867) and *L. tentaculata* (Horst 1917). Only the first one occurs in European waters. The species was first recorded in Portugal by MCINTOSH (1876*c*), at 45 fathoms (82.3 meters) off Cape Sagres.

## GENUS *Leanira* Kinberg 1856

*Leanira* KINBERG, 1856: 388.
**TYPE SPECIES:** *Leanira Quatrefagesi* Kinberg 1856.

### *Leanira hystricis* Ehlers 1874

*Leanira hystricis* EHLERS, 1874: 292-293.
**TYPE LOCALITY:** The species was described from Northeastern Atlantic with base of specimens collected in 4 localities: 1) 56º9'N, 14º10'W, at 664 fathoms (1214.3 meters); 2) 59º35'N, 9º11'W, at 767 fathoms (1402.7 meters); 3) 51º22'N, 12º26'W, at 808 fathoms (1477.7 meters); 4) 55º11'N, 11º31'W, at 1443 fathoms (2639 meters).
**SYNONYMS:** *Leanira lævis* McIntosh 1874.
**SELECTED REFERENCES:** *Leanira hystricis* — EHLERS, 1875: 35-37, pl. 2 figs. 5-11; MCINTOSH, 1876*c*: 408-409, pl. 73 figs. 6-8; MCINTOSH, 1885*a*: 155-156, pl. 23 fig. 9; MCINTOSH, 1900*a*: 434-436, pl. 28 fig. 17, pl. 31 figs. 12-13, pl. 42 figs. 20-22; EHLERS, 1908: 55; DITLEVSEN, 1917: 48; FAUVEL, 1923*c*: 118-119, fig. 43*h-m*; PETTIBONE, 1970*d*: 8-10, fig. 4; CHAMBERS, 1985: 32-33, figs. 17*b*, 23*a-c*; BARNICH & FIEGE, 2003: 124. *Leanira lævis* — MCINTOSH, 1874*a*: 268-269 [*nomen nudum*]. Not *Leanira hystricis* — MCINTOSH, 1924: 14; MCINTOSH, 1925: 38; DAY, 1963*a*: 360; DAY, 1967: 112, fig. 1.21.*a-d*; [= *Leanira quatrefagesi* Kinberg 1855]. Not *Leanira hystricis* — PETTIBONE, 1963*a*: 53-54, fig. 11*f* [= in part, *Leanira robusta* Verrill 1885; in part, *Leanira alba* Moore 1910; in part, *Leanira cirrata* (Treadwell 1934)].
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1979 (southern continental shelf of Algarve); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).
**DISTRIBUTION:** Northeastern Atlantic: Greenland; south of Iceland; off Great Britain and Ireland; off Azores. On muddy bottoms. Between 914-2640 meters.

## GENUS *Neoleanira* Pettibone 1970

*Neoleanira* PETTIBONE, 1970*a*: 367.
**TYPE SPECIES:** *Sigalion tetragonum* Ørsted 1845.

### *Neoleanira tetragona* (Ørsted 1845)

*Sigalion tetragonum* ØRSTED, 1845*b*: 404-405, pl. 5 figs. 5, 11.
**TYPE LOCALITY:** Drøbak, Oslofjord, Norway, at 60 fathoms (110 meters).
**SELECTED REFERENCES:** *Leanira tetragona* — MALMGREN, 1865: 88-89, pl. 11 fig. 14; FAUVEL, 1923*c*: 117, fig. 43*a-g* [in part]; KIRKEGAARD, 1961: 216; ELIASON, 1962*b*: 223-224, fig. 5*a*; PETTIBONE, 1963*a*: 53, fig. 10*c*; CHAMBERS, 1985: 30. *Sthenolepis tetragona* — HARTMAN, 1965*b*: 55-56. *Neoleanira tetragona* — PETTIBONE, 1970*a*: 368-372, figs. 1-4; KIRKEGAARD, 1983*a*: 198; CHAMBERS, 1985: 30-31, figs. 16*d-e*, 17*a*, 22*a-b*; MUIR, 1989: 343-344; KIRKEGAARD, 1992: 88-90, fig. 37; HARTMANN-SCHRÖDER, 1996: 77-79, fig. 25; CHAMBERS & MUIR, 1997: 144, fig. 45; BARNICH & FIEGE, 2003: 124-125. *Leanira yhleni (?)* [not Malmgren 1867] — MCINTOSH, 1874*a*: 268-269, pl. 10 fig. 14. Not *Leanira tetragona* — ELIASON, 1920: 22. Not *Sthenolepis tetragona* — DAY, 1967: 113-114, fig. 1.21.*e-i* [= questionable *Neoleanira* (see PETTIBONE, 1970*a*: 372)].
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (as *Leanira tetragona*; off Porto); HARTMANN-SCHRÖDER, 1977*a* (off Cape Sardão).
**DISTRIBUTION:** Siberian Arctic; Davis Strait; Gulf of St. Lawrence to Chesapeake Bay; Iceland; Norway to the Azores; North Sea; Skagerrak and Kattegat; Mediterranean Sea; Adriatic Sea; Aegean Sea; South Africa. On mud and oyster banks. In 40-2951 meters, can also occur in the plankton.

## *GENUS ***Pelogenia*** Schmarda 1861

*Pelogenia* SCHMARDA, 1861: 159.
**TYPE SPECIES:** *Pelogenia antipoda* Schmarda 1861.

### ****Pelogenia arenosa*** (Delle Chiaje 1830)

*Sigalion arenosum* DELLE CHIAJE, 1830: plate 80 figs. 4-5, 16, 18, 22.
**TYPE LOCALITY:** Gulf of Naples, Italy.
**SYNONYMS:** *Sigalion herminiae* Audouin & Milne-Edwards 1832; *Psammolyce carpenteri* McIntosh 1876.
**SELECTED REFERENCES:** *Sigalion arenosum* — DELLE CHIAJE, 1841*b*: 58, 107; DELLE CHIAJE, 1841*d*: pl. 98 figs. 4-5, 16, 18, 22. *Psammolyce arenosa* — CLAPARÈDE, 1868: 412-414, pl. 5 fig. 3; SAINT-JOSEPH, 1906: 150-159, pl. 1 figs. 7-23, pl. 2 figs. 24-31; FAUVEL, 1923*c*: 106-107, fig. 40*a-m*; FAUVEL, 1934: 15; CAMPOY, 1982: 88-89; KIRKEGAARD, 1983*a*: 198-199; CHAMBERS & MUIR, 1997: 146-147, fig. 46. *Pelogenia arenosa* — PETTIBONE, 1997: 50-51, figs. 36-38; BARNICH & FIEGE, 2003: 136-137, fig. 67, pl. 2 fig. 6. *Psanmolice arenosa* — RIOJA, 1918*b*: 21-22. *Sigalion Herminiæ* — AUDOUIN & MILNE-EDWARDS, 1832: 443-444, pl. 8 figs. 1-6. *Sigalion Herminiæ?* — MCINTOSH, 1876*c*: 410-414, pl. 73 figs. 10-16. *Psammolyce* sp. — MUIR, 1989: 342 [for *Sigalion herminiae*]. Not *Psammolyce arenosa* — AUGENER, 1933*b*: 193 [= *Neopsammolyce floccifera* (Augener 1906)]. Not *Psammolyce arenosa* — HARTMAN, 1944*a*: 14 [= in part, *Pelogenia fimbriata* (Hartman 1939); in part, *Neopsammolyce floccifera* (Augener 1906)].
**MATERIAL: FAUNA 1 — St. 32*A***, Alborán Sea, Alborán Island, 28 m, laminarians on rocks: 1 specimen broken in two pieces without prostomium, one with 16 chaetigers and the other with 32 chaetigers; parapodia and elytra as described. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 fragment with 41 chaetigers; it is the posterior region and includes the pygidium, which has one of the two urites attached; anus dorsal.
**DISTRIBUTION:** Adriatic Sea; Aegean Sea; Mediterranean Sea; English Channel; French Atlantic coast; Canary Islands to Ghana. In mud, muddy sand and under stones, and between *Posidonia* rhizomes. Intertidal to 106 meters.

## *GENUS ***Sigalion*** Audouin & Milne-Edwards *in* Cuvier 1830

*Sigalion* AUDOUIN & MILNE-EDWARDS *in* CUVIER, 1830: 207.
**TYPE SPECIES:** *Sigalion Mathildae* Audouin & Milne-Edwards *in* Cuvier 1830.
**SYNONYMS:** *Thalenessa* Baird 1866; *Eusigalion* Augener 1918.

**KEY TO SPECIES:**
(from CHAMBERS & MUIR, 1997)

**1a.** Bipinnate papillae with up to 20 cylindrical pinnules on each side; dorsal stylode present on neuropodium; some neuropodial jointed chaetae with smooth shafts.....***S. mathildae****
**1b.** Bipinnate papillae with up to 9 lanceolate pinnules on each side; dorsal neuropodial surface smooth; all neuropodial jointed chaetae with spinous shafts.....***S. squamosus****

### ****Sigalion mathildae*** Audouin & Milne-Edwards *in* Cuvier 1830

*Sigalion Mathildae* AUDOUIN & MILNE-EDWARDS *in* CUVIER, 1830: 207.
**TYPE LOCALITY:** Chausey Islands, western Normandy (English Channel, France).
**SYNONYMS:** *Sigalion Carringtonii* Brown *in* Carrington 1865.
**SELECTED REFERENCES:** *Sigalion Mathildæ* — AUDOUIN & MILNE-EDWARDS, 1832: 441-443, pl. 9 figs. 1-10; MCINTOSH, 1900*a*: 427-431, text-fig. 33, pl. 29 fig. 6, pl. 31 fig. 10, pl. 34 fig. 14, pl. 42 figs. 11-17. *Sigalion mathildae* — DARBOUX, 1899: 134-140, figs. 29*B*, 30*B*; FAUVEL, 1923*c*: 103-104, figs. 39*a-l*; FRIEDRICH, 1938: 87-88, figs. 45*b*, *e*, *g*, *l*; BELLAN, 1964*b*: 33-34; ANTON-ERXLEBEN, 1977: 41, pl. 6 fig. 5, table 2; CHAMBERS, 1985: 24-25, figs. 14*a-b*, 19*a-c*; MUIR, 1989: 342-343; MACKIE & CHAMBERS, 1990: 40-44, figs. 1-5, tables 1-2; KIRKEGAARD, 1992: 93-95, fig. 40; HARTMANN-SCHRÖDER, 1996: 79-81, fig. 26; CHAMBERS & MUIR, 1997: 150, fig. 48; BARNICH & FIEGE, 2003: 125-128, fig. 62. *Sigalion squamatum* [not *Sigalion squamosus* Delle Chiaje 1830] — CLAPARÈDE, 1868: 410-412, pl. 3 fig. 3; CLAPARÈDE, 1870: 384-386, pl. 2 fig. 3; SAINT-JOSEPH, 1895: 203-207, pl. 11 figs. 21-24, pl. 12 fig. 27;

SAINT-JOSEPH, 1898: 239-241, pl. 13 figs. 22-29. Not *Sigalion Mathildæ* — RIOJA, 1918*b*: 20-21, fig. 4 [= *Sigalion squamosus* Delle Chiaje 1830]. Not *Sigalion Mathildae* — LEIDY, 1855: 148 [homonym; renamed as *Sthenelais leidyi* Quatrefages 1866 = *Sthenelais boa* (Johnston 1833), according to PETTIBONE (1963*a*)].

**REFERENCES FOR PORTUGAL:** [?] AMOUREUX & CALVÁRIO, 1981 (as *Sigalion* cf *mathildae*; Peniche); SOUSA-REIS *et al.*, 1982 (Peniche region); DEXTER, 1992 (previous records: Sines; Arrábida; Peniche; Figueira da Foz); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 105 (A.2587)**, off Carrapateira, 50 m, sand: 1 fragment, from middle body, with about 60 chaetigers. **St. 132 (A.2611)**, off Praia de Vale Figueiras, 51 m, sand: 2 specimens and one fragment; one with 56 chaetigers, very soft (bad fixation?), almost breaking in two pieces; second specimen with 108 chaetigers, also in bad condition, with a dry look; fragment with 8 chaetigers, belonging probably to the second specimen, as it shows also a dry aspect. **St. 165 (A.2638)**, off Arrifana, 36 m, sand: 2 fragments, with 45 and 24 chaetigers, without head. **St. 296 (A.2757)**, off Odeceixe Beach, 56 m, sand: 1 specimen in two fragments; anterior fragment with about 34 chaetigers, prostomium without facial tubercle; middle fragment with about 57 chaetigers; branchiae from chaetiger 4; neuropodium with small blunt tubercle anteriorly, at insertion of superior neurochaetae. **SEPLAT 7 (2nd part) — St. 186 (A.3925)**, south Sines, 27 m, muddy sand: 4 specimens; (1) complete, with 43 chaetigers and one short anal cirrus; (2) complete, juvenile, with 20 chaetigers, proboscis everted with 9 pairs of papillae, one short anal cirrus; (3) complete, juvenile, with 21 chaetigers, proboscis everted with 9 pairs of papillae, two anal cirri, one short and the other filiform and very long; (4) incomplete, with 12 chaetigers, probably a juvenile. **St. 187 (A.3924)**, south Sines, 17 m, sand: 2 specimens, one incomplete, with 50 chaetigers, the second one a juvenile, broken in two pieces, the anterior one with 14 chaetigers and the posterior one with 9. **St. 188 (A.3923)**, south Sines, 17 m, sand: 1 middle fragment, with 34 chaetigers.

**DISTRIBUTION:** Northeast Atlantic Ocean, from Kattegat to the Mediterranean Sea; Adriatic Sea; Aegean Sea; North Pacific; [?] Madagascar; [?] Sierra Leone; [?] South Africa; [?] Southwest Asia. On sandy bottoms and *Zostera* beds. Intertidal to 115 meters.

## ****Sigalion squamosus*** Delle Chiaje 1830

*Sigalion squamosum* DELLE CHIAJE, 1830: plate 96 figs. 3, 11-12.

**TYPE LOCALITY:** Bay of Naples, Italy.

**SYNONYMS:** *Sigalion buskii* McIntosh 1876.

**SELECTED REFERENCES:** *Sigalion squamosum* — DELLE CHIAJE, 1841*b*: 58, 60, 61, 107 [erroneously makes reference to the figures existing in the plate "*26*" of DELLE CHIAJE (1830), when it should state "*96*"]; MUIR, 1989: 341, 343. *Sigalion squamosus* — MACKIE & CHAMBERS, 1990: 44, table 2; CHAMBERS & MUIR, 1997: 152, fig. 49; BARNICH & FIEGE, 2003: 128, fig. 63. *Sigalion squamatum* — DARBOUX, 1899: 134-140, figs. 29*A*, 30*A*, 31; FAUVEL, 1923*c*: 104-106, fig. 39*m-o*; BELLAN, 1964: 33-34. *Sthenelais dendrolepis* [not Claparède 1868] — MCINTOSH, 1869: 409, pl. 12 fig. 12, pl. 15 figs. 4-5. *Sigalion buskii* — MCINTOSH, 1876*b*: 391-392, pl. 70 fig. 14; MCINTOSH, 1900*a*: 431-434, pl. 26 fig. 9, pl. 29 fig. 7, pl. 31 fig. 11, pl. 34 fig. 15, pl. 42 figs. 18-19. *Sigalion Mathildæ* [not Audouin & Milne-Edwards *in* Cuvier 1830] — RIOJA, 1918*b*: 20-21, fig. 4. Not *Sigalion squamatum* — CLAPARÈDE, 1868: 410-412, pl. 3 fig. 3; CLAPARÈDE, 1870: 384-386, pl. 2 fig. 3; SAINT-JOSEPH, 1895: 203-207, pl. 11 figs. 21-24, pl. 12 fig. 27; SAINT-JOSEPH, 1898: 239-241, pl. 13 figs. 22-29 [all = *Sigalion mathildae* Audouin & Milne-Edwards *in* Cuvier 1830].

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (as *Sigalion squamatum*; Buarcos); BELLAN, 1960*a* (as *Sigalion squamatum*; Setúbal Canyon); CAMPOY, 1982 (as *Sigalion squamatum*; previous records: Buarcos; Portuguese coast); MONTEIRO-MARQUES, 1984 (as *Sigalion squamatum*; Praia da Falésia); MONTEIRO-MARQUES, 1987 (as *Sigalion squamatum*; continental shelf of Algarve); DEXTER, 1992 (as *Sigalion squamatum*; previous records: continental shelf of Algarve; Sines); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 14 (A.4104)**, north Sines, 33 m, sand: 2 specimens; one complete, about 10 cm long for about 183 chaetigers, almost breaking in two pieces, proboscis everted, pygidium with two anal cirri, one of which filiform and very long; second specimen is a posterior fragment, with about 160 chaetigers and pygidium with two anal cirri, one of which filiform and very long. **St. 17 (A.4105)**, north Sines, 33 m, sand: 1 incomplete specimen, with about 90 chaetigers and 4 cm long, without pygidium. **St. 19 (A.4079)**, north Sines, 74 m, sand: 1 posterior fragment with pygidium, with about 70 chaetigers; pygidium with two anal cirri, one of them filiform and very long. **St. 46 (A.4061)**, north Sines, 36 m, sand: 1 specimen, broken in two pieces; anterior fragment with 185 chaetigers, for about 8-10 cm; posterior fragment with 15 chaetigers and pygidium, with two anal cirri,

one of which filiform and very long; proboscis everted. **St. 47 (A.4060)**, north Sines, 48 m, gravelly sand: 1 complete specimen, almost breaking in two pieces, about 8 cm long, for about 150 chaetigers; pygidium with two anal cirri; proboscis everted. **St. 70 (A.4037)**, north Sines, 69 m, gravelly sand: 1 incomplete specimen, anterior fragment with prostomium, with about 37 chaetigers; proboscis everted. **St. 72 (A.4035)**, north Sines, 36 m, sand: 3 specimens; a) complete, with about 123 chaetigers for about 5 cm, pygidium with 2 anal cirri, one of which filiform and very long; b) complete, with about 110 chaetigers for about 3.5 cm, pygidium as previous specimen; c) posterior fragment, with about 45 chaetigers for about 1.5 cm, pygidium as previous. **St. 75 (A.4032)**, near Sines, 31 m, sand: 1 complete specimen, about 12 cm long for 180-200 meters; pygidium with two anal cirri, one of which filiform and very long. **St. 100 (A.4007)**, near Sines, 35 m, sand: 1 incomplete specimen, 8-9 cm long, with about 150 chaetigers; proboscis everted. **St. 102 (A.4004)**, near Sines, 24 m, sand: 1 complete specimen, badly preserved; about 15 cm long, for about 250 chaetigers; proboscis everted; pygidium with only one cirri, second one lost. **St. 104 (A.4002)**, near Sines, 51 m, sand: 1 specimen, broken in four pieces: one anterior fragment with prostomium and about 45 chaetigers; one middle fragment with 11 chaetigers; one middle fragment with 22 chaetigers; one middle fragment with 33 chaetigers; total length of about 8 cm.

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Portugal; Bay of Biscay; Brittany; the Shetlands and possibly western Scotland; west Canary Islands; NW Africa; South Africa. In *Posidonia* rhizomes, coarse sand and gravel. Sublittoral, to 500 meters.

**REMARKS:** No trace of medium antenna was observed in the studied specimens.

## *GENUS ***Sthenelais*** Kinberg 1856

*Sthenelais* KINBERG, 1856: 387.

**TYPE SPECIES:** *Sthenelais Helenae* Kinberg 1856.

**SYNONYMS:** *Conconia* Schmarda 1861.

**KEY TO SPECIES:**
(adapted from BARNICH & FIEGE, 2003)

**1a.** Few marginal papillae on anterior elytra, being simple or bifurcate; middle and posterior elytra without papillae, but with a deep incision or notch in the outer margin; elytral surface smooth, except for some microtubercles near place of attachment of elytrophore; some middle compound neurochaetae with spinigerous tips (according to HARTMANN-SCHRÖDER, 1996).....***S. limicola****

**1b.** Marginal papillae of elytra always simple and filiform, present in most of the elytra; compound neurochaetae either all with falcigerous tips or with both falcigerous and spinigerous tips.....**2**

**2a (1b).** Elytral surface smooth, without microtubercles; upper neurochaetae with spinigerous tips, lower neurochaetae with falcigerous tips; dorsal cirri present on the third segment.....***S. jeffreysii***

**2b (1b).** Surface of elytra with microtubercles; all compound neurochaetae with falcigerous tips; third segment without dorsal cirri.....***S. boa****

## ****Sthenelais boa*** (Johnston 1833)

*Sigalion Boa* JOHNSTON, 1833*b*: 322-324, fig. 42.

**TYPE LOCALITY:** Berwick Bay, North Sea coast of Britain, under stones, at low-water mark.

**SYNONYMS:** *Sigalion Estellæ* Guérin 1833; *Sigalion Idunae* Rathke 1843; *Sthenelais Audouinii* Quatrefages 1866; *Sthenelais Edwardsii* Quatrefages 1866; *Sthenelais Leidyi* Quatrefages 1866 [new name for *Sigalion mathildae* Leidy 1855]; *Sthenelais ctenolepis* Claparède 1868; *Sthenelais fuliginosa* Claparède 1868.

**SELECTED REFERENCES:** *Sthenelais boa* — MCINTOSH, 1900*a*: 408-414, pl. 26 figs. 7-8, pl. 26*A* figs. 21, pl. 29 fig. 1, pl. 31 fig. 5, pl. 33 fig. 16, pl. 34 fig. 6, pl. 41 figs. 19-23; BELLAN, 1964*b*: 35; ANTON-ERXLEBEN, 1977: 42, pl. 6 figs. 3-4, table 2; CHAMBERS, 1985: 27-28, figs. 2*c*, 12, 15*a*, 16*a-c*, 21*a*; CAMPOY, 1982: 102; MUIR, 1989: 341, 342, 343; KIRKEGAARD, 1992: 96-98, fig. 41; HARTMANN-SCHRÖDER, 1996: 81-83, fig. 27; CHAMBERS & MUIR, 1997: 155-156, fig. 50; BARNICH & FIEGE, 2003: 130-132, fig. 64. *Sthenelais Boa* — RIOJA, 1918*b*: 18-20, fig. 3; FAUVEL, 1923*c*: 110-111, fig. 41*a-l*. *Sigalion Estellæ* — GUÉRIN, 1833: 2, pl. 1 fig. 1. *Sigalion Idunae* — RATHKE, 1843: 150-155, pl. 9 figs. 1-8. *Sthenelais Edwardsii* — QUATREFAGES, 1866*b*: 273. *Sthenelais ctenolepis* — CLAPARÈDE, 1868: 398-404, pl. 4 fig. 1, pl. 6 fig. 2; FAUVEL, 1923*c*: 111-112, fig. 41*r*. *Sthenelais fuliginosa* — CLAPARÈDE,

1868: 404-406, pl. 4 fig. 2; MARENZELLER, 1874: 421-423, pl. 1 fig. 2. *Sthenelais minor?* [not Pruvot & Racovitza 1895] — SAINT-JOSEPH, 1899*b*: 171 [juvenile specimen, according to CHAMBERS & MUIR (1997)]. *Fimbriosthenelais minor* [not Pruvot & Racovitza 1895] — PETTIBONE, 1971*c*: 35-37, fig. 23 [juvenile specimen, according to CHAMBERS & MUIR (1997)]. *Sigalion mathildae* [not Audouin & Milne-Edwards *in* Cuvier 1830] — LEIDY, 1855: 148 [homonym; renamed as *Sthenelais leidyi* Quatrefages 1866 = *Sthenelais boa* (Johnston 1833), according to PETTIBONE (1963*a*: 50)].

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (Ponta do Baleal); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Ria Formosa; continental shelf of Algarve; Lagoon of Carrapateira; Mira Estuary; Sines; Sado Estuary; Arrábida; Lagoon of Albufeira; Ria de Aveiro); SALDANHA, 1995 (Portugal); CANCELA DA FONSECA *et al.*, 2006 (Aljezur).

**MATERIAL: FAUNA 1 — St. 44*A***, Gulf of Cádiz, off Cádiz, 25-26 m, mud: 1 specimen, incomplete, about 5 cm long for 69 chaetigers, with median antenna missing; a pair of round papilla-like nuchal organs on the lateral posterior margin of the prostomium; peristomium with a pair of lateral antennae inserted terminally on the inside, next to the prostomium; a pair of ctenidia on the middorsal surface; a pair of prominent broad lateral lamellae; chaetiger 3 with a cirrophore, but without dorsal cirrus; branchiae from chaetiger 4; most elytra dark brown, other without pigment; elytra with tubercles.

**DISTRIBUTION:** British Isles; North Sea; from Norway to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Atlantic and Indo-Pacific areas; from Massachusetts coast to Brazil; West and South Africa; Indian Ocean; Red Sea; Persian Gulf; China; Japan. In various substrata, like seagrass beds, gravels, mud, sand. Littoral to 200 meters.

## ***Sthenelais jeffreysii*** McIntosh 1876

*Sthenelais Jeffreysii* MCINTOSH, 1876*c*: 406-407, pl. 72 fig. 18, 73 figs. 1-2.

**TYPE LOCALITY:** Off the west coast of Ireland (53º16'N, 12º42'W), at 165 fathoms (301.7 meters).

**SYNONYMS:** [?] *Sthenelais heterochaeta* McIntosh 1897.

**SELECTED REFERENCES:** *Sthenelais Jeffreysii* — MCINTOSH, 1900*a*: 421-423, pl. 29 fig. 4, pl. 31 fig. 7, pl. 34 fig. 13, pl. 42 figs. 5-8. *Sthenelais jeffreysii* — DITLEVSEN, 1917: 48-49; ELIASON, 1962*b*: 224-228, fig. 5*b-h*; KIRKEGAARD, 1992: 98-99, fig. 42; HARTMANN-SCHRÖDER, 1996: 83. [?] *Sthenelais heterochaeta* — MCINTOSH, 1897: 176-178, pl. 3 figs. 6-10.

**DISTRIBUTION:** Arctic; Davis Strait; South of Iceland; Northwest Atlantic, from Ireland to Denmark and Skagerrak. Between 20-557 meters; 1064.4 meters.

**REMARKS:** ELIASON (1962*b*) suggests the possible synonymy between this species and *Eusthenelais hibernica* McIntosh 1876.

## ****Sthenelais limicola*** (Ehlers 1864)

*Sigalion limicola* EHLERS, 1864: 120-135, pl. 4 figs. 4-7, pl. 5 figs. 1-10.

**TYPE LOCALITY:** Quarnero (Kvarner), Croatia, Adriatic Sea.

**SYNONYMS:** *Sthenelais leiolepis* Claparède 1868.

**SELECTED REFERENCES:** *Sthenelais limicola* — MCINTOSH, 1900*a*: 417-421, pl. 29 fig. 3, pl. 31 fig. 6, pl. 34 figs. 9-11, pl. 42 figs. 1-4; FAUVEL, 1923*c*: 113-114, fig. 42*a-g*; ELIASON, 1962*a*: 16; HARTMANN-SCHRÖDER & STRIPP, 1968: 1-5, fig. 3; CAMPOY, 1982: 103-104, pl. 6 figs. *a-g*; CHAMBERS, 1985: 29-30, figs. 1*b*, 2*a*, 15*b-c*, 21*b-e*; KIRKEGAARD, 1992: 99-101, fig. 43; HARTMANN-SCHRÖDER, 1996: 83-85, fig. 28; CHAMBERS & MUIR, 1997: 158, fig. 51; BARNICH & FIEGE, 2003: 132, fig. 65. *Leanira tetragona* [not Ørsted, 1845] — ELIASON, 1920: 22. *Sthenelais leiolepis* — CLAPARÈDE, 1868: 406-409, pl. 4 fig. 3, pl. 6 fig. 1.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Stenelais limicola*; Cape Roca; Cape Sagres); AMOUREUX, 1974*b* (off Aveiro); HARTMANN-SCHRÖDER, 1977*a* (Bay of Setúbal); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: Aveiro; Portuguese coast); SOUSA-REIS *et al.*, 1982 (Peniche region); AMOUREUX, 1987 (off Aveiro); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Arrábida; Peniche); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 5*R* (A.2512)**, off Cape São Vicente, 77 m, fine sand: 1 complete specimen with about 42 chaetigers for about 6 mm long; elytra first with obvious projections and then with notched outer margins; projections are fingerlike and not always bifurcated; neuropodial bipinnate chaetae difficult to see but present; nuchal organs present and visible. **St. 62 (A.2553)**, off Carrapateira,

127 m, muddy sand: 1 incomplete specimen, with 34 chaetigers. **St. 105 (A.2587)**, off Carrapateira, 50 m, sand: 1 specimen, broken in two pieces, anterior fragment with 33 chaetigers, posterior one with about 60. **St. 132 (A.2611)**, off Praia de Vale Figueiras, 51 m, sand: 1 complete specimen, in poor condition (bad fixation), with about 95 chaetigers; chaetiger 3 with cirrophore, but no dorsal cirrus. **St. 225 (A.2691)**, off Arrifana, 70 m, sand: 1 complete specimen, with about 170 chaetigers for about 7 cm; body long and thin; peristomium with a pair of short lateral antennae, inserted terminally on the inside, next to the prostomium; a pair of ctenidia on the mid-dorsal surface; a pair of prominent lateral lamellae; proboscis partially everted; elytra on the anterior part of the body, with bifurcate projections on the outer margin and smooth surfaces; all remaining elytra with notched outer margins and smooth surfaces; branchiae from chaetiger 4; no anal cirri remaining. **St. 327 (A.2784)**, off Odeceixe Beach, 47 m, sand: 1 incomplete specimen, with about 38 chaetigers. **SEPLAT 7 (1st part) — St. 95 (A.3023)**, off Cape Sardão, 110 m, muddy sand: 1 incomplete specimen, in bad condition, with about 90 chaetigers and without elytra. **St. 134 (A.3061)**, off Almograve Beach, 210 m, muddy sand: 1 incomplete specimen with 55 chaetigers; elytra as described; superior multiarticulated neurochaetae as spinigers. **St. 196 (A.3018)**, off Vila Nova de Milfontes, 147 m, muddy sand: 1 incomplete specimen with 61 chaetigers, in bad condition, apparently having been dried. **St. 257 (A.3159)**, southwestern Pessegueiro Island, 67 m, sand: 1 specimen in bad condition, with about 50 chaetigers. **SEPLAT 7 (2nd part) — St. 185 (A.3926)**, near Sines, 37 m, sandy mud: 4 specimens; (1) incomplete, with 46 chaetigers, almost breaking in two pieces; (2) incomplete with 52 chaetigers, proboscis everted, with 11 pairs of papillae; (3) incomplete with 34 chaetigers; (4) complete, with about 33 chaetigers, posterior region regenerated; also present one posterior region with about 35 chaetigers and fragments with 11, 14 and about 30 chaetigers. **St. 189 (A.3922)**, south Sines, 29 m, muddy sand: 1 specimen, broken in two pieces; anterior fragment with 27 chaetigers, posterior fragment with about 36 chaetigers. **St. 214 (A.3898)**, off Sines, 115 m, muddy sand: 1 fragment with 19 chaetigers. **St. 258 (A.3880)**, south Cape Sardão, 38 m, sand: 1 fragment with 10 chaetigers.

**DISTRIBUTION:** British Isles; from Norway to the Mediterranean Sea; Adriatic Sea; Aegean Sea; North Sea; NW Atlantic coasts; West and South Africa; east coast of North America (Gulf of St. Lawrence). In sandy and muddy bottoms. Between 20-1550 meters.

## GENUS *Willeysthenelais* Pettibone 1971

*Willeysthenelais* PETTIBONE, 1971*c*: 9-10.

**TYPE SPECIES:** *Sthenelais diplocirrus* Grube 1875.

### *Willeysthenelais suezensis* Pettibone 1971

*Willeysthenelais suezensis* PETTIBONE, 1971*c*: 21-23, fig. 13.

**TYPE LOCALITY:** Lake Timsah, Suez Canal.

**SELECTED REFERENCES:** *Sthenelais zeylandica* [not *Sthenelais zeylandica* Willey 1905] — FAUVEL, 1927*b*: 416.

**DISTRIBUTION:** Suez Canal.

**REMARKS:** This species may be present in the Eastern Mediterranean.

# *FAMILY **SPHAERODORIDAE** Malmgren 1867

**AS:** *SPÆRODORIDÆ* MALMGREN, 1867*a*: 79 [error for *SPHÆRODORIDÆ*; this error is present in both versions of the publication as a book or reprint (MALMGREN, 1867*a*), but was corrected later on its publication in a journal (MALMGREN, 1867*b*)].

**TYPE GENUS:** *Sphaerodorum* Ørsted 1843.

**REMARKS:** The taxonomy of the Sphaerodoridae presents some problems with the first species described, and its history can be somehow confuse. Curiously, the first taxa being described in the Sphaerodoridae referred all to the same species. This odd situation is clearly explained in FAUCHALD (1974*a*: 257), to whom belongs the following paragraph: "*The first sphaerodorids mentioned in the literature were* Ephesia gracilis *Rathke (1843) from Norway and* Sphaerodorum flavum *Ørsted (1843*[a]*) from Denmark. Johnston (1844* [JOHNSTON *in* THOMPSON, 1844]*) described* Bebryce peripatus *from England; a year later he replaced the generic name of his species with* Pollicita *because* Bebryce *was pre-occupied. Grube (1850, p. 315) referred* peripatus *Johnston to* Sphaerodorum *and treated* Pollicita *as a junior synonym of that genus. All names and combinations referred to above concern the same species. Rathke (1843) was published a few months before Ørsted (1843*[a]*). The generic names* Ephesia *and* Bebryce *are both pre-occupied (Fauvel, 1911*[d]*, pp. 13-15). The valid name for the species thus becomes* gracilis *Rathke (1843) and the generic name should be* Sphaerodorum *as pointed by Lützen (1961).* Sphaerodorum gracilis *(Rathke, 1843) is thus the type-species of the genus and the first described species in the family*".

To add some confusion to the situation, CLAPARÈDE (1863) described as *Sphaerodorum peripatus* a different species from the one described by JOHNSTON *in* THOMPSON (1844), in the believe that he had the same species than the originally described by Johnston. This species was later described by HANSEN (1878), under the name *Sphaerodorum abyssorum*. When CHAMBERLIN (1919*a*) created the new genus *Ephesiella* to include sphaerodorids with a long body, dorsal surface with two series of spherical capsules and composite chaetae, he designated *Sphaerodorum peripatus* Claparède 1863 as the type species. As seen above, this name is not valid, and can not be used, reason why it was replaced by PETTIBONE (1963*a*) by the next available name, which is *Sphaerodorum abyssorum* Hansen 1878, and which became the type species of the genus *Ephesiella* (see also HARTMAN & FAUCHALD, 1971).

The most important taxonomic paper on the Sphaerodoridae was published by FAUCHALD (1974*a*), on which all the genera are redefined, new species described, and keys provided for all the valid species. FAUCHALD (1974*a*) recognized 9 genera: *Clavodorum* Hartman & Fauchald 1971, *Commensodorum* Fauchald 1974, *Ephesiella* Chamberlin 1919, *Ephesiopsis* Hartman & Fauchald 1971, *Levidorum* Hartman 1967, *Sphaerephesia* Fauchald 1972, *Sphaerodoridium* Lützen 1961, *Sphaerodoropsis* Hartman & Fauchald 1971, and *Sphaerodorum* Ørsted 1843. *Levidorum* was later placed by PERKINS (1987) in to a new family, the Levidoridae, and subsequently transferred to the Syllidae by GLASBY (1993). Two new genera were posteriorly described, *Amacrodorum*, by KUDENOV (1987*b*), and *Euritmia*, by SARDÁ-BORROY (1987), which placed the number of valid genera in 10. The publications with new species of Sphaerodoridae are numerous, and besides the ones cited below include, among others, KUDENOV (1987*b*, 1987*c*, 1993, 1997), OZOLINSH (1987), BAKKEN (2002), and AGUADO & ROUSE (2006). Many of these include comparative tables of species and dichotomic keys. Regional studies of Sphaerodoridae include Alaska (KUDENOV, 1987*b*), Andaman Sea (BAKKEN 2002), California (KUDENOV, 1997), Gulf of Mexico (KUDENOV, 1984, 1987*c*), the Italian region (MÒLLICA, 1995), and Japan (IMAJIMA, 1969).

The family Sphaerodoridae includes nowadays 10 genera, with 91 species and 1 subspecies considered to be valid. Seven genera and 27 species are known to occur in European and nearby waters. Only one species was present in the studied material.

**KEY TO GENERA:**
(adapted from FAUCHALD, 1974*a*)

**1a.** Macrotubercles with terminal papillae, in two rows on the dorsum.....**2**
**1b.** Macrotubercles distally rounded.....**3**

**2a (1a).** All chaetae simple.....***Sphaerodorum***
**2b (1a).** Al chaetae composite, apart from the recurved hooks in the first chaetiger, if present.....***Ephesiella****

**3a (1b).** Macrotubercles stalked.....**4**
**3b (1b).** Macrotubercles sessile.....**5**

**4a (3a).** Median antenna as long as, or longer than the lateral antennae.....***Clavodorum***
**4b (3a).** Median antenna shorter than the lateral antennae.....***Sphaerodoridium***

**5a (3b).** All chaetae composite.....***Sphaerodoropsis***
**5b (3b).** All chaetae simple.....**6**

**6a (5b).** Macrotubercles in many rows; all anterior appendages short but clearly distinguishable; chaetae simple.....***Commensodorum***
**6b (5b).** Macrotubercles in many rows; all anterior appendages short and hidden by the papillae; chaetae simple, some showing a fusion line between shaft and blade.....***Euritmia***

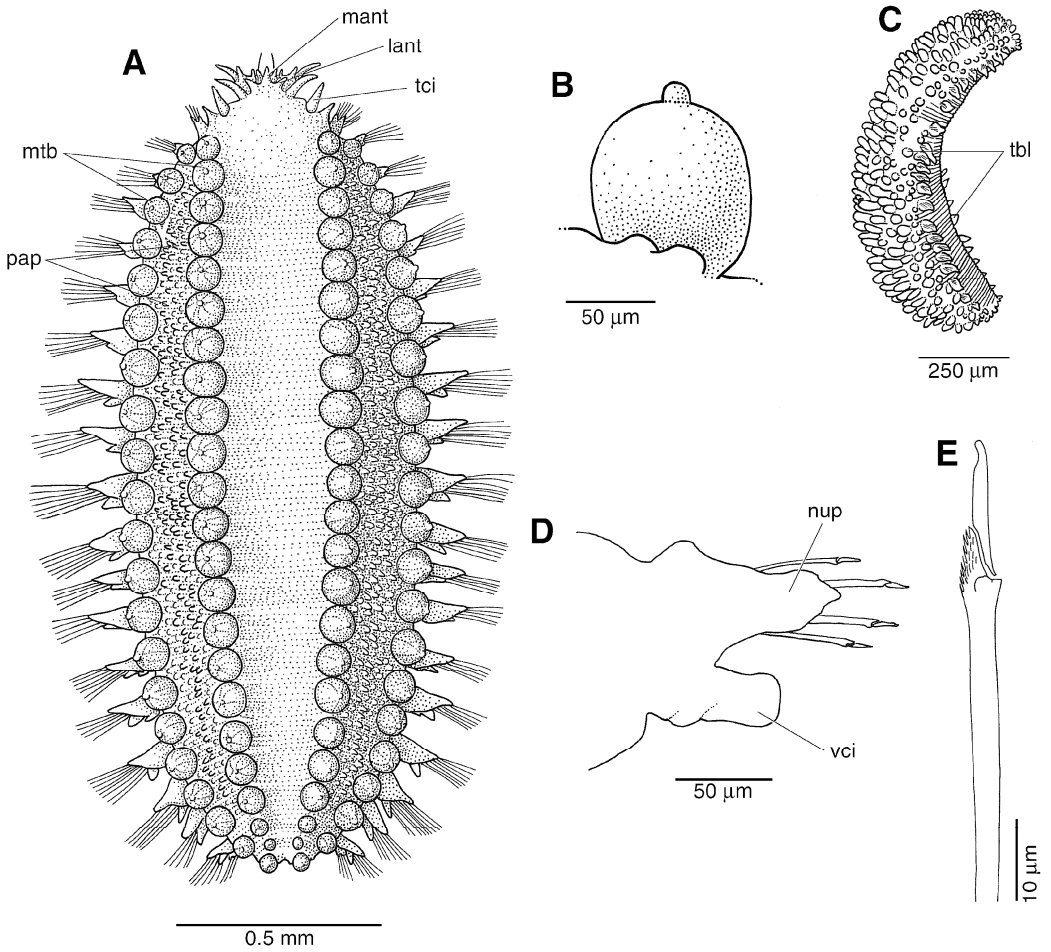


**Figure legend:** Family Sphaerodoridae. **A**, **B**, *Sphaerephesia* specimen: **A**, entire animal, dorsal view; **B**, dorsal macrotubercle. **C**-**E**, *Sphaerodoropsis* specimen: **C**, entire animal, dorso-lateral view; **D**, parapodium from chaetiger 9; **E**, compound falciger from neuropodium of chaetiger 9. **lant**, lateral antennae; **mant**, median antenna; **mtb**, macrotubercles; **nup**, neuropodium; **pap**, papillae; **tbl**, tubercles; **tci**, tentacular cirrus; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

## GENUS ***Clavodorum*** Hartman & Fauchald 1971

*Clavodorum* HARTMAN & FAUCHALD, 1971: 63.
**TYPE SPECIES:** *Clavodorum atlanticum* Hartman & Fauchald 1971.

**KEY TO SPECIES:**

**1a.** Lateral antennae and palps without processes.....***C. adriaticum***
**1b.** Lateral antennae with about 4, and palps with 3 large processes at the base.....***C. fauchaldi***

### ***Clavodorum adriaticum*** Katzmann 1973

*Clavodorum adriaticum* KATZMANN, 1973*a*: 285-286, fig. 2.
**TYPE LOCALITY:** Zlarin Island (off Sibenik, Croatia, Adriatic Sea), in mixed sediments of mud and sand, at 20-60 meters.
**SELECTED REFERENCES:** *Clavodorum adriaticum* — POŽAR-DOMAC, 1994: 6; MÒLLICA, 1995: 56. *Sphaerodoridium adriaticum* — KATZMANN, 1983: 102; POŽAR-DOMAC, 1994: 6.
**DISTRIBUTION:** Known from the type locality.

### ***Clavodorum fauchaldi*** Desbruyères 1980

*Clavodorum fauchaldi* DESBRUYÈRES, 1980: 110-112, pl. 1.
**TYPE LOCALITY:** Bay of Biscay, Bank Le Danois, 44º05.2'N, 4º19.4'W, at 1913 meters.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Commensodorum*** Fauchald 1974

*Commensodorum* FAUCHALD, 1974*a*: 261.
**TYPE SPECIES:** *Sphaerodoridium commensalis* Lützen 1961.

### ***Commensodorum commensalis*** (Lützen 1961)

*Sphaerodoridium commensalis* LÜTZEN, 1961: 409-413, fig. 1.
**TYPE LOCALITY:** Commensal on the tentacle crown of *Terebellides stroemi* M. Sars 1835, collected at Gullmarfjord (Skagerrak, West coast of Sweden), near the Zoological Station of Kristineberg (Blåbergsholmen Island), on a muddy bottom.
**SELECTED REFERENCES:** *Sphaerodoridium commensalis* — HARTMANN-SCHRÖDER, 1971*a*: 227. *Commensodorum commensalis* — KIRKEGAARD, 1992: 182, fig. 86; HARTMANN-SCHRÖDER, 1996: 233.
**DISTRIBUTION:** Skagerrak (Gullmarfjord), probably also in Kattegat, as commensal on the tentacle crown of *Terebellides stroemi* Sars 1835.

## *GENUS ***Ephesiella*** Chamberlin 1919

*Ephesiella* CHAMBERLIN, 1919*a*: 182.
**TYPE SPECIES:** *Sphaerodorum abyssorum* Hansen 1878 [the type species designated by CHAMBERLIN (1919*a*) is *Sphaerodorum peripatus* Claparède 1863; being the specific name of this species invalid, the valid name becomes *Sphaerodorum abyssorum* Hansen 1878].
**REMARKS**: The definition of the genus *Ephesiella* was restricted by FAUCHALD (1974*a*).

**KEY TO SPECIES:**

**1a.** Recurved hooks absent in the first parapodium; at least two distal papillae on the parapodia; median antenna absent.....***E. cantonei****
**1b.** Recurved hooks present in the first parapodia.....**2**

**2a (1b).** Maximally two distal papillae on the parapodia (see remarks under this species).....***E. abyssorum***
**2b (1b).** Three or four distal papillae on the parapodia.....***E. ramosae***

## *Ephesiella abyssorum* (Hansen 1878)

*Sphärodorum abyssorum* HANSEN, 1878: 9, pl. 6 figs. 9-12.

**TYPE LOCALITY:** North Sea, 63º17'N, 1º27'W, at 1081 fathoms (1977 meters), in *Bioculina* clay.

**SELECTED REFERENCES:** *Sphærodorum abyssorum* — HANSEN, 1882: 37, pl. 6 figs. 16-19. *Ephesiella abyssorum* — HARTMAN & FAUCHALD, 1971: 65; FAUCHALD, 1974*a*: 266; SARDÁ-BORROY, 1987: 50, fig. 3*d*; KIRKEGAARD, 1992: 184-185, fig. 87. *Sphaerodorum Peripatus* [not *Bebryce* (= *Pollicita = Sphaerodorum) peripatus* Johnston 1844 = *Sphaerodorum gracilis* (Rathke 1843)] — CLAPARÈDE, 1863: 50-53, pl. 11 figs. 8-18. *Sphaerodorum peripatus* [not *Bebryce* (= *Pollicita = Sphaerodorum) peripatus* Johnston 1844 = *Sphaerodorum gracilis* (Rathke 1843)] — HARTMANN-SCHRÖDER, 1971*a*: 225. *Ephesia peripatus* [not *Bebryce* (= *Pollicita = Sphaerodorum) peripatus* Johnston 1844] — SAINT-JOSEPH, 1894: 41-42; FAUVEL, 1911*d*: 17, pl. 1 figs. 10-15; SOUTHERN, 1914: 89; MCINTOSH, 1915*b*: 50-52, pl. 103 fig. 10; FAUVEL, 1923*c*: 379, fig. 148*g-k*. *Ephesiella peripatus* [not *Bebryce* (= *Pollicita = Sphaerodorum) peripatus* Johnston 1844 = *Sphaerodorum gracilis* (Rathke 1843)] — HARTMANN-SCHRÖDER, 1996: 233-234.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Ephesia peripatus*; coast of Arrábida); SALDANHA, 1995 (as *Ephesia peripatus*; Portugal).

**DISTRIBUTION:** Generally Eastern Atlantic Ocean (Iceland; Ireland; English Channel; North Sea; Skagerrak); Mediterranean Sea; Black Sea; Kara Sea. In muddy bottoms. Coastal to 2667 meters.

**REMARKS:** In spite of being a junior synonym, *Ephesiella abyssorum* (Hansen 1878) replaces *Sphaerodorum peripatus* Claparède 1863, as this one was preoccupied by *Bebryce* (later *Pollicita*, and later *Sphaerodorum*) *peripatus* Johnston 1845 [= *Sphaerodorum gracilis* (Rathke 1843)] (PETTIBONE, 1963*a*; HARTMAN & FAUCHALD, 1971).

According to FAUCHALD (1974*a*), from the descriptions of *E. abyssorum* it is not clear if recurved hooks are present in the first parapodium. He assumed that hooks were present, but the description of *Ephesiella cantonei* by MÒLLICA (1996), a Mediterranean species which does not present recurved hooks on the first parapodia makes necessary to revise that assumption. It is not clear, also, if *E. abyssorum* presents or not the median antenna. This antenna is reported to be absent from *E. cantonei* (Mòllica 1996). If both recurved hooks and median antenna are absent in *E. abyssorum*, this species results quite close to *E. cantonei*, from which it seems possible to be separate with base on the lower number of distal papillae on the parapodia, which may overlap, anyway (maximally two in *E. abyssorum* against at least two in *E. cantonei*).

## **Ephesiella cantonei* Mòllica 1996

*Ephesiella cantonei* MÒLLICA, 1996: 19-21, fig. 1.

**TYPE LOCALITY:** Baia San Giovanni li Cuti (Catania, Eastern Sicily, Ionian Sea), in a rocky bottom at 3 and 6 meters depth, near a fresh water spring.

**SELECTED REFERENCES:** *Ephesiella cantonei* — MÒLLICA, 1995: 57 [*nomen nudum*].

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (as *Ephesiella abyssorum*; southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 238**, near Vila Nova de Milfontes, 22 m, rock: 1 complete specimen, in good condition, with about 30 chaetigers; 2 pairs of lateral antennae of similar sizes; eyes not seen (probably faded away); dorsum with two rows of macrotubercles, and two rows of microtubercles in a median position; macrotubercles with a terminal papilla; neuropodial cirri projecting beyond the parapodial lobes; 1 distal papilla in the parapodia; pygidium with 2 pairs of lateral cirri, with macrotubercles, and an single central cirrus, in a more ventral position; all chaetae are compound; first chaetiger without hooks.

**DISTRIBUTION:** Ionian Sea, between 3-6 meters; SW Portugal, 22 meters. In rocky bottoms.

**REMARKS:** The specimen collected in Portugal fits quite well the description of *Ephesiella cantonei* given by MÒLLICA (1996), except in that only a distal papilla was observed in the parapodia. Recurved hooks are absent in the first parapodia, but as stated above, their presence in *E. abyssorum*, with which *E. cantonei* could be synonymous, must be revised. Eyes are absent in the Portuguese specimen, having probably faded away due to the action of the preservation fluids.

This is the first record of *Ephesiella cantonei* from outside the Mediterranean Sea.

## *Ephesiella ramosae* Desbruyères 1980

*Ephesiella ramosae* DESBRUYÈRES, 1980: 112-115, plates 2-3.

**TYPE LOCALITY:** Meriadzek Terrace (Bay of Biscay), 47º29.2'N, 8º30.7'W, at 2156 meters.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** DESBRUYÈRES (1980) describes this species as not having median antenna, being replaced by a peristomial short median cirrus. I think that this cirrus is in reallity the median antenna.

## GENUS ***Euritmia*** Sardá-Borroy 1987

*Euritmia* SARDÁ-BORROY,1987: 48-49.
**TYPE SPECIES:** *Euritmia hamulisetosa* Sardá-Borroy 1987.

### ***Euritmia hamulisetosa*** Sardá-Borroy 1987

*Euritmia hamulisetosa* SARDÁ-BORROY, 1987: 48-50, figs. 1-2, 3*a*.
**TYPE LOCALITY:** Western Mediterranean (South Spain): on *Mesophyllum lichenoides*, Tarifa (Cádiz), 36º00'53"N, 5º35'50"W, 0.5 meters; on *Spiroglyphus glomeratus* with epyphits, Bahía de Algeciras (Cádiz), 36º10'41"N, 5º25'50"W, 0.5 meters; on detritic bottom, Punta Carnero (Cádiz), 36º04'19"N, 5º25'40"W, 10 meters. SARDÁ-BORROY (1987) designated one holotype and two paratypes, but didn't specify which of the three specimens was the holotype.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Sphaerodoridium*** Lützen 1961

*Sphaerodoridium* LÜTZEN, 1961: 415.
**TYPE SPECIES:** *Sphaerodorum Claparedii* Greeff 1866.
**REMARKS:** The definition of *Sphaerodoridium* was restricted by FAUCHALD (1974*a*). The genus had been defined by LÜTZEN (1961) for all the short bodied sphaerodorids, but it didn't form an uniform group. This way, FAUCHALD (1974*a*) redefined the genus to include the type species designated by Lützen, *Sphaerodorum claparedii* Greeff 1866, and transferred the species described by Lützen to the new genus *Commensodorum*. Both genera differ in that tubercles are stalked and the chaetae composite in *Sphaerodoridium*, while in *Commensodorum* the tubercles are sessile, and the chaetae simple.

**KEY TO SPECIES:**

**1a.** Dorsal macrotubercles arranged in six longitudinal rows, with a single transversal row per segment, and with microtubercles scattered between macrotubercles; ventral surface with sessile smaller papillae, distributed irregularly or on four longitudinal rows.....***S. claparedii***
**1b.** Dorsal macrotubercles in a single transversal row per segment, of 5 macrotubercles on chaetigers 1-3, 6 macrotubercles on chaetigers 4-8, and 5 macrotubercles again on chaetigers 9-10; dorsal microtubercles absent; ventral surface with sessile smaller papillae, in a somewhat irregular distribution: chaetiger 1 with two and other two intersegmental, chaetiger 2 with three on each side and one intersegmental in the middle, chaetiger 3 with two on each side, one behind the other, chaetiger 4 with three on one side and four on the other side, chaetigers 5-9 with four irregularly distributed on each side, chaetiger 10 with two on each side.....***S. fauchaldi***

### ***Sphaerodoridium claparedii*** (Greeff 1866)

*Sphaerodorum Claparedii* GREEFF, 1866: 338-351, pl. 6.
**TYPE LOCALITY:** English Channel, in the oyster-basin of Dieppe.
**SELECTED REFERENCES:** *Sphaerodorum Claparedii* — SOUTHERN, 1914: 89-90; FAUVEL, 1923*c*: 379-380, fig. 149*d-e*. *Sphaerodoridium claparedi* — LÜTZEN, 1961: 415. *Sphaerodoridium claparedii* — FAUCHALD, 1974*a*: 270; GARDINER, 1976: 159-160; POŽAR-DOMAC, 1994: 6; MÒLLICA, 1995: 57. *Sphaerodoridium claparedeii* — SARDÁ-BORROY, 1987: 50, fig. 3*c*.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Sphaerodorum claparedei*; coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); DEXTER, 1992 (as *Sphaerodorum claparedii*; previous records: Sado Estuary); SALDANHA, 1995 (as *Sphaerodorum claparedii*; Portugal).
**DISTRIBUTION:** Atlantic Ocean; English Channel (Dieppe); West Coast of Ireland (Blacksod Bay; Ballynakill Harbour); Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; North Carolina. On oyster-basins, on the shore in weeds, in muddy sand, and in the surface tow-net. Intertidal to 200 meters.

## ***Sphaerodoridium fauchaldi*** Hartmann-Schröder 1993

*Sphaerodoridium fauchaldi* HARTMANN-SCHRÖDER, 1993: 123-125, figs. 1-9.

**TYPE LOCALITY:** North Sea, 58º16.98'N, 0º58.31'E, on coarse sand, at 172 meters.

**SELECTED REFERENCES:** *Sphaerodoridium fauchaldi* — HARTMANN-SCHRÖDER, 1996: 234-235, fig. 104; AGUIRREZABALAGA & CEBERIO, 2005*a*: 16-19, figs. 15-16; MOREIRA & PARAPAR, 2007*a*: 377-378, fig. 3*B-E*.

**DISTRIBUTION:** North Sea, on coarse sand, at 172 meters; Bay of Biscay, Capbreton Canyon, at 492-495 meters, in soft bottom; Ártabro Gulf, off NW Iberian Peninsula, at 152 meters, in sandy mud.

**REMARKS:** As pointed by AGUIRREZABALAGA & CEBERIO (2005*a*), the specimen described from the Bay of Biscay shows some small differences in relation to the one described by HARTMANN-SCHRÖDER (1993). This way, the specimen from the Bay of Biscay has one parapodial spherical ventral papilla from chaetiger 3 (absent in the specimen from the North Sea, according to Hartmann-Schröder's description), two basal papillae/spurs on the lateral antennae (one in the North Sea specimen), 4 papillae between the peristomial cirri (against 3), and, possibly, ventral spherical papillae with a very short stalk (being unstalked in the specimen from the North Sea). In spite of these differences, AGUIRREZABALAGA & CEBERIO (2005*a*) considered both specimens as belonging to the same species.

The specimens studied by MOREIRA & PARAPAR (2007*a*) agree in general terms with the previous descriptions of the species. The presence of a short stalk on the ventral spherical papillae was confirmed, and a cylindrical muscular proventricle provided with about 18-20 cell rows described, as well as a pair of peristomial eyes in some specimens, chaetal blades with a cutting edge with conspicuous spinulation, shafts of chaetae with the distal end also with some spinulation, and a granulated appearance of the tegument. On the other side, several specimens showed some middle parapodia with two distal papillae on their posterior distal edge, instead of one, as anteriorly described.

## GENUS ***Sphaerodoropsis*** Hartman & Fauchald 1971

*Sphaerodoropsis* HARTMAN & FAUCHALD, 1971: 69.

**TYPE SPECIES:** *Sphaerodoropsis sphaerulifer* Moore 1909.

**KEY TO SPECIES:**

(adapted from: FAUCHALD, 1974*a*; BOROWSKI, 1994*b*)

**1a** Four longitudinal rows of dorsal macrotubercles, and one transverse row per segment (Group 1).....**2**
**1b.** More than four longitudinal rows of dorsal macrotubercles.....**10**

**2a (1a).** Dorsal and ventral surface with terminally star-shaped papillae.....***S. stellifer***
**2b (1a).** Dorsal and ventral papillae not terminally star-shaped.....**3**

**3a (2b).** Macrotubercles flattened dorso-ventrally, with a small dorsal invagination; median antenna bifurcate.....***S. laureci***
**3b (2b).** Macrotubercles dorsally rounded; median antenna not bifurcate.....**4**

**4a (3b).** One pair of palps and one pair of lateral antennae present; parapodia short (length of acicular lobe similar to its width), with ten or eleven slender papillae.....***S. philippi***
**4b (3b).** One pair of palps, one pair of lateral antennae, and one pair of long prostomial papillae (normally designated as a third pair of lateral antennae or antenniform papillae).....**5**

**5a (4b).** Ventral cirri project beyond the acicular lobe, at least in the middle region of the body.....**6**
**5b (4b).** Ventral cirri do not project beyond the acicular lobe.....**8**

**6a (5a).** Each parapodium with 3-4 papillae.....***S. artabrensis***
**6b (5a).** Each parapodium with 10 to >20 papillae.....**7**

**7a (6b).** Parapodia short (length of acicular lobe equal or smaller than its wide); preacicular lobe of about the same length than the ventral cirri, postacicular lobe absent; three-five papillae on each face of the parapodia.....***S. parva***
**7b (6b).** Parapodia twice longer than wider; preacicular lobe smaller than ventral cirri, postacicular lobe absent; 10-15 papillae on each side of the parapodia.....***S. sibuetae***

**8a (5b).** Parapodia short, subhemispherics, with a short preacicular lobe, and without postacicular lobe; parapodia without papillae.....***S. martinae***
**8b (5b).** Parapodia long, about twice or three times longer than wider, papillated.....**9**

**9a (8b).** A long papilla is present at the dorsal distal margin of the parapodia; complete specimen with 25 chaetigers, and 4.5 mm long; known from the Bay of Biscay and off Newfoundland, at 3465-4150 meters.....***S. longipapillata***
**9b (8b).** A long papilla is present at the dorsal median margin of the parapodia; complete specimen with 13-17 chaetigers, and 1.6-1.8 mm long; known from the Adriatic Sea, at 20-60 meters.....***S. longiparapodium***

**10a (1b).** One transverse row per segment (Group 2).....**11**
**10b (1b).** Two transverse rows per segment (Group 3).....**13**

**11a (10a).** Seven to nine rows of dorsal macrotubercles.....**12**
**11b (10a).** Ten to twelve rows of dorsal macrotubercles; single digitate prechaetal and two short postchaetal lobes present; a single papillae present on each side of the parapodia.....***S. minuta***

**12a (11a).** Seven-nine rows of dorsal macrotubercles; parapodia with one prechaetal and two postchaetal lobes; parapodia with at least six papillae; ventral cirrus distinctly different from the papillae and projecting beyond the prechaetal lobe.....***S. balticum***
**12b (11a).** Seven-eight rows of dorsal macrotubercles; parapodia with a single prechaetal and no defined postchaetal lobe; parapodia with a single small papilla on each face; ventral cirrus distinctly different from the papillae and projecting beyond the prechaetal lobe.....***S. sphaerulifer***
**12c (11a).** Eight rows of dorsal macrotubercles; parapodia from chaetiger 3 with a single bluntly conical prechaetal and 1-2 digitiform, distally inflated postchaetal lobes; parapodia with 1-2 spherical papillae; ventral cirrus distinctly different from the papillae and projecting beyond the prechaetal lobe.....***S. amoureuxi***

**13a (10b).** Ventral surface smooth; anterior transversal row with up to five macrotubercles, posterior row with up to four, microtubercles absent.....***S. distichum***
**13b (10b).** Ventral surface covered by papillae, disposed in two longitudinal broken lines.....**14**

**14a (13b).** Prechaetal parapodial lobe absent; from chaetiger 2 one transversal row with six macrotubercles, followed by another with 4-5 macrotubercles and some microtubercles.....***S. chardyi***
**14b (13b).** Prechaetal parapodial lobe present; from chaetiger 2 one transversal row of six macrotubercles, followed by another with seven macrotubercles and some microtubercles.....***S. garciaalvarezi***

## ***Sphaerodoropsis amoureuxi*** Aguirrezabalaga & Ceberio 2005

*Sphaerodoropsis amoureuxi* AGUIRREZABALAGA & CEBERIO, 2005*a*: 10-13, figs. 1-2.
**TYPE LOCALITY:** Bay of Biscay, Capbreton Canyon, dredge from 43º42.89'N, 2º18.71'W, at 984 meters, to 43º43.25', 2º18.80'W, at 1029 meters, in soft bottom.
**DISTRIBUTION:** Known from the type locality.

## ***Sphaerodoropsis artabrensis*** Moreira & Parapar 2007

*Sphaerodoropsis artabrensis* MOREIRA & PARAPAR, 2007*a*: 374-377, figs. 1-2, 3*A*.
**TYPE LOCALITY:** Ártabro Gulf, off north-western Iberian Peninsula, 43º40.192'N, 08º43.760'W, at 209 meters, in muddy sand.
**DISTRIBUTION:** Ártabro Gulf, off north-western Iberian Peninsula, between 152-257 meters, in sediments ranging from muddy sand to sandy mud.

### ***Sphaerodoropsis balticum*** (Reimers 1933)

*Sphaerodorum balticum* REIMERS, 1933: 45-105, figs. 1-16, 18-45

**TYPE LOCALITY:** Littoral, between 6-8 meters, 100-200 meters away from the coast, in a mixture on mud with gravel, at Shilksee and Laboe (near Kiel, Germany), Western Baltic Sea.

**SELECTED REFERENCES:** *Sphaerodorum balticum* — ELIASON, 1962*a*: 37. *Sphaerodoridium balticum* — LÜTZEN, 1961: 415; HARTMANN-SCHRÖDER, 1971*a*: 228, fig. 74*d-f*; KATZMANN, 1973*d*: 148; KATZMANN, 1983: 102; POŽAR-DOMAC, 1994: 6. *Sphaerodoropsis balticum* — BOROWSKI, 1994*b*: table 2; KIRKEGAARD, 1992: 185-187, fig. 88; MÒLLICA, 1995: 56. *Sphaerodoropsis baltica* — HARTMANN-SCHRÖDER, 1996: 235-236, fig. 105. *Sphaerodorum Claparedei* [not Greeff 1866 = *Sphaerodoridium claparedii* (Greeff 1866)] — ELIASON, 1920: 16; THORSON, 1946: 40.

**DISTRIBUTION:** North Sea (Sylt); Öresund (13-24 meters); Kieler Channel; Baltic Sea; [?] Adriatic Sea. On mud with fine sand, and sand with *Zostera*. In muddy and sandy bottoms. Between 6-24 meters (30-60 meters in the Adriatic Sea). It can penetrate in the mesohaline zone of the brackish water.

### ***Sphaerodoropsis chardyi*** Desbruyères 1980

*Sphaerodoropsis chardyi* DESBRUYÈRES, 1980: 115-117, pl. 4.

**TYPE LOCALITY:** Bay of Biscay, 44º11.3'N, 4º15.4'W, at 2430 meters.

**SELECTED REFERENCES:** *Sphaerodoropsis chardyi* — BOROWSKI, 1994*b*: table 2.

**DISTRIBUTION:** Known from the type locality.

### ***Sphaerodoropsis distichum*** (Eliason 1962)

*Sphaerodorum distichum* ELIASON, 1962*b*: 247-248, fig. 12.

**TYPE LOCALITY:** Skagerrak, 58º5'N, 8º32'E, 460 meters, on grey mud.

**SELECTED REFERENCES:** *Sphaerodoridium distichum* — HARTMANN-SCHRÖDER, 1971*a*: 227-228. *Sphaerodoropsis distichum* — BOROWSKI, 1994*b*: table 2; KIRKEGAARD, 1992: 187-188, fig. 89. *Sphaerodoropsis disticha* — HARTMANN-SCHRÖDER, 1996: 236.

**DISTRIBUTION:** Known from type locality.

### ***Sphaerodoropsis garciaalvarezi*** Moreira, Cacabelos & Troncoso 2004

*Sphaerodoropsis garciaalvarezi* MOREIRA, CACABELOS & TRONCOSO, 2004: 995-999, figs. 1-3, 4*A*, 4*D*.

**TYPE LOCALITY:** Ensenada de Baiona (Galicia, north-west Spain): 42º07'30"N, 08º50'15"W, at 7 meters, on fine-muddy sand.

**DISTRIBUTION:** Ensenada de Baiona (Galicia, north-west Spain): 42º07'30"N, 08º50'15"W, at 7 meters, on fine-muddy sand; 42º08'50"N, 08º50'15"W, at 7 meters, on fine sand with *Zostera marina*.

### ***Sphaerodoropsis laureci*** Desbruyères 1980

*Sphaerodoropsis laureci* DESBRUYÈRES, 1980: 117-119, pl. 5.

**TYPE LOCALITY:** Bay of Biscay, Meriadzek Terrace, 47º36.1'N, 8º40.5'N, at 2325 meters.

**SELECTED REFERENCES:** *Sphaerodoropsis laureci* — BOROWSKI, 1994*b*: table 2.

**DISTRIBUTION:** Known from the type locality.

### ***Sphaerodoropsis longipapillata*** Desbruyères 1980

*Sphaerodoropsis longipapillata* DESBRUYÈRES, 1980: 119-120, pl. 6.

**TYPE LOCALITY:** Bay of Biscay, 47º31'N, 9º35'W, at 4150 meters.

**SELECTED REFERENCES:** *Sphaerodoropsis longipapillata* — BOROWSKI, 1994*b*: table 2.

**DISTRIBUTION:** Bay of Biscay, 47º31'N, 9º35'W, at 4150 meters; NW Atlantic, NE of Newfoundland Bank, 55º52.5'N, 49º53.4'W, at 3465 meters.

### ***Sphaerodoropsis longiparapodium*** (Katzmann 1973)

*Sphaerodoridium longiparapodium* KATZMANN, 1973*a*: 284-285, fig. 1.

**TYPE LOCALITY:** Zlarin Island (off Sibenik, Croatia, Adriatic Sea), in mixed sediments of mud and sand, at 20-60 meters.

**SELECTED REFERENCES:** *Sphaerodoridium longiparapodium* — KATZMANN, 1983: 103; POŽAR-DOMAC, 1994: 6. *Sphaerodoropsis longiparapodium* — BOROWSKI, 1994*b*: table 2; MÒLLICA, 1995: 56.

**DISTRIBUTION:** Adriatic Sea, in mixed sediments of mud and sand, at 20-60 meters.

**REMARKS:** According to MÒLLICA (1995) this species presents 3 "pairs of antennae", instead of the two referred in the original description.

## ***Sphaerodoropsis martinae*** Desbruyères 1980

*Sphaerodoropsis martinae* DESBRUYÈRES, 1980: 121-122, pl. 7.
**TYPE LOCALITY:** Bay of Biscay, Bank Le Danois, 44º5.2'N, 4º19.4'W, at 1913 meters.
**SELECTED REFERENCES:** *Sphaerodoropsis martinae* **—** BOROWSKI, 1994*b*: table 2.
**DISTRIBUTION:** Known from the type locality.

## ***Sphaerodoropsis minuta*** (Webster & Benedict 1887)

*Ephesia minuta* WEBSTER & BENEDICT, 1887: 728-729, pl. 4 figs. 64-66.
**TYPE LOCALITY:** Eastport (Maine, Northeast USA).
**SELECTED REFERENCES:** *Sphaerodorum minutum* — FAUVEL, 1913*a*: 37; FAUVEL, 1914*f*: 96-97, pl. 7 figs. 19-21; SOUTHERN, 1914: 90-91, pl. 9 fig. 21; FAUVEL, 1923*c*: 380-381, fig. 149*a-c*; USCHAKOV, 1955*a*: 222, fig. 70*G-I*. *Ephesiella minuta* — PETTIBONE, 1963*a*: 208, fig. 52*d-f*. *Sphaerodoridium minutum* — LÜTZEN, 1961: 415; HARTMAN, 1968: 603; IMAJIMA, 1969: 153-154, fig. 2; HARTMANN-SCHRÖDER, 1971*a*: 227; CANTONE & FASSARI, 1982: 230; POŽAR-DOMAC, 1994: 6. *Sphaerodoridium* cf. *minutum* — KATZMANN, 1973*d*: 148; KATZMANN, 1983: 103. *Sphaerodoropsis minuta* — FAUCHALD, 1974*a*: 275, fig. 3.7; KIRKEGAARD, 1992: 188, fig. 90; BOROWSKI, 1994*b*: table 2; MÒLLICA, 1995: 56; HARTMANN-SCHRÖDER, 1996: 237. *Sphaerodoropsis minutum* — SARDÁ, 1983: 16-18, fig. 2; SARDÁ-BORROY, 1987: 50, fig. 3*b*.
**DISTRIBUTION:** Atlantic Ocean off New England (77 meters) and Gulf of St. Lawrence (91.5-111.5 meters); Pacific Ocean from western Canada to California (20-92 meters); Japan; Arctic Ocean (N of Spitzbergen, at 430 meters, in muddy sand); Antarctic Ocean; West Coast of Ireland [Blacksod Bay; Clew Bay; Ballynakill Harbour; surface, with plankton net at night and in 2-24 fathoms (3.5-44 meters)]; North Sea (West Denmark; Norfolk, UK); Kattegat; Mediterranean Sea; [?] Adriatic Sea; [?] Aegean Sea. On sand, gravel, shells, mud, in holdfasts of *Laminaria*, or taken with tow net at night. Mainly in shelf depths (0-120 meters).

## ***Sphaerodoropsis parva*** (Ehlers 1913)

*Sphaerodorum parvum* EHLERS, 1913: 504-507, pl. 35 figs. 7-12.
**TYPE LOCALITY:** Kaiser Wilhelm II Land, Antarctica, at 380-385 meters; Observatory Bay, Kerguelen Islands, at 3423 meters.
**SELECTED REFERENCES:** *Sphaerodorum parvum* — HARTMAN, 1964: 107, pl. 33 figs. 4-5; HARTMAN, 1967: 86-87. *Sphaerodoridium parvum* — LÜTZEN, 1961: 415. *Sphaerodoropsis parva* — FAUCHALD, 1974*a*: 276, figs. 3.8-3.9; DESBRUYÈRES, 1980: 122-124, pl. 8; BOROWSKI, 1994*b*: table 2.
**DISTRIBUTION:** Antarctic Ocean (Kerguelen Island, Falkland Islands, South Shetland Islands, South Georgia, South Orkney Islands, Antarctic Peninsula, Kaiser Wilhelm II Land, Peter I Island, Scotia Sea, Bransfield Strait, Drake Passage), between 56-4758 meters; Bay of Biscay, Meriadzek Terrace, 47º30.8'N, 9º7.6'W, at 2906 meters. In mud.
**REMARKS:** DESBRUYÈRES (1980) states that the cases of cosmopolitan species among the Sphaerodoridae are rare, and that his identification of the specimens from the Bay of Biscay should be revised in case that the finding of more specimens enables the study of intraspecific variation. The specimens from the Bay of Biscay differ from the Antarctic specimens by small differences (as the relation of sizes between the antennae or the length of the parapodia), but DESBRUYÈRES (1980) didn't considered them sufficient as to create a new taxon, as those small differences could easily be attributed to the state of contraction of the specimens.

## ***Sphaerodoropsis philippi*** (Fauvel 1911)

*Sphaerodorum philippi* FAUVEL, 1911*d*: 19-21, pl. 1 figs. 16-20.
**TYPE LOCALITY:** Kara Sea, at 200 meters.
**SELECTED REFERENCES:** *Sphaerodorum philippi* — ELIASON, 1920: 16; FRIEDRICH, 1938: 115. *?Sphaerodorum philippi* — ELIASON, 1962*a*: 37-38, fig. 4. *Sphaerodoridium philippi* — LÜTZEN, 1961: 415; HARTMANN-SCHRÖDER, 1971*a*: 228-230, fig. 75; HARTMANN-SCHRÖDER, 1974*d*: 209; POŽAR-DOMAC, 1994: 6. *Sphaerodoridium* cf. *philippi* — KATZMANN, 1973*d*: 148; KATZMANN, 1983: 103. *Sphaerodoropsis philippi* — KIRKEGAARD, 1992: 189-190, fig. 91; BOROWSKI, 1994*b*: table 2; MÒLLICA, 1995: 56; HARTMANN-SCHRÖDER, 1996: 237-238, fig. 106.

**DISTRIBUTION:** Arctic (Kara Sea, 0-220 meters); Kattegat; Öresund (16-40 meters), in sand or *Zostera* with mud; northern Skagerrak (30-196 meters); northern Norway; North Sea; [?] Adriatic Sea; [?] Aegean Sea. On muddy and sandy bottoms. Between 0-200 meters.

### ***Sphaerodoropsis sibuetae*** Desbruyères 1980

*Sphaerodoropsis sibuetae* DESBRUYÈRES, 1980: 124-126, plates 9-10.
**TYPE LOCALITY:** Bay of Biscay, east margin of the Bank Le Danois, 44º5.2'N, 4º19.4'W, at 1913 meters.
**SELECTED REFERENCES:** *Sphaerodoropsis sibuetae* — BOROWSKI, 1994*b*: table 2.
**DISTRIBUTION:** Bay of Biscay, east margin of the Bank Le Danois, 44º5.2'N, 4º19.4'W, at 1913 meters. Also present at the Meriadzek Terrace, and Rockall Trough, both at the Bay of Biscay, at depth unknown.

### ***Sphaerodoropsis sphaerulifer*** (Moore 1909)

*Sphærodorum sphærulifer* MOORE, 1909*b*: 336.
**TYPE LOCALITY:** Monterey Bay (California), from a deep sea fish-line.
**SELECTED REFERENCES:** *Sphaerodoridium sphaerulifer* — LÜTZEN, 1961: 415; HARTMAN, 1968: 605. *Sphaerodoropsis sphaerulifer* — FAUCHALD, 1974*a*: 277, figs. 3.1-3.4; MÒLLICA, 1995: 56; KUDENOV, 1997: 228, fig. 8.3. *Sphaerodoropsis sphaerulipher* — BOROWSKI, 1994*b*: table 2.
**DISTRIBUTION:** Central and southern California, at 22-252 meters, on muddy and sandy bottoms; Ischia (Mediterranean Sea).
**REMARKS:** The only record of this species outside California seems to be the one made by LANERA, SORDINO & GAMBI (1989), from Ischia (Naples).

### ***Sphaerodoropsis stellifer*** Aguirrezabalaga & Ceberio 2005

*Sphaerodoropsis stellifer* AGUIRREZABALAGA & CEBERIO, 2005*a*: 13-16, figs. 3-4.
**TYPE LOCALITY:** Bay of Biscay, Capbreton Canyon, 43º42.01'N, 2º18.52'W, at 990 meters, in soft bottom.
**DISTRIBUTION:** Bay of Biscay, Capbreton Canyon, between 990-1113 meters, in soft bottom.

## GENUS ***Sphaerodorum*** Ørsted 1843

*Sphaerodorum* ØRSTED, 1843*a*: 42.
**TYPE SPECIES:** *Ephesia gracilis* Rathke 1843.
**SYNONYMS:** *Ephesia* Rathke 1843 [not Hübner 1818 (Lepidoptera)]; *Bebryce* Johnston *in* Thompson 1844 [not Philippi 1842 (Octocorallia, Cnidaria)]; *Pollicita* Johnston 1845.
**REMARKS:** The definition of the genus *Sphaerodorum* Ørsted 1843 was restricted by FAUCHALD (1974*a*), in order to include the type species *S. gracilis* (Rathke 1843) and related species.

**KEY TO SPECIES:**

**1a.** Microtubercles with basal collar; hooks of the first chaetiger unidentates.....***S. gracilis***
**1b.** Microtubercles without basal collar; hooks of the first chaetiger bidentate, with the second tooth on the convex region of the hook.....***S. ophiurophoretos***

### ***Sphaerodorum gracilis*** (Rathke 1843)

*Ephesia gracilis* RATHKE, 1843: 176, pl. 7 figs. 5-8.
**TYPE LOCALITY:** Molde, Norway.
**SYNONYMS:** *Sphaerodorum flavum* Ørsted 1843; *Bebryce peripatus* Johnston *in* Thompson 1844; *Nereis bullata* Dalyell 1853.
**SELECTED REFERENCES:** *Ephesia gracilis* — JOHNSTON, 1865: 206-207; MALMGREN, 1867*a*: 79-81; WEBSTER & BENEDICT, 1887: 728; SAINT-JOSEPH, 1894: 38-41, pl. 3 figs. 51-54; MCINTOSH, 1908*b*: 528-529; FAUVEL, 1911*d*: 15, pl. 1 figs. 7-9; RUDERMAN, 1911: 1-96, pl. 1; FAUVEL, 1914*f*: 96; SOUTHERN, 1914: 88; MCINTOSH, 1915*b*: 47-50, text-fig. 105, pl. 88 fig. 10, pl. 95 fig. 9, pl. 103 fig. 9; ELIASON, 1920: 15; FAUVEL, 1923*c*: 377-378, fig.148*a-f* [not *Sphaerodorum papillifer* Moore 1909, in the synonymy list]; FRIEDRICH, 1938: 115; USCHAKOV, 1955*a*: 220, fig. 70*A-C* [not *Sphaerodorum*

*papillifer* Moore 1909, in the synonymy list]; PETTIBONE, 1956: 559 [not *Sphaerodorum papillifer* Moore 1909, in the synonymy list]; DAY, 1960: 326. *Sphaerodorum gracile* — ELIASON, 1962*a*: 36. *Sphaerodorum gracilis* — PETTIBONE, 1963*a*: 207, fig. 52*a-c*; IMAJIMA, 1969: 152-153, fig. 1; FAUCHALD, 1974*a*: 278-279, figs. 4.1-4.5; POŽAR-DOMAC, 1994: 6; MÒLLICA, 1995: 57. *Sphaerodorum gracile* — DAY, 1967: 288-289, fig. 13.1.*a-d*. *Sphaerodorum flavum* — ØRSTED, 1843*a*: 43, figs. 7, 92, 101; KATZMANN, 1983: 102; KIRKEGAARD, 1992: 190-191, fig. 92; HARTMANN-SCHRÖDER, 1996: 238-239, fig. 107. *Bebryce peripatus* — JOHNSTON *in* THOMPSON, 1844: 273. *Pollicita peripatus* — JOHNSTON, 1845: 5-6, pl. 2 figs. 1-6. *Sphaerodorum peripatus* — JOHNSTON, 1865: 208-209, pl. 14 figs. 1-6.

**DISTRIBUTION:** Atlantic Ocean off Europe and North America (Gulf of St. Lawrence; off Nova Scotia; Massachusetts); Arctic Ocean; Ireland; Norway; North Sea; Skagerrak; Kattegat (22 meters); Öresund (20-35 meters); from the North Sea to the Mediterranean Sea; Adriatic Sea (50 meters); Black Sea; Bering Sea to California; South Africa; Antarctic; Japan. Generally in shallow water, but has been recorded between 0-1500 meters. In coralline algae, and fissures of rocks; dredged on bottoms of fine sand, mud, sandy mud, rocks, with shells, hydroids, sponges. According to FAUCHALD (1974*a*) some of the records concern probably similar species.

## ***Sphaerodorum ophiurophoretos*** Martin & Alva 1988

*Sphaerodorum ophiurophoretos* MARTIN & ALVÀ, 1988: 45-47, figs. 1-3.

**TYPE LOCALITY:** La Pointe de la Crèche, Wimereux (Pas-de-Calais, France), as symbiontic in the arms of the ophiuroid *Amphipholis squamata* (Delle Chiaje 1828), collected at the intertidal zone with laminarians, under stones.

**SYNONYMS:** *Sphærodorum Greefii* Giard 1880 [*nomen nudum*].

**SELECTED REFERENCES:** *Sphærodorum Greefii* — GIARD, 1880*b*: 228 [*nomen nudum*].

**DISTRIBUTION:** Known from the type locality, living as a symbiont in the arms of the ophiuroid *Amphipholis squamata* (Delle Chiaje 1828).

# FAMILY **SPINTHERIDAE** Augener 1913

**AS:** *SPINTHERIDAE* AUGENER, 1913*b*: 84-87.

**TYPE GENUS:** *Spinther* Johnston 1845.

**REMARKS:** Spintheridae is a small family of polychaetes that live as parasites or commensals of sponges. Some species have bright colours, the body is flattened and rounded to oval in outline, and in spite of reaching only up to 50 segments, they can be several centimeters long. The family includes a single genus, *Spinther* Johnston 1845, with the following 11 valid species (YAMAMOTO & IMAJIMA, 1985; IMAJIMA, 2003):

*Spinther oniscoides* Johnston 1845 — Belfast Bay, Ireland [type species];
*Spinther arcticus* (Sars 1851) — Arctic Ocean [includes *Spinther miniaceus* Grube 1860, from the Adriatic Sea];
*Spinther citrinus* (Stimpson 1853) — Eastern Canada [includes *Spinther major* Levinsen 1884, from the Bering Sea];
*Spinther australiensis* Augener 1913 — Southwestern Australia;
*Spinther vegae* Augener 1928 — Bering Sea [includes *Spinther arcticus* Wirén 1883, and *Spinther wireni* Hartman 1948, both from the Bering Sea (see below)];
*Spinther alaskensis* Hartman 1948 — Alaska Peninsula;
*Spinther hystrix* Uschakov 1950 — Okhotsk Sea and Sea of Japan;
*Spinther japonicus* Imajima & Hartman 1964 — Coast of Japan;
*Spinther usarpia* Hartman 1967 — Antarctic Peninsula;
*Spinther ericinus* Yamamoto & Imajima 1985 — Off Kushiro, Japan;
*Spinther sagamiensis* Imajima 2003 — Sagami Bay, Japan.

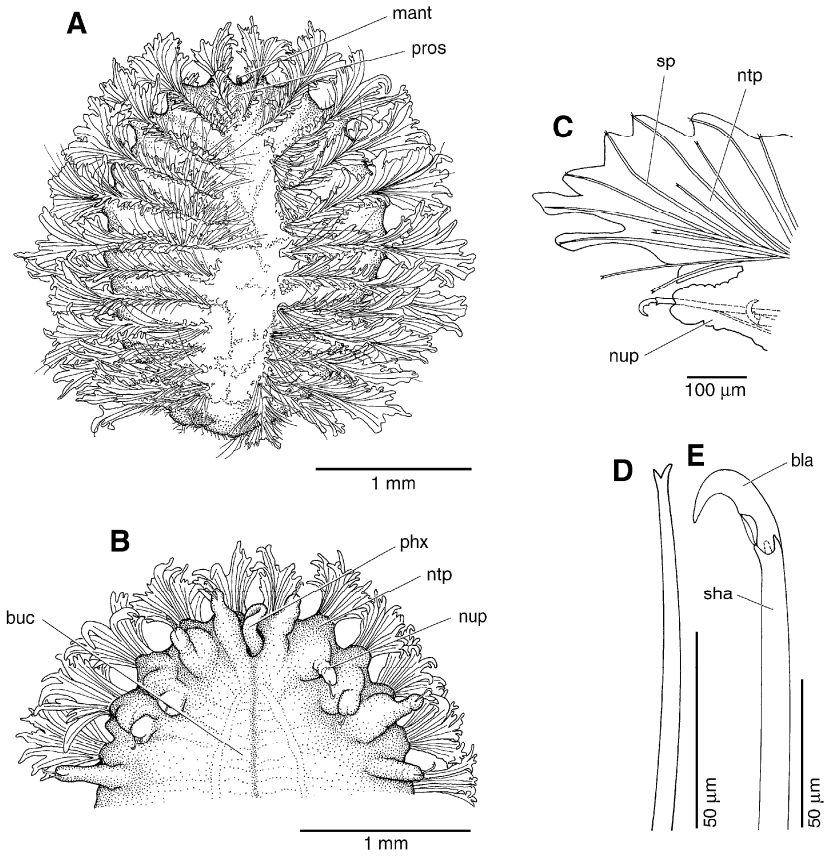


**Figure legend:** Family Spintheridae. *Spinther* specimen. **A**, entire animal, dorsal view; posteriormost parapodium on left hand side missing. **B**, anterior end, ventral view. **C**, neuropodium and part of notopodium from chaetiger 8, anterior view. **D**, notochaetal spine from chaetiger 8. **E**, compound neurochaeta from chaetiger 8. **bla**, blade; **buc**, buccal organ; **mant**, median antenna; **ntp**, notopodium; **nup**, neuropodium; **phx**, pharynx, partially everted; **pros**, prostomium; **sha**, shaft; **sp**, spine. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

A table with the morphological characters of 10 species can be found at YAMAMOTO & IMAJIMA (1985), updating the table and key given in HARTMAN (1948*b*). Four species have been recorded in European waters, but none of them was found among the studied material.

## GENUS ***Spinther*** Johnston 1845

*Spinther* JOHNSTON, 1845: 8.
**TYPE SPECIES:** *Spinther oniscoides* Johnston 1845.
**SYNONYMS:** *Oniscosoma* Sars 1851; *Cryptonota* Stimpson 1853.

**KEY TO SPECIES:**
(adapted from GEORGE & HARTMANN-SCHRÖDER, 1985)

**1a.** Ventral surface smooth, without papillae; neuropodia without a postchaetal extension.....***S. arcticus***
**1b.** Ventral surface papillated; neuropodia with or without a fingershaped postchaetal extension.....**2**

**2a (1b).** All notochaetae bifid; 20-26 segments; neuropodia with a short postchaetal extension.....***S. oniscoides***
**2b (1b).** Some notochaetae bifid, others entire; more than 30 segments; neuropodia with or without a postchaetal extension.....**3**

**3a (2b).** Notochaetae mostly entire, a few bifid; neurochaetae with distal end of shaft crenulated; neuropodia with a prominent finger-shaped postchaetal extension.....***S. citrinus***
**3b (2b).** Equal numbers of bifid and entire notochaetae; neurochaetae with distal end of shaft smooth; neuropodia without postchaetal extension.....***S. vegae***

### ***Spinther arcticus*** (M. Sars 1851)

*Oniscosoma arcticum* SARS, 1851: 210.
**TYPE LOCALITY:** Komagfjord (Finnmark, Norther Norway), 30-40 fathoms (55-73 meters), in sponges.
**SYNONYMS:** *Spinther miniaceus* Grube 1860.
**SELECTED REFERENCES:** *Spinther arcticus* — SARS, 1862*a*: 52-55; MALMGREN, 1867*a*: 1; HARTMAN, 1948*b*: 16, chart in page 16; GEORGE & HARTMANN-SCHRÖDER, 1985: 68, fig. 13; KIRKEGAARD, 1992: 351-352, fig. 172; HARTMANN-SCHRÖDER, 1996: 31-32, fig. 6. *Spinther miniaceus* — GRUBE, 1860: 74, pl. 3 fig. 3; GRAFF, 1887: 93-98, text-figs. 1-3, 6-10, pls. 1-5; MCINTOSH, 1890: 182; MCINTOSH, 1900*a*: 232-233, pl. 24 figs. 1-2, pl. 35 fig. 5; DITLEVSEN, 1929: 9; FAUVEL, 1923*c*: 140-141, fig. 50*a-f*; WESENBERG-LUND, 1950*a*: 12, chart 17, pl. 3 fig. 12; USCHAKOV, 1955*a*: 226-227, fig. 73*F-G*. *Spinther oniscoides* [not Johnston 1845] — MCINTOSH, 1876*b*: 373, pl. 67 figs. 1-3. Not *Spinther arcticus* — WIRÉN, 1883: 386-387, pl. 27 figs. 1-5 [homonym; new name = *Spinther vegae* Augener 1928].
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Spinther miniaceus*; coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); SALDANHA, 1995 (as *Spinther miniaceus*; Portugal).
**DISTRIBUTION:** Arctic; North Pacific; Eastern North Atlantic, from Norway and the northern part of North Sea, Skagerrak, Kattegat to the Mediterranean Sea and Adriatic Sea. Associated with sponges (*Halichondria*, *Tedania* and others) as well as with hydrozoans. Down to depths of about 300 meters.
**REMARKS:** As stated by GEORGE & HARTMANN-SCHRÖDER (1985), *Spinther arcticus* Wirén 1883 is a different species, *S. vegae* Augener 1928. On the other hand, *S. arcticus* Hansen 1880 is a junior synonym of *S. citrinus*.

### ***Spinther citrinus*** (Stimpson 1853)

*Cryptonota citrina* STIMPSON, 1853: 35-36, plate 2 fig. 27.
**TYPE LOCALITY:** Hake Bay (Bay of Fundy, Canada), on a gravelly and somewhat muddy bottom, in 35 fathoms (64 meters).
**SYNONYMS:** *Spinther arcticus* Hansen 1880 [homonym; not Sars 1851]; *Spinther major* Levinsen 1884.
**SELECTED REFERENCES:** *Spinther citrinus* — WEBSTER & BENEDICT, 1887: 707; TREADWELL, 1937: 25; WESENBERG-LUND, 1950*a*: 12, chart 17; PETTIBONE, 1963*a*: 67-68, fig. 15; GEORGE & HARTMANN-SCHRÖDER, 1985: 70, fig. 14. *Spinther citrina* — HARTMAN, 1948*b*: 16, chart in page 16. *Spinther major* — LEVINSEN, 1884: 126. *Spinther arcticus* [not Sars 1851] — HANSEN, 1880: 224, pl. 1 figs. 1-5; G.A.

HANSEN, 1882: 44, pl. 1 figs. 1-5. *Spinther oniscoides* [not Johnston 1845] — ANNENKOVA, 1938: 139; HARTMAN, 1942*a*: 35, figs. 45-46; TREADWELL, 1948: 10, fig. 1*c-d*; USCHAKOV, 1955*a*: 227-228, fig. 72*F-H*.

**DISTRIBUTION:** Arctic; Greenland; Iceland; North Pacific; Eastern North Atlantic, from Norway to the Mediterranean Sea; Western North Atlantic, from Canada to New England. Associated with sponges. Subtidal to 1026 meters.

## ***Spinther oniscoides*** Johnston 1845

*Spinther oniscoides* JOHNSTON, 1845: 8-10, pl. 2 figs. 7-14.

**TYPE LOCALITY:** Dredged off Castle Chichester (Belfast Bay, Ireland), in 6-10 fathoms (11-18.3 meters).

**SELECTED REFERENCES:** *Spinther oniscoides* — JOHNSTON, 1865: 127-128, pl. 14 figs. 7-14; GRAFF, 1887: 90-93, text-fig. 5, pls. 6-8 [in part; in part = *Spinther citrinus* Stimpson 1853]; MCINTOSH, 1900*a*: 230-231; RIDDELL, 1909: 103-106, pl. 1 figs. 1-6; FAUVEL, 1923*c*: 140, fig. 50*g-n*; HARTMAN, 1948*b*: 16, chart in page 16; GEORGE & HARTMANN-SCHRÖDER, 1985: 72, fig. 15. Not *Spinther oniscoides* — MCINTOSH, 1876*b*: 373, pl. 67 figs. 1-3 [= *Spinther vegae* Augener 1928].

**DISTRIBUTION:** Northeast Atlantic, from Ireland to France, including the English Channel. Associated with sponges (*Desmacidon* and others), on which they feed. Intertidal to subtidal.

## ***Spinther vegae*** Augener 1928

*Spinther vegae* AUGENER, 1928*a*: 672.

**TYPE LOCALITY:** Bering Sea (Arctic), 10-30 fathoms (18.3-55 meters).

**SYNONYMS:** *Spinther arcticus* Wirén 1883 [homonym; not Sars 1851]; *Spinther wireni* Hartman 1948.

**SELECTED REFERENCES:** *Spinther arcticus* [not Sars 1851] — WIRÉN, 1883: 386-387, pl. 27 figs. 1-5; GRAFF, 1887: 98-101, text-fig. 4, pl. 9. *Spinther wireni* — HARTMAN, 1948*b*: 16, chart in page 16 [new name for *Spinther arcticus* Wirén 1883]; GEORGE & HARTMANN-SCHRÖDER, 1985: 74, fig. 16.

**DISTRIBUTION:** Arctic and Eastern North Atlantic. In sand and on stones, covered with algae; shallow subtidal zone.

**REMARKS:** *Spinther arcticus* Wirén 1883 is a homonym of Sars' species, as stated by AUGENER (1928*a*), who gave it the new name of *Spinther vegae*. Later HARTMAN (1948*b*), unaware of the new name given by Augener, renamed the same species again, this time as *Spinther wireni*. The species was redescribed by GRAFF (1887), still as *Spinther arcticus*.

# *FAMILY **SPIONIDAE** Grube 1850

**AS:** *SPIODEA* GRUBE, 1850: 314.
**TYPE GENUS:** *Spio* Fabricius 1785.
**SYNONYMS:** *LEUCODOREA* Quatrefages 1866; *POLYDORIDAE* Benham 1896.
**REMARKS:** The family *Spionidae* is one of the richest polychaete families, with about 37 genera, 483 species and 6 subspecies considered to be valid.

Likewise, the bibliography on spionid taxonomy is quite abundant, including a great number of recent publications. An important general contribution is BLAKE (1996*d*), dealing mainly with spionids from California and including a revision of *Polydora* and *Dipolydora*. Other recently totally or partially revised genera are *Prionospio* (MACIOLEK, 1985), *Scolelepis* (MACIOLEK, 1987; DELGADO-BLAS, 2006), *Spio* and *Microspio* (MACIOLEK, 1990), *Streblospio* (RICE & LEVIN, 1998), *Aonidella* (MACIOLEK 2000), *Laonice* (MACIOLEK, 2000; SIKORSKI, 2003), *Spiophanes* (MACIOLEK, 2000; MEIßNER & HUTCHINGS, 2003; MEIßNER, 2005), *Marenzelleria* (SIKORSKI & BICK, 2004), *Paraprionospio* (DELGADO-BLAS, 2004; YOKOYAMA, 2007), *Atherospio*, *Pseudatherospio* and *Pygospiopsis* (MEIßER & BICK, 2005), and *Rhyncospio* (RADASHEVSKY, 2007). Recently established genera include *Atherospio* (MACKIE & DUFF, 1986), *Lindaspio* (BLAKE & MACIOLEK, 1992), *Pseudatherospio* (LOVELL, 1994), *Glyphochaeta* (BICK, 2005), and *Spiogalea* (AGUIRREZABALAGA & CEBERIO, 2005*b*), being the first and the last from European waters. Recent regional accounts on Spionidae include California (BLAKE, 1996*d*), Philippines (WILLIAMS, 2007), and *Polydora* and *Pseudopolydora* from Taiwan (RADASHEVSKY & HSIEH, 2000*a*, 2000*b*). Other pertinent publications on the family are cited below.

In the European waters 24 genera are known to occur, including 108 species, 4 of which still unnamed. The identified material in the present work included 16 species (one of which unnamed), belonging to 8 different genera.

**KEY TO GENERA:**
(adapted from: MACKIE, 1990*b*; BLAKE, 1996*d*)

**1a.** Branchiae absent.....**2**
**1b.** Branchiae present.....**4**

**2a (1a).** Neuropodia of chaetiger 1 include 1 or 2 large curved spines, in addition to normal capillaries.....***Spiophanes****
**2b (1a).** Neuropodia of chaetiger 1 lacking spines.....**3**

**3a (2b).** Prostomium anteriorly rounded; anterior part of prostomium surrounded by two chevron-shaped chitinous plates; middle body region without grooved neuropodial spines.....***Spiogalea***
**3b (2b).** Prostomium with frontal horns; chitinous plates absent in the prostomium; some chaetigers of the middle body region with grooved spines replacing the hooded hooks.....***Glyphochaeta***

**4a (1b).** Some anterior chaetigers (other than the first) with modified chaetae.....**5**
**4b (1b).** Anterior chaetigers without modified chaetae.....**11**

**5a (4a).** Modified chaetae notopodial (*Polydora*-complex).....**6**
**5b (4a).** Modified chaetae neuropodial, in chaetigers 5, or 4 and 5; modified chaetae can be of one or two kinds.....***Atherospio***

**6a (5a).** Branchiae commence on chaetiger 2.....**7**
**6b (5a).** Branchiae commence posterior to chaetiger 5.....**8**

**7a (6a).** Modified spines on chaetiger 5 of one type, simple, falcate, with smaller bilimbate companion chaetae.....***Boccardiella***
**7b (6a).** Modified spines on chaetiger 5 of two types in 2 rows, one with expanded end bearing cusps or bristles, the other simple, falcate.....***Boccardia***

**8a (6b).** Chaetiger 5 slightly to moderately modified, with spines of two types arranged in U or J-shaped (Note: lower notochaetae of chaetigers 4 & 6 may also be so arranged): first simple, acicular or falcate,

second pennoned; hooded hooks with secondary tooth closely applied to main fang, and shaft with constriction and manubrium.....***Pseudopolydora***
**8b (6b).** Chaetiger 5 greatly modified with major spines of one or two types (with or without companion chaetae) arranged in curved "horizontal" row; hooded hooks with prominent angle between teeth.....**9**

**9a (8b).** Modified spines of chaetiger 5 of 1 type, variously shaped, with or without companion chaetae.....**10**
**9b (8b).** Modified spines of chaetiger 5 of 2 types, first with expanded end, second type falcate, one or both types usually with tips covered with bristles.....***Carazziella***

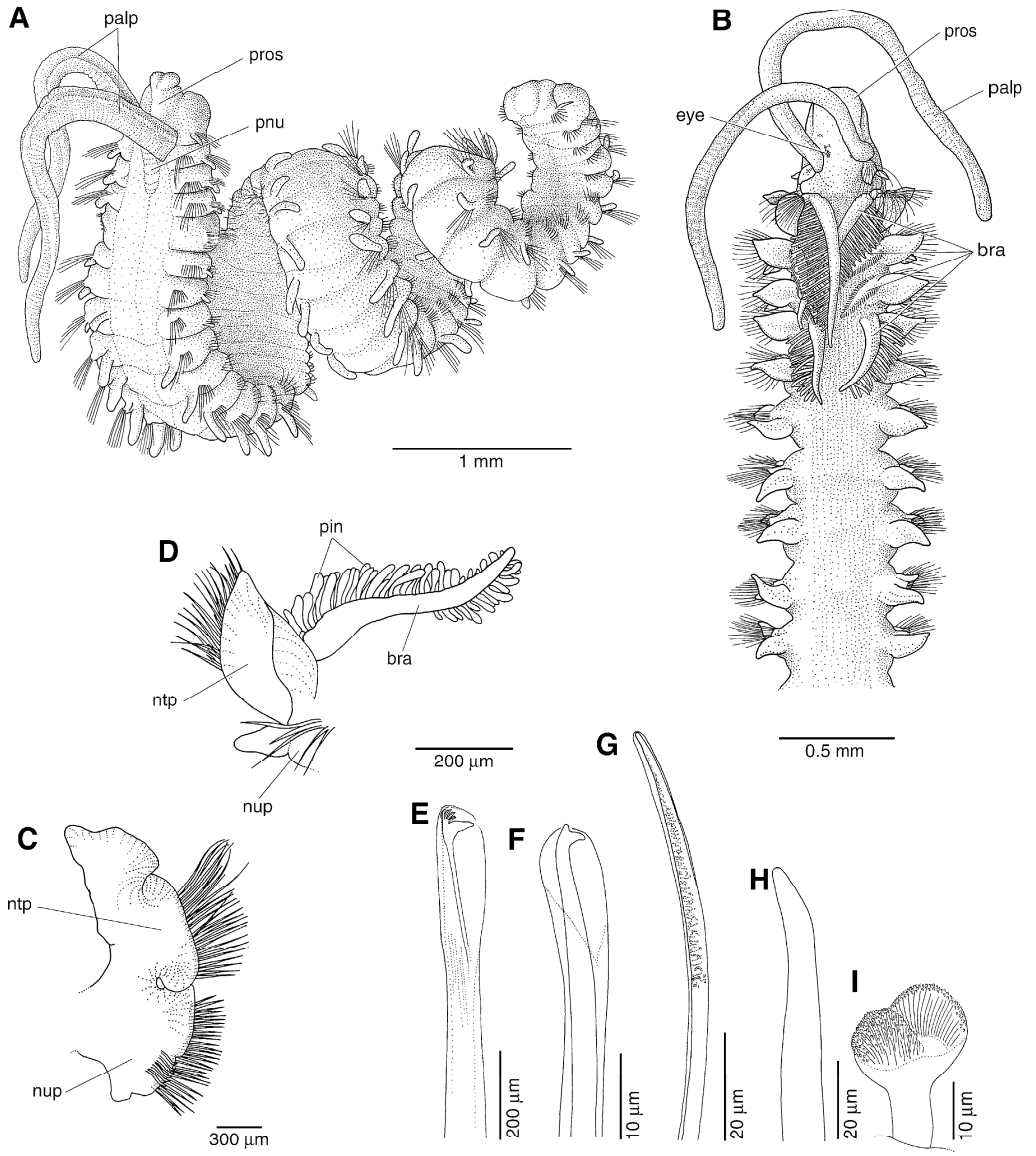


**Figure legend:** Family Spionidae. **A**, entire *Polydora* specimen. **B**, anterior end of *Prionospio* specimen, dorsal view. **C**, parapodium from chaetiger 25, *Scolelepis* specimen. **D**, parapodium from chaetiger 5, *Prionospio* specimen. **E**-**I**, chaetae: **E**, neuropodial hooded hook, *Prionospio* specimen; **F**, neuropodial hooded hook, *Prionospio* specimen; **G**, neuropodial sabre chaeta from parapodium of chaetiger 48, *Prionospio* specimen; **H**, spine from parapodium of chaetiger 5, *Caraziella* specimen; **I**, brush-tipped spine from parapodium of chaetiger 5, *Caraziella* specimen. **bra**, branchiae; **eye**, eye; **ntp**, notopodium; **nup**, neuropodium; **palp**, palp; **pin**, pinnae; **pnu**, posterior projection of prostomium carrying the nuchal organs; **pros**, prostomium. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

**10a (9a).** Hooded hooks with constriction and manubrium on shaft; main fang at more or less right angle to shaft, wide angle between apical tooth and main fang; notochaetae absent on chaetiger 1; anterior part of digestive tract never containing a gizzard-like structure.....***Polydora***
**10b (9a).** Hooded hooks with smooth, curved shafts, without constriction and manubrium; main fang directed more apically, forming wide angle with shaft and reduced angle with apical tooth; notochaetae present on chaetiger 1; anterior part of digestive tract sometimes with enlarged, thickened gizzard-like structure.....***Dipolydora****

**11a (4b).** Prostomium pointed, sometimes appearing conical with rounded apex in contracted specimens.....**12**
**11b (4b).** Prostomium broadly rounded or incised, or with lateral or frontal horns on anterior margin....**14**

**12a (11a).** Branchiae from chaetiger 1; accessory branchiae present.....***Dispio***
**12b (11a).** Branchiae from chaetiger 2; accessory branchiae absent.....**13**

**13a (12b).** Branchiae fused to notopodial lamellae at least basally, continuing to posterior region of body.....***Scolelepis***
**13b (12b).** Branchiae completely free from notopodial lamellae and confined to anterior region of body, absent posteriorly.....***Aonides****

**14a (11b).** Prostomium with frontal horns (T or Y-shaped); branchiae from chaetiger 1.....***Malacoceros***
**14b (11b).** Prostomium truncate, rounded or incised on anterior margin, without lateral or frontal horns.....**15**

**15a (14b).** Branchiae limited to middle and posterior chaetigers, except for an additional single pair on chaetiger 2 of sexually mature males.....***Pygospio***
**15b (14b).** Branchiae from chaetiger 1, 2 or 3, continuing posteriorly for a variable number of chaetigers.....**16**

**16a (15b).** Branchiae present for most of body length; hooded hooks usually limited to neuropodia.....**17**
**16b (15b).** Branchiae concentrated in anterior chaetigers, numbering about 1-22 pairs, absent posteriorly; hooded hooks usually present in both noto- and neuropodia.....**20**

**17a (16a).** Branchiae from chaetiger 1.....**18**
**17b (16a).** Branchiae from chaetiger 2.....**19**

**18a (17a).** Hooded hooks in neuropodia only.....***Spio****
**18b (17a).** Hooded hooks in neuropodia and notopodia.....***Marenzelleria***

**19a (17b).** Prostomium broadly rounded or truncate; anterior notopodial postchaetal lamellae large, triangular, leaflike, often surrounding the chaetal bundles; interparapodial pouches present; nuchal organs usually long, extending posteriorly for numerous segments; occipital antenna generally present..***Laonice****
**19b (17b).** Prostomium narrow, rounded (or bilobed); anterior notopodial postchaetal lamellae short, poorly developed; interparapodial pouches absent; nuchal organs short, limited to first 1-2 chaetigers, or lateral to short caruncle; occipital antenna present or absent.....***Microspio***

**20a (16b).** A single pair of branchiae on chaetiger 1; chaetiger 2 with dorsal fold.....***Streblospio***
**20b (16b).** At least 2 pairs of branchiae from chaetiger 1, 2 or 3.....**21**

**21a (20b).** Branchiae from chaetiger 1, with flattened bifoliate platelike pinnules; with transverse ridge or membrane between branchial bases of chaetiger 1.....***Paraprionospio****
**21b (20b).** Branchiae from chaetiger 2 or 3, either apinnate, pinnate with simple digitiform pinnules, or both apinnate and pinnate; single pinnate branchiae sometimes with platelike pinnules, but never more than one.....**22**

**22a (21b).** Branchiae from chaetiger 2; branchiae either apinnate, pinnate, or with both apinnate and pinnate types in various combinations; pinnules digitiform or platelike.....**23**
**22b (21b).** Branchiae from chaetiger 3, numbering 2 or 3 pairs of apinnate pairs.....***Aurospio***

**23a (23a).** Notopodial hooks present; branchiae either apinnate, pinnate, or with both apinnate and pinnate types in various combinations; ventral crests absent.....**24**
**23b (23a).** Notopodial hooks lacking; all branchiae apinnate; neuropodial prechaetal lamellae connected in ventral crests on several anterior chaetigers from chaetiger 2.....***Laubieriellus***

**24a (23a).** Parapodial lamellae do not change in size or shape along the entire body length, and are triangular in both rami; prostomium flattened, not continuing posteriorly as a caruncle; angle between the small teeth and main tooth of the hooded hooks wide; ventral sabre chaetae absent (?); pygidium with four or more similar cirri.....***Aonidella****
**24b (23a).** Parapodial lamellae can change in size and shape along the length of the body, being normally broadly oval or foliaceous; prostomium conical, continuing posteriorly as a caruncle; angle between the small teeth and main tooth of the hooded hooks not wide; ventral sabre chaetae present; pygidium with one long dorsomedial and two shorter ventrolateral cirri.....***Prionospio****

## *GENUS ***Aonidella*** Maciolek *in* López-Jamar 1989

*Aonidella* MACIOLEK *in* LÓPEZ-JAMAR, 1989: 107.
**TYPE SPECIES:** *Prionospio cirrobranchiata* Day 1961.
**REMARKS:** The genus *Aonidella*, as well as the species *A. dayi*, were first described in 1983, in the unpublished doctoral dissertation by Dr. Nancy Macioleck, but therefore not available. LÓPEZ-JAMAR (1989), unaware of this problem, used both generic and specific names to report the species from the Gulf of Cádiz, citing it as "*A. dayi* Maciolek, 1983", and referring to the 1983 dissertation work. In LÓPEZ-JAMAR (1989) publication, an illustrated description was given, and the genus and species were defined with base on Maciolek's original description, making them available. According to the ICZN, the authorship of the genus and species should then be cited as Maciolek *in* López-Jamar 1989 (see MACIOLEK, 2000, for more details). The first to use this form of authorship was IMAJIMA (1992).

## **Aonidella dayi* Maciolek *in* López-Jamar 1989

*Aonidella dayi* LÓPEZ-JAMAR, 1989: 108-109, figs. 1-2.
**TYPE LOCALITY:** Off Beaufort (North Carolina, USA), 34º19'N, 75º56'W, 130 meters.
**SELECTED REFERENCES:** *Aonidella dayi* — IMAJIMA, 1992: 57-60, fig. 2; MACIOLEK, 2000: 531-533, fig. 2. *Prionospio (Minuspio) cirrobranchiata* [not Day 1961] — DAY, 1973: 73, fig. 10*g-k*.
**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (1st part) — St. 15 (A.2953)**, Zambugeira do Mar, 370 m, sand: 1 specimen, complete but broken in 2 pieces, anterior fragment with 33 chaetigers, 9.75 mm long, 0.5 mm wide at chaetiger 10, posterior fragment with 30 chaetigers, 10.5 mm long; prostomium flattened and anteriorly broad, with slight medial identation, narrowing slightly posteriorly, with bifid nuchal area extending to chaetiger 2; eyes not observed, probably faded; peristomium inflated ventrally, fused with chaetiger 1, without lateral wings; proboscis partially everted, forming a bilobed sac; parapodia of chaetiger 1 as described, of chaetiger 2 and following 2, with more developed lamellae; surface of notopodial lamellae with scattered cilia-like tufts; noto and neuropodial postchaetal lamellae ending in small nipple-like tips; no dorsal ridges observed; branchiae from chaetiger 2, numbering 15 pairs; they are simple, separated from notopodial lamellae and heavily covered with cilia; simple chaetae as described; hooks with slender hood, a pair of apical teeth arranged in a transverse row above main fang, appearing as bidentate in profile; neuropodial hooks from chaetiger 19, numbering 1-6, accompanied by capillaries; notopodial hooks from chaetiger 32, numbering 1-7; sabre chaetae from chaetiger 42 (posterior 21 chaetigers of the second fragment, with exception of the last 3); pygidium with 4 subequal anal cirri.
**DISTRIBUTION:** Northwestern Atlantic: George Bank, North Carolina, Virginia; Canary Islands; Portugal; Gulf of Cádiz; Mediterranean Sea; Japan. Between 65-3301 meters.
**REMARKS:** Some variations are present between the different populations of this species with a wide distribution. The only difference between our specimen and the ones from the Gulf of Cádiz (LÓPEZ-JAMAR, 1989) is the presence of a ventral sabre chaetae in the last 21 chaetigers instead at the last 10-12 chaetigers. According to the genus definition, sabre chaetae are lacking in *Aonidella*. As the rest of the characters of the specimens from both the Gulf of Cádiz and southwestern Portugal fit the diagnosis of the genus, sabre chaetae in *Aonidella* are here considered as being possibly present. However, the matter

requires further study, and it is possible that at least the specimen from Portugal, here attributed to *Aonidella*, is wrongly identified.

MACIOLEK (2000) records the species as being present in the Mediterranean Sea. However, the data of the locality has an error, which would place the record outside the Mediterranean (33º57.0'N, 50º08.2'E). The correct position is 33º57.0'N, 15º08.2'E (off Libia).

## *GENUS ***Aonides*** Claparède 1864

*Aonides* CLAPARÈDE, 1864: 505.
**TYPE SPECIES:** *Nerine oxycephala* Sars 1862.
**SYNONYMS:** *Paranerine* Czerniavsky 1881.

**KEY TO SPECIES:**

**1a.** Occipital antenna present; 20-30 pairs of branchiae; noto- and neuropodial hooks bidentate; neuropodial hooks from chaetiger 28-46; numerous anal cirri.....***A. oxycephala****
**1b.** Occipital antenna absent; 10-11 pairs of branchiae; noto- and neuropodial hooks tridentate; neuropodial hooks from chaetiger 17-31; only 4 anal cirri.....***A. paucibranchiata***
**1c.** Occipital antenna absent; 6-8 pairs of branchiae; noto- and neuropodial hooks tridentate; neuropodial hooks from chaetiger 11; 5 anal cirri.....***A. selvagensis***

## ****Aonides oxycephala*** (M. Sars 1862)

*Nerine oxycephala* SARS, 1862*b*: 64.
**TYPE LOCALITY:** Floröe, Norway.
**SYNONYMS:** *Aonides auricularis* Claparède 1864; [?] *Scolelepis tenuis* Verrill 1874.
**SELECTED REFERENCES:** *Scolelepis oxycephala* — SAINT-JOSEPH, 1894: 81-82, pl. 4 figs. 101-103. *Aonides oxycephala* — MESNIL, 1896*a*: 242-247, pl. 10 figs. 19-28; MCINTOSH, 1915*b*: 186-188, pl. 98 fig. 9, pl. 100 fig. 7, pl. 105 fig. 10; SÖDERSTRÖM, 1920: 219-220; FAUVEL, 1927*a*: 39-40, fig. 13*a-e*; HANNERZ, 1956: 26-30, fig. 7; RAMOS, 1976: 13-16, figs. 1-2, tables 1-2; IMAJIMA, 1989*c*: 215-217, fig. 2; HARTMANN-SCHRÖDER, 1996: 300-301, fig. 133; KIRKEGAARD, 1996: 48-49, fig. 18; BRITO, NÚÑEZ & RIERA, 2006: table 1. *Aonides auricularis* — CLAPARÈDE, 1864: 505-508, pl. 3 fig. 3.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Ponta do Baleal); COSTA, GAMITO & OLIVEIRA, 1984 (Sado Estuary); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Aveiro; Peniche; Lagoon of Óbidos; Lagoon of Albufeira; Algarve); DEXTER, 1992 (previous records: Ria Formosa; Ria de Alvor; Sado Estuary; Arrábida; Lagoon of Albufeira; Peniche; Lagoon of Óbidos; Figueira da Foz); RAVARA, 1997 (off Aveiro); MUCHA & COSTA, 1999 (Ria de Aveiro and/or Sado Estuary); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 152 (A.3959)**, near Sines, 45 m, muddy sand: 1 specimen, about 800 µm wide; occipital antenna present; 2 pairs of eyes in a trapezoidal arrangement; about 23 pairs of branchiae (some missing); all branchiae separated from notopodial lamellae and heavily ciliated; hooded hooks bidentate; notohooks from about chaetiger 32, neurohooks from about chaetiger 31 (difficult to count, as the specimne is coiled); pygidium lost .
**DISTRIBUTION:** North Atlantic, from the North Sea to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Skagerrak, Kattegat, Öresund; Australia; Japan; Indian Ocean. On sandy bottoms and among algae, laminarians or corallines. Intertidal to 115 meters.

## ***Aonides paucibranchiata*** Southern 1914

*Aonides paucibranchiata* SOUTHERN, 1914: 100-101, pl. 11 fig. 24*A-E*.
**TYPE LOCALITY:** Clew Bay (Ireland), 9-24 fathoms (16.5-44 meters).
**SELECTED REFERENCES:** *Aonides paucibranchiata* — SÖDERSTRÖM, 1920: 220; MCINTOSH, 1922*a*: 22-23; FAUVEL, 1927*a*: 40, fig. 13*f-k*; HANNERZ, 1956: 30-32, fig. 8; HARTMANN-SCHRÖDER & STRIPP, 1968: 16-17, fig. 7*f-k*; BLAKE, 1983: 216, fig. 6; HARTMANN-SCHRÖDER, 1996: 301-302, fig. 134; KIRKEGAARD, 1996: 49-50, fig. 19; BRITO, NÚÑEZ & RIERA, 2006: table 1.

**DISTRIBUTION:** Northeastern Atlantic; British Isles; North Sea; Skagerrak; Kattegat; Mediterranean Sea; Black Sea; Aegean Sea; Argentina. On fine gravel and sandy bottoms. Eulittoral to 495 meters.

### *Aonides selvagensis* Brito, Núñez & Riera 2006

*Aonides selvagensis* BRITO, NÚÑEZ & RIERA, 2006: 61-63, figs. 2-3, table 1.
**TYPE LOCALITY:** Selvagens Islands, Grande Selvagem, Baia das Cagarras (coordinates UTM: 416250/3334458), 15 meters depth, in a muddy sand bottom of a marine cave.
**DISTRIBUTION:** Central Macaronesian region: Selvagens (Grande Selvagem) and Canary Islands (Tenerife), 7-15 meters, in fine sand and muddy sand bottoms.

## GENUS *Atherospio* Mackie & Duff 1986

*Atherospio* MACKIE & DUFF, 1986: 140.
**TYPE SPECIES:** *Atherospio disticha* Mackie & Duff 1986.

**KEY TO SPECIES:**
(adapted from MEIßNER & BICK, 2005)

**1a.** Occipital antenna present; anterior modified neurochaetae in chaetigers 4 and 5, being a double vertical row of aristate spines; neurohooks from chaetiger 13-15, bidentate.....***A. disticha***
**1b.** Occipital antenna absent; anterior modified neurochaetae in chaetiger 5, being 2-3 falcate spines and several thinner pointed spines with distal part narrowed and almost S-curved; neurohooks from chaetiger 15-16, being uni- (predominating) and bidentate.....***A. guillei***

### *Atherospio disticha* Mackie & Duff 1986

*Atherospio disticha* MACKIE & DUFF, 1986: 140-144, figs. 1-4.
**TYPE LOCALITY:** Loch Tuirnaig, west coast of Scotland (57º47'N, 5º34'W), at 27 meters, on mud.
**SELECTED REFERENCES:** *Atherospio disticha* — MEIßNER & BICK, 2005: table 2.
**DISTRIBUTION:** Known from the type locality.

### *Atherospio guillei* (Laubier & Ramos 1974)

*Polydora guillei* LAUBIER & RAMOS, 1974*b*: 480-484, figs. 1-2.
**TYPE LOCALITY:** Bay of Roses (Spanish Catalonian coast, Western Mediterranean), 41º45'10"N, 3º07'25"E, at 44 meters, on a bottom of sand, mud and gravel.
**SELECTED REFERENCES:** *Atherospio guillei* — MEIßNER & BICK, 2005: 116-119, figs. 2-4, table 2.
**DISTRIBUTION:** Mediterranean Sea: Catalonian coast of Spain; Bay of Benidorm (personal observation), and Ionian Sea, between 44-99 meters, in mud, sand and gravel. North Sea: German Bight, off Helgoland, at 38-41 meters, in fine sand.

## GENUS *Aurospio* Maciolek 1981

*Aurospio* MACIOLEK, 1981: 229-230.
**TYPE SPECIES:** *Aurospio dibranchiata* Maciolek 1981.
**REMARKS:** The genus *Aurospio* was created by MACIOLEK (1981) to include species closely related to *Prionospio* Malmgren 1867, but distinct in the initial appearance of the branchiae, on chaetiger 2 in *Prionospio*, and chaetiger 3 in *Aurospio*. A single species was included in the new genus, *A. dibranchiata* Maciolek 1981. *Prionospio banyulensis* Laubier 1968 was later questionably referred to *Aurospio* by MACIOLEK (1985). WILSON (1990) described a new species, *Prionospio pilkena*, also with branchiae starting on chaetiger 3, and discussed the possibility that *P. pilkena* belonged to the genus *Aurospio*, but finally retained it in *Prionospio*, keeping *Aurospio* as a monotypic genus. SIGVALDADÓTTIR (1992) followed WILSON (1990), and provisionally left *P. banyulensis* and *P. pilkena* in *Prionospio*, waiting for a phylogenetic analysis of the group that could define the placement of both species. This analysis was performed in SIGVALDADÓTTIR (1998), and finally both species were moved to *Aurospio*, which comprises now three species.

**KEY TO SPECIES:**
(adapted from SIGVALDADÓTTIR, 2002)

**1a.** Branchiae 2-3 pairs, not fused to notopodial lamellae; ventral sabre chaetae from chaetiger 10; neurohooks from chaetiger 12-13.....***A. banyulensis***
**1b.** Branchiae 2 pairs, partly fused to notopodial lamellae; ventral sabre chaetae from chaetiger 9-11; neurohooks from chaetiger 9-11 (usually 10).....***A. dibranchiata***

## *Aurospio banyulensis* (Laubier 1968)

*Prionospio banyulensis* LAUBIER, 1968*a*: 99-104, figs. 11-14.
**TYPE LOCALITY:** Cap Abeille, near Banyuls-sur-Mer (Southern France, Western Mediterranean), at 30 meters, on coralligenous blocks.
**SYNONYMS:** *Prionospio ockelmanni* Pleijel 1985.
**SELECTED REFERENCES:** *Prionospio banyulensis* — SIGVALDADÓTTIR, 1992: 210-216, figs. 1-5, table 1; KIRKEGAARD, 1996: 79, fig. 35; SIGVALDADÓTTIR, 2002: 210, fig. 1. *Prionospio (Minuspio) banyulensis* — HARTMANN-SCHRÖDER, 1996: 328-329. *Prionospio ockelmanni* — PLEIJEL, 1985: 178-180, figs. 1-3.
**DISTRIBUTION:** Western Mediterranean Sea: Banyuls-sur-Mer (18-30 meters, on coralligenous blocks); eastern of Sicily (140 meters); Adriatic Sea; Aegean Sea; Swedish west coast and Öresund (10-70 meters, on grounds of sand and mud); English Channel (30-40 meters); Iceland (43 meters).
**REMARKS:** SIGVALDADÓTTIR (1992) redescribed *Prionospio banyulensis*, considering *P. ockelmanni* Pleijel 1985 as a junior synonym. In the examined specimens of the different populations, from the Mediterranean Sea and Northern Europe, no differences were observed consistent enough in order to recognize the existence of two different species (SIGVALDADÓTTIR, 1992). The study under SEM revealed that branchiae from North European specimens were provided with a dense ciliation, while one Mediterranean specimen showed only sporadic tufts of cilia. However, it was suggested that this difference could be the result of an artefact due to damage or poor fixation of the single Mediterranean mounted specimen, more than to a real difference between populations. According to SIGVALDADÓTTIR (1992) no differences were observed under the light microscope.

The name *Prionospio banyulensis* was first used by Laubier in his published thesis (LAUBIER, 1966*a*), where only an ecological characterization of the species is presented. It is also referred that the morphological description would be published in another paper on the same year, which only occurred two years later (LAUBIER, 1968*a*). According to MACIOLEK (1985), *Prionospio banyulensis* Laubier 1966 should be considered as a *nomen nudum*. SIGVALDADÓTTIR (1992), however, considered that the publication of 1966 already constitutes a valid description in the sense of the ICZN, and the date of 1966 should be given as the correct authorship year. However, the reference to the new species in LAUBIER (1966*a*) is not accompanied by a description or definition of the species which enables the differentiation of the taxon, nor by a reference to a published paper where such a description is available (which would only appear in 1968). The ecological characterization of the species, in my opinion, doesn't enable the differentiation beyond question of the species from other similar taxa, and for this reason I follow here MACIOLEK (1985), considering that the species name was published in 1966 as a *nomen nudum*, being 1968 the valid publication year of *Prionospio banyulensis*.

## *Aurospio dibranchiata* Maciolek 1981

*Aurospio dibranchiata* MACIOLEK, 1981: 230-238, figs. 1-4.
**TYPE LOCALITY:** Argentine Basin, 36º12.7'S, 52º42.7'W, 2041-2048 meters.
**SELECTED REFERENCES:** *Aurospio dibranchiata* — SIGVALDADÓTTIR, 2002: 209-210, fig. 1; AGUIRREZABALAGA & CEBERIO, 2005*b*: 268.
**DISTRIBUTION:** Over most Atlantic Ocean, from slope depths of 300 meters to abyssl depths of 3600 meters: North Atlantic, 300-3600 meters; Iceland, below 327 meters; Ireland, 1491-3356 meters; Rockall Trough, 1200-2900 meters; Bay of Biscay, 492-1922 meters; Canary Islands, 1564-2988 meters; Southwest Africa, 1427-2754 meters; Argentine Basin, 1661-2048 meters; Surinam, 1000-2500 meters; Pacific Ocean, Galápagos Rift geothermal vents, 2730 meters.

## GENUS *Boccardia* Carazzi 1893

*Boccardia* CARAZZI, 1893: 15.
**TYPE SPECIES:** *Polydora (Leucodore) polybranchia* Haswell 1885.
**SYNONYMS:** *Perialla* Kinberg 1866; *Paraboccardia* Rainer 1973; *Neoboccardia* Buzhinskaja 1985.
**REMARKS:** For the synonymy of *Perialla* Kinberg 1866 with *Boccardia* Carazzi 1893, see *REMARKS* under *Boccardia polybranchia* (Haswell 1885).

As highlighted by GUÉRIN (1990), the morphology of the major spines in chaetiger 5 enables the division of *Boccardia* species in two groups: one with major spines distally densely covered by bristles, the other with a distal concavity and central cone (which could be subdivided in two more subgroups, with the margins of the concavity regular, or irregular). Both major groups are present in European waters.

**KEY TO SPECIES:**

**1a.** One of the 2 types of major spines on chaetiger 5 with distal concavity and central cone; occipital tentacle present; chaetiger 1 with notochaetae.....***B. semibranchiata***
**1b.** One of the 2 types of major spines on chaetiger 5 densely bristle-topped, without distal cavity; occipital tentacle absent.....**2**

**2a (1b).** Chaetiger 1 without notochaetae.....***B.* cf. *polybranchia***
**2b (1b).** Chaetiger 1 with notochaetae.....***B. proboscidea***

## *Boccardia* cf. *polybranchia* (Haswell 1885)

*Polydora (Leucodore) polybranchia* HASWELL, 1885*b*: 275.
**TYPE LOCALITY:** New South Wales (Australia), Hunter River, inside an oyster from an oyster farm.
**SYNONYMS:** *Perialla claparedei* Kinberg 1866; *Polydora paucibranchus* Ehlers 1913; *Polydora euryhalina* Hartmann-Schröder 1960.
**SELECTED REFERENCES:** *Polydora (Boccardia) polybranchia* — CARAZZI, 1893: 16-17, pl. 2 figs. 11-12, table in page 28; MESNIL, 1896*a*: 221-227, pl. 14 figs. 9-21, table in page 236; FAUVEL, 1927*a*: 58-59, fig. 20*a-i*. *Boccardia polybranchia* — LO BIANCO, 1893: 28; HARTMANN-SCHRÖDER, 1962*b*: 134-135, figs. 165-166; BLAKE & KUDENOV, 1978: 236-238, fig. 32; BLAKE, 1983: 248-249. *Polydora polybranchia* — LO BIANCO, 1893: 28; SÖDERSTRÖM, 1920: 256-257, fig. 167. *Polydora (Bocardia) polybranquia* — RIOJA, 1931: 71-72, pl. 20 figs. 1-5. *Polydora euryhalina* — HARTMANN-SCHRÖDER, 1960: 33-34, figs. 76-77.
**REFERENCES FOR PORTUGAL:** CASTRO & VIEGAS, 1981 (as *Polydora polybranchia*; Tagus Estuary); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Aveiro; Tagus Estuary; Lagoon of Santo André).
**DISTRIBUTION:** Considered to be cosmopolitan, the species is known to occur in Australia, Tasmania, Europe (from Northern Europe to the Mediterranean Sea, Adriatic Sea, and Aegean Sea), South America and Japan, always in shallow waters in sheltered environments. Occurs in muddy bottoms, among algae, rocks, mussels or oysters.
**REMARKS:** The diagnosis of *Boccardia polybranchia* (Haswell 1885) was emended by BLAKE & KUDENOV (1978) (see below).

It has been normally accepted that *B. polybranchia* was introduced in Europe from Australia (see, for instance, the comment by Geoff Read on the 8th May 1997, at the archives of the Annelida mailing list <http://www.bio.net/bionet/mm/annelida/1997-May/000591.html>), probably through the oyster trade, but the possibility that the species described by HASWELL (1885*b*) from Australia is not the same as the one described by CARAZZI (1893) from Naples, opens the possibility that the *B. polybranchia* (Haswell 1885) sensu Carazzi 1893, is in reality a species from the northern hemisphere.

The history of the species is quite complex and, in my oppinion, its taxonomic status (and consequently, the taxonomic status of the genus *Boccardia*), inadequately solved.

The species was described briefly and without drawings by HASWELL (1885*b*), as *Polydora (Leucodore) polybranchia*, from a single specimen found inside an oyster from a farm at the Hunter River (New South Wales, Australia). No type material is known to exist. That remained the only record of the species from Australia until 1978. The species was redescribed in Europe as *Polydora (Boccardia) polybranchia* by CARAZZI (1893), with base on material collected at Naples from tubes recovering rocks, and again shortly after by MESNIL (1896*a*), from the St. Martin's Bight, in the English Channel (Anse de St-Martin, on the east side of Cape Hague, Cotentin, France), from muddy tubes found among

*Lithothamnion* and rocks. Carazzi's definition of the species was adopted by subsequent authors, and as such was recorded worldwide (BLAKE & KUDENOV, 1978).

BLAKE & KUDENOV (1978) searched for specimens that could agree with the current definition of *B. polybranchia*, in new collections from the type locality of the species, Hunter River, and adjacent areas. These authors found that Hunter River had changed drastically, and the oyster farms, once numerous, almost had disappeared due to the industrial development and pollution. The only specimens of *Boccardia* found there were identified as *Boccardia chilensis* Blake & Woodwick 1971, a species originally described from Chile. Specimens that fitted *B. polybranchia* sensu Carazzi were only found 325 km north of the Hunter River entrance, or even farther south, at Kilcunda and Tasmania. Due to the similarity of these specimens with the cosmopolitan concept of *B. polybranchia*, they were accepted by BLAKE & KUDENOV (1978) as representing this species, in spite of not having been found at the type locality, and assuming that Haswell's species should be similar to the description given by CARAZZI (1893), with major spines of chaetiger 5 distally densely covered with bristles, instead of having a distal concavity with a central cone and few or any bristles, like in *B. chilensis*. As stated by BLAKE & KUDENOV (1978: 238) "*it is possible that* B. chilensis *may actually be what Haswell originally described, but because of inadequate descriptions, the lack of type material and alteration of the type locality, that can probably never be definitely ascertained*". However, the habitat of the different species and populations involved should be considered in order to determine the morphotype of Haswell's species. This way, the fact that Haswell had found his specimen in a shell, points to a boring species, instead of a non-boring one.

*Boccardia polybranchia* (Haswell 1885) *sensu* Blake & Kudenov 1978 can be separated from *Boccardia chilensis* Blake & Woodwick 1971 by the following characters:

| ***B. polybranchia* (Haswell 1885) (sensu BLAKE & KUDENOV, 1978):** | ***B. chilensis* Blake & Woodwick 1971:** |
|---|---|
| 1 – One of the two types of major spines on chaetiger 5 densely bristle-topped without distal cavity; | 1 – One of the two types of major spines on chaetiger 5 with distal concavity and central cone, bristles few, only around rim; |
| 2 – Occipital tentacle absent; | 2 – Occipital tentacle present; |
| 3 – Chaetiger 1 without notochaetae; | 3 – Chaetiger 1 with long notochaetae; |
| 4 – Pygidium with 4 equal lobes. | 4 – Pygidium weakly divided. |

However, and as noted by BLAKE (1983), the specimens of *B. polybranchia* from Australia and Tasmania differed from the European ones by the structure of the pygidium: it is divided into 4 nearly equal lobes in the Australian specimens (BLAKE & KUDENOV, 1978), while it is tubular and undivided (CARAZZI, 1893; MESNIL, 1896*a*), or slightly incised dorsally (FAUVEL, 1927*a*) in European descriptions. This way, in spite of the fact that BLAKE & KUDENOV (1978) have identified as *B. polybranchia* the Australian morphotype that was more close to the worms described by CARAZZI (1893) from Naples, instead of the morphotype found at the type locality, it is possible that both populations still represent different species.

Several species have been synonymised with *B. polybranchia* (Haswell 1885) *sensu* Carazzi 1893, since its redescription based on the European specimens: *Polydora euryhalina* Hartmann-Schröder 1960, from Peru (by HARTMANN-SCHRÖDER, 1962*a*); *Polydora paucibranchus* Ehlers 1913, from the Kerguelen Islands (by BLAKE, 1983); and *Boccardia (Boccardia) wellingtonensis* Read 1975, from New Zealand (by BLAKE, 1983, but later removed from synonymy by SATO-OKOSHI & TAKATSUKA, 2001).

A fourth species, *Perialla claparedei* Kinberg 1866, from Rio de Janeiro, has also been considered as a synonym of *B. polybranchia*, in spite of having priority over this last name. The nomenclatural history of *Perialla claparedei* was treated by BLAKE (1983), but it is worth to be repeated here. The species was first described by KINBERG (1866*b*), in a short diagnosis, without figures. This short description was published again 44 years later, this time being well illustrated (KINBERG, 1910: 63-64, pl. 24 fig. 9). Type specimens were also deposited at the Swedish Museum of Natural History, being in excellent condition and presenting all the diagnostic characters of *B. polybranchia* (all according to

BLAKE, 1983). SÖDERSTRÖM (1920) studied Kinberg's syntypes, and referred *Perialla claparedei* Kinberg 1910 [*sic*] to *Polydora polybranchia* Haswell 1885, as a junior synonym, overlooking the earlier reference of Kinberg to the species (KINBERG, 1866*b*: 253). HARTMAN (1948*a*: 108-109) examined one of Kinberg's syntypes and also referred the species to *B. polybranchia*, "*even though Kinberg's name is the older, because of the incompletely known characters of the older one*" (HARTMAN, 1948*a*: 109).

Finally, BLAKE (1983) stated that although the name *Perialla claparedei* Kinberg 1866 clearly had priority, it upsets the well established names of *Boccardia* Carazzi 1893, and *B. polybranchia* (Haswell 1885). As a consequence, instead of replacing the junior synonyms, BLAKE (1983) declared his intention to apply to the International Commission of Zoological Nomenclature (ICZN) to place *Perialla claparedei* on the Official Index of Rejected Names.

Moreover, it is not clear that the morphotype found at the original type locality of *B. polybranchia* (Hunter River) really represents *B. chilensis* Blake & Woodwick 1971. RAINER (1973) described *Boccardia jubata*, a species similar to *B. chilensis*, with base on specimens from Otago Harbour, on New Zealand, collected from shells at 3-10 meters. Later READ (1975) synonymized *B. jubata* with *B. chilensis*. He referred some minor differences between his specimens from Wellington and the ones from Otago, described by RAINER (1973), and especially between both New Zealand populations and the Chilean population as follows (READ, 1975; check also GUÉRIN, 1990):

| **Chilean population:** | **New Zealand populations:** |
|---|---|
| 1 – No pigmentation retained after preservation. | 1 – Characteristic white pigmentation and 2 pairs of eyes. |
| 2 – Mid-dorsal swelling from anterior chaetiger 5 to posterior chaetiger 6. | 2 – Mid-dorsal swelling from mid chaetiger 5 to posterior chaetiger 8. |
| 3 – Maximum of 16 hooded hooks per fascicle. | 3 – Maximum of 12 hooded hooks per fascicle. |
| 4 – Branchiae equal in size in chaetigers 2 and 3. | 4 – Branchiae of chaetiger 2 usually twice as long as on chaetiger 3. |

READ (1975) considered that some geographic variation could be expected between New Zealand and Chilean populations, and that a New Zealand subspecies of *B. chilensis* would not be justified with base on the differences found. Besides those differences, BLAKE & KUDENOV (1978) also noted that New Zealand and Australian specimens had long capillary notochaetae on chaetiger 1, absent on the Chilean ones, but they considered that the lack of such chaetae in the Chilean material could reflect either a real difference, or only a different treatment and age of the material. Later on, BLAKE (1983) stated that the notochaetae of chaetiger 1 on *B. chilensis* were variable in length, being in some cases as long as those of chaetiger 2, while in others they were much longer. Still, the comparison performed by GUÉRIN (1990) of his new species *B. semibranchiata*, from Europe, with similar species, showed that the synonymy of *B. jubata* with *B. chilensis* is dubious. However, a more detailed comparison is still necessary in order to solve this synonymy.

Some differences were also pointed by READ (1975) between the Chilean population of *B. chilensis* and the one from Falkland Islands, described by FAUVEL (1916*b*) as *Polydora polybranchia*, and attributed to *B. chilensis* by BLAKE & WOODWICK (1971): as in the New Zealand specimens, Fauvel described his specimens with the branchiae on chaetiger 2 longer than those of chaetigers 3 and 4.

This way, it seems that the presumed boring species *Boccardia polybranchiata* (Haswell 1885) could be the same as *Boccardia jubata* Rainer 1973, a boring species described from the same geographical region and with major spines of chaetiger 5 of the type with a distal concavity and central cone, and different from *Boccardia chilensis* Blake & Woodwick 1971. More important, it would be a different species from the morphotype with which it is associated today, with major spines of chaetiger 5 distally densely covered by bristles, and non-boring.

In resume, instead of adopting Carazzi's description to validate Haswell's species, in my oppinion it would be advisable to adopt one of the following possibilities: a) to consider the name *Polydora polybranchia* as used by HASWELL (1885*b*) as indeterminable, and use *Boccardia polybranchia* Carazzi 1893 as the valid name for the morphotype from Naples, and *B. chilensis* Blake & Woodwick, 1973 for the morphotype found at the type locality (or *B. jubata* Rainer, 1973 in case these two species

are found to be different); b) to consider the name *P. polybranchia* Haswell 1885 as valid, consider *B. chilensis* as a junior synonym (or *B. jubata* again in case these two species are found to be different), and find the next available name for the European morphotype, as described by Carazzi.

As I believe that the European population described originally by CARAZZI (1893) is not the same species as the one described by HASWELL (1885*b*), it will be considered here as *Boccardia* cf. *polybranchia*.

### ***Boccardia proboscidea*** Hartman 1940

*Boccardia proboscidea* HARTMAN, 1940*b*: 383-387, fig. 1.

**TYPE LOCALITY:** Casper, California, intertidal, in minute burrows penetrating shale and limestone reefs.

**SYNONYMS:** *Polydora californica* Treadwell 1914.

**SELECTED REFERENCES:** *Boccardia proboscidea* — HARTMAN, 1941: 299-304, pl. 46 figs. 22-28, pl. 47 figs. 30-37; WOODWICK, 1963*a*: 132-137, figs. 2-4; IMAJIMA & HARTMAN, 1964: 279-280, pl. 36; HARTMAN, 1969: 95, figs. 1-6; BLAKE & KUDENOV, 1978: 238, figs. 33*a-c*; LIGHT, 1978: 147-149, fig. 148; HUTCHINGS & TURVEY, 1984: 14-15; SATO-OKOSHI, 2000: 447-448, appendixes 1-2; MARTÍNEZ, ADARRAGA & LÓPEZ, 2006: 59-62, figs. 4-5, table 2. *Polydora californica* — TREADWELL, 1914: 203-204, pl. 12 figs. 23-29 [HOMONYM; not *Spio californica* Fewkes 1889 = *Polydora* sp., according to HARTMAN (1940*b*)]. Not *Boccardia proboscidea* — CARRASCO, 1974: 186-187, figs. 1-4; CARRASCO, 1976: 8-11, fig. 2 [= *Boccardia tricuspa* (Hartman 1939)].

**DISTRIBUTION:** Pacific Ocean; west coast of Canada to Southern California; Panama; Japan; Hawaii; Australia; San Sebastián (Northern Spain). On soft and hard bottoms, among *Zostera*, calcareous algae, colonies of *Mytilus*, and inside rock crevices. Intertidal to 100 meters.

### ***Boccardia semibranchiata*** Guérin 1990

*Boccardia semibranchiata* GUÉRIN, 1990: 39-41, figs. 1-3, tables 1-2.

**TYPE LOCALITY:** Étang de Berre (Bouches-du-Rhône, South of France), 43º25'00''N, 5º04'45''E, at 7.9 meters, on muddy bottom with fragments of shells.

**SELECTED REFERENCES:** *Boccardia semibranchiata* — MARTÍNEZ, ADARRAGA & LÓPEZ, 2006: 55-59, figs. 2-3, table 2.

**DISTRIBUTION:** Étangs du Prévost and Berre, and Canal de Caronte (South France, Mediterranean Sea); Ría Urumea (San Sebastián, Northern Spain). On muddy bottoms of brackish waters, at shallow depths.

## GENUS ***Boccardiella*** Blake & Kudenov 1978

*Boccardiella* BLAKE & KUDENOV, 1978: 264-265.

**TYPE SPECIES:** *Polydora hamata* Webster 1879.

**REMARKS:** The genus *Boccardiella* was erected by BLAKE & KUDENOV (1978) to include species previously included in *Boccardia* which presented only 1 type of major spine in a single row on chaetiger 5 (against two types disposed in two rows, as in *Boccardia sensu stricto*). In Europe, the genus is nowadays represented by a single species, *B. ligerica* (Ferronnière 1898).

### ***Boccardiella ligerica*** (Ferronnière 1898)

*Boccardia ligerica* FERRONNIÈRE, 1898: 109, pl. 6 fig *a-i*.

**TYPE LOCALITY:** Loire Estuary (Northern France), at Donges and Lavau, near Savenay, in brackish water, in muddy tubes under the stones and inside crevices in the rocks, where a fine and black mud is present.

**SYNONYMS:** *Polydora redeki* Horst 1920; *Polydora uncatiformis* Monro 1938.

**SELECTED REFERENCES:** *Polydora (Boccardia) ligerica* — FAUVEL, 1927*a*: 57-58, fig. 19*n-s*. *Boccardia ligerica* — BLAKE & WOODWICK, 1971: 32-34, fig. 1, table 1; LIGHT, 1977: 67-68. *Boccardiella ligerica* — LIGHT, 1978: 144-146, fig. 145, table 6, pictorial key in pages 135-137; BLAKE, 1983: 250; WERN, 1985: 123-125, fig. 1. *Polydora (Boccardiella) ligerica* — HARTMANN-SCHRÖDER, 1996: 321-322, fig. 145. *Polydora redeki* — HORST, 1920: 111; AUGENER, 1939: 141-142, fig. 2. *Polydora (Boccardia) Redeki* — FAUVEL, 1927*a*: 58, fig. 19*t-u*. *Polydora (Boccardia) redeki* — OKUDA, 1937*b*: 240-241, fig. 18; RULLIER, 1960*b*: 231-242, figs. 1-31; HARTMANN-SCHRÖDER, 1971*a*: 315-317, fig. 107. *Boccardia redeki* — KIRKEGAARD, 1996: 51, fig. 20. *Polydora uncatiformis* — MONRO, 1938: 311-313, figs. 1-3.

**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Boccardia redeki*; Tagus Estuary); CASTRO & VIEGAS, 1981 (as *Polydora ligerica*; Tagus Estuary); CALVÁRIO, 1984 (as *Boccardia redeki*; Tagus Estuary); DEXTER, 1992 (as *Polydora ligerica*, some as *Boccardia redeki*, some as *Polydora redeki*; previous records: Ria Formosa; Sado Estuary; Tagus Estuary); PARDAL, CALDEIRA & MARQUES, 1992 (some as *Boccardiella redeki*; previous records: Tagus Estuary).
**DISTRIBUTION:** Baltic Sea; Northern France (several places, like Loire estuary, Canal de Tancarville, Canal de Caen, Benouville); Netherlands (Alkmaarder, Ysselmeer, Zuider Zee); Germany. Also reported from California, Japan, Gulf of Mexico, West Indies, Argentina, Uruguay, and South Africa. In brackish waters, like estuaries, mud flats, coastal lagoons and harbours, in muddy environments, frequently associated with *Ficopomatus enigmaticus* (Fauvel 1923).
**REMARKS:** The species definition was emended by BLAKE & WOODWICK (1971).

## *GENUS ***Dipolydora*** Verrill 1881

*Dipolydora* VERRILL, 1881: 320.
**TYPE SPECIES:** *Polydora concharum* Verrill 1880.

**KEY TO SPECIES:**
(adapted from BLAKE, 1996*d*)

**1a.** Major spines of chaetiger 5 simple, weakly falcate, without prominent subterminal boss, accessory teeth, bristles, etchings, or scratches; branchiae normally from chaetiger 8 (rarely 7 or 9; from chaetiger 14 in *Polydora adunca*); hooded hooks from chaetiger 6 or 7.....**2**
**1b.** Major spines of chaetiger 5 with accessory teeth, flanges, collars and/or apex densely covered with bristles.....**6**

**2a (1a).** Posterior notopodia with few short and long capillaries, bundles of needlelike capillaries or notopodial spines absent; dark pigmentation present in the anterior region of the body and pygidium; modified spines of chaetiger 5 with a stout curved distal end, with a pointed tip; 0-7 eyes; in muddy sediments.....***D. coeca***
**2b (1a).** Posterior parapodia with bundles of needlelike capillaries, notopodial spines, or winged with a serrated edge; dark pigmentation in the anterior region absent or not described.....**3**

**3a (2b).** Branchiae from chaetiger 14, up to chaetiger 27; notochaetae of chaetigers 1-28 (with exception of chaetiger 5) slender and winged, in chaetigers 29-32 winged with a clearly serrated edge; chaetiger 33 with both noto and neurochaetae similar, thin and ending in a blunt hook; modified spines of chaetiger 5 blunt, with a subterminal shallow depression; neuropodial hooded hooks from chaetiger 6; eyes not found; among holdfasts of *Corallina*.....***D. adunca* nov. comb.**
**3b (2b).** Developed branchiae from chaetiger 8 (may be vestigial at chaetiger 7); notochaetae otherwise, with posterior notopodia with bundles of needlelike capillaries or notopodial spines.....**4**

**4a (3b).** Posterior region of the body with dense packets or bundles of fine capillaries (may refract the light), present from chaetiger 8 or after; straight notopodial spines absent; modified spines of chaetiger 5 blunt, with a subterminal shallow depression; eyes absent; in soft sediments.....***D. flava***
**4b (3b).** Posterior region of the body with notopodial spines; bundles of fine capillaries absent; 0-4 eyes; borer on calcareous substrates or possibly with boring activity.....**5**

**5a (4b).** Posterior region of the body, from about chaetiger 45-50, with 3-4 straight notopodial spines per bundle; modified spines of chaetiger 5 blunt, with a subterminal shallow depression; 0-4 eyes; possibly with boring activity.....***D. saintjosephi****
**5b (4b).** Posterior region of the body, from about chaetiger 28-36, with 1-2 curved notopodial spines per bundle; modified spines of chaetiger 5 pointed, with a curved tip; 4 eyes; borer in calcareous substrates.....***Polydora posthamata*** [see comments below, under *Polydora posthamata*]

**6a (1b).** Major spines of chaetiger 5 with collar on convex side of falcate tip; posterior notopodial spines absent; almost complete absence of pigmentation; branchiae from chaetiger 8-10; hooded hooks from chaetiger 7; borer in calcareous substrates.....***D. langerhansi***

**6b (1b).** Major spines of chaetiger 5 with various accessory teeth, flanges or collars, not restricted to convex side of spine.....**7**

**7a (6b).** Modified spines of chaetiger 5 with large accessory tooth on concave side and small spur on convex side, tip not covered with bristles; posterior notopodia with long capillaries, spines absent; some black pigment on prostomium and pygidium; branchiae from chaetiger 9 (8-10); hooded hooks from chaetiger 7; pygidium cufflike, with dorsal gap; borer in calcareous substrates.....***D. giardi***
**7b (6b).** Modified spines of chaetiger 5 always covered with fine bristles, with or without accessory teeth, teeth if present, sometimes joined by collar or cowling; posterior notopodial spines present, forming projecting rosette; branchiae from chaetiger 7; hooded hooks from chaetiger 7.....**8**

**8a (7b).** Major spines of chaetiger 5 without accessory structures, but apex of spines partially or completely covered with fine bristles; major spines of chaetiger 5 with large, flattened, beaklike curved end bearing large and distinctive crest of bristles; companion chaetae reduced to thin, simple capillaries; builds tubes in soft sediments.....***D. caulleryi****
**8b (7b).** Major spines of chaetiger 5 with 2 teeth, some bristles between teeth or partially covering spine.....**9**

**9a (8b).** Major spines of chaetiger 5 bidentate, with 2 large but unequal teeth, each connected by lateral hood or cowling on one side and thin shelf on other side, cowling covered with fine bristles; eyes absent; pygidium cuff-shaped, with broad dorsal notch; borer in calcareous substrates.....***D. armata***
**9b (8b).** Major spines of chaetiger 5 bidentate, with 2 nearly equal teeth between which arises a tuft of fine bristles; 4 eyes present, arranged in transverse row; pygidium with 4 equal lobes; builds tubes in soft sediments.....***D. quadrilobata***

## ***Dipolydora adunca*** (Harris 1971) **nov. comb.**

*Polydora adunca* HARRIS, 1971: 703-705, fig. 12.
**TYPE LOCALITY:** White Island, Isles of Scilly (English Channel), amongst holdfasts of *Coralinna officinalis*.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** HARRIS (1971) considered that the specimens described by him from the Isles of Scilly (English Channel) agreed substantially with the description given by LANGERHANS (1880*b*) for *Polydora hamata*, from Madeira. The main difference pointed by Harris was the lack of a brown pigmented-band on the hooded chaetae in the English specimens. As the name *Polydora hamata* was an homonym, being already occupied by WEBSTER (1879*a*), Harris replaced it for *Polydora adunca*, unaware of the fact that JONES (1962) had already given a new name to Langerhans' species, *Polydora posthamata*. This way, *Polydora adunca* would be a junior synonym of *P. posthamata*.

Nevertheless, there are several more differences between the descriptions given by LANGERHANS (1880*b*) and HARRIS (1971) than the single one pointed by Harris (see above key). This seems to indicate that the two descriptions refer in reality to two different species. Thus, I propose here to maintain the name *Polydora posthamata* Jones 1962 for the form from Madeira, and use *Polydora adunca* Harris 1971 for the form from the Scilly Islands.

*Polydora adunca* was described as having notochaetae in chaetiger 1, which places it in the genus *Dipolydora*. Besides, the given drawings of the hooded hooks don't seem to show a constriction and manubrium to be present at the shaft. For this reason the species is here placed under the genus *Dipolydora*, as a new combination.

## ***Dipolydora armata*** (Langerhans 1880)

*Polydora armata* LANGERHANS, 1880*b*: 93-94, pl. 4 fig. 5*a-c*.
**TYPE LOCALITY:** Madeira Island, among vegetal debris covering the littoral calcareous rocks.
**SYNONYMS:** *Polydora monilaris* Ehlers 1905; *Polydora rogeri* Martin 1996.
**SELECTED REFERENCES:** *Polydora armata* — LO BIANCO, 1893: 29; CARAZZI, 1893: 21, pl. 2 fig. 8, table in page 28; MESNIL, 1896*a*: 203-209, pl. 13 figs. 13-25, table in page 236; FAUVEL, 1927*a*: 55-56, fig. 19*a-e*; OKUDA, 1937*b*: 230-231, fig. 10; HARTMAN, 1941: 306-308, pl. 48 figs. 38-39, chart in page 307; DAY, 1967: 466-468, fig. 18.2.*i-j*; WOODWICK, 1964: 147-148, fig. 2.*1-6*; RAINER, 1973: 558, fig. 7; BLAKE, 1983: 258-260. *Polydora (Polydora) armata* — HARTMANN-SCHRÖDER, 1979*b*: 134, figs. 299-302. *Dipolydora armata* — BLAKE, 1996*d*: 196-198, fig. 4.36 [in part]; SATO-OKOSHI, 1999: 838, appendixes 1-2; BICK, 2001: 178-186, figs. 1-7, tables 1-2; RADASHEVSKY & NOGUEIRA, 2003: 377-383,

figs. 1-6. *Polydora monilaris* — EHLERS, 1904: 43-44, pl. 6 figs. 5-14. *Polydora rogeri* — MARTIN, 1996: 161-165, figs. 1-5.

**DISTRIBUTION:** The species is widespread in tropical and subtropical seas, including the Mediterranean, Adriatic and Aegean seas. It bores into various types of calcareous substrata. Intertidal to about 100 meters.

**REMARKS:** The synonymy between *Dipolydora armata* (Langerhans 1880) and *Dipolydora rogeri* (Martin 1996) was first proposed by BICK (2001), and later confirmed by RADASHEVSKY & NOGUEIRA (2003). *Dipolydora rogeri* was described by MARTIN (1996) as *Polydora*, and separated from *Dipolydora armata* mainly with base on the rounded prostomium and a distinct arrangement and shape of posterior notopodial spines. Subsequent studies of type and topotype material (RADASHEVSKY & NOGUEIRA, 2003) revealed an incision on the anterior margin of the prostomium. Besides, it was also shown that the arrangement and shape of the posterior notopodial spines are highly variable inside the same population of *D. armata*, and so a poor character in species definition (BICK, 2001; RADASHEVSKY & NOGUEIRA, 2003).

## ****Dipolydora caulleryi*** (Mesnil 1897)

*Polydora Caulleryi* MESNIL, 1897*a*: 88-89, pl. 3 figs. 12-16.

**TYPE LOCALITY:** Point of Cap de la Hague (Northern France), at the limit of low water, in muddy tubes filling empty calcareous tubes of *Pomatoceros triqueter*, covering a *Cancer pagurus*.

**SYNONYMS:** *Polydora Carazzi* McIntosh 1909; *Polydora brachycephala* Hartman 1936.

**SELECTED REFERENCES:** *Polydora caulleryi* — FAUVEL, 1927*a*: 54-55, fig. 19*f-h*. *Polydora caulleryi* — MCINTOSH, 1915*b*: 210-212, pl. 100 fig. 8, pl. 106 fig. 5; PETTIBONE, 1954: 280-281, fig. 32*l-q*; HANNERZ, 1956: 123-126, figs. 43-44; HARTMAN, 1965*b*: 149-150, pl. 28 figs. *b-d*; BLAKE, 1969*b*: 52, fig. 38; BLAKE, 1971: 11-13, fig. 8, table 1; RAMBERG & SCHRAM, 1983: 243-244, fig. 7; MACIOLEK, 1984*b*: 127; PARAPAR, BESTEIRO & URGORRI, 1992*b*: 111-112, fig. 2*A-C*; BLAKE, 1996*d*: 198, fig. 4.32*F-H*; KIRKEGAARD, 1996: 66-67, fig. 28. *Polydora (Polydora) caulleryi* — HARTMANN-SCHRÖDER, 1996: 312-313, fig. 141. *Polydora Carazzi* — MCINTOSH, 1909: 172-173, pl. 5 figs. 4-6. *Polydora brachycephala* — HARTMAN, 1936*b*: 48-49, figs. 3-5; HARTMAN, 1969: 129, figs. 1-3; LIGHT, 1977: 68-70, fig. 1; LIGHT, 1978: 185-187, figs. 185-186, table 8, pictorial key in page 168.

**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 55*R* (A.2548)**, off Praia do Amado, 64 m, sand and rock: 1 complete specimen, in poor condition, with 30 chaetigers; 2 pairs of eyes; shape of prostomium not possible to see; first notopodia with about 4 capillaries; branchiae and ventral hooks from chaetiger 7; spines of chaetiger 5 distally unidentate, with a bushy tip; posterior notopodia with long capillaries and shorter needle chaetae. **SEPLAT 7 (2nd part) — St. 176 (A.3934*A*)**, off Sines, 157 m, sand: 1 complete specimen with 37 chaetigers, in poor condition; branchiae from chaetiger 8 (?); neurohooks from chaetiger 7; notochaetae present on 1st chaetiger.

**DISTRIBUTION:** Arctic; from Alaska to California; New England; North Atlantic; from North Sea to the Mediterranean Sea; Black Sea; Skagerrak; Kattegat; Öresund. In muddy sediments, sometimes mixed with sand, gravel, or stones, and among hydrozoans, bryozoans, and in empty serpulid tubes. From low intertidal to 200 meters.

**REMARKS:** *Polydora brachycephala* Hartman 1936, from California, was synonymized with the Atlantic *D. caulleryi* by PETTIBONE (1954). This synonymy was supported by BLAKE (1971), but later the species was retained as separated and valid by the same author (BLAKE, 1975). LIGHT (1977) also accepted *P. brachycephala* as valid, citing a personal communication by James A. Blake, based on observed differences between larvae from the east and west coasts of North America (MACIOLEK, 1984*b*). Finally, BLAKE (1996*d*) placed again the two species under synonymy.

## ***Dipolydora coeca*** (Ørsted 1843)

*Leucodorum coecum* ØRSTED, 1843*a*: 39.

**TYPE LOCALITY:** Øresund (Denmark), near Hveen (= Ven) Island, in a muddy bottom.

**SYNONYMS:** [?] *Leipoceras uviferum* Möbius 1874.

**SELECTED REFERENCES:** *Polydora cœca* — ELIASON, 1920: 46-49, fig. 12. *Polydora caeca* — ELIASON, 1962*a*: 53. *Polydora coeca* — [?] HANNERZ, 1956: 120-122, figs. 41-42. *Polydora (Polydora) caeca* — HARTMANN-SCHRÖDER, 1996: 311-312 [in part; not fig. 140; in part = *Dipolydora saintjosephi* (Eliason 1920)]. *Polydora* sp.? — MESNIL, 1897*a*: 86-87, pl. 3 figs. 6-8. *Polydora socialis* [not Schmarda 1861] — [?] RAMBERG & SCHRAM, 1983: 242-243, fig. 6. Not *Polydora caeca* — WEBSTER, 1879*a*: 252-253, pl. 9 figs. 119-122 [HOMONYM = *Polydora websteri* Hartman *in* Loosanoff & Engle 1943 (new name for

Webster's species, as *P. caeca* was preoccupied by *Leucodorum caecum* Ørsted 1843)]. Not *Polydora cœca* — SAINT JOSEPH, 1894: 59-61, pl. 3 figs. 65-70; MESNIL, 1896*a*: 191-193, pl. 12 figs. 23-29, table in page 236; SÖDERSTRÖM, 1920: 259-260, fig. 99 [all = *Dipolydora saintjosephi* (Eliason 1920)]. Not *Polydora caeca* — FAUVEL, 1927*a*: 52, fig. 18*a-k*; KIRKEGAARD, 1996: 64-66, fig. 27 [= *Dipolydora saintjosephi* (Eliason 1920)].

**REFERENCES FOR PORTUGAL:** [?] SALDANHA, 1974 (as *Polydora cf. caeca*; coast of Arrábida); [?] HARTMANN-SCHRÖDER, 1977*a* (as *Polydora (Polydora)* cf. *caeca*; Bay of Setúbal); AMOUREUX & CALVÁRIO, 1981 (as *Polydora caeca*; Peniche); MONTEIRO-MARQUES, 1987 (as *Polydora caeca*; continental shelf of Algarve); DEXTER, 1992 (as *Polydora caeca*; previous records: Ria Formosa; continental shelf of Algarve); PARDAL, CALDEIRA & MARQUES, 1992 (as *Polydora caeca*; previous records: Peniche; Arrábida; Ria Formosa); SALDANHA, 1995 (as *Polydora caeca*; Portugal). [Probably at least some of these records refer to *Dipolydora saintjosephi* (Eliason 1920)].

**DISTRIBUTION:** Øresund; Skagerrak; Kattegat. In mud. Between 8-28 meters. The distribution of the species is quite probably much more restricted than the one considered today, as many of its records refer possibly to other species, namely *D. saintjosephi*.

**REMARKS:** *Dipolydora coeca* (Ørsted 1843) was originally described from the Øresund, in a short account without illustrations. The name was later used by SAINT-JOSEPH (1894) for specimens collected in the French shores of the English Channel, characterized by the presence of major spines of chaetiger 5 simple, weakly falcate, and without accessory structures, lack of dark pigmentation, and the presence of posterior notopodial spines. This definition was also used by MESNIL (1896*a*), for specimens collected in calcareous algae, in the same region as Saint-Joseph's ones.

However, ELIASON (1920) studied specimens collected at the type locality of the species, between 15-28 meters in muddy bottoms, and determined that *Dipolydora coeca* doesn't have posterior notopodial spines, having capillary chaetae instead. A dark pattern of pigment could be also observed in the anterior region of the body, as well as at the pygidium. Finally, these specimens were collected in muddy sediments, instead of being associated with calcareous algae. ELIASON (1920) considered that his specimens represented the true *D. coeca*, while the specimens collected and studied by SAINT-JOSEPH (1894) and MESNIL (1896*a*) belonged to a different and new species, which he named *Polydora Saint Josephi* (nowadays *Dipolydora saintjosephi*).

Shortly after, FAUVEL (1927*a*) synonymised both species, considering that *D. coeca* did have posterior notopodial spines, and ever since the name *D. coeca* has been applied to specimens with these posterior notopodial spines (*e.g.* HARTMANN-SCHRÖDER, 1996). I follow here Eliason's opinion, considering that the true *D. coeca* has capillary notopodial chaetae in the posterior region of the body, instead of spines.

The record of *D. socialis* from Oslofjord (Skagerrak) by RAMBERG & SCHRAM (1983), not far away from the type locality of *D. coeca*, seems to support this idea. *D. socialis* is a species very similar to *D. coeca* as described by ELIASON (1920), and the specimen identified as *D. socialis* by RAMBERG & SCHRAM (1983), a species apparently not recorded previously in Europe, could in fact belong to *D. coeca* sensu Eliason. Besides, the habitat of this specimen, collected in a muddy bottom at 20 meters, approaches the habitat in which Eliason found his specimens.

This way, *D. coeca* will be used here for specimens with a pigmentation pattern and notopodial capillary chaetae in the posterior region of the body, while *D. saintjosephi* is considered to be a valid species, represented by specimens without pigmentation and with notopodial spines in the posterior region. The record of *D. socialis* by RAMBERG & SCHRAM (1983) is here considered to belong probably to *D. coeca*, while *D. socialis* is considered as not being present in Europe. Finally, a comparison between specimens of *D. coeca sensu* Eliason 1920 and *D. socialis* would be desirable, in order to establish the differences between both species.

## ***Dipolydora flava*** (Claparède 1870)

*Polydora flava* CLAPARÈDE, 1870: 487-488.

**TYPE LOCALITY:** Gulf of Naples, in sand.

**SYNONYMS:** *Polydora pusilla* Saint-Joseph 1894; *Polydora dorsomaculata* Rainer 1973.

**SELECTED REFERENCES:** *Polydora flava* — CARAZZI, 1893: 22-25, pl. 2 fig. 9, table in page 28; LO BIANCO, 1893: 31; MESNIL, 1896*a*: 182-191, pl. 11 figs. 18-26, pl. 12 figs. 1-22, table in page 236; MCINTOSH, 1909: 169; MCINTOSH, 1915*b*: 205-209, pl. 93 fig. 3, pl. 98 fig. 16, pl. 100 fig. 10, pl. 106 fig. 3; SÖDERSTRÖM, 1920: 65-67, 260-261, figs. 61-62; FAUVEL, 1927*a*: 52-54, fig. 17*n-u*; [?] OKUDA, 1937*b*: 228-229, fig. 8; HANNERZ, 1956: 117-120, fig. 40; BLAKE & KUDENOV, 1978: 248, fig. 38*a-c*; BLAKE, 1983: 262-264; KIRKEGAARD, 1996: 71-73, fig. 31. *Polydora (Polydora) flava* — HARTMANN-SCHRÖDER, 1996: 317. *Polydora pusilla* — SAINT-JOSEPH, 1894: 65-66, pl. 3 figs. 74-77.

**REFERENCES FOR PORTUGAL:** PARDAL, CALDEIRA & MARQUES, 1992 (as *Polydora flava*; previous records: Lagoon of Santo André); CANCELA DA FONSECA *et al.*, 2006 (Aljezur).
**DISTRIBUTION:** Considered to be almost cosmopolitan. Mediterranean Sea; Adriatic Sea; Aegean Sea; English Channel; North Sea; Skagerrak; Indian Ocean; Sri Lanka; Sumatra; Northern Pacific Ocean; Japan; Australia. In sandy bottoms. At shallow water.

## ***Dipolydora giardi*** (Mesnil 1893)

*Polydora Giardi* MESNIL, 1893: 643-645.
**TYPE LOCALITY:** Anse St-Martin, La Hague (Northern France), boring in *Lithothamnion*-like coralline algae, on rocks.
**SYNONYMS:** [?] *Polydora anoculata* Moore 1907.
**SELECTED REFERENCES:** *Polydora Giardi* — MESNIL, 1896*a*: 195-202, pl. 13 figs. 1-12, table in page 236; FAUVEL, 1927*a*: 50-52, fig. 17*h-m*. *Polydora giardi* — [?] HARTMAN, 1941: 309, pl. 48 fig. 43, chart in page 307; [?] HARTMAN, 1969: 135-136, figs. 1-6; [?] RAINER, 1973: 560, fig. 9; [?] BLAKE & KUDENOV, 1978: 252, fig. 38*i-k*; BLAKE, 1981*a*: 951, fig. 2*A-B*; MACIOLEK, 1984*b*: 129; ALÓS, CAMPOY & PEREIRA, 1982: 147-148; BLAKE, 1983: 262. *Polydora (Polydora) giardi* — HARTMANN-SCHRÖDER, 1996: 317. *Dipolydora giardi* — BLAKE, 1996*d*: 186-188, fig. 4.33; [?] SATO-OKOSHI, 1999: 837-838, appendixes 1-2; [?] SATO-OKOSHI & TAKATSUKA, 2001: 494, table 1; RADASHEVSKY & PETERSEN, 2005: 28-33, fig. 2. [?] *Polydora anoculata* — MOORE, 1907: 197-199, pl. 15 figs. 7-17; BLAKE, 1971: 24, fig. 15, table 1.
**REFERENCES FOR PORTUGAL:** [?] AMOUREUX & CALVÁRIO, 1981 (as *Polydora* cf *giardi*; Peniche); MONTEIRO-MARQUES *et al.*, 1982 (as *Polydora giardi*; Ponta do Surdão); PARDAL, CALDEIRA & MARQUES, 1992 (as *Polydora giardi*; previous records: Peniche; Lagoon of Albufeira).
**DISTRIBUTION:** The species is known to occur in the English Channel, northern France and Mediterranean Sea, as a borer in coralline algae and mollusc shells, at the intertidal and subtidal. All the other records require confirmation, as unnamed closely related species might be involved in its actually described distribution (RADASHEVSKY & PETERSEN, 2005).
**REMARKS:** *Dipolydora anoculata* (Moore 1907) was considered by RADASHEVSKY & PETERSEN (2005) as being probably a valid species, and was removed from the synonymy with *D. giardi*.

## ***Dipolydora langerhansi*** (Mesnil 1896)

*Polydora Langerhansi* MESNIL, 1896*a*: 202-203, text-figs. 1-2 in page 203.
**TYPE LOCALITY:** Madeira Island, at 18 fathoms (32.9 meters) and deeper, on old fragments of shells (*Pinna* sp.).
**SELECTED REFERENCES:** *Polydora ciliata* var. *minuta* [not Grube 1855] — LANGERHANS, 1880*b*: 91-92.
**DISTRIBUTION:** Madeira Island, 32.9 meters and deeper, on old fragments of shells (*Pinna* sp.); Western Mediterranean Sea.
**REMARKS**: MCINTOSH (1915*b*: 205) considered the *Polydora ciliata minuta* of LANGERHANS (1880*b*) as being just a small variety of *Polydora ciliata*. However, MESNIL (1896*a*) revised a specimen identified by Langerhans as belonging to this variety, and stated that it belonged to a new species, which he named as *Polydora langerhansi*. The presence of notochaete in the first chaetiger and the presence of hooded neurohooks with smooth, curved shafts, and with main fang forming a wide angle with shaft and a reduced angle with apical tooth, places this species in the genus *Dipolydora*, as stated by BLAKE (1996*d*).

## ***Dipolydora quadrilobata*** (Jacobi 1883)

*Polydora quadrilobata* JACOBI, 1883: 3.
**TYPE LOCALITY:** Kiel Canal, Germany.
**SYNONYMS:** *Polydora tubifex* Verrill 1885.
**SELECTED REFERENCES:** *Polydora quadrilobata* — MESNIL, 1896*a*: table in page 236; MESNIL, 1897*a*: 87-88, pl. 3 figs. 9-11; MCINTOSH, 1909: 170-172, pl. 5 figs. 2-3; MCINTOSH, 1915*b*: 209-210, pl. 98 figs. 13, 17, pl. 100 fig. 9, pl. 106 fig. 4; ELIASON, 1920: 45-46; SÖDERSTRÖM, 1920: 257-259, fig. 168; FAUVEL, 1927*a*: 54, fig. 18*l-r*; ANNENKOVA, 1932: 134-136, figs. 6-9; USCHAKOV, 1955*a*: 272, figs. 94*A-D*; HANNERZ, 1956: 122-123; BLAKE, 1969*b*: 37-51, figs. 27-37, 39*A*, 40*G*; HARTMAN, 1969: 145-146, figs. 1-4; BLAKE, 1971: 13-15, fig. 9, table 1; LIGHT, 1977: 70; LIGHT, 1978: 182-184, figs. 182-183, table 8, pictorial key in page 168; RADASHEVSKY, 1993: 18-21, fig. 9; BLAKE, 1996*d*: 198, fig. 4.32*I-N*; KIRKEGAARD, 1996: 76-78, fig. 34. *Polydora (Polydora) quadrilobata* — HARTMANN-SCHRÖDER, 1996: 319-320, fig. 144. *Dipolydora quadrilobata* — SATO-OKOSHI, 2000: 445, appendixes 1-2. *Polydora littorea* [not Verrill 1881] — HARTMAN, 1944*e*: pl. 18 fig. 9.

**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (as *Polydora quadrilobata*; Cape São Vicente); PARDAL, CALDEIRA & MARQUES, 1992 (as *Polydora quadrilobata*; previous records: Cape of São Vicente).
**DISTRIBUTION:** Arctic; North Atlantic to the Mediterranean Sea; Adriatic Sea; North Sea; Kattegat; Øresund; Eastern Canada; New England; from Aleutian Islands to Southern California; western Pacific, from Kurile Islands to Sea of Japan. In sandy mud and muddy bottoms, gravel, and among *Mytilus* shells and seagrasses. Intertidal to 210 meters.

### ****Dipolydora saintjosephi*** (Eliason 1920)

*Polydora Saint Josephi* ELIASON, 1920: 49.
**TYPE LOCALITY:** Dinard shores (Northern France, English Channel), on old shells.
**SELECTED REFERENCES:** *Polydora cæca* [not Ørsted 1843] — SAINT JOSEPH, 1894: 59, pl. 3 figs. 65-70; MESNIL, 1896*a*: 191-193, pl. 12 figs. 23-29, table in page 236; SÖDERSTRÖM, 1920: 259-260, fig. 99. *Polydora caeca* [not Ørsted 1843] — FAUVEL, 1927*a*: 52, fig. 18*a-k*; HARTMANN-SCHRÖDER, 1996: 311-312, fig. 140 [in part]; KIRKEGAARD, 1996: 64-66, fig. 27.
**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (1st part) — St. 152**, exact location unknown, off Praia de Almograve, 55 m, rock with sponges: 1 specimen, broken in 2 pieces; anterior fragment with about 40 chaetigrs; no eyes visible; 6 capillary chaetae in the first notopodium; modified chaetae of the 5th chaetiger spoon-shaped; branchiae from chaetiger 8; neurohooks from chaetiger 7; second fragment with 19 chaetigers. **SEPLAT 7 (2nd part) — St. 255 (A.3878)**, off Cape Sardão, 30 m, rock: 1 incomplete specimen, with 38 chaetigers, 1.4 mm long, 0.6 mm wide; no eyes visible; first chaetiger with a dorsal lamellae and notochaetae; branchiae from chaetiger 8; neurohooks from chaetiger 7; thick chaetae on chaetiger 5, without lateral tooth, accessory chaetae lancet-shaped; without (?) fine embedded dorsal chaetae on the median and posterior parapodia. **FAUNA 1 — St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 incomplete specimen, in poor condition.
**DISTRIBUTION:** English Channel, and probably all the Atlantic coast of Europe. Among calcareous algae, like *Lithothamnion*. In shallow water. Other records of the species, as *Dipolydora coeca*, include: Arctic; North Pacific; Atlantic to South Africa; English Channel; North Sea; Skagerrak; Kattegat; Öresund; Kiel Bight; Mediterranean Sea; Aegean Sea; Red Sea; Indian Ocean. In clean or sandy silt, in sand with a great content of clay, in gravel, in the sediment among *Posidonia* and the rhizomes of *Laminaria*, among sponges, corals, old *Mytilus* shells, *Lithothamnion*, oyster banks, empty shells, or under stones. From low eulittoral to about 90 meters. However, this distribution should be confirmed as other species, like *D. coeca*, could be involved. The fact that the species has been recorded (as *Polydora*) from soft sediments and as a borer, seems to indicate that different species have been considered under the same name.
**REMARKS:** See the *REMARKS* section under *Dipolydora coeca*.

## GENUS ***Dispio*** Hartman 1951

*Dispio* HARTMAN, 1951*b*: 86.
**TYPE SPECIES:** *Dispio uncinata* Hartman 1951.
**REMARKS:** The genus definition was emended by PETTIBONE (1963*b*).

#### KEY TO SPECIES:

**1a.** Notopodial postchaetal lamellae of the first 3 chaetigers serrated, with serration more conspicuous in the first chaetiger.....***D. uncinata***
**1b.** Notopodial postchaetal lamellae of the first 3 chaetigers smooth.....***Dispio* sp.**

### ***Dispio* sp.**

**DISTRIBUTION:** Western Mediterranean Sea: Catalonian coast of Spain; Balearic Islands. In clean sand. Infralittoral to shallow water.
**REMARKS:** This species was found in sandy beaches, at shallow water. One single specimen (posteriorly lost) was found at the beach of Santa Cristina, near Lloret, in the Catalonian coast of Spain, and several others, similar to the first one, were found in beaches of the Balearic Islands. The species differs from *Dispio uncinata* by the presence of smooth postchaetal notopodial lobes, against serrated. However, a definitive identification of the species is not possible at present, as it requires the comparison with other

species of the genus. Nowadays the genus includes 9 species and one subspecies, but some of them, like *Dispio africana* (Rullier 1964), from Cape Verde, are incompletely known, and require to be redescribed. The species is apparently new.

### ***Dispio uncinata*** Hartman 1951

*Dispio uncinata* HARTMAN, 1951*b*: 87-90, pls. 22-23.
**TYPE LOCALITY:** Alligator Point, Franklin County, Florida, and Grand Isle, Louisiana, in a sandy beach, Gulf of Mexico, both intertidal or at very shallow water.
**SELECTED REFERENCES:** *Dispio uncinata* — MARSDEN, 1960: 1000-1002, figs. 16-18; HARTMAN, 1961: 88-89; BELLAN, 1968: 49-50, figs. 1, 2*a*; FOSTER, 1971: 73-79, figs. 161-174, tables 4-5; LIGHT, 1977: 78; LIGHT, 1978: 113-116, figs. 113, 115; IBÁÑEZ & VIÉITEZ, 1973: 5-6, fig. 1; BLAKE, 1983: 214-216; IMAJIMA, 1990*d*: 161-163, figs. 4-5.
**DISTRIBUTION:** West North Atlantic, from Massachusetts to North Carolina; Gulf of Mexico; Caribbean Sea; California; Japan (Pacific coast); Central America; Morocco; Cantabric Sea; Western Mediterranean Sea. On sand with scattered shells. Shallow intertidal to about 5.5 meters, and 30-92 meters (Japan).

## GENUS ***Glyphochaeta*** Bick 2005

*Glyphochaeta* BICK, 2005*b*: 2988-2989.
Type species: *Glyphochaeta laudieni* Bick 2005.

### ***Glyphochaeta laudieni*** Bick 2005

*Glyphochaeta laudieni* BICK, 2005*b*: 2989-2993, figs. 1-3.
**TYPE LOCALITY:** Svalbard, Spitsbergen, Kongsfjorden, Blomstrandhalvøya, marine grotto near Hansneset (78º59.08'N, 11º57.43'E), grotto wall, among bryozoan colonies, 4 meters depth.
**DISTRIBUTION:** Known from the type locality.

## *GENUS ***Laonice*** Malmgren 1867

*Laonice* MALMGREN, 1867*a*: 91.
**TYPE SPECIES:** *Nerine cirrata* M. Sars 1851.
**SYNONYMS:** [?] *Mandane* Kinberg 1866; *Spionides* Webster & Benedict 1887; *Aricideopsis* Johnston 1901.
**REMARKS:** SÖDERSTRÖM (1920) separated the species *Laonice cirrata* (Sars 1850) into four different species (*L. bahusiensis*, *L. sarsi*, *L. appelloefi* and *L. cirrata* s. str.), on the basis of characters as the length of the dorsal organ, number of branchiae and first occurrence of genital pouches, genital spines or neuropodial hooks. FAUVEL (1927*a*) did not agree with this separation and synonymized all the four species under *L. cirrata*, what was generally accepted, with a few exceptions (*e.g.* FAUCHALD, 1972*b*). MACIOLEK (1983 *in* BLAKE, 1996*d*) revised the genus and considered all the four species valid, while SIKORSKY, JIRKOV & TSETLIN (1988) considered all Söderström's species valid except *L. bahusiensis* (which they stated that could be a synonym of *L. cirrata*), and described *L. blakei*, from the Norwegian Sea, as a new species. ORRHAGE & SUNDBERG (1990), using multivariate analysis of morphometric differences within the *L. cirrata*-group, proposed the validity of the species *L. bahusiensis* and *L. sarsi*. SIKORSKI (1999) redescribed *L. appelloefi*, based on type and additional material, and later *L. bahusiensis* was also redescribed by SIKORSKI (2002), and considered to be a valid species, different from *L. cirrata*. Finally, all the *Laonice* species known to occur in the European waters were revised in detail by SIKORSKI (2003).

**KEY TO SPECIES:**
(adapted from SIKORSKI, 2003)

**1a.** Interparapodial pouches absent.....***L. asaccata***
**1b.** Interparapodial pouches present.....**2**

**2a (1b).** Prostomium not fused with peristomium at anterior margin or it is not visible in dorsal view.....**3**

**2b (1b).** Prostomium fused with peristomium at anterior margin, clearly visible in dorsal view.....**8**

**3a (2a).** Genital pouches always start between chaetigers 3 and 4.....***L. blakei***
**3b (2a).** Genital pouches start after chaetiger 4.....**4**

**4a (3b).** Caruncle divided posteriorly, forming a bifurcated structure that extends to chaetiger 6-7.....***L. junoyi***
**4b (3b).** Caruncle not bifurcated posteriorly.....**5**

**5a (4b).** Large complete dorsal transverse membranes connecting bases of notopodial post-chaetal lamellae exist in post-branchial region.....***L. norgensis***
**5b (4b).** No complete dorsal transverse membranes connecting bases of notopodial post-chaetal lamellae.....**6**

**6a (5b).** Body widened anteriorly on 12-15 chaetigers; capillary chaetae arranged in three or four rows on several of most anterior 15-17 chaetigers.....***L. appelloefi***
**6b (5b).** Body not widened anteriorly.....**7**

**7a (6b).** Capillary chaetae arranged in two rows in anterior chaetigers.....***L. sarsi***
**7b (6b).** Capillary chaetae arranged in 5-6 rows in anterior chaetigers.....***L. maciolekae***

**8a (2b).** Branchiae on chaetiger 3 twice as short as notopodial post-chaetal lamellae or even shorter.....***L. shamrockensis***
**8b (2b).** Branchiae on chaetiger 3 longer (more or less similar to notopodial post-chaetal lamellae in length).....**9**

**9a (8b).** Complete dorsal transverse membranes connecting bases of notopodial post-chaetal lamellae in last branchiate and several following segments; hooded hook with two apical teeth in lateral view.....***L. bahusiensis****
**9b (8b).** No complete dorsal transverse membranes connecting bases of notopodial post-chaetal lamellae in very last branchiate and several follwing segments; hooded hooks with one apical tooth in lateral view.....***L. cirrata***

**TABLE *Laonice***

| | Nuchal Organs | Number of Branchiae | Neuropodial Hooks | Sabre Chaetae | Interparapodial pouches |
|---|---|---|---|---|---|
| ***Laonice appelloefi*** | | | | | |
| SÖDERSTRÖM (1920) | 13 | Min. 24 | 17 | 11 | 7 |
| FAUCHALD (1972*b*) | 14-16 | 25 | 17-20 | 10-12 | 6-7 |
| SIKORSKI (2003) | 8-14 | 22-23 | 18-23 | 11-13 | 5-7 |
| ***Laonice asaccata*** | | | | | |
| SIGVALDADÓTTIR & DESBRUYÈRES (2003) | 4 | 30 | 30-32 | 20-23 | absent |
| ***Laonice bahusiensis*** | | | | | |
| SÖDERSTRÖM (1920) | 27-31 | 28-32 | 27-32 | 14-16 | 12-17 |
| ORRHAGE & SUNDBERG (1990) | 22-30 (n = 28) | 28-33 (n = 31) | 25-32 (n = 29) | 10-24 (n = 17) | 10-26 (n = 16) |
| SIKORSKI (2003) | 6-35 | 11-36 | 14-35 | 10-21 | 6-25 |
| ***Laonice blakei*** | | | | | |
| SIKORSKI (2003) | 10-14 | 20-24 | 15-23 | 10-13 | 3 |
| ***Laonice cirrata*** | | | | | |
| SÖDERSTRÖM (1920) | 28-30 | 35-44 | 40-45 | 22-25 | 28-35 |
| SIKORSKI (2003) | 4-40 | 15-58 | 18-57 | 12-30 | 3-52 |
| ***Laonice junoyi*** | | | | | |
| AGUIRREZABALAGA & CEBERIO (2005*b*) | 6-7 | ??? | 31 | 15-16 | 8 |
| ***Laonice maciolekae*** | | | | | |
| AGUIRREZABALAGA & CEBERIO (2005*b*) | 13 | min. 13 | 20-21 | 10-13 | 6-7 |
| ***Laonice norgensis*** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| SIKORSKI (2003) | 15-29 (n = 25) | 29-114 (n = 52) | 16-28 (n = 18) | 10-18 (n = 10) | 8-17 (n = 9) |
| ***Laonice sarsi*** | | | | | |
| SÖDERSTRÖM (1920) | 8-13 | 26-31 | 32-37 | 24-27 | 14-28 |
| ORRHAGE & SUNDBERG (1990) | 8-31 (n = 13) | 28-32 (n = 30) | 28-38 (n = 34) | 16-26 (n = 22) | 17-36 (n = 29) |
| SIKORSKI (2003) | 2-14 | 5-32 | 16-39 | 10-26 | 4-33 |
| ***Laonice shamrockensis*** | | | | | |
| SIKORSKI (2003) | 5 | min. 3 | 23 | 12 | 3 |

## *Laonice appelloefi* Söderström 1920

*Laonice appellöfi* SÖDERSTRÖM, 1920: 225-227, figs. 78, 131-132.

**TYPE LOCALITY:** Hjeltefjord, off Bergen (60º32'N, 4º34.5'E).

**SELECTED REFERENCES:** *Laonice appelloefi* — FAUCHALD, 1972*b*: 98-99, fig. 3*B*; SIKORSKI, JIRKOV & TSETLIN, 1988: table 2; ORRHAGE & SUNDBERG, 1990: table 1, fig. 1*b*; SIKORSKI, 1999: 1465-1467, figs. *a-d*; SIKORSKI, 2003: 318-320, figs. 1, 2*A*. [?] *Laonice* sp. — ORRHAGE & SUNDBERG, 1990: 174-177, figs. 2-5, tables 3-5, 8.

**DISTRIBUTION:** Hjeltefjorden and Sognefjorden (Norway), at the border between North Sea and Norwegian Sea. Between 1224-1272 meters.

## *Laonice asaccata* Sigvaldadóttir & Desbruyères 2003

*Laonice asaccata* SIGVALDADÓTTIR & DESBRUYÈRES, 2003: 221-224, figs. 3-4.

**TYPE LOCALITY:** Mid-Atlantic Ridge, at the Azores Triple Junction, "Tour Eiffel" site on the Lucky Strike vent field, 37º17'18"N, 32º16'29"W, at 1690 meters.

**DISTRIBUTION:** Mid-Atlantic Ridge. Azores Triple Junction: "*Tour Eiffel*" site on the Lucky Strike vent field, 37º17'18"N, 32º16'29"W, at 1690 meters; "*Atos*" site on the Rainbow vent field, 36º13.76'N, 33º54.11'W, at 2275 meters. Logatchev vent field, "*Irina*" site, 14º45'06"N, 44º58'41"W, at 3047 meters.

## **Laonice bahusiensis* Söderström 1920

*Laonice bahusiensis* SÖDERSTRÖM, 1920: 223, figs. 78-83.

**TYPE LOCALITY:** Gullmarsfjord, Bohüslan, West Sweden (aproximately 58º15'N, 11º00'E) [lectotype designated by SIKORSKI (2003)].

**SELECTED REFERENCES:** *Laonice bahusiensis* — SIKORSKI, JIRKOV & TSETLIN, 1988: table 2; ORRHAGE & SUNDBERG, 1990: 173-178, figs. 1*b-c*, 2-5, tables 1, 3-5, 8; HARTMANN-SCHRÖDER, 1996: 302; KIRKEGAARD, 1996: 53, fig. 21; GIL & SARDÁ, 1999: 294-295; SIKORSKI, 2002: 413-417, figs. 1*b*, 4, 5*c-d*, tables 3-5; SIKORSKI, 2003: 320-325, figs. 2*B*, 3, 4*A-B*, 5*A-B*, 6*F*, table 1.

**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Laonice cirrata*; off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 7 (A.2514)**, off Cape São Vicente, 77 m, fine sand: 1 incomplete specimen, with 55 chaetigers; width at chaetiger 7 of 825 µm; prostomium and peristomium do not seem so fused as the described for *Laonice cirrata* (Sars 1851); no eyes observed; nuchal organ extending posteriorly to chaetiger 36; occipital antenna present; 30 pairs of branchiae, starting at chaetiger 2; gills apinnate, separated from notopodial lamellae; lateral interparapodial pouches starting between chaetigers 13 and 14; ventral sabre chaetae from chaetiger 17; neuropodial hooks from chaetiger 29, tridentate, with main fang surmounted by a pair of apical teeth. **SEPLAT 7 (2nd part) — St. 92 (A.4015)**, near Sines, 160 m, sand: 1 incomplete specimen, with about 30 chaetigers; occipital antenna present; nuchal organs to chaetiger 26; neurohooks to chaetiger 26; sabre chaetae from chaetiger 15; lateral pouches from chaetigers 15/16. **FAUNA 1 — St. 44*A***, Gulf of Cádiz, off Cádiz, 25-26 m, mud: 2 incomplete specimens, one with 37 chaetigers, the other with about 40 chaetigers, for about 800 µm wide at chaetiger 7; 2 eye-spots; occipital antenna well developed; nuchal organs difficult to see, but seem to continue posteriorly to chaetiger 27; number of branchiae of about 35/36 pairs; 1st neuropodial hook at chaetiger 30, with 5 teeth; sabre chaetae from chaetiger 13; interparapodial pouches start between chaetigers 19-20, 20-21, 22-23; in spite of the small differences found between these specimens and the data given by ORRHAGE & SUNBBERG (1990) and SIKORSKI, JIRKOV & TSETLIN (1988), the specimens were considered as *L. bahusiensis*; this was later confirmed by the description of the species given by SIKORSKI (2003); the differences found may be due to the fact that th specimens studied by ORRHAGE & SUNBBERG (1990)

and SIKORSKI, JIRKOV & TSETLIN (1988) were mainly from Northern Europe, while the present specimens are from southern Europe.

**DISTRIBUTION:** NE Atlantic only, from the Mediterranean Sea, Adriatic Sea, Aegean Sea, and Black Sea, to south Norwegian Sea and Faroe Islands. In nearly all kinds of sediments, but mainly in silty sand to silt. Between 10-200 meters,

**REMARKS:** The Portuguese specimens fall inside the described range for *Laonice bahusiensis*. I also studied 2 specimens collected off Cádiz, and they resemble *L. bahusiensis*, in spite of slight morphometric variations. European species of *Laonice* were described mainly based on northern specimens. Further studies on southern specimens are necessary in order to determine the variability of the southern populations.

## ***Laonice blakei*** Sikorski & Jirkov *in* Sikorski, Jirkov & Tsetlin 1988

*Laonice blakei* SIKORSKI & JIRKOV *in* SIKORSKI, JIRKOV & TSETLIN, 1988: 830-831, fig. 1, table 3.

**TYPE LOCALITY:** Norwegian Sea (72º50'N, 14º00'E), at 960 meters, in silt and stones.

**SELECTED REFERENCES:** *Laonice blakei* — SIKORSKI, 2003: 325-326, figs. 1*E-J*, 2*A*.

**DISTRIBUTION:** Norwegian and Greenland Seas. On muddy bottoms. Between 930-2510 meters.

**REMARKS:** *Laonice blakei* differs from most of the other European *Laonice* by presenting multidentate neuropodial hooded hooks, showing 4-6 teeth in side view, above the main fang.

## ***Laonice cirrata*** (Sars 1851)

*Nerine cirrata* SARS, 1851: 207, 208.

**TYPE LOCALITY:** Ure, in Lofoten Islands, Hammerfest, and Tromsø, all localities in Norway, 20-30 fathoms (36.6-54.9 meters), in sandy bottoms.

**SYNONYMS:** *Spionides foliata* Moore 1923; *Spionides sacculata* Moore 1923; *Laonice pugettensis* Banse & Hobson 1968.

**SELECTED REFERENCES:** *Scolecolepis cirrata* — MALMGREN, 1867*a*: 91, pl. 9 fig. 54. *Laonice cirrata* — MALMGREN, 1867*a*: 91; SÖDERSTRÖM, 1920: 220-223, figs. 77, 128; FAUVEL, 1927*a*: 38, fig. 12*a-e* [in part]; [?] RIOJA, 1931: 56, pl. 14; [?] FAUVEL, 1936*c*: 58; WESENBERG-LUND, 1950*a*: 30, chart 40; WESENBERG-LUND, 1950*b*: 75-76, charts 21, IX, *J*; WESENBERG-LUND, 1951: 68-69 [not fig. 6 = *Laonice bahusiensis* Söderström 1920 (see SIKORSKI, 2003)]; WESENBERG-LUND, 1953*a*: 56-57, chart 12; [?] FOSTER, 1971: 69-72, figs. 155-160; HARTMANN-SCHRÖDER, 1971*a*: 298-299 [in part]; [?] BLAKE, 1983: 222-224; SIKORSKI, JIRKOV & TSETLIN, 1988: 831-833, fig. 2*a-d*, 3, table 2; ORRHAGE & SUNDBERG, 1990: table 1; BLAKE, 1996*d*: 111-112, fig. 4.6; HARTMANN-SCHRÖDER, 1996: 302-303; SIKORSKI, 2002: 408-413, figs. 1-2, 3*a*, 5, tables 1-2; SIKORSKI, 2003: 326-332, figs. 2*C*, 4*A-B*, 5*C-D*, 6*G*, 7, table 2. *Scolecolepis (Laonice) cirrata* — [?] MCINTOSH, 1909: 160; [?] MCINTOSH, 1915*b*: 164-167, text-figs. 116-117, pl. 97 fig. 5, pl. 98 fig. 3, pl. 105 fig. 4. *Spionides foliata* — MOORE, 1923: 182-183. *Spionides sacculata* — MOORE, 1923: 184-185. *Laonice pugettensis* — BANSE & HOBSON, 1968: 25-27, fig. 6*a*; BLAKE, 1996*d*: 112. Not *Laonice cirrata* — HANNERZ, 1956: 23-26, fig. 6 [in part = *Laonice bahusiensis* Söderström 1920; in part = *Laonice sarsi* Söderström 1920].

**DISTRIBUTION:** Arctic Ocean, at Baffin Bay; NW Atlantic and NE Atlantic; Davis Strait; Greenland; Iceland; Norwegian Sea; Greenland Sea; Spitsbergen; Denmark Strait; North Sea; Barents Sea; White Sea; Franz Joseph Land; Kara Sea; Laptev Sea; Chukchee Sea; Bering Sea; Okhotsk Sea; Tartar Strait; Yellow Sea; NE Pacific, at San Juan Islands and Puget Sound; California, Monterey Bay. The species is Circumpolar, being present in all the Arctic Ocean. According to SIKORSKI (2003), the southermost known points on the distribution of the species include, in the Atlantic, Mofjord (60º42'N, 5º14'E) on the Norwegian coast, south of Iceland and Greenland, and Shinnecock Inlet, in Long Island (40º47'N, 72º30'W) in the NE American coast, and in the Pacific, off Point Arguello and Monterey Bay, California, in the NW American coast, and Jen-tai (36º45'N, 121º20'E), in the Chinese coast. Occurs between 0-1412 meters, in many kinds of different substrates. Many of the previous records of *Laonice cirrata* by other authors need confirmation. In the European waters, the southern records of *Laonice cirrata* that have been revised were all referred to *Laonice bahusiensis*.

**REMARKS:** According to the given descriptions, the records of *Laonice cirrata* by RIOJA (1931) and FAUVEL (1936*c*) seem to be correct, in which case the species would be present also in the Western Mediterranean and Atlantic Morocco. However, until these descriptions are confirmed with the study of the cited material, there is the possibility that the descriptions of the specimens were complemented with base on other descriptions of *Laonice cirrata*.

### ***Laonice junoyi*** Aguirrezabalaga & Ceberio 2005

*Laonice junoyi* AGUIRREZABALAGA & CEBERIO, 2005*b*: 272-274, fig. 2.
**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, Atlantic Ocean (43º42.89'N, 2º18.71'W, at 984 meters, to 43º43.25'N, 2º18.80'W, at 1029 meters).
**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, Atlantic Ocean, between 984-1029 meters.

### ***Laonice maciolekae*** Aguirrezabalaga & Ceberio 2005

*Laonice maciolekae* AGUIRREZABALAGA & CEBERIO, 2005*b*: 274-276, figs. 3-5.
**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, Atlantic Ocean (43º42.89'N, 2º18.71'W, at 984 meters, to 43º43.25'N, 2º18.80'W, at 1029 meters).
**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay, Atlantic Ocean, 492-1040 meters.
**REMARKS:** *Laonice maciolekae* presents 4 teeth in the neuropodial hooded hooks in side view, with an inferior main tooth, a median tooth of intermediate size, and a pair of superior smaller teeth.

### ***Laonice norgensis*** Sikorski 2003

*Laonice norgensis* SIKORSKI, 2003: 333-338, figs. 2*A*, 4*C*, 5*E-F*, 9-10, table 3.
**TYPE LOCALITY:** Oseberg-C Field (Northern North Sea), 60º36.19'N, 2º45.64'E, 110 meters, in fine sand.
**DISTRIBUTION:** Northern North Sea and Norwegian Shelf north to 63º30'N. In sandy and sometimes mixed bottoms. Between 106-298 meters.

### ***Laonice sarsi*** Söderström 1920

*Laonice sarsi* SÖDERSTRÖM, 1920: 223-225, figs. 77, 93, 129-130.
**TYPE LOCALITY:** North of Flatholmsrännan, Gullmaren, West Sweden, 50 fathoms (91.4 meters), in mud [lectotype designated by SIKORSKI (2003)].
**SELECTED REFERENCES:** *Laonice sarsi* — ELIASON, 1962*b*: 263; SIKORSKI, JIRKOV & TSETLIN, 1988: 833-835, fig. 2*e-f*, table 2; ORRHAGE & SUNDBERG, 1990: 173-178, figs. 1*a*, 2-5, tables 1, 3-5, 8; HARTMANN-SCHRÖDER, 1996: 303; SIKORSKI, 2003: 338-340, figs. 2*B*, 6*A-E*, 8, table 4.
**DISTRIBUTION:** From Skagerrak and central North Sea (56º-57ºN) to the west of Barents Sea (75ºN), along all Norwegian coasts, Shetland Islands, and NE Scotland. Between 25-405 meters, on sandy and mixed bottoms.

### ***Laonice shamrockensis*** Sikorski 2003

*Laonice shamrockensis* SIKORSKI, 2003: 340-343, figs. 2*B*, 11.
**TYPE LOCALITY:** Shamrock Canyon (47º47.7'N, 8º11.5'W), SW British Isles, at 1700 meters.
**DISTRIBUTION:** Known from the type locality.

## GENUS ***Laubieriellus*** Maciolek 1981

*Laubieriellus* MACIOLEK, 1981: 829-831.
**TYPE SPECIES:** *Laubieriellus grasslei* Maciolek 1981.

### ***Lauberiellus salzi*** (Laubier 1970)

*Prionospio salzi* LAUBIER, 1970: 183-188, figs. 1-3.
**TYPE LOCALITY:** Ashdod, 30 Km south Tel Aviv, in the Mediterranean coast of Israel, at 1 meter, on submerged glass plates for fouling studies.
**DISTRIBUTION:** Known from the type locality, at 0.5-1.5 meters, on submerged glass plates for fouling studies.

## GENUS ***Malacoceros*** Quatrefages 1843

*Malacoceros* QUATREFAGES, 1843: 8-10.
**TYPE SPECIES:** *Spio vulgaris* Johnston 1827.

**REMARKS:** The genus definition was emended by PETTIBONE (1963*b*).

**KEY TO SPECIES:**

**1a.** Hooks tridentate in profile.....**2**
**1b.** Hooks bidentate in profile, less than 20 per neuropodium; less than 10 anal cirri.....**3**

**2a (1a).** Chaetiger 1 with branchiae and postchaetal lamellae with sharp tips; 20-25 hooks per neuropodium, from chaetiger 30-40; 15-30 anal cirri.....***M. vulgaris***
**2b (1a).** Chaetiger 1 with branchiae and postchaetal lamellae with round or blunt tips; about 8 hooks per neuropodium, from chaetiger 26-32; pygidium unkown.....***M. jirkovi***

**3a (1b).** Neuropodia with 7-12 hooks; neurohooks from chaetiger 20-28; anterior margin of prostomium not indented.....***M. tetracerus***
**3b (1b).** Neuropodia with 4-5 hooks; neurohooks from chaetiger 30-45; anterior margin of prostomium slightly indented.....***M. fuliginosus***

## ***Malacoceros fuliginosus*** (Claparède 1869)

*Spio fuliginosus* CLAPARÈDE, 1869: 62-64, pl. 23 fig. 1.
**TYPE LOCALITY:** Naples Harbour (Italy), in mud.
**SELECTED REFERENCES:** *Spio fuliginosus* — LO BIANCO, 1893: 27. *Scolelepis fuliginosa* — MESNIL, 1896*a*: 132-138, 148, pl. 7 figs. 21-27, pl. 8 figs. 1-11; FAUVEL, 1927*a*: 28-30, fig. 9*e-h* [in part]; HANNERZ, 1956: 57-58, fig. 17*d*. *Scolecolepis fuliginosus* — MCINTOSH, 1909: 160; MCINTOSH, 1915: 160-163, pl. 97 fig. 4, pl. 98 fig. 4, pl. 105 fig. 3. *Nerine fuliginosa* — SÖDERSTRÖM, 1920: 216-217, fig. 89. *Scolelepis (Malacoceros) fuliginosa* — GUÉRIN, 1975: 22-33, figs. 1-2, pl. 1, table 1. *Malacoceros fuliginosus* — HARTMANN-SCHRÖDER, 1996: 303-304, fig. 135; KIRKEGAARD, 1996: 55-56, fig. 22; HOURDEZ, DESBRUYÈRES & LAUBIER, 2006: table 1. *Malacoceros (Malacoceros) fuliginosus* — HARTMANN-SCHRÖDER, 1971*a*: 338-340, fig. 118*a-d*; GILLANDT, 1979: 50-51, fig. 16, pl. 2 fig. 9.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Scolelepis fuliginosa*; Tagus Estuary); ANDRADE, 1984 (as *Scolelepis fuliginosa*; Mira Estuary); CALVÁRIO, 1984 (as *Scolelepis fuliginosa*; Tagus Estuary); QUINTINO & GENTIL, 1987 (as *Malacoceros fuliginosa*; Lagoon of Albufeira; Lagoon of Óbidos); CANCELA DA FONSECA, COSTA & BERNARDO, 1989 (as *Scolelepis fuliginosa*; Lagoon of Santo André); QUINTINO, RODRIGUES & GENTIL, 1989 (as *Malacoceros fuliginosa*; Lagoon of Óbidos); DEXTER, 1992 (as *Malacoceros (Scolelepis) fuliginosa*; previous records: Ria Formosa; Sado Estuary; Arrábida; Lagoon of Albufeira; Tagus Estuary; Lagoon of Óbidos); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Aveiro; Lagoon of Óbidos; Tagus Estuary; Lagoon of Albufeira; Lagoon of Santo André; Mira Estuary); SALDANHA, 1995 (Portugal); MUCHA & COSTA, 1999 (as *Scolelepis fuliginosa*; Ria de Aveiro and/or Sado Estuary).
**DISTRIBUTION:** North Pacific; North Atlantic to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Sea of Marmara; Black Sea; English Channel; North Sea; Skagerrak; Kattegat; Red Sea. In coarse to fine sand, mixed grounds, mud between algae, maërl, *Posidonia*, or *Zostera*, and also at mud. Eulittoral to about 500 meters.

## ***Malacoceros jirkovi*** Sikorski 1992

*Malacoceros jirkovi* SIKORSKI, 1992: 105-108, figs. *A-Ж*.
**TYPE LOCALITY:** Southern Norwegian Sea, 61º00'N, 1º36'W, at 140 meters.
**SELECTED REFERENCES:** *Malacoceros jirkovi* — SIKORSKI, 2001: 299, figure and map in page 300.
**DISTRIBUTION:** Southern Norwegian Sea. In sand and muddy sand. Between 100-235 meters.

## ***Malacoceros tetracerus*** (Schmarda 1861)

*Colobranchus tetracerus* SCHMARDA, 1861: 66-67, text-figs. *a-e*, pl. 26 figs. 210-210*a*.
**TYPE LOCALITY:** Coast of Bretagne (Northern France), in sand.
**SYNONYMS:** *Colobranchus ciliatus* Keferstein 1862; *Euspio Gravieri* McIntosh 1915; *Scolelepis murmanica* Zachs *in* Uschakov 1948.
**SELECTED REFERENCES:** *Malacoceros (Malacoceros) tetracerus* — HARTMANN-SCHRÖDER, 1971*a*: 337-338, fig. 117*e-f*. *Malacoceros tetracerus* — HARTMANN-SCHRÖDER, 1996: 305, fig. 136; KIRKEGAARD, 1996: 57-58, fig. 23; HOURDEZ, DESBRUYÈRES & LAUBIER, 2006: table 1. *Colobranchus ciliatus* — KEFERSTEIN, 1862: 118-120, pl. 10 figs. 12-18; CLAPARÈDE, 1863: 37; SÖDERSTRÖM, 1920:

217, fig. 91. *Scolelepis ciliata* — MESNIL, 1896*a*: 138-139, 148, pl. 8 figs. 12-14; FAUVEL, 1927*a*: 30, fig. 9*a-d*; HANNERZ, 1956: 53-57, fig. 16. *Scolelepis murmanica* — ZACHS *in* USCHAKOV, 1948: 285. *Euspio Gravieri* — MCINTOSH, 1915*b*: 179-180, pl. 98 fig. 5, pl. 100 fig. 4, pl. 105 fig. 8.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Scolelepis ciliata*; Lagoon of Óbidos); SOUSA-REIS *et al.*, 1982 (as *Scolelepis ciliata*; Peniche region); MONTEIRO-MARQUES, 1987 (as *Scolelepis ciliata*; continental shelf of Algarve); QUINTINO & GENTIL, 1987 (as *Malacoceros ciliata*; Lagoon of Óbidos); CANCELA DA FONSECA, COSTA & BERNARDO, 1989 (as *Scolelepis ciliata*; Lagoon of Santo André); QUINTINO, RODRIGUES & GENTIL, 1989 (as *Malacoceros ciliata*; Lagoon of Óbidos); DEXTER, 1992 (as *Malacoceros (Scolelepis) ciliata*; previous records: Ria Formosa; continental shelf of Algarve; Sines; Arrábida; Lagoon of Albufeira; Peniche); PARDAL, CALDEIRA & MARQUES, 1992 (as *Malacoceros ciliata*; previous records: Lagoon of Óbidos; Lagoon of Albufeira; Lagoon of Santo André; Ria Formosa); CANCELA DA FONSECA *et al.*, 2006 (Aljezur).
**DISTRIBUTION:** Eastern North Atlantic to the Mediterranean Sea, Aegean Sea, and Black Sea; English Channel; North Sea; Skagerrak; Kattegat; Öresund; Kiel Bight. In gravel, coarse to fine sand, mixed bottoms, and also common in soft and putrid mud. Also found in silt in *Mytilus* and oyster banks, among *Fucus* and *Zostera*, as well as under stones. From eulittoral to about 25 meters.

### ***Malacoceros vulgaris*** (Johnston 1827)

*Spio? vulgaris* JOHNSTON, 1827: 335-336.
**TYPE LOCALITY:** Sea shore and margins of Edinburgh, a little below high-water mark, in sand with mud.
**SYNONYMS:** *Malacoceros Girardi* Quatrefages 1843; *Nerine Florœensis* Saint-Joseph 1894.
**SELECTED REFERENCES:** *Scolecolepis vulgaris* — MALMGREN, 1867*a*: 90-91; MCINTOSH, 1909: 159; MCINTOSH, 1915*b*: 156-160, text-figs. 114-115, pl. 90 figs. 3-5, pl. 97 fig. 3, pl. 98 fig. 2, pl. 104, pl. 105 fig. 2. *Nerine vulgaris* — SÖDERSTRÖM, 1920: 215-216. *Malacoceros vulgaris* — HARTMANN-SCHRÖDER, 1996: 306-307, fig. 137; KIRKEGAARD, 1996: 58-59, fig. 24; HOURDEZ, DESBRUYÈRES & LAUBIER, 2006: table 1. *Malacoceros (Malacoceros) vulgaris* — HARTMANN-SCHRÖDER, 1971*a*: 336-337, fig. 117*a-d*; GILLANDT, 1979: 49-50, fig. 15. *Malacoceros girardi* — QUATREFAGES, 1843: 10-13, pl. 3 figs. 1-6. *Scolelepis Girardi* — MESNIL, 1896*a*: 140-144, 147, pl. 8 figs. 15-28; FAUVEL, 1927*a*: 30-31, fig. 9*i-n*. *Nerine Girardi* — SAINT-JOSEPH, 1895: 229. *Scolelepis girardi* — HANNERZ, 1956: 58-60, fig. 17*a-c*. *Nerine Florœensis* — SAINT-JOSEPH, 1894: 77-81, pl. 4 figs. 91-100.
**DISTRIBUTION:** Arctic; North Pacific; North Atlantic to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; English Channel; North Sea; Skagerrak; Kattegat; South Chile. Recorded as being bipolar. In mud with pebbles, sandy mud, among stones, in the sand of *Zostera* meadows, and among *Fucus*. Eulittoral to about 200 meters.

## GENUS ***Marenzelleria*** Mesnil 1896

*Marenzelleria* MESNIL, 1896*a*: 117, 120.
**TYPE SPECIES:** *Marenzelleria wireni* Augener 1913.
**REMARKS:** The genus definition was emended by AUGENER (1913*c*).

**KEY TO SPECIES:**
(adapted from BICK, 2005*a*)

**1a.** Branchiae on all chaetigers except on the very last; nuchal organ at least up to the end of chaetiger 3/ beginning of chaetiger 4, i.e. crossing the intersegmental ciliated crest of chaetigers 3/4; [up to 180 chaetigers; Arctic species].....***M. wireni***
**1b.** At most two thirds of all chaetigers with branchiae; nuchal organ up to end of chaetiger 2 or 3.....**2**

**2a (1b).** Nuchal organ up to the end of chaetiger 3, i.e. crossing the intersegmental ciliated crest of chaetiger 2/3 at least; [maximum 65 branchiate chaetigers, i.e. less than one-third of the total number of chaetigers; length of branchiae decreases over about 10-15 chaetigers, after that branchiae absent; up to 210 chaetigers; boreal and ?Arctic species].....***M. neglecta***
**2b (1b).** Nuchal organ much shorter, reaching but not crossing the midsegmental ciliated crest of chaetiger 2.....**3**

**3a (2b).** About 30-40 branchiate chaetigers; length of branchiae decreases over about 10-15 chaetigers, after that branchiae absent; [nuchal organ reaches the midsegmental ciliated crest of chaetiger 2; less than 100 chaetigers; Arctic species].....***M. arctia***
**3b (2b).** About 60-130 branchiate chaetigers, length of branchiae decreases over about 30-60 chaetigers; [nuchal organ reaches the midsegmental ciliated crest of chaetiger 2; 170-240 chaetigers; boreal species].....***M. viridis***

## ***Marenzelleria arctia*** (Chamberlin 1920)

*Scolecolepides arctius* CHAMBERLIN, 1920: 17-18, pl. 3 figs. 5-7, pl. 4 fig. 1.
**TYPE LOCALITY:** Lagoon at Collision Point (Alaska, USA), pelagic under 5 inches (13 cm) of ice, over 1 foot (0.3 meters) of water.
**SYNONYMS:** *Laonice annenkowae* Zachs 1925.
**SELECTED REFERENCES:** *Marenzelleria arctia* — SIKORSKI & BUZHINSKAYA, 1998: 1115-1118, fig. 2 [in part]; SIKORSKI & BICK, 2004: 268-271, figs. 2*D*, *F*, 3*D*, 6-7, table 1; BICK, 2005*a*: 271, fig. 3*e*, table 1. *Laonice annenkowae* — ZACHS, 1925: 2. *Laonice annenkowae* — USCHAKOV, 1955*a*: 265. *Nerine vulgaris* [not Johnston 1827] — WIRÉN, 1883: 408 [in part; in part = *Marenzelleria wireni* (Augener 1913)]. *Microspio wiréni* [not Augener 1913] — SÖDERSTRÖM, 1920: 249-250, figs. 156-157 [in part; in part = *Marenzelleria wireni* (Augener 1913)]. *Marenzelleria wireni* [not Augener 1913] — [?] HOLMQUIST, 1967: 298-313 [see SIKORSKI & BICK (2004)]; MACIOLEK, 1984*a*: 49-51, fig. 1 [?in part]; SIKORSKI, JIRKOV & TSETLIN, 1988: 835-837, fig. 4 [in part].
**DISTRIBUTION:** Arctic and Kamchatka estuaries; Beaufort Sea; Barents Sea (Murman, Kola Bay, mouth of Tuloma River); White Sea; Kara Sea; East Siberian Sea; Bering Sea. On silty, sandy or mixed bottoms. Low tide mark to 20 meters.

## ***Marenzelleria neglecta*** Sikorski & Bick 2004

*Marenzelleria neglecta* SIKORSKI & BICK, 2004: 264-268, figs. 2*B*, 3*C*, 5-6, table 1.
**TYPE LOCALITY:** Baltic Sea, Darss-Zingst-Boddenchain (Germany), 54º25'N, 12º40'E, 0.2-0.8 meters, 4-6‰.
**SELECTED REFERENCES:** *Marenzelleria neglecta* — BICK, 2005*a*: 271, fig. 3*c*, table 1. *Marenzelleria viridis* [not Verrill 1874] — MACIOLEK, 1984*a*: 51-55, fig. 2 [in part]; BICK & BURCKHARDT, 1989: 239-241, fig. 1, pls. 7-8; SIKORSKI & BUZHINSKAYA, 1998: 1118-1119, fig. 4. *Marenzelleria* cf. *viridis* — BICK & ZETTLER, 1997: 141-142, figs. 3-8.
**DISTRIBUTION:** Baltic Sea; North Sea (Lower Elbe River); USA Atlantic coast (from Georgia to North Carolina); North American Pacific coast (North West Territories, Canada; California, USA). In sand, silty sand, and clay. Between 0.2-21 meters. In salinities between 1-7.1‰.

## ***Marenzelleria viridis*** (Verrill 1874)

*Scolelepis viridis* VERRILL, 1874*c*: 345, 600-601.
**TYPE LOCALITY:** Northeastern coast of USA: Great Egg Harbor, New Haven, Watch Hill, and Wood's Hole, burrowing in sand, at low water. A lectotype was designated by SIKORSKI & BICK (2004) from Naushon Island, off Martha's Vineyard (Massachusetts, USA).
**SYNONYMS:** *Scolecolepis tenuis* Verrill 1874; *Marenzelleria jonesi* Maciolek 1984.
**SELECTED REFERENCES:** *Scolecolepides viridis* — FOSTER, 1971: 37-40, figs. 57-65. *Marenzelleria viridis* — MACIOLEK, 1984*a*: 51-55, fig. 2 [in part; in part = *Marenzelleria neglecta* Sikorski & Bick 2004]; BICK & BURCKHARDT, 1989: 239; KIRKEGAARD, 1990: 63-65, fig. 1; HARTMANN-SCHRÖDER, 1996: 307, fig. 138; KIRKEGAARD, 1996: 60, fig. 25; SIKORSKI & BICK, 2004: 261-264, figs. 2*C*, 3*B*, 4, table 1; BICK, 2005*a*: 271, fig. 3*d*, table 1. *Scolecolepis tenuis* — VERRILL, 1874*c*: 345, 601. *Marenzelleria jonesi* — MACIOLEK, 1984*a*: 55-58, figs. 3-4. *Marenzelleria* cf. *wireni* — BICK & ZETTLER, 1997: 138-141, figs. 1-2, 5-8. Not *Marenzelleria viridis* — SIKORSKI & BUZHINSKAYA, 1998: 1118-1119, fig. 4 [= *Marenzelleria neglecta* Sikorski & Bick 2004]. Not *Marenzelleria* cf. *viridis* — BICK & ZETTLER, 1997: 141-142, figs. 3-8 [= *Marenzelleria neglecta* Sikorski & Bick 2004].
**DISTRIBUTION:** North American east coast, from Nova Scotia to Delaware; coasts of English Channel; North Sea coasts; Baltic Sea. The species is considered to be an American invader in Europe, having been probably introduced on several different occasions in the European estuaries and brackish water environments during the 80's, probably as a consequence of the ballast water of ships. In sandy, muddy and mixed grounds. Eulittoral to about 38 meters.

## *Marenzelleria wireni* (Augener 1913)

*Marenzelleria wireni* AUGENER, 1913*c*: 264 [in part].

**TYPE LOCALITY:** Kara Sea: 70º14'N, 61º21'E, in fine soft clay; anchorage of Pjasina, 74º52'N, 85º08'E, 3-10 fathoms (5.5-18.3 meters), in sand with algae; Franz Joseph Land (Cap Flora). Spitsbergen.

**SYNONYMS:** *Spio gorbunovi* Averintsev 1990.

**SELECTED REFERENCES:** *Marenzelleria wireni* — MACIOLEK, 1984*a*: 49-51, fig. 1 [?in part; ?in part = *Marenzelleria arctia* (Chamberlin 1920)]; SIKORSKI, JIRKOV & TSETLIN, 1988: 835-837, fig. 4 [in part; in part = *Marenzelleria arctia* (Chamberlin 1920)]; HARTMANN-SCHRÖDER, 1996: 308-309, fig. 139; SIKORSKI & BUZHINSKAYA, 1998: 1112-1115, fig. 1; SIKORSKI & BICK, 2004: 255-261, figs. 1, 2*A*, *E*, 3*A*, table 1; BICK, 2005*a*: 269-271, fig. 3*a-b*, table 1. *Microspio wiréni* — SÖDERSTRÖM, 1920: 249-250, figs. 156-157 [in part; in part = *Marenzelleria arctia* (Chamberlin 1920)]. *Spio gorbunovi* — AVERINCEV, 1990: 165-166, fig. 13. *Nerine vulgaris* — WIRÉN, 1883: 408 [in part; in part = *Marenzelleria arctica* (Chamberlin 1920)]. Not *Marenzelleria wireni* — HOLMQUIST, 1967: 298-313 [? = *Marenzelleria arctia* (Chamberlin 1920); see SIKORSKI & BICK (2004)]. Not *Marenzelleria* cf. *wireni* — BICK & ZETTLER, 1997: 138-141, figs. 1-2, 5-8 [= *Marenzelleria viridis* (Verrill 1874)]. *Marenzelleria arctia* — SIKORSKI & BUZHINSKAYA, 1998: 1115-1116 [in part].

**DISTRIBUTION:** Very common in the Arctic; Spitsbergen; North Sea; Barents Sea; White Sea; Kara Sea; Laptev Sea; East Siberian Sea; Chukchi Sea; Beaufort Sea. In sandy and clayed sediments. Between 0.8-55 meters.

**REMARKS:** SIKORSKI & BICK (2004) commented the necessity to designate a neotype for the species, due to the fact that the type material of *M. wireni* also included specimens of *Marenzelleri arctia*, *Laonice cirrata*, *Prionospio cirrifera*, and *Aricidea quadrilobata*. This designation would enable an objective definition of the species, particularly important due to the fact that *M. wireni* is the type species of the genus. However, that designation was apparently not performed by those authors, which in any case would be the designation of a lectotype among the available syntypes of the species.

## GENUS *Microspio* Mesnil 1896

*Microspio* MESNIL, 1896*a*: 117, 119, 174-175.

**TYPE SPECIES:** *Spio mecznikowianus* Claparède 1869.

**SYNONYMS:** *Mesospio* Gravier 1911.

**REMARKS:** When LANGERHANS (1880*b*) described the species *Spio atlanticus* from Madeira, he stated that his species was very similar to *Spio mecznicowianus* Claparède 1869, from the Gulf of Naples, from which it could be separated by the presence of a dorsal pigmented cirrus that appeared together with the branchiae, while such structure wasn't described or referred in Claparède's species. Concerning the first occurrence of neuropodial hooded hooks, CLAPARÈDE (1869: 65) stated that the neuropodial hooks started at chaetiger 8 in his species, while LANGERHANS (1880*b*: 90) described the neurohooks of his species as being present from chaetiger 9.

MESNIL (1896*a*) created the genus *Microspio* to include the species *Spio mecznicowianus* Claparède 1869, and *Spio atlanticus* Langerhans 1880, species with branchiae from chaetiger 2 and neuropodial hooks from chaetiger 8-9. Mesnil also stated that in spite of the fact that Claparède didn't describe the notopodial lamellae, they surely existed. Besides, MESNIL (1896*a*) studied two specimens of *M. atlantica* collected by Langerhans, and compared them with the description of *M. mecznicowiana*, considered by him as a poorly known species. He separated both species based on a different distribution of the pigment, on the shape of the hooded hooks, tridentate in Langerhans' material against bidentate in Claparède's one (considering however that probably Claparède didn't notice the more apical third tooth), by the difference in the starting chaetiger of the neuropodial hooks, and by the presence of 4 anal cirri in *M. atlantica* against only 2 in *M. mecznicowiana*. These same differences were also considered by GIORDANELLA (1969) in order to separate the two species. Later MESNIL (1925) separated both species considering that *M. atlantica* was 10 mm long, with 28-32 chaetigers, and with neuropodial hooks starting in chaetiger 9, while *M. mecznicowiana* was 16-20 mm long (up to 25 mm), with 43-48 chaetigers, and with neuropodial hooks starting at chaetiger 11, following CERRUTI (1907).

On the other hand, SÖDERSTRÖM (1920) considered these differences as minor and regarded both species as being synonymous, included a specimen collected in Japan in the species, and considered *Microspio mecznicowiana* as having neuropodial hooks starting at chaetigers 8-10. FAUVEL (1927*a*) also considered both species as synonymous, with neuropodial hooks from chaetigers 8-10, apparently presenting a description that was a mixture between the available descriptions of both species.

HANNERZ (1956) identified as *M. atlantica* a series of larvae collected in the Gullmar Fjord (Sweden), with base on the absence of branchiae in the first chaetiger, and the presence of neuropodial tridentate hooded hooks from chaetigers 8-9 onwards. He justified his identification stating that "*Mesnil (1896*[a: 90]*) formed the genus* Microspio *for* Spio atlanticus *Langerhans and* Spio mecznicowianus *Claparède. He pointed out that the first-mentioned species had ventral crochets from segment 9 and the latter from segment 11 onwards.*"

With base on the works by Cerruti and Mesnil, the two species started being separated by the presence on the neuropodial hooks from chaetiger 9 (*M. atlantica*) against 11 (*M. mecznicowiana*). While MACIOLEK (1990) and KIRKEGAARD (1996) followed the distinction proposed by HANNERZ (1956), HARTMANN-SCHRÖDER (1996) used a wider distribution of the neuropodial hooks in *M. mecznicowiana*, considering them to be present from chaetiger 8-11. Part of this confusion concerning the starting chaetiger of neurohooks in *M. mecznicowiana* is probably due to the misidentification of specimens of *Spio decoratus*, with neuropodial hooks starting at chaetiger 11, as *M. mecznicowiana*.

In the meantime FEBVRE (1969) studied specimens of *M. mecznicowiana* from the Étang de Berre (Mediterranean coast of France), determining that they had notopodial lamellae and tridentate hooks from chaetiger 9 (as *M. atlantica*), but pygidium possessing only two foleaceous papillae, instead of the 4 anal cirri described for the species from Madeira.

This way, the two species of *Microspio* are here considered to be very close (probably synonymous), but being separated mainly by the different number of the anal cirri.

SIKORSKI (2001) considered *Microspio* to be a junior synonym of *Spio*, and considered also both *Microspio arctica* Söderström 1920, and *Microspio armata* Thulin 1957 as valid species. Sikorski's conclusions are interesting and deserve a deeper analysis, but for the moment will not be considered here.

**KEY TO SPECIES:**

**1b.** Neuropodial hooks from chaetiger 8-9; one pair of anal cirri.....***M. mecznikowiana***
**1a.** Neuropodial hooks from chaetiger 9; two pairs of anal cirri.....***M. atlantica***

## *Microspio atlantica* (Langerhans 1880)

*Spio atlanticus* LANGERHANS, 1880*b*: 89-90, pl. 4 fig. 2.

**TYPE LOCALITY:** Madeira Island, collected on a fish basket.

**SELECTED REFERENCES:** *Microspio atlantica* — MESNIL, 1896*a*: 174-175, text-fig. page 174; HANNERZ, 1956: 85-90, figs. 29*c*, 30-31; MACIOLEK, 1990: tables 1, 3. *Microspio atlanticus* — GIORDANELLA, 1969: 328.

**DISTRIBUTION:** Madeira Island; Skagerrak.

## *Microspio mecznikowiana* (Claparède 1869)

*Spio Mecznikowianus* CLAPARÈDE, 1869: 64-65, pl. 23 fig. 2.

**TYPE LOCALITY:** Gulf of Naples (Italy).

**SELECTED REFERENCES:** *Spio mecznikowianus* — HARTMANN-SCHRÖDER, 1971*a*: 299-301 [in part; in part = *Microspio atlantica* (Langerhans 1880)]. *Microspio Mecznikowianus* — FAUVEL, 1927*a*: 42-43, fig. 14*k-o* [in part; in part *Microspio atlantica* (Langerhans 1880)]. *Microspio mecznikowianus* — SÖDERSTRÖM, 1920: 248-249; FEBVRE, 1969: 321, fig. 1; GIORDANELLA, 1969: 327-328; HARTMANN-SCHRÖDER, 1996: 309-310 [in part; in part *Microspio atlantica* (Langerhans 1880)]; KIRKEGAARD, 1996: 62-63, fig. 26. *Microspio mecznikowiana* — MACIOLEK, 1990: tables 1, 3. *Microspio meznikowianus* — DAUVIN, 1986: 244-245.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Microspio mecznikowianus*; previous records: Sines; Sado Estuary; Ria de Aveiro); PARDAL, CALDEIRA & MARQUES, 1992 (as *Microspio mecznicowianus*; previous records: Lagoon of Óbidos; Lagoon of Albufeira; Lagoon of Santo André); SPRUNG, 1994 (as *Microspio meczknikowianus*; Ria Formosa); AMARAL & COSTA, 1999 (as *Microspio mecznicowianus*; Sado Estuary); MUCHA & COSTA, 1999 (as *Microspio mecznicowianus*; Ria de Aveiro and/or Sado Estuary).

**DISTRIBUTION:** North Pacific; North Atlantic; North Sea; Skagerrak; English Channel to Madeira; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea. In sand and mixed bottoms. Shallow water.

## *GENUS ***Paraprionospio*** Caullery 1914

*Paraprionospio* CAULLERY, 1914*b*: 358-359.

**TYPE SPECIES:** *Prionospio pinnata* Ehlers 1901.

**REMARKS:** The genus *Paraprionospio* was recently revised by YOKOYAMA (2007), with base on type and new material, establishing the number of valid species in the genus as nine. However, this number will surely be increased in the near future, as new species remain to be described. This could be the case of the South European specimens, now identified as *Paraprionospio coora* (see below).

In order to discriminate between the different species, YOKOYAMA (2007) used characters such as the relative length of the branchiae, shape of the branchial lamellae (bifoliate *versus* flabellate), shape of the neuropodial capillaries on chaetiger 9 (short and limbate *versus* long and non-limbate), presence or absence of transverse ridges between branchial bases (1 *versus* 1-3), presence or absence of membranous dorsal crests and on which chaetigers, number of anal cirri (1 *versus* 3), presence or absence of processes on the anterior face of the first branchia, presence or absence of a ventral bilobed flap on chaetiger 8, presence or absence of filaments on dorsum of chaetiger 3, presence or absence of a small papilla on the posterior margin of peristomium, presence or absence of conic processes in the basal region of the first branchia, presence or absence of semi-transparent dorsal cuticle and on which chaetigers, or first appearance of notohooks, neurohooks, and sabre chaetae.

Besides, YOKOYAMA (2007) also highlighted four points that should be kept in mind when identifying *Paraprionospio* species: (1) the shape of branchial lamellae changes gradually along the shaft, for which reason the lamellae should be observed in the middle or distal regions of the branchial shaft, taking into account that it may appear variable when viewed from a different angle; (2) the semi-transparent dorsal cuticle is readily exfoliated, and can be exfoliated completely, in which case it can not be observed, and if exfoliated only in the anterior margin, may resemble a membranous dorsal crest; (3) the notopodial and neuropodial postchaetal lamellae vary their shape progressively along chaetigers, and therefore their shape is difficult to describe objectively using terms as "ovate", "rounded", "cordate", "triangular" and "lanceolate", and should be depicted instead; (4) the presence or absence of pigment patches and interparapodial pouches are not always consistent within a species, and while the first can also fade in preserved specimens, the second could appear only at adult stages in some species.

**KEY TO SPECIES:**

**1a.** All branchiae of approximately equal length, or first pair slightly larger, and third pair slightly smaller.....**2**

**1b.** Lenght of branchiae clearly decreasing from the first to the third pair.....***P. coora***

**2a (1a).** Filament on dorsum of chaetiger 3 present; lamella of branchiae bifoliate; transverse ridge between branchial bases on chaetigers 1-3; neuropodial capillaries on chaetiger 9 short, limbate; dorsal crests on chaetigers 21-36; semi-transparent dorsal cuticle on chaetigers 21-36.....***P. africana***

**2b (1a).** Filament on dorsum of chaetiger 3 absent; lamella of branchiae flabellate; transverse ridge between branchial bases only on chaetiger 1; neuropodial capillaries on chaetiger 9 long, non-limbate; dorsal crests absent; semi-transparent dorsal cuticle on chaetigers 21-26.....***P. pinnata***

## ***Paraprionospio africana*** (Augener 1918)

*Prionospio africana* AUGENER, 1918: 402-405, text-fig. 51, pl. 6 figs. 162-163.

**TYPE LOCALITY:** Drewin, Ivory Coast; Ouidah (= Whydah), Benin; Lagos, Nigeria; Cape Lopez and Nyanga River, Gabon; Lândana, Cabinda.

**SELECTED REFERENCES:** *Paraprionospio africana* — YOKOYAMA, 2007: 256-257, fig. 1, table 3.

**DISTRIBUTION:** West coast of Africa, between 3-33 meters.

**REMARKS:** As it is not clear where is located the limit between the South European population of *Paraprionospio coora* (see below) and the West African *P. africana*, it was decided to include this last species here.

## ****Paraprionospio coora*** Wilson 1990

*Paraprionospio coora* WILSON, 1990: 266-268, figs. 75-83.

**TYPE LOCALITY:** Australia, Central Bass Strait, 90 Km north of Wynyard, 40º10.9'S, 145º44.3'E, 75 meters, in sand-silt-clay.

**SELECTED REFERENCES:** *Paraprionospio coora* — YOKOYAMA, 2007: 264, fig. 8; ZHOU, YOKOYAMA & LI, 2008: 309-311, fig. 1; YOKOYAMA & CHOI, 2010: 56-58, figs. 1-2; YOKOYAMA, DAĞLI & ÇINAR,

2010: 134-139, figs. 2-3. *Paraprionospio* sp. Form CI — YOKOYAMA & TAMAI, 1981: 311-313, fig. 5, table 1. *Prionospio pinnata* [not Ehlers 1901] — FAUVEL, 1936*c*: 60-61; BELLAN, 1964*b*: 112-113; GUILLE & LAUBIER, 1966: 272; RULLIER & AMOUREUX, 1969: 398; AMOUREUX, 1971*c*: 202; AMOUREUX, 1972*a*: 62; AMOUREUX, 1973*c*: 666; DESBRUYÈRES, GUILLE & RAMOS, 1974: 362; Blake & Kudenov, 1978: 209-210; CAMPOY, 1982: 705; CANTONE & FASSARI, 1982: 232. *Paraprionospio pinnata* [not *Prionospio pinnata* Ehlers 1901] — REDONDO & SAN MARTÍN, 1997: 227. *Prionospio steenstrupi* [not Malmgren 1867] — BELLAN, 1963: 52.

**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 116 (A.3043)**, off Praia de Almograve, 135 m, muddy sand: 1 specimen; in alcohol, tan colored, without special spots or patterns; specimen in poor condition, incomplete, with only one branchia left, on chaetiger 3; body widest on first 8 chaetigers; gizzard visible internally, from about chaetiger 4 to 8; sabre chaetae and neurohooks from chaetiger 9; hooks with 3 pairs of apical teeth over main fang, internal hood striated, outer hood inflated; notohooks not seen; chaetigers 10-16 with dorsal glandular fields; dorsal crests on chaetigers 21-28 if present, not seen, due to the poor condition of the specimen. **St. 127 (A.3054)**, off Praia de Almograve, 113 m, sandy mud: 1 specimen looking like having been dried; complete but broken in 2 pieces; anterior piece with 46 chaetigers, posterior piece with 43 chaetigers; all branchiae present, 3 pairs, from the 1st chaetiger; palps present; internal gizzard not visible; chaetigers 10-16 with dorsal glandular fields; dorsal crests not observed (maybe due to the poor condition of the specimen); sabre chaetae and neurohooks from chaetiger 9; notohooks from about chaetiger 36/37. **St. 151 (A.3079)**, off Praia de Almograve, 89 m, sandy mud: 1 specimen, without color markings; eyes not seen; only third pair of branchiae present; first two pairs have been lost, but it is possible to see the scars; gizzard visible internally, from chaetiger 6 to 9; chaetiger 1 with prominent dorsal crest or sheath connecting the base of first pair of branchiae; chaetiger 13 to 17 with dorsal glandular fields, with that of chaetiger 13 large and expanded; membranous dorsal crests not noticed; ventral crests absent; sabre chaetae and neurohooks from chaetiger 9, neurohooks in rows of 12-13 hooks; notohooks from chaetiger 36; also a fragment with 14 chaetigers. **St. 246 (A.3150)**, off Praia do Malhão, 138 m, muddy sand: 1 specimen in poor condition, incomplete, with 28 chaetigers and only one branchia left, in chaetiger 3; plus one middle fragment with 49 chaetigers, almost breaking in 2 pieces, with notohooks starting at chaetiger 21 of the fragment, and one posterior fragment with 7 chaetigers and pygidium, with one median cirrus. **SEPLAT 7 (2nd part) — St. 38 (A.4069)**, north Sines, 120 m, sand with shells: 2 specimens; internal gizzard in chaetigers 6-9; chaetigers 12-16 with dorsal glandular fields; chaetiger 13 more expanded; sabre chaetae and neurohooks from chaetiger 9; papilla on the base of the 3rd branchia visible on the 1st specimen; (1) only with 3rd pair of branchiae present; (2) all branchiae present, except for the left one of the 1st chaetiger; they have different sizes, being the 1st pair the longest and the 3rd the smallest. **St. 51 (A.4056)**, north Sines, 125 m, sand: 1 specimen; only 3rd pair of branchiae present; dark spot of brown pigment in notch at posterior border of peristomial wings; papillae at the base of the third pair of branchiae visible. **St. 242 (A.3884)**, off Vila Nova de Milfontes, 113 m, sandy mud: 1 specimen with a dried appearance, in poor condition, plus one middle fragment with 20 chaetigers, and one posterior fragment with 47 chaetigers; sabre chaetae and neurohooks from chaetiger 9; internal gizzard present in chaetigers 6-9; glandular fields can be perceived; at least 2 branchiae still present.

**DISTRIBUTION:** Southwest Portugal; Atlantic coast of Morocco; Western Mediterranean Sea (Spain, France, Italy); Adriatic Sea; Aegean Sea; Sea of Marmara; Australia, from New South Wales to Tasmania; Yellow Sea; East China Sea; Western Japan, southern to 37ºN; Korea. In muddy and sandy bottoms. Between 6-135 meters. Some of the Korean records were collected in estuarine environments.

**REMARKS:** The South European population of *Paraprionospio* was identified as *P. coora* by YOKOYAMA, DAĞLI & ÇINAR (2010), with base on specimens collected in the Aegean and Marmara Sea, and in a single specimen from the Mediterranean coast of Spain. These authors found some slight differences between the Mediterranean specimens and the original description of *P. coora* by WILSON (1990), like having 2-3 pairs of apical teeth in neuropodial hooded hooks rather than only 2 pairs of apical teeth. However, this character was found to be subject to some variation within the Mediterranean population, and it was suggested that it is not a stable character to be used to separate species. Other difference found was the presence of interparapodial pouches in most specimens from Australia, and some specimens from Japan, China and Korea, while they are absent in the Mediterranean specimens. Though, the presence of interparapodial pouches is also considered to be an unstable character to be used to separate species, as according to YOKOYAMA, DAĞLI & ÇINAR (2010) their number can vary from zero to 30 even inside the same populations in Australia, Japan, China or Korea.

A detailed identification of the Portuguese *Paraprionospio* specimens, especially of the smaller details and structures, is still unsettled and requires the collection of material in better condition than the

present one. However, the present knowledge supports their identification as *P. coora* Wilson 1991. A short description of the available specimens is given here: colour in alcohol tan, without special spots or pigmentation patterns; eyes not seen; body widest in the first 8 chaetigers; three pairs of branchiae, in chaetigers 1-3, with the length of branchiae clearly decreasing from the first to the third pair; chaetiger 1 with a dorsal crest or sheath connecting the base of the first pair of branchiae; papillae at the base of the third pair of branchiae visible in some specimens; gizzard present internally from about chaetiger 4 to 8 (6-9); sabre chaetae and neuropodial hooded hooks from chaetiger 9; neuropodial hooks in rows of 12-13 hooks; notopodial hooks from about chaetiger 36-37; hooks with 3 pairs of apical teeth over main fang, internal hood striated, outer hood inflated; chaetigers 10-16 (12-16, 13-17) with dorsal glandular fields, sometimes with the first or second chaetiger more inflated; dorsal crests not seen; ventral crests absent.

*Paraprionospio coora* presents today a disjunct distribution, being present in South Australia, from where it was originally described, in the region comprising China, Korea and Japan, and finally in the Mediterranean Sea and nearby Atlantic (South Portugal and Morocco). YOKOYAMA, DAĞLI & ÇINAR (2010) suggested that the present distribution of *P. coora* could be due to the introduction of the species via ballast waters of ships or through the commercial exploitation of foreign molluscs in coastal waters, stating that *P. coora* could be considered as an alien species. This status of alien species was not based on any scientific data, only on the disjunct distribution of the species.

However, it must be emphasized that there is no scientific evidence at all that the species identified from the European waters as *Paraprionospio coora* has been introduced in the Mediterranean Sea through ballast waters of ships or in any other way. Such assertion is purely speculative and there is no data supporting it, as recognized by YOKOYAMA, DAĞLI & ÇINAR (2010). The fouling, the Lessepsian migrations, or the ballast waters of ships have been commonly used to justify the presence of previously unknown species in some areas, like in the Mediterranean Sea, without any scientific data availing such statements.

Apparently, it is suggested that the species could have been introduced in the Mediterranean Sea only because it was first described from Australia, and previously recorded from Far East Asian waters. According to the same idea, had the species been described as new when first found in the Mediterranean Sea some decades ago (by BELLAN, 1964*b*), and now we could be talking about an invasive Mediterranean species in the Australian and Far East Asian waters. In this case, as in many other similar cases, the most likely explanation is the also the most simple one, and it could be that there is a *Paraprionospio* population established in the Mediterranean and nearby Atlantic waters for a long time.

Besides, the biggest part of the cases of "introduced", "foreign", or "invasive" spionid species in the world are confined to close or sheltered environments, like bays, harbors, or coastal lagoons, and not to such an extension of open water as in the present case, covering from the Eastern Mediterranean basin to the Atlantic coast of Morocco and southwestern Iberian Peninsula, according to the material here studied and bibliographical references (like FAUVEL, 1936*c*).

On the other hand, the record of *Paraprionospio pinnata* from the Red Sea by FAUVEL (1933*c*; as *Prionospio*) does not support necessarily the possibility that *P. coora* was introduced through the Suez Canal or by ballast waters. With the exception of some cases (Lessepsian migrants), the faunas of the Mediterranean and Red Seas are discontinuous, and the same can be true for the *Paraprionospio* species. Fauvel's 1933 record can be another misidentification case of *P. pinnata*, as the ones that preceded the descriptions of many new species of *Paraprionospio*, and the Red Sea material shoudl be revised, if still extant. FAUVEL (1936*c*) also recorded *Paraprionospio pinnata* (as *Prionospio*) from the Atlantic coast of Morocco, a record that is more likely to represent the same population or species that is present in South Portugal and the Western and Eastern Mediterranean Sea, than the record from the Red Sea. In the particular case of the Moroccan specimens, there is also the problem to know where is located the frontier between the South European and North African population of *P. coora* and the West African species *Paraprionospio africana* (Augener 1918), known to be present in tropical West African waters.

It is quite possible that *Paraprionospio coora* is suffering from the same problem than *P. pinnata* did before the establishment of the new morphological characters by YOKOYAMA & TAMAI (1981), in order to separate different morphotypes in the genus. As in many other cases of polychaetes with wide or discontinuous distribution ranges, it is possible that the actual known distribution of *P. coora* includes different sibling species that cannot be distinguished only by the morphological characters presently used. Probably it will be necessary to search for additional characters, maybe new morphological features or methyl green staining patterns, or to use morphometry, reproduction patterns, or molecular analysis (as suggested by YOKOYAMA, DAĞLI & ÇINAR, 2010), in order to recognize the presence of sibling species under the same specific name.

For the moment it is better to assume that our knowledge of species is limited, and to state that, according to the present data the Mediterranean specimens represent an additional population of *P. coora*

that cannot be separated from the Australian type population, than to try to explain its presence using unsupported speculative statements, like considering it as an introduced or alien species.

### ***Paraprionospio pinnata*** (Ehlers 1901)

*Prionospio pinnata* EHLERS, 1901*a*: 163-164.
**TYPE LOCALITY:** Talcahuano (Chile), 5 fathoms (9.1 meters).
**SELECTED REFERENCES:** *Paraprionospio pinnata* — FOSTER, 1971: 102-105, figs. 237-261 [in part]; WILSON, 1990: 268-270, figs. 84-93; [?] BLAKE, 1996*d*: 115-118, fig. 4.7; DELGADO-BLAS, 2004: table 1; YOKOYAMA, 2007: 276-279, figs. 16-18, table 3.
**DISTRIBUTION:** Chile, between 10-30 meters.
**REMARKS:** The name *Paraprionospio pinnata* has been used for a great number of populations, scattered all over the globe. As several different species are involved in that distribution, the references here given concern only the original population, located at Chile. All the other records require confirmation (WILSON, 1990).

## GENUS ***Polydora*** Bosc 1802

*Polydora* BOSC, 1802: 150.
**TYPE SPECIES:** *Polydora cornuta* Bosc 1802.
**SYNONYMS:** *Leucodore* Johnston 1838; *Leipoceras* Möbius 1874; *Protopolydora* Czerniavsky 1881.
**REMARKS:** The genus definition was emended by BLAKE (1996*d*).

#### KEY TO SPECIES:

**1a.** Major spines of chaetiger 5 with a well marked subterminal collar or flange surrounding the concave side, halfway around the circumference, which may appear as two large teeth in lateral view; occipital antenna absent; hooded hooks from chaetiger 7; branchiae from chaetiger 7; in tubes within sponges, attached to pilings, rocks, or calcareous algae.....**2**
**1b.** Major spines of chaetiger 5 falcate or straight, with or without accessory teeth, or lateral flanges, but without the collar described above.....**3**

**2a (1a).** Major spines of chaetiger 5 bifid, with two unequal teeth; last few chaetigers before pygidium with enlarged, yellow, recurved notohooks; eyes absent.....***P. colonia***
**2b (1a).** Major spines of chaetiger 5 not bifid; specialized posterior notochaetae absent; four, occasionally two eyes present, or eyes absent.....***P. spongicola***

**3a (1b).** Posterior parapodia with 1-2 hook-shaped or curved notopodial spines; major spines with bilimbate or lancet-shaped companion chaetae.....**4**
**3b (1b).** Posterior parapodia with capillary chaetae, hook-shaped chaetae absent.....**5**

**4a (3a).** Major spines of chaetiger 5 with a subterminal lateral curved flange, resembling a tooth; prostomium with occipital antennae present; prostomium more or less notched anteriorly; hooded hooks from chaetiger 7, without a brown band at the neck; branchiae from chaetiger 7; posterior notopodial spines in the last 10-20 chaetigers; borer in calcareous substrate.....***P. hoplura***
**4b (3a).** Major spines of chaetiger 5 without a lateral curved flange or secondary tooth, being falcate and pointed; occipital antenna absent or not described; prostomium rounded anteriorly; hooded hooks from chaetiger 7, with a brown band at the neck; branchiae from chaetiger 7, vestigial in chaetiger 7, fully developed at chaetiger 8; posterior notopodial spines in the last 30 chaetigers; borer in calcareous substrate.....***P. posthamata***

**5a (3b).** Occipital antennae present; major spines of chaetiger 5 falcate, with small accessory tooth on the concave side; major spines with companion chaetae with brushlike bifurcate tips; chaetiger 5 with neuropodial capillary chaetae absent; hooded hooks from chaetiger 7; branchiae from chaetiger 7; inhabits soft sediments.....***P. cornuta***
**5b (3b).** Occipital antennae absent.....**6**

**6a (5b).** Chaetiger 5 with simple, thin capillary chaetae next to the major spines; dark pigment on prostomium and anterior segments; modified spines of chaetiger 5 with small, triangular lateral tooth; hooded hooks from chaetiger 7; branchiae from chaetiger 7; forms dense populations on mud flats or beneath boats and piers.....***P. limicola***
**6b (5b).** Chaetiger 5 with lancet-shaped chaetae next to the major spines; dark pigment on prostomium and anterior segments may be present or absent.....**7**

**7a (6b).** Post-chaetal lobes of the first chaetiger clearly longer than the subsequent ones; hermaphroditic; viviparous; modified spines of chaetiger 5 with a small secondary tooth; hooded hooks from chaetiger 7; branchiae from chaetiger 7; habitat unknown.....***P. hermaphroditica***
**7b (6b).** Dorsal post-chaetal lobes of the first chaetiger not longer than the subsequent ones; dioecious; oviparous.....**8**

**8a (7b).** Palps ringed with black bands; modified spines of chaetiger 5 with small lateral accessory tooth; hooded hooks from chaetiger 7; branchiae from chaetiger 7; dark pigmentation often present on dorsal sides of peristomium, small individuals often with remains of larval pigmentation on anterior segments, body pigmentation absent in large individuals (Taiwan population); inhabits mud tubes.....***P. agassizi***
**8b (7b).** Palps without black bands.....**9**

**9a (8b).** Inhabits muddy bottoms; modified spines of chaetiger 5 with a distinct lateral tooth; hooded hooks from chaetiger 7; branchiae from chaetiger 7; dark pigmentation present on dorsal sides of peristomium, in the anterior region of the body, especially in the first four chaetigers, and pygidium.....***P. ciliata***
**9b (8b).** Borer in calcareous substrates; modified spines of chaetiger 5 falcate, with lateral tooth occasionally resembling a lateral flange or sheath, arranged in a slightly curved diagonal to horizontal row; hooded hooks from chaetiger 7; branchiae from chaetiger 7; pigmentation absent or dark pigment diffused on 2-4 anterior chaetigers, up to 15 posterior chaetigers and on distal parts of palps in live worms (Sea of Japan population).....***P. calcarea***

## ***Polydora agassizii*** Claparède 1869

*Polydora Agassizii* CLAPARÈDE, 1869: 54-58, pl. 22 fig. 1.
**TYPE LOCALITY:** Naples Harbor (Italy), in black mud.
**SYNONYMS:** [?] *Leucodore ciliata minuta* Grube 1855.
**SELECTED REFERENCES:** *Polydora agassizii* — RADASHEVSKY & HSIEH, 2000*a*: 204-205, table 1. [?] *Polydora* cf. *agassizii* — RADASHEVSKY & HSIEH, 2000*a*: 204-205, fig. 2. *Polydora ciliata* [not Johnston 1838] — CARAZZI, 1893: 17-20, figs. 4-5 [in part]; LO BIANCO, 1893: 28-29; [?] OKUDA, 1937*b*: 230, fig. 9. [?] *Leucodore ciliata minuta* — GRUBE, 1855: 107-108.
**DISTRIBUTION:** Naples; [?] Kinmen Islands (China); [?] Japan. In muddy tubes in soft bottoms. Shallow water.
**REMARKS:** According to RADASHEVSKY & HSIEH (2000*a*), *Polydora agassizii* is a valid species. It was first described from the Gulf of Naples, as a common inhabitant of mud tubes in soft bottoms, and as presenting yellow regular bands on the palps. Later, specimens from the same locality were described by CARAZZI (1893) as being identical with *P. agassizi*, with black pigmentation on both palp and body. Carazzi synonymized *P. agassizi* with *P. ciliata* (Johnston 1838), erroneously according to RADASHEVSKY & HSIEH (2000*a*), as *P. ciliata* has never been described as having palps with black bands. In fact, according to the same authors, no *Polydora* species with banded palps has subsequently been reported from the Mediterranean Sea or from off the European coastline since the 19th century.

RADASHEVSKY & HSIEH (2000*a*) referred to *Polydora* cf. *agassizii* specimens from Kinmen Islands (China). These specimens fit most of the morphological characters provided by CLAPARÈDE (1869) or CARAZZI (1893) for the Italian specimens, but they differ in being smaller (6.6 mm long and 0.4 mm wide for 65 segments, instead of 30 mm long and 1 mm wide for 160 segments), in having smaller numbers of hooded hooks and major spines (usually associated with the size of the worm), and in lacking black bands along the lateral sides of the anterior part of the prostomium and at the sides of the mouth, present in the Mediterranean population. Due to these morphological differences and the great geographical separation between the two populations, RADASHEVSKY & HSIEH (2000*a*) identified the specimens from Kinmen Islands as *P.* cf. *agassizii*, pending a final identification on the availability of more information about the Mediterranean population.

The specimen identified by OKUDA (1937*b*) as belonging to *Polydora ciliata* is here also tentatively attributed to *P. agassizi*, due to the presence of palps crossed with brown bands.

## ***Polydora calcarea*** (Templeton 1836)

*Spìo calcàrea* TEMPLETON, 1836: 234, fig. 27.

**TYPE LOCALITY:** Whitehead, Belfast Lough (inlet of the North Channel of the Irish Sea), in the pools of the rocks, perforating limestone rocks.

**SYNONYMS:** *Leucodore audax* Quatrefages 1866; *Leucodore Fabricii* Quatrefages 1866.

**SELECTED REFERENCES:** *Polydora calcarea* — LANKESTER, 1868: 238; RADASHEVSKY & PANKOVA, 2006: 247-249, figs. 1-3. *Leucodore ciliata* [not Johnston 1838] — MCINTOSH, 1868: 276-294 [in part], pl. 18 figs. 1-6, pl. 19 figs. 1-3. *Polydora ciliata* [not Johnston 1838] — MCINTOSH, 1874*b*: 202; MCINTOSH, 1915*b*: 198-205 [in part], text-figs. 120-123, pl. 89 fig. 4, pl. 93 figs. 6-7, pl. 98 fig. 15, pl. 99 fig. 1, pl. 106 fig. 2; MESNIL, 1896*a*: 210-214 [in part], pl. 14 figs. 1-8, table in page 236; [?] ELIASON, 1920: 44-45; SÖDERSTRÖM, 1920: 45-55, 261-264, figs. 51-56, 112, 114*b*, 116, 169 [in part]; FAUVEL, 1927*a*: 49-50, fig. 16*i-p*; KORRINGA, 1951: 91-97, fig. 11*a*; FRANZÉN, 1956: 391-393, figs. 96-102, pl. 3 figs. 1-3; HANNERZ, 1956: 101-106, figs. 35-36 [in part]; E. RASMUSSEN, 1973: 104-111, figs. 33-36, tables 1-2 [in part; in part = *Polydora cornuta* Bosc 1802; in part = *Polydora ciliata* (Johnston 1838)]; FRANZÉN, 1974: 268-271, pl. 1 fig. 1, pl. 3 figs. 4-7; MICHAELIS, 1978: 105-107, 109-114, figs. 2, 4, 5*a-c*, tables 1-2; KIRKEGAARD, 1996: 67-69, fig. 29 [in part]. *Polydora (Polydora) ciliata* [not Johnston 1838] — GILLANDT, 1979: 46, pl. 2 figs. 3-5 [in part]; HARTMANN-SCHRÖDER, 1996: 314-315, fig. 142 [in part]. *Leucodore audax* — QUATREFAGES, 1866*b*: 298-299. *Leucodore Fabricii* — QUATREFAGES, 1866*b*: 300.

**DISTRIBUTION:** Northern Europe; Arctic; Northwest Pacific. Borer into calcareous algae, shells of barnacles and various gastropod and bivalve molluscs, soft and hard varieties of blue shale, or sandstone. Intertidal and subtidal.

**REMARKS:** The validity of *Polydora calcarea*, and its separation from the closely allied *Polydora ciliata*, is explained in detail by RADASHEVSKY & PANKOVA (2006). The species was described by TEMPLETON (1836) as being a borer into limestone rocks, at the coast of the Irish Sea. Two years later JOHNSTON (1838) described *Polydora ciliata*, which burrowed into fine soft mud deposited between crevices of rocks at the North Sea coast of England. LANKESTER (1868) noticed that in spite of the great morphological similarity between the two species, their habitat was different, considering both species as valid. However, MCINTOSH (1868) stated that he had found only one species of *Polydora* in the British waters, which bored in materials of different nature, and besides, that the habitat of a species was not a good character in order to separate different species. This way, MCINTOSH (1868, 1874*b*, 1915*b*) considered *P. ciliata* as a valid boring species, despite the name *P. calcarea* having priority. This concept was followed by most of the following authors, and *P. ciliata* has been reported all over the world as a borer, or as combining boring and tube-dwelling habitats (check RADASHEVSKY & PANKOVA, 2006, for references).

MUSTAQUIM (1986, 1988) studied the intraspecific variation of *P. ciliata* from England and Wales, using SEM for the morphological characters, and electrophoretic variation for isozymes. Mustaquim found evidence indicating the presence of two *Polydora ciliata* forms, one boring and the other non-boring, being separated by differences in the morphology of the chaetae of the fifth modified segment and in the caruncle, and also with respect to phosphoglucose isomerase, esterase and acid phosphatase loci. Mustaquim didn't distinguish the two forms taxonomically, but RADASHEVSKY & PANKOVA (2006), with base on Mustaquim's findings and also on the fact that north-western Pacific worms, similar to the European boring form of *P. ciliata*, did not switch or use both activities (all the recognized specimens were boring), distinguished boring and non-boring specimens as two different species, *P. calcarea* and *P. ciliata*, respectively. RADASHEVSKY & PANKOVA (2006) identified the population from the Sea of Japan as *P. calcarea*, due to its similarity with the European descriptions of the species, and also because it is the only boring species of the complex in expressing three gene loci (*Acp-1**, *2**, *3**) coding for acid phosphatase, showing variation at *Acp-1** locus and having invariable *Acp-2** and *Acp-3** loci.

## ***Polydora ciliata*** (Johnston 1838)

*Leucodore Ciliatus* JOHNSTON, 1838: 67-68.

**TYPE LOCALITY:** Berwick Bay (England, North Sea), between the seams of slaty rocks near the low-water mark, burrowing in the soft mud which lines the crevices.

**SELECTED REFERENCES:** *Polydora ciliata* — CARAZZI, 1893: 17-20, pl. 2 figs. 4-5, table in page 28; SAINT-JOSEPH, 1894: 62-65, pl. 3 figs. 71-73; MESNIL, 1896*a*: 210-221, table in page 236 [in part; in part and figures = *Polydora calcarea* (Templeton 1836)]; MCINTOSH, 1915*b*: 198-205 [in part];

SÖDERSTRÖM, 1920: 45-55, 261-264, figs. 51-56, 112, 114*b*, 116, 169 [in part]; KORRINGA, 1951: 91-97, fig. 11*a* [= *Polydora calcarea* (Templeton 1836)]; HANNERZ, 1956: 101-106, figs. 35-36 [in part; in part = *Polydora calcarea* (Templeton 1836)]; KENDALL, 1980: 406-410, figs. 1-2; RAMBERG & SCHRAM, 1983: 235-239, figs. 1-3, table 1; KIRKEGAARD, 1996: 67-69, fig. 29 [in part]. *Polydora (Polydora) ciliata* — GILLANDT, 1979: 46, pl. 2 figs. 3-5 [in part]; HARTMANN-SCHRÖDER, 1996: 314-315, fig. 142 [in part]. *Polydora ciliata/ Polydora ligni* — E. RASMUSSEN, 1973: 104-111, figs. 33-36, tables 1-2 [in part; in part = *Polydora corn*uta Bosc 1802; in part = Polydora calcarea (Templeton 1836)]. Not Polydora ciliata — FAUVEL, 1927*a*: 49-50, fig. 16*i-p* [= *Polydora calcarea* (Templeton 1836)].

**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Tagus Estuary; Peniche); CALVÁRIO, 1984 (Tagus Estuary); PINTO, 1984 (Sado Estuary); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); CANCELA DA FONSECA, COSTA & BERNARDO, 1989 (Lagoon of Santo André); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Ria Formosa; Ria de Alvor; Sines; Sado Estuary; Arrábida; Lagoon of Albufeira; Tagus Estuary; Lagoon of Óbidos); HARTMANN-SCHRÖDER, 1981 (as *Polydora (Polydora) ciliata*; western continental shelf of Algarve; Bay of Setúbal); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Mondego Estuary; Lagoon of Óbidos; Tagus Estuary; Lagoon of Albufeira; Lagoon of Santo André); PARDAL, MARQUES & BELLAN, 1993 (Mondego Estuary); PARDAL, MARQUES & BELLAN, 1994 (Mondego Estuary); SPRUNG, 1994 (Ria Formosa); AMARAL & COSTA, 1999 (Sado Estuary); MUCHA & COSTA, 1999 (Ria de Aveiro and/or Sado Estuary); CANCELA DA FONSECA *et al.*, 2006 (Aljezur).

**DISTRIBUTION:** Considered as being almost cosmopolitan. Indopacific; Japan; Red Sea; North Atlantic to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; English Channel; North Sea; Skagerrak; Kattegat; Öresund; Baltic Sea; Antarctic. It can be found in coralligenous bottoms, among rhizomes of algae and also on sandy and muddy bottoms, as a tube dweller. Eulittoral to about 300 meters.

**REMARKS:** RADASHEVSKY & PANKOVA (2006) removed *Leucodore audax* Quatrefages 1866 and *Leucodore Fabricii* Quatrefages 1866 from the synonymy with *Polydora ciliata* (Johnston 1838), considering them as junior synonyms of *P. calcarea* (Templeton 1836).

## ***Polydora colonia*** Moore 1907

*Polydora colonia* MOORE, 1907: 199-201, pl. 15, figs. 18-23.

**TYPE LOCALITY:** In the interstices of tunicates and sponges on wharf piles in the harbor of Vineyard Haven (Massachusetts, U.S.A.)

**SYNONYMS:** *Polydora hoplura inhaca* Day 1957; *Polydora ancistrata* Jones 1962.

**SELECTED REFERENCES:** *Polydora colonia* — HARTMAN, 1945: 32-33; USCHAKOV, 1955*a*: 274, fig. 94*G-J*; BLAKE, 1971: 15-17, fig. 10, table 1; BLAKE, 1983: 253-255; AGUIRRE, SAN MARTÍN & BARATECH, 1986: 375-377, fig. 1. *Polydora hoplura inhaca* — DAY, 1957: 99, fig. 6*k-l*; DAY, 1967: 468, fig. 18.2.*n*. *Polydora ancistrata* — JONES, 1962: 185-187, figs. 55-65.

**DISTRIBUTION:** Massachusetts to North Carolina (U.S.A.); Jamaica; South Africa; northwest Pacific; Mediterranean coast of Spain (Playa Torrecilla, Nerja, Málaga). Attached to pilings and rocks in areas of water movements, and among calcareous algae. Shallow water.

**REMARKS:** AGUIRRE, SAN MARTÍN & BARATECH (1986) refer that the identified specimens from Málaga, in the Mediterranean Sea, presented longer palps and neurohooks with bigger hoods in relation to the ones described from other regions. These differences were considered to be insufficient in order to erect a new taxon.

## ***Polydora cornuta*** Bosc 1802

*Polydora cornuta* BOSC, 1802: 150-153, pl. 5 figs. 7-8.

**TYPE LOCALITY:** Charleston Harbor, South Carolina (U.S.A.), intertidal, in rocks, decaying wood and shells. A neotype was designated by BLAKE & MACIOLEK (1987), from Charleston Harbor (South Carolina, U.S.A.), intertidal, along shore in front of Grice Marine Laboratory, from decaying wood infested with *Teredo*, among rocks with oysters.

**SYNONYMS:** *Polydora ligni* Webster 1879; *Polydora littorea* Verrill 1881 [*nomen nudum*]; *Polydora amarincola* Hartman 1936.

**SELECTED REFERENCES:** *Polydora cornuta* — SÖDERSTRÖM, 1920: 254; BLAKE & MACIOLEK, 1987: 12-14, fig. 1; TENA *et al.*, 1991: 32-34, fig. 3; BLAKE, 1996*d*: 171, fig. 4.28*H*; RADASHEVSKY & HSIEH, 2000*a*: 205-208, fig. 3, table 2; SATO-OKOSHI, 2000: 445, appendixes 1-2; ÇINAR *et al.*, 2005: 824-826, figs. 3-4. *Polydora (Polydora) cornuta* — HARTMANN-SCHRÖDER, 1996: 315-317, fig. 143. *Polydora ligni* — WEBSTER, 1879*b*: 119, pl. 5 figs. 45-47; MESNIL, 1896*a*: table in page 236; SÖDERSTRÖM, 1920: 55-65, 265-267, figs. 57-60, 111, 115, 124, 170-174; BERKELEY & BERKELEY, 1936: 471-472;

FRIEDRICH, 1937: 345-347, figs. 5-6; HARTMAN, 1941: 309-310, figs. 47-49, chart in page 307; BERKELEY & BERKELEY, 1952: 19, figs. 31-33; HANNERZ, 1956: 106-111, figs. 37-38; BLAKE, 1969*b*: 4-10, figs. 1-4, 39*C*, 40*F*; HARTMAN, 1969: 137-138, figs. 1-6; BLAKE, 1971: 5-6, figs. 1-2, table 1; FOSTER, 1971: 22-24, figs. 13-21; ORENSANZ & ESTIVARIZ, 1971: 104-105, figs. 35-37; LIGHT, 1978: 175-178, fig. 176, table 8, pictorial key in page 168; MICHAELIS, 1978: 107-109, 114, figs. 3, 5*d*; RICE & SIMON, 1980: 84-110, figs. 2-22, tables 4-14; BLAKE, 1983: 255-256; RAMBERG & SCHRAM, 1983: 240-242, figs. 4-5, table 1; HUTCHINGS & TURVEY, 1984: 15; KIRKEGAARD, 1996: 69-71, fig. 30. *Polydora (Polydora) ligni* — HARTMANN-SCHÖDER, 1971*a*: 311-312, fig. 105*d-f*; GILLANDT, 1979: 45-46, pl. 2 figs. 1-2. *Polydora littorea* — VERRILL, 1881: 301 [*nomen nudum*]; HARTMAN, 1944*e*: 336, 340, pl. 18 fig. 10, not pl. 18 fig. 9. *Polydora amarincola* — HARTMAN, 1936*b*: 49, figs. 6-10. *Polydora ciliata/Polydora ligni* — E. RASMUSSEN, 1973: 104-111, figs. 33-36, tables 1-2 [in part; in part = *Polydora calcarea* (Templeton 1836); in part = *Polydora ciliata* (Johnston 1838)]. *Polydora ciliatum* [not Johnston 1838] — AGASSIZ, 1867: 323-330, pls. 9-10; VERRILL, 1874*c*: 345-346, 603, pl. 14 fig. 78.

**REFERENCES FOR PORTUGAL:** PARDAL, CALDEIRA & MARQUES, 1992 (as *Polydora ligni*; previous records: Mondego Estuary).

**DISTRIBUTION:** East (New England to Florida) and west (Canada to Mexico) coasts of North America; Gulf of Mexico; Caribbean Sea; North Sea; Kattegat; Skagerrak; Baltic Sea; Mediterranean Sea (outer harbour of Valencia and Izmir Bay); Argentina; Australia; China; Japan. In clayed, muddy, sandy and mixed bottoms, on tunicates, shells (as commensal), wharfpilings and in crevices. Eulittoral to about 50 meters.

## ***Polydora hermaphroditica*** Hannerz 1956

*Polydora hermaphroditica* HANNERZ, 1956: 111-117, fig. 39.

**TYPE LOCALITY:** In the plankton of Gullmar Fjord (Sweden, Skagerrak), from the end of July until the beginning of December.

**SELECTED REFERENCES:** *Polydora hermaphroditica* — KIRKEGAARD, 1996: 73-75, fig. 32. *Polydora (Polydora) hermaphroditica* — HARTMANN-SCHRÖDER, 1996: 318. *Polydora A* — GRAVELY, 1909: 48-50, pl. 2 figs. 28-30.

**DISTRIBUTION:** Northeast Atlantic (Great Britain, Faroes, Lofoten); Skagerrak; [?] Mediterranean Sea.

## ***Polydora hoplura*** Claparède 1869

*Polydora hoplura* CLAPARÈDE, 1869: 58-59, pl. 22 fig. 2.

**TYPE LOCALITY:** Gulf of Naples, boring in shells of balanids.

**SELECTED REFERENCES:** *Polydora hoplura* — CARAZZI, 1893: 20-21, pl. 2 figs. 6-7, table in page 28; LO BIANCO, 1893: 30; SAINT-JOSEPH, 1894: 65; MESNIL, 1896*a*: table in page 236; MCINTOSH, 1909: 173; MCINTOSH, 1915*b*: 212-213, pl. 101 fig. 10, pl. 106 fig. 6; FAUVEL, 1927*a*: 50, fig. 17*a-g*; KORRINGA, 1951: 97-101, pl. 11*b*; READ, 1975: 411-412, fig. 6; HUTCHINGS & TURVEY, 1984: 15. *Polydora (Polydora) hoplura* — HARTMANN-SCHRÖDER, 1996: 318.

**REFERENCES FOR PORTUGAL:** PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Peniche; Tagus Estuary; Lagoon of Santo André); AMOUREUX & CALVÁRIO, 1981 (Peniche); CASTRO & VIEGAS, 1981 (Tagus Estuary); CANCELA DA FONSECA, COSTA & BERNARDO, 1989 (Lagoon of Santo André).

**DISTRIBUTION:** North Atlantic to South Africa; Mediterranean Sea; Adriatic Sea; Aegean Sea; English Channel; southern North Sea; Persian Gulf; Australia; New Zealand. On shells of balanids and molluscs. Shallow water.

## ***Polydora limicola*** Annenkova 1934

*Polydora ciliata limicola* ANNENKOVA, 1934*b*: 325, fig. 5.

**TYPE LOCALITY:** Bering Island (The Commander Islands off Kamchatka, Bering Sea), forming dense populations at the surfaces of rocks on tidal flats, chiefly in sandy and muddy bottoms.

**SELECTED REFERENCES:** *Polydora limicola* — HARTMAN, 1961: 98-99; HARTMAN, 1969: 139, fig. 1; MANCHENKO & RADASHEVSKY, 1993: 543-547; BLAKE, 1996*d*: 173-174; KIRKEGAARD, 1996: 75-76, fig. 33. *Polydora (Polydora) limicola* — HARTMANN-SCHRÖDER, 1996: 318.

**DISTRIBUTION:** Arctic; North Pacific; California; Black Sea; English Channel. In the surface of rocks, tidal flats, and as a fouling organism on the bottom of ships. Intertidal to shallow water.

## ***Polydora posthamata*** Jones 1962

*Polydora posthamata* JONES, 1962: 186-187.

**TYPE LOCALITY:** Madeira Island, in calcareous rocks at the rochy shore, in an intertidal pool.

**SELECTED REFERENCES:** *Polydora hamata* [not Webster 1879; HOMONYM] — LANGERHANS, 1880*b*: 92-93, pl. 4 fig. 4.
**DISTRIBUTION:** Madeira Island.
**REMARKS:** *Polydora posthamata* is the new name given by JONES (1962) to *Polydora hamata* Langerhans 1880, from Madeira, as it was already preoccupied by *Polydora hamata* Webster 1879, from Virginia (east coast of USA), nowadays the type species of the genus *Boccardiella* Blake & Kudenov 1978.

The species is here maintained, with some doubts, under the genus *Polydora*. The hodded hooks are depicted as having a constriction and manubrium at the shaft, typical of the genus *Polydora*, but the description of the first chaetiger as "*Mundsegment mit kleinem dorsalen und ventralen Ruder*" seems to indicate that it had dorsal chaetae. Due to this fact, the species is also keyed under the genus *Dipolydora*, maintaining it, however, as *Polydora*.

### ***Polydora spongicola*** Berkeley & Berkeley 1950

*Polydora ciliata* var. *spongicola* BERKELEY & BERKELEY, 1950: 52-53, fig. 1.
**TYPE LOCALITY:** Nanaimo, British Columbia (Pacific coast of Canada), in frail, sandy tubes constructed in the canals of sponges encrusting rocks, at False Narrows reef, and shells of *Pecten hindsi*, dredged in Northumberland Channel.
**SYNONYMS:** *Polydora uschakovi* Buzhinskaja 1971.
**SELECTED REFERENCES:** *Polydora ciliata* var. *spongicola* — BERKELEY & BERKELEY, 1952: 20, fig. 35. *Polydora spongicola* — WOODWICK, 1963*b*: 212-215, fig. 2; HARTMAN, 1969: 149-150, 3 figs.; RADASHEVSKY, 1993: 21-23, fig. 10; BLAKE, 1996*d*: 181, fig. 4.28*F*; ARAVANITIDIS, 2000: 81. *Polydora uschakovi* — BUZHINSKAJA, 1971: 130-132, fig. 3; RADASHEVSKY, 1988: 870-876, figs. 1-4.
**DISTRIBUTION:** North American Pacific, from Canada to Mexico, intertidally and subtidally, in the sponge *Lyssodendoryx firma* (Lambe) and other unidentified sponges; Peter the Great Bay (Sea of Japan), between 0.5-25 meters, in sponges *Adocia cinerea* (Grant), *Halichondria panicea* (Pallas), and *Ophlithaspongia pennata* (Lambe); off Tanfiliyev Islands, Small Kurile Archipelago, at 7 meters, in a sponge *Myxilla incrustans* Johnston; Aegean Sea, in the canals of the sponges *Aplysina aerophoba* Schmidt and *Axinella canabina* (Esper), collected at 15 meters. On sponge canals.
**REMARKS:** ARVANITIDIS (2000) recorded *Polydora spongicola* in the Mediterranean for the first time.

## *GENUS ***Prionospio*** Malmgren 1867

*Prionospio* MALMGREN, 1867*a*: 93.
**TYPE SPECIES:** *Prionospio steenstrupi* Malmgren 1867.
**SYNONYMS:** *Ctenospio* M. Sars 1867; *Pteriptyches* Grube 1872; *Kinbergella* McIntosh 1909; *Anaspio* Chamberlin 1920; *Aquilaspio* Foster 1971; *Spiophanella* Fauchald & Hancock 1981.
**REMARKS:** The genus *Spiophanella* was created by FAUCHALD & HANCOCK (1981) to accommodate spionid species without branchiae and without enlarged, curved hooks in the first chaetigers, anterior parapodia with well developed noto- and neuropodial postchaetal lobes, median and posterior chaetigers with reduced lobes, notopodia with capillary chaetae only, and neuropodia in median and posterior chaetigers with hooded multidentate hooks. As genotype was designated the species *Spiophanes pallidus* Hartman 1960, and a second species, *Spiophanes anoculata* Hartman 1960, was also placed in the new genus. In her revision of the genus *Spiophanes*, MEIßNER (2005) redescribed and pictured *S. anoculata* Hartman 1960 as having 1-3 stout, crook-like chaetae in the first neuropodium, replacing the species in the genus *Spiophanes*. Besides, MEIßNER (2005) revised the type material of *Spiophanes pallidus* Hartman 1960, the genotype of *Spiophanella*, and identified it as *Prionospio* sp. This way, *Spiophanella* Fauchald & Hancock 1981 becomes a junior synonym of *Prionospio* Malmgren 1867.

The genus *Prionospio* was divided into five genera by FOSTER (1971): *Prionospio* Malmgren 1867 (type species *Prionospio steenstrupi* Malmgren 1867; branchiae from chaetiger 2, as a combination of pinnate and apinnate cirriform branchiae), *Paraprionospio* Caullery 1914 (type species *Prionospio pinnata* Ehlers 1901; 3 pairs of pinnate branchiae from chaetiger 1), *Apoprionopsio* Foster 1969 (type species *Apoprionospio dayi* Foster 1969; branchiae from chaetiger 2, with 4 pairs, the first 3 cirriform, and the fourth pinnate), *Minuspio* Foster 1971 (type species *Prionospio cirrifera* Wirén 1883; branchiae from chaetiger 2, 4-40 cirriform apinnate pairs), and *Aquilaspio* Foster 1971 (type species *Prionospio sexoculata* Augener 1918; branchiae from chaetiger 2, 2-4 pairs, all pinnate). BLAKE & KUDENOV (1978) used *Prionospio*, *Aquilaspio*, and *Minuspio* as subgenera of *Prionospio sensu lato*, considering

*Apoprionospio* as a synonymy of *Prionospio*, while LIGHT (1978) considered all other five genera as subgenera of *Prionospio sensu lato*. MACIOLEK (1985) revised the *Prionospio* complex, resurrecting the genus *Apoprionospio* for species with branchiae starting at chaetiger 2 with platelike pinnules in at least one of the pairs of branchiae, considering *Paraprionospio* as a valid separated genus, and maintaining the genus *Prionospio* divided in three subgenera: *Prionospio*, *Minuspio*, and *Aquilaspio*. This division was followed by most authors, while WILSON (1990) considered the division of *Prionospio* in three subgenera as artificial, and didn't use it. In spite of the obvious problems with this division of the genus, BLAKE (1996*d*: 114) decided to follow the division proposed by MACIOLEK (1985), stating that "*It is, at this time, convenient and fully workable to organise the numerous species of this complex into species groups within the subgeneric categories initially established by Foster (1971a) and subsequently modified and used by Maciolek (1985)*".

SIGVALDADÓTTIR (1998) performed a cladistic analysis of the *Prionospio* complex and related genera, using several species belonging to *Prionospio (Prionospio)* Malmgren 1867, *Prionospio (Minuspio)* Foster 1971, *Prionospio (Aquilaspio)* Foster 1971, *Apoprionospio* Foster 1969, *Aurospio* Maciolek 1981, *Paraprionospio* Caullery 1914, *Streblospio* Webster, *Laubieriellus* Maciolek 1981, and *Orthoprionospio* Blake & Kudenov 1978. As a result, the monophyly of the subgenera *Prionospio (Minuspio)* and *Prionospio (Aquilaspio)* was not supported and they were both synonymized with *Prionospio*. Besides, *Apoprionospio* could not be justified as a separate genus without making *Prionospio* paraphyletic, and was also synonymized with *Prionospio*.

Sigvaldadóttir's results will be followed here, and are applied in the following key and subsequent list of species. Though, some of the characters previously used in order to define the synonymized genera or subgenera will be used to discriminate between groups of species.

**KEY TO SPECIES:**

**NOT INCLUDED IN THE KEY:** *Prionospio decipiens* Söderström 1920.

**1a.** Branchiae either pinnate or both apinnate and pinnate; pinnules digitiform or platelike; 4 pairs of branchiae.....**2**
**1b.** All branchiae apinnate; normally more than 4 pairs of branchiae.....**11**

**2a (1a).** All branchiae pinnate.....***P. sexoculata***
**2b (1a).** Branchiae both apinnate and pinnate.....**3**

**3a (2b).** Branchiae with first 3 pairs apinnate and fourth pair with platelike pinnules.....***P. pygmaea***
**3b (2b).** Pinnate branchiae with digitiform pinnules, not platelike.....**4**

**4a (3b).** Pairs of branchiae 1 and 4 pinnate, pairs 2 and 3 apinnate.....**5**
**4b (3b).** Pinnate/apinnate pairs of branchiae in other combination.....**7**

**5a (4a).** All pinnate branchiae of similar length; chaetiger 7 with high dorsal crest (crests may be also present on other chaetigers); prostomium anteriorly truncate; neuropodial postchaetal lamellae of chaetiger 2 subtriangular, ventrally pointed; sabre chaetae from chaetiger 10.....**6**
**5b (4a).** Branchiae of pair 1 much larger and longer (more than twice) than the ones of pair 4; chaetiger 7 without high dorsal crest (dorsal crests absent); prostomium anteriorly rounded; neuropodial postchaetal lamellae of chaetiger 2 subrectangular, ventrally rounded; sabre chaetae from chaetiger 11-22; interparapodial pouches absent; neuropodial hooks from chaetiger 13-22; notopodial hooks from chaetiger 25-70; first pair of branchiae long, with dense posterior pinnules, fourth pair of branchiae short, with dense lateral pinnules only on outer margins.....***P. dubia****

**6a (5a).** Dorsal crests high, only on chaetiger 7; interparapodial pouches absent; notopodial prechaetal lamellae low, small in branchial region, inconspicuous thereafter; first and fourth pair of branchiae long, with sparse lateral pinnules; neuropodial hooks from chaetiger 10-13; notopodial hooks from chaetiger 18-45.....***P. fallax****
**6b (5a).** Dorsal crests low, on chaetigers 6 to 15-20; interparapodial pouches on chaetigers 4 to 9-13; notopodial prechaetal lamellae well-developed on anterior 20-25 chaetigers, particularly large and rounded in branchial region; first pair of branchiae long, with dense lateral and sparse posterior pinnules, fourth pair long, with dense lateral and posterior pinnules; neuropodial hooks from chaetiger 15-17; notopodial hooks from chaetiger 43-58.....***P. steenstrupi***

**7a (4b).** Three pairs of branchiae pinnate, one pair apinnate; pinnate branchiae pairs 1, 2 and 4, pair 3 apinnate.....**8**
**7b (4b).** One pair of branchiae pinnate, three pairs apinnate.....**9**

**8a (7a).** Branchiae 1, 2 and 4 all similar, elongated and with digitiform pinnules along 2/3 of the length; neuropodial hooks from chaetiger 13-14; data unknown concerning notopodial hooks and sabre chaetae.....***P. plumosa***
**8b (7a).** Branchiae 1 and 4 elongate, with pinnules on 2/3 of their length, pair 2 shorter, triangular, with pinnules limited to basal patch on anterior face; neuropodial hooks from chaetiger 12; notopodial hooks from chaetiger 26; sabre chaetae from chaetiger 10, numbering 1-3.....***P. tripinnata***

**9a (7b).** Branchiae 1 long, pinnate, branchiae 2-4 apinnate, being pairs 2-3 usually shorter and broader than pair 4; interparapodial pouches present.....**10**
**9b (7b).** Branchiae 4 long, pinnate, with pinnules lateral and posterior, on 2/3 of their length; branchiae 1-3 apinnate, short and cirriform; interparapodial pouches absent; dorsal crest on chaetiger 7; neuropodial hooks from chaetiger 18-19, bidentate; notopodial hooks from chaetiger 40; sabre chaetae from chaetiger 11, numbering 1-2.....***P. caspersi****

**10a (9a).** First pair of branchiae not united basally; interparapodial pouches from chaetiger 4, with first pair similar to the following ones; notopodial postchaetal lamellae around chaetiger 18-19 assuming a more angular or pointed form inferiorly; bundle of long capillaries accompanying sabre chaetae from chaetiger 16 or 17 absent; sabre chaetae from chaetiger 17-19, numbering 1-2, rarely 3 per ramus; neuropodial hooks from chaetiger 18-20 (same chaetiger or following chaetiger to introduction of sabre chaetae); notopodial hooks from chaetiger 25-32.....***P. ehlersi****
**10b (9a).** First pair of branchiae basally united; interparapodial pouches from chaetiger 2, with first pair of interparapodial pouches much larger than the others, being continued dorsally, forming almost complete sacs; notopodial postchaetal lamellae around chaetiger 20, evenly rounded and not angular inferiorly; several long capillaries present inferiorly for 6 or 7 chaetigers from chaetiger 16 or 17, near to sabre chaetae; sabre chaetae from chaetiger 20-21, numbering 1-2 per ramus; neuropodial hooks from chaetiger 20-21 (same chaetiger or preceding chaetiger, rarely following chaetiger, to introduction of sabre chaetae); notopodial hooks from chaetiger 49-64.....***P. saccifera***

**11a (1b).** Adults with 4-6 pairs of branchiae; neuropodial postchaetal lamellae of chaetiger 2 ventrally prolonged or rounded.....**12**
**11b (1b).** Adults normally with more than 8 pairs of branchiae; neuropodial postchaetal lamellae of chaetiger 2 ventrally not prolonged.....**13**

**12a (11a).** Four pairs of branchiae, being 1 and 4 wrinkled, and 2-3 subtriangular; chaetiger 3 with extremely long neuropodial capillaries; neuropodial postchaetal lamellae of chaetiger 2 ventrally rounded; neuropodial hooded hooks from chaetiger 12-13; starting of notopodial hooks unknown, but not present before chaetiger 30; sabre chaetae from chaetiger 12, numbering 0-1.....***P. fauchaldi***
**12b (11a).** Five or six pairs of branchiae, being the first one longer, and the rest subtriangular; extremely long neuropodial capillaries in chaetiger 3 absent; neuropodial postchaetal lamellae of chaetiger 2 ventrally prolonged; neuropodial hooded hooks from chaetiger 10-17 (size dependent); notopodial hooded hooks from chaetiger 18-44 (size dependent); sabre chaetae from chaetiger 10, numbering 1-2.....***P. cirrifera****

**13a (11b).** Anterior notopodial postchaetal lamellae forming a single lamellae enclosing the notochaetae; sabre chaetae with a small distal filiform projection; 15-16 pairs of branchiae; neuropodial hooded hooks from chaetiger 19-27; notopodial hooded hooks from chaetiger 25-46; sabre chaetae from chaetiger 12-20, numbering 1-2.....***P. unilamellata***
**13b (11b).** Anterior notopodial postchaetal lamellae not enclosing the notochaetae; sabre chaetae without a small distal filiform projection; 6-13 pairs of branchiae; neuropodial hooded hooks from chaetiger 12-18.....**14**

**14a (13b).** Branchiae 8-10 pairs, all extremely long and thin, and extending over 6-8 segments, with the first 1-4 pairs longer, and the last 2-3 shorter; neuropodial hooded hooks from chaetiger 15-18;

notopodial hooded hooks from chaetiger 28-31; sabre chaetae from chaetiger 11 (sometimes 12), numbering 1-2.....***P. pulchra***

**14b (13b).** Branchiae 6-13 pairs, slender but shorter, subequal throughout, extending over 2 segments; neuropodial hooded hooks from chaetiger 13-19 (size dependent); notopodial hooded hooks from chaetiger 20-52; sabre chaetae from chaetiger 12-17 (size dependent), numbering 1-2.....***P.* cf. *multibranchiata****

## ****Prionospio caspersi*** Laubier 1962

*Prionospio caspersi* LAUBIER, 1962*c*: 135-148, figs. 1-3.

**TYPE LOCALITY:** Canal Lido, between Venezia and Lido di Venezia (Italy, Adriatic Sea), between 3-4 meters.

**SELECTED REFERENCES:** *Prionospio caspersi* — GUÉRIN, 1970: 36-39, figs. *A-D*, table 1; BRITAYEV, CASTELLI & AKSIUK, 1991: 5-8, fig. 1. *Prionospio (Prionospio) caspersi* — IMAJIMA, 1990*c*: 111-114, figs. 4-5.

**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro); GIL & SARDÁ, 1999 (as *Prionospio (Prionospio) caspersi*; southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 186 (A.3925)**, south Sines, 27 m, muddy sand: 7 specimens, plus 2 fragments with 10 and 19 chaetigers; eyes not observed; (1) complete, 53 chaetigers, 4th pair of branchiae lost, total length 12.45 mm, neurohooks from chaetiger 18, notohooks from 33, width at chaetiger 10 of 312.5 µm; (2) complete, 56 chaetigers, all branchiae present, total length 10.85 mm, neurohooks from chaetiger 18, notohooks from 35, width at chaetiger 10 of 300 µm; (3) incomplete, 48 chaetigers, one branchia of 4th pair lost, neurohooks from chaetiger 18, notohooks from 36, width at chaetiger 10 of 325 µm; (4) complete, 58 chaetigers, one branchia of 4th pair lost, neurohooks from chaetiger 18, notohooks from 33, width at chaetiger 10 of 275 µm; (5) incomplete, 31 chaetigers, prostomium destroyed, one branchia left, neurohooks from chaetiger 19, notohooks from 30, width at chaetiger 10 of 275 µm; (6) complete, 58 chaetigers, 4th pair of branchiae lost, total length 14.25 mm, neurohooks from chaetiger 18, notohooks from 33, width at chaetiger 10 of 312.5 µm; (7) incomplete, 29 chaetigers, 4th pair of branchiae lost, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 287.5 µm. **St. 187 (A.3924)**, south Sines, 17 m, sand: 22 specimens, plus 22 middle fragments, and 10 posterior fragments with pygidia, with different numbers of chaetigers; eyes not visible; dorsal crest on chaetiger 7; sabre chaetae from chaetiger 11; (1) complete, almost breaking in 2, with 56 chaetigers, all branchiae present, neurohooks from chaetiger 17, notohooks from 27, width at chaetiger 10 of 275 µm; (2) complete, with 59 chaetigers, only 3 branchiae present, neurohooks from chaetiger 19, notohooks from 32, width at chaetiger 10 of 290 µm; (3) complete, with 58 chaetigers, 4th pair of branchiae missing, neurohooks from chaetiger 18, notohooks from 34, width at chaetiger 10 of 300 µm; (4) complete, with 55 chaetigers, 4th pair of branchiae missing, neurohooks from chaetiger 18, notohooks from 32, width at chaetiger 10 of 350 µm; (5) incomplete, with 34 chaetigers, only 3 branchiae present, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 400 µm; (6) incomplete, with 33 chaetigers, almost breaking in 2 pieces, one branchia of 1st pair missing, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 350 µm; (7) incomplete, with 38 chaetigers, all branchiae present, neurohooks from chaetiger 18, notohooks from chaetiger 36, width at chaetiger 10 of 275 µm; (8) incomplete, with 21 chaetigers, 4th pair of branchiae missing, neurohooks from chaetiger 18, no notohooks, width of chaetiger 10 of 350 µm; (9) incomplete, wit 22 chaetigers, one branchia of 4th pair lost, neurohooks from chaetiger 19, no notohooks, width at chaetiger 10 of 290 µm; (10) incomplete, with 27 chaetigers, one branchia of 4th pair lost, neurohooks from chaetiger 18, no notohooks, width of chaetiger 10 of 325 µm; (11) incomplete, with 29 chaetigers, almost breaking in 2 pieces, all branchiae present, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 325 µm; (12) incomplete, with 16 chaetigers, 4th pair of branchiae lost, no neurohooks or notohooks, width at chaetiger 10 of 300 µm; (13) incomplete, 35 chaetigers, 4th pair of branchiae lost, neurohooks from chaetiger 18, notohooks from 34, width at chaetiger 10 of 350 µm; (14) incomplete, 31 chaetigers, one branchia of 4th pair lost, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 312.5 µm; (15) incomplete, 33 chaetigers, almost breaking up in several pieces, 3rd and 4th pairs of branchiae lost, poor condition, neurohooks from chaetiger 18, notohooks from 33, width at chaetiger 10 of 312.5 µm; (16) incomplete, 21 chaetigers, 4th pair of branchiae lost, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 325 µm; (17) incomplete, 17 chaetigers, only 3 branchiae left, no neurohooks nor notohooks, width at chaetiger 10 of 312.5 µm; (18) incomplete, 16 chaetigers, 4th pair of branchiae lost, no neurohooks nor notohooks, width at chaetiger 10 of 337.5 µm; (19) incomplete, 16 chaetigers, 4th pair of branchiae lost, no neurohooks nor notohooks, width at chaetiger 10 of 325 µm; (20) incomplete, 25 chaetigers, one branchia of 4th pair lost, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 270 µm;

(21) incomplete, 46 chaetigers, all branchiae present, neurohooks from chaetiger 18, notohooks from 33, width at chaetiger 10 of 275 µm; (22) incomplete, 20 chaetigers, 4th pair of branchiae lost, neurohooks from chaetiger 18, no notohooks, width at chaetiger 10 of 275 µm. **St. 188 (A.3923)**, south Sines, 17 m. sand: 2 specimens, plus 2 middle fragments with 18 and 25 chaetigers, and 3 posterior fragments with pygidum, with 8, 14, and 22 chaetigers, two of which with 3 anal cirri, with the median one very long; (1) poor condition, incomplete, with 32 chaetigers, almost breaking in 3 pieces; without dark spot on chaetiger 2; width at chaetiger 10 of 425 µm; prostomium with slight medium protuberance; one branchia of 4th pair lost; dorsal crest on chaetiger 7; sabre chaetae from chaetiger 11; neurohooks from chaetiger 18; notohooks not observed; (2) poor condition, incomplete, with 30 chaetigers; without dark spot on chaetiger 2; prostomium as anterior one; width at chaetiger 10 of 575 µm; all branchiae present; sabre chaetae from chaetiger 11; neurohooks from chaetiger 19; notohooks not observed; eyes not seen in both specimens. **St. 189 (A.3922)**, south Sines, 29 m, muddy sand: 5 incomplete specimens, plus 4 fragments with 7, 10 (2) and 19 chaetigers; eyes not seen; ventral spot on chaetiger 2 present, but almost completely faded; dorsal crest on chaetiger 7; sabre chaetae from chaetiger 11; (1) 31 chaetigers, only 2 branchiae left (on chaetigers 3 and 4), width at chaetiger 10 of 275 µm, neurohooks from chaetiger 18, notohooks from 22; (2) poor condition, with 35 chaetigers, 4th pair of branchiae missing, neurohooks from chaetiger 18, notohooks from 34; (3) 19 chaetigers, all branchiae present, width at chaetiger 10 of 425 µm, neurohooks from chaetiger 18; (4) poor condition, with 21 chaetigers, one branchia from pairs 2 and 4 lost, width at chaetiger 10 of 350 µm, neurohooks from chaetiger 18. **St. 258 (A.3880)**, south Cape Sardão, 38 m, sand: 4 specimens, plus one middle fragment with 8 chaetigers, and 4 posterior fragments with pygidium (some with some cirri missing), with 27, 28, 29, and 30 chaetigers; (1) prostomium triangular, broadly flattened anteriorly, without a slight medial indentation, on the contrary, with a slight medial protuberance (maybe a sensitive organ); width at chaetiger 10 of 350 µm; dark transversal spot on the ventral part of the 2nd chaetiger, on the anterior border; 2 pairs of small eyes, arranged in a trapezium; branchiae present on chaetigers 2-5 (1st pair with one gill lost); pairs 1-3 apinnate, ciliated, 4th pair of branchiae in this specimen of the same length than the others, with one gill apinnate and the other pinnate; lamellae as described for the species, including the dorsal crest on chaetiger 7; sabre chaetae from chaetiger 11 (1-2); neuropodial hooks from chaetiger 18 (numbering up to 8); notopodial hooks from chaetiger 35 (numbering up to 6); hooks bidentate; (2) prostomium as anterior specimen; 1st and 4th pair of branchiae missing; dorsal crest on chaetiger 7 difficult to observe; sabre chaetae on chaetiger 11; neurohooks from chaetiger 19; ventral dark spot as described above; (3) ventral spot as described; 1 gill of 2nd and 4th pairs of branchiae lost; dorsal crest on 7th chaetiger difficult to observe; sabre chaetae on 11th chaetiger; neurohooks from chaetiger 18; width at chaetiger 10 of 350 µm; (4) ventral dark spot as described; width at chaetiger 10 of 450 µm; 4th pair of branchiae missing; sabre chaetae from chaetiger 11; neurohooks from chaetiger 19; dorsal crest on chaetiger 7.

**DISTRIBUTION:** Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea (Kapsel Bay, SE coast of Crimea); Portugal. On sandy and silty sands, at 9-29 meters. Japan, between 3-68 meters.

**REMARKS:** This is the first record of the species for the Atlantic Ocean. It can be distinguished by having the first 3 pairs of branchiae apinnate and the forth pinnate, bidentate hooded hooks and a dorsal crest on chaetiger 7.

## ****Prionospio cirrifera*** Wirén 1883

*Prionospio cirrifera* WIRÉN, 1883: 409.

**TYPE LOCALITY:** Kara Sea, 4º52'N, 85º8'E, at 11 meters.

**SYNONYMS:** *Prionospio (Minuspio) aluta* Maciolek 1985.

**SELECTED REFERENCES:** *Prionospio cirrifera* — AUGENER, 1913*a*: 178-181, pl. 5 figs. 15-16; SÖDERSTRÖM, 1920: 237-238, figs. 94, 134, 146-147; FAUVEL, 1927*a*: 62-63, fig. 21*k-n* [in part]; HANNERZ, 1956: 49-52, fig. 15; HARTMANN-SCHRÖDER, 1971*a*: 324-325 [in part]; GIANGRANDE & GAMBI, 1982: 12-16 [in part; specimens from Ischia Porto], fig. 1; KIRKEGAARD, 1996: 80-82, fig. 36; SIGVALDADÓTTIR, 2002: 211-213, figs. 1, 3-5. *Prionospio (Minuspio) cirrifera* — MACKIE, 1984: 36-40, figs. 1-2, 4, table 1; MACIOLEK, 1985: 352-356, fig. 10, tables 1-2; HARTMANN-SCHRÖDER, 1996: 329-330, fig. 149; AGUIRREZABALAGA & CEBERIO, 2005*b*: 270-271. Not *Minuspio cirrifera* — FOSTER, 1971: 108-112, figs. 262-275. *Prionospio (Minuspio) aluta* — MACIOLEK, 1985: 356-358, fig. 11, tables 2, 4.

**REFERENCES FOR PORTUGAL:** SÖDERSTRÖM, 1920 (off south Cape Espichel); DEXTER, 1992 (previous records: Ria Formosa; Sines; Sado Estuary); PARDAL, CALDEIRA & MARQUES, 1992 (as *Prionospio (Minuspio) cirrifera*; previous records: Lagoon of Óbidos; Lagoon of Albufeira); RAVARA, 1997 (as *Prionospio (Minuspio) cirrifera*; off Aveiro); GIL & SARDÁ, 1999 (as *Prionospio (Minuspio) cirrifera*; southwestern continental shelf); MUCHA & COSTA, 1999 (Ria de Aveiro and/or Sado Estuary); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 23 (A.4083)**, north Sines, 127 m, sand: 3 incomplete specimens, in poor condition; (1) with 15 chaetigers, without genital pouches; triangular prostomium; one pair of eyes visible; prostomium forming a well-developed caruncle, which extends to the posterior margin of chaetiger 2; ventrally pointed neuropodial lamellae on chaetiger 2; dorsal crests from chaetiger 10; notopodial lamellae leaf-like, increasing in size from chaetiger 2 to 3; they remain at their maximum length until chaetiger 6 or 7, where they decrease; branchiae in chaetigers 2-6, some missing, without short sharp tips; sabre chaetae from chaetiger 10, neurohooks from chaetiger 14; (2) 19 chaetigers, sabre chaetae from chaetiger 10, neurohooks from 14; branchiae in chaetigers 2-7 (only 2 left); rest as in previous specimen; (3) about 24 chaetigers; a female with eggs; sabre chaetae from chaetiger 10, neurohooks from 14; only one branchia left, at chaetiger 7; neuropodial lamellae of chaetiger 2 ventrally pointed; dorsal crests from chaetiger 10.

**DISTRIBUTION:** Arctic; Spitsbergen; Kara Sea; East Siberian Sea; Beaufort Sea; Norwegian Trough; Shetland; Scotland; from Iceland to the Gulf of Biscay; English Channel; North Sea; Skagerrak; Kattegat; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea. In soft grounds with mud, fine sand, or clay. Between 7-2900 meters.

**REMARKS:** This species was redescribed by MACKIE (1984), distinguishing it from another form occurring in the European waters (see *Prionospio* sp. sensu Mackie 1984 below). However, some variability has been found between different *P. cirrata* populations, in what concerns the number of branchiae, form of the neuropodial lamellae on chaetiger 2 and the presence or absence of interparapodial pouches, existing as much as four different forms (MACKIE, 1996). The status of these different forms needs to be further studied (ANDREW MACKIE, personal communication, May 1997).

SIGVALDADÓTTIR (2002) synonymised *Prionospio (Minuspio) aluta* Maciolek 1985 with *Prionospio cirrifera* Wirén 1883.

## ***Prionospio decipiens*** Söderström 1920

*Prionospio decipiens* SÖDERSTRÖM, 1920: 240.

**TYPE LOCALITY:** Cape Sagres (Southwest Portugal), at 45 fathoms (82.3 meters).

**SELECTED REFERENCES:** *Kinbergella plumosa* — MCINTOSH, 1909: 177, pl. 5 figs. 9-10, pl. 6 figs. 6-8. *Prionospio decipiens* — FAUVEL, 1927*a*: 63.

**REFERENCES FOR PORTUGAL:** MCINTOSH, 1909 (as *Kinbergella plumosa*; Cape Sagres); SÖDERSTRÖM, 1920 (previous records; Cape Sagres).

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** *Prionospio decipiens* is the new name given to *Kinbergella plumosa* McIntosh 1909 by SÖDERSTROM (1920), as the first name was already preoccupied in *Prionospio*, by *P. plumosa* M. Sars *in* G.O. Sars 1872. As stated by SÖDERSTRÖM (1920: 240), this species was poorly and incompletely described ("*Schlechte und unvollständige Beschreibung*"), as MCINTOSH (1909) described the species with base on a single anterior fragment in poor condition. FAUVEL (1927*a*: 63) observed that it was a *Prionospio* which place was not possible to fix with certitude, while HARTMAN (1959*a*: 386) considered the species as being valid, and FOSTER (1971: 80) as indeterminable. Finally MACIOLEK (1985: table 1) just makes a comment on the homonymy of the first name of the species, and that for this reason the new name *decipiens* was given to the species by Söderström, without stating if the species should be considered indeterminable or valid.

It would be interesting to compare the type material of the species, if extant, with the specimens of the genus *Prionospsio* collected during the SEPLAT cruises, near the type locality of *P. decipiens*. So far 6 species have been identified in the region, among the SEPLAT material: *P. caspersi*, *P. cirrifera*, *P. dubia*, *P. ehlersi*, *P. fallax*, and *P.* cf. *multibranchiata*. However, part of this material remains awaiting identification and it includes some additional *Prionospio* species, so far unidentified.

## ****Prionospio dubia*** Day 1961

*Prionospio malmgreni dubia* DAY, 1961: 489-490, figs. 3*j-n*.

**TYPE LOCALITY:** Agulhas Bank (off south coast of South Africa), 34º59'N, 22º18'E, in coarse khaki sand, at 105 meters.

**SELECTED REFERENCES:** *Prionospio (Prionospio) dubia* — MACIOLEK, 1985: 336-339, figs. 2-3, table 3 [in part?]; IMAJIMA, 1990*c*: 118-121, figs. 8-9; AGUIRREZABALAGA & CEBERIO, 2005*b*: 268-270. *Prionospio dubia* — WILSON, 1990: 249-251, figs. 9-15; SIGVALDADÓTTIR & MACKIE, 1993: 211-214, figs. 6-8, tables 1-2; BLAKE, 1996*d*: 130-133, fig. 4.12*A-H*; ÇINAR & ERGEN, 1999: 109; SIGVALDADÓTTIR, 2002: 210-211, fig. 1. *Prionospio steenstrupi* [not Malmgren 1867] — SÖDERSTRÖM, 1920: 232-233, figs. 95, 136, 138-140 [in part]; FAUVEL, 1927*a*: 60-61, fig. 21*f-i* [in part]; DAY, 1963*b*:

418; DAY, 1967: 489, fig. 18.9.*o-r*; HARTMANN-SCHRÖDER, 1971*a*: 325 [in part]. *Prionospio (Prionospio) steenstrupi* [not Malmgren 1867] — BLAKE & KUDENOV, 1978: 213, fig. 20*a* [in part].

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (as *Prionospio (Prionospio) dubia*; southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 38 (A.2971)**, off Zambugeira do Mar, 262 m, muddy sand: 1 specimen, plus one fragment with 41 chaetigers and pygidium; all branchiae present; neurohooks and sabre chaetae from chaetiger 19. **SEPLAT 7 (2nd part) — St. 118 (A.3989)**, off Sines, 255 m, sand: 1 incomplete specimen, with 51 chaetigers; sabre chaetae and neurohooks from chaetiger 20; capillary chaetae longer on posterior region; width at chaetiger 10 of 600 µm; first pair of branchiae lost. **St. 265 (A.3866)**, off Cape Sardão, 227 m, muddy sand: 2 specimens, plus one fragment with 14 chaetigers, and one posterior fragment with pygidium and 51 chaetigers, with notohooks from the 30th chaetiger before the end; (1) 42 chaetigers; 1st pair of branchiae lost; width at chaetiger 9 of 550 µm; sabre chaetae and neurohooks from chaetiger 21; (2) about 37 chaetigers; all branchiae present, as described; width at chaetiger 9 of 375 µm; sabre chaetae and neurohooks from chaetiger 18. **St. 274 (A.3862)**, off Praia de Odeceixe, 327 m, muddy sand: 5 incomplete specimens, plus one fragment with 21 chaetigers; no eyes visible; no notohooks present; (1) with 43 chaetigers, left branchia of first chaetiger missing, width at 9th chaetiger of 450 µm, sabre chaetae from chaetiger 21, neurohooks from chaetiger 20; (2) with about 64 chaetigers, branchiae as in specimen 1, width at chaetiger 9 of 450 µm, sabre chaetae and neurohooks from chaetiger 20; (3) 52 chaetigers, branchiae as previous, width at chaetiger 9 of 500 µm, sabre chaetae from chaetiger 19, neurohooks from chaetiger 20; (4) 32 chaetigers, right branchia of first chaetiger missing, width at chaetiger 9 of 375 µm, sabre chaetae and neurohooks from chaetiger 18; (5) 36 chaetigers, first and fourth pairs of branchiae lost, as one of each of the other pairs, width at chaetiger 9 of 325 µm, sabre chaetae from chaetiger 18, neurohooks from chaetiger 19, numbering 4-5.

**DISTRIBUTION:** Northwest Atlantic (from off Long Island to Surinam); Northeast Atlantic (from Iceland and northern North Sea to the Mediterranean Sea, 25-90 meters, and 492-512 meters); Aegean Sea; southeast Atlantic (South Africa, 84-183 meters); Australia; Japan (13-420 meters); California (91-147 meters). In sandy and muddy bottoms.

**REMARKS:** This species has been confused with *P. steenstrupi* Malmgren 1867, from which it can be separated by the absence of dorsal crests and dorsolateral skin folds, the presence of ventrally rounded neurolamellae in chaetiger 2 (against pointed) and by the fourth pair of branchiae being shorter than the first one. There is a great variability among different populations of this species, which has a large distribution (WILSON, 1990; SIGVALDADÓTTIR & MACKIE, 1993). In the SEPLAT specimens, the sabre chaetae and neuropodial hooks start between chaetigers 18-21, as described for specimens from South Africa, North Sea and Australia.

## ****Prionospio ehlersi*** Fauvel 1928

*Prionospio Ehlersi* FAUVEL, 1928: 10-12, fig. 1*a-e*.

**TYPE LOCALITY:** Atlantic coast of Morocco. The species was described with base on specimens from several stations, and apparently no holotype was designated. The data of the stations is as follows: St. 14, 33º47'N, 7º31'W, 95 meters, in mud; St. 15, 33º56'N, 7º25'W, 125 meters, in mud; St. 18., 34º10'N, 6º55'W, 105 meters, in mud; St. 19, 34º3'N, 6º56'W, 80 meters, in mud; St. 27, 33º54'N, 7º31'W, 105 meters, in mud; St. 74, 30º22'30"N, 10º3'30"W, 268 meters, in fine sand.

**SELECTED REFERENCES:** *Prionospio Ehlersi* — FAUVEL, 1936*c*: 61-62, fig. 4. *Prionospio ehlersi* — HARTMAN, 1965*b*: 151-152 [?in part]; MACKIE & HARTLEY, 1990: 364-366, fig. 1, table 2; [?] BLAKE, 1996*d*: 133-136, fig. 4.13*a-l*; ÇINAR & ERGEN, 1999: 109-110. *Prionospio (Prionospio) ehlersi* — MACIOLEK, 1985: 345-347, fig. 7, tables 1, 3 [?in part]; AGUIRREZABALAGA & CEBERIO, 2005*b*: 270. Not *Prionospio ehlersi* — DAY, 1967: 490, fig. 18.9.*d-f*; [?] GIBBS, 1971: 170; TAMAI, 1988: 25-32; BLAKE & KUDENOV, 1978: 217, fig. 20*m* [all = (?) *Prionospio saccifera* Mackie & Hartley 1990]. Not *Prionospio (Prionospio) ehlersi* — IMAJIMA, 1990*c*: 106-111, figs. 2-3 [= *Prionospio saccifera* Mackie & Hartley 1990].

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (off Aveiro; off Porto); PARDAL, CALDEIRA & MARQUES, 1992 (as *Prionospio (Prionospio) ehlersi*; previous records: Porto; Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 61 (A.2552)**, off Praia do Amado, 140 m, sandy mud: 1 specimen, plus one fragment with 28 chaetigers, presenting the interparapodial pouches; interparapodial pouches from chaetiger 4 (starting between chaetigers 4 and 5); dorsal crest starting on chaetiger 6, being low and almost inconspicuous; sabre chaetae and neurohooks from chaetiger 18; neuropodial prechaetal lobes from chaetiger 17; one branchiae from chaetiger 5 missing; width at chaetiger 10 of 525 µm; nuchal organs observed. **St. 312 (A.2771)**, off Praia de Odeceixe, 310 m, muddy sand: 1 incomplete specimen,

with 55 chaetigers, and width at chaetiger 10 of 600 µm; all branchiae present, being as described by MACKIE & HARTLEY (1990); interparapodial pouches beginning between chaetigers 4 and 5; dorsal crest low, seen with difficulty; prostomium as described; sabre chaetae beginning on chaetiger 19, in number of 2, shape as in MACIOLEK (1985); neurohooks starting on chaetiger 20, notohooks not present; in chaetigers 18-25 neuropodial prechaetal lobes are present. **SEPLAT 7 (1st part) — St. 150 (A.3078)**, 1 specimen with all branchiae still present; notopodial prechaetal lamellae conspicuous on chaetigers 2-4; intersegmental lateral pouches start between chaetigers 4 and 5; low dorsal crests from chaetiger 6; from chaetiger 18, and for about 10 chaetigers, the neuropodial postchaetal lamellae continue across venter as conspicuous lobes on either sides; width at chaetiger 10 of about 700 µm; sabre chaetae and neurohooks from chaetiger 19. **SEPLAT 7 (2nd part) — St. 196 (A.3916)**, off Sines, 125 m, muddy sand: 1 specimen; interparapodial pouches start between chaetigers 4 and 5; nuchal organs visible; dorsal crests low, from chaetiger 9 (may be present in earlier chaetigers); sabre chaetae from chaetiger 19; neurohooks from chaetiger 20; width at chaetiger 10 of 725 µm; posterior region in poor condition; first pair of branchiae missing, second and third pairs as described; only one branchia on the fourth pair, shorter than the described (maybe broken?). **St. 265 (A.3866)**, off Cape Sardão, 227 m, muddy sand: 5 specimens, plus 6 fragments, all with lateral pouches present, and with about 9, 15, 16, 23, 52, and 36 chaetigers plus pygidium; interparapodial pouches starting between chaetigers 4 and 5; dorsal crests low, starting at chaetiger 6, continuing for at least 14 chaetigers (2 specimens), in one specimen they are not clear due to poor condition; (1) 1st pair of branchiae lost, 4th longer than pairs 2 and 3, cirriform; sabre chaetae from chaetiger 18 (up to 3); neurohooks from chaetiger 19 (up to 12 per ramus); width at chaetiger 10 of about 1 mm; (2) all branchiae present, as described; sabre chaetae and neurohooks from chaetiger 19; width at chaetiger 10 of 900 µm; (3) in poor condition; only 2nd pair of branchiae present; sabre chaetae from chaetiger 19, neurohooks from the 20th; width at chaetiger 10 of 750 µm; (4) 4th pair of branchiae lost, 1st pair pinnate, but small; sabre chaetae from chaetiger 19, neurohooks from the 20th; width at chaetiger 10 of 850 µm; (5) all branchiae present, as described; sabre chaetae from chaetiger 19, neurohooks from chaetiger 20; width at chaetiger 10 of 900 µm. **St. 267 (A.3864)**, south Cape Sardão, 155 m, muddy sand: 1 incomplete specimen with 41 chaetigers, width at chaetiger 10 of 750 µm; branchiae as described (one of 1st pair missing); interparapodial pouches from chaetigers 4/5; dorsal crest low, from chaetiger 6; sabre chaetae from chaetiger 18 (2 chaetae); neurohooks from chaetiger 19; neuropodial prechaetal lobes from chaetiger 17. **St. 274 (A.3862)**, off Praia de Odeceixe, 327 m, muddy sand: 2 specimens, plus 2 fragments, one with about 19 chaetigers and the other with 9; (1) triangular nuchal folds visible, eyes not seen; all branchiae of same size, first pair pinnate, fourth pair cirriform, second and third as described; lamellae as described; notopodial postchaetal lamellae united, forming low crests across dorsum, from chaetiger 6, for about 25 chaetigers; neuropodial prechaetal lamellae present on chaetigers 2-4; interparapodial pouches starting between chaetigers 4 and 5; sabre chaetae from chaetiger 19 (2, sometimes 3); neurohooks from chaetiger 19, up to 14 per bundle; width at chaetiger 10 of 850 µm; (2) as specimen 1 except: first pair of branchiae lost, fourth pair cirriform and longer than second and third, width at chaetiger 10 of 575 µm, sabre chaetae from chaetiger 18 (in number of 2), neurohooks from chaetiger 18 (up to 9). **St. 283 (A.3851)**, off Arrifana, 245 m, muddy sand: 1 specimen; first pair of branchiae lost, fourth pair not as large as in other specimens; nuchals organs observed; dorsal crests low, conspicuous, from chaetiger 6/7; interparapodial pouches starting between chaetiger 4 and 5; sabre chaetae from chaetiger 18; neurohooks from chaetiger 19; width at chaetiger 10 of 625 µm.

**DISTRIBUTION:** Southern Europe (Portugal, Spain); Canary Islands; Atlantic coast of Morocco; Ivory Coast; Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] California to Pacific coast of Mexico. On mud, sandy mud, and muddy sand. Between 65-268 meters, and 492-1113 meters. The species has been recorded worldwide, but the biggest part of the records need confirmation, as some of them were shown to refer to other species (*e.g.*: *P. lobulata* Fauchald 1972; *P. saccifera* Mackie & Hartley 1990).

**REMARKS:** *Prionospio ehlersi* has been considered as a cosmopolitan species, but many of its records provide insufficient detail in order to enable a confirmation (MACKIE & HARTLEY, 1990). The description of *P. saccifera* from Hong Kong and the Suez Gulf by the same authors prooved that the worldwide distribution of the species is erroneous. *P. ehlersi* has interparapodial pouches from chaetiger 4, while *P. saccifera* has interparapodial pouches from chaetiger 2. All records describing specimens with interparapodial pouches that do not start at chaetiger 4 are here considered as belonging to other species.

## ****Prionospio fallax*** Söderström 1920

*Prionospio fallax* SÖDERSTRÖM, 1920: 235-237, figs. 135, 144-145 [in part; in part = *Prionospio steenstrupi* Malmgren 1867] .

**TYPE LOCALITY:** Western Sweden, Gullmarsfjord, Islandsberg, Norra Stångholmsrännan, Skårberget, Oxevik, in mud; East Ireland, 5 miles N.N.E. of Balbriggan, at 11-13 fathoms (20.1-23.8 meters); West

Ireland, Blacksod Bay, at 2-3 fathoms (3.6-5.5 meters), and Clew Bay, at 18 fathoms (32.9 meters); Madeira Island between 10-30 fathoms (18.3-54.9 meters), in sand; [?] South Africa, Simonstown.

**SELECTED REFERENCES:** *Prionospio fallax* — SIGVALDADÓTTIR & MACKIE, 1993: 207-211, figs. 3-5, tables 1-2; KIRKEGAARD, 1996: 82-83, fig. 37; ÇINAR & ERGEN, 1999: 110. *Prionospio Malmgreni* [not Claparède 1869] — MCINTOSH, 1915*b*: 214-216, pl. 98 fig. 12, pl. 111 fig. 1, pl. 109 fig. 15; ELIASON, 1920: 51, fig. 13 [in part; in part = *Prionospio steenstrupi* Malmgren 1867]; FAUVEL, 1927*a*: 61-62, fig. 21*a-e*. *Prionospio malmgreni* [not Claparède 1869] — HANNERZ, 1956: 40-46, figs. 12-13; HARTMANN-SCHRÖDER, 1971*a*: 323-324, fig. 110 [in part; in part = *Prionospio steenstrupi* Malmgren 1867]. *Prionospio steenstrupi* [not Malmgren 1867] — MACIOLEK, 1985: 332-334, tables 1, 3 [in part]; HARTMANN-SCHRÖDER, 1996: 327-328, fig. 148 [in part].

**REFERENCES FOR PORTUGAL:** QUINTINO & GENTIL, 1987 (as *Prionospio malmgreni*; Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (as *Prionospio malmgreni*; Lagoon of Óbidos); DEXTER, 1992 (as *Prionospio malmgreni*; previous records: Ria Formosa; Ria de Alvor; Sado Estuary; Lagoon of Albufeira; Lagoon of Óbidos); PARDAL, CALDEIRA & MARQUES, 1992 (as *Prionospio malmgreni*; previous records: Aveiro; Lagoon of Óbidos; Lagoon of Albufeira; Lagoon of Santo André; Ria Formosa); GIL & SARDÁ, 1999 (as *Prionospio (Prionospio) fallax*; southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 186 (A.3925)**, south Sines, 27 m, muddy sand: 12 specimens, 4 complete; measurements of complete specimens (width of chaetiger 10; complete number of chaetigers; starting chaetiger of sabre chaetae; starting chaetiger of neurohooks; starting chaetiger of notohooks): (1) 200 µm, 35, 10, 12, no notohooks present; (2) 200 µm, 45, 10, 12, 29; (3) 237 µm, 49, 10, 13, 31; (4) 250 µm, 57, 10, 13, 30; measurements of incomplete specimens (width of chaetiger 10; starting chaetiger of sabre chaetae; starting chaetiger of neurohooks): (1) 188 µm, 10, 12, notohooks from chaetiger 32; (2) 195 µm, 10, 12; (3) 212 µm, 10, 12; (4) 220 µm, 10, 12; (5) 220 µm, 10, 12; (6) 220 µm, 10, 12; (7) 225 µm, 10, 13; (7) 250 µm, 10, 13. **St. 187 (A.3924)**, south Sines, 17 m, sand: 1 incomplete specimen without branchiae, but scars visible at their original insertion; sabre chaetae from chaetiger 10, neurohooks from chaetiger 12, width of chaetiger 10 of 212 µm; also one fragment with 11 chaetigers. **St. 265 (A.3866)**, off Cape Sardão, 227 m, muddy sand: 1 specimen; sabre chaetae from chaetiger 10, neurohooks from chaetiger 12; width at chaetiger 8 of 240 µm. **St. 283 (A.3851)**, off Arrifana, 245 m, muddy sand: 2 specimens, plus one fragment with 16 chaetigers; (1) without branchiae, 50 chaetigers, sabre chaetae from chaetiger 10, neurohooks from chaetiger 13, notohooks from chaetiger 36, width at chaetiger 10 of 237 µm; (2) one apinnate branchiae left, sabre chaetae from chaetiger 10, neurohooks from chaetiger 12, width at chaetiger 10 of 187 µm.

**DISTRIBUTION:** Northeast Atlantic; from northern Scotland (Shetland Islands) to the Mediterranean Sea; Adriatic Sea; Aegean Sea. In sandy and silty sediments. At shelf depths (4-140 meters).

**REMARKS:** SIGVALDADÓTTIR & MACKIE (1993) stated that *P. malmgreni* Claparède 1869 is an indeterminable species, described with base upon several species, a fact recognised earlier by other authors (FOSTER, 1971: 82; MACIOLEK, 1985: 335-336). *P. malmgreni* was described by CLAPARÈDE (1869: 73-76, pl. 22 fig. 3) as having up to nine pairs of branchiae, some of which pinnate, something that, as stated by SIGVALDADÓTTIR & MACKIE (1993), has never been reported again. The description of *P. malmgreni* given in FAUVEL (1927*a*) refers to *P. fallax* (see SIGVALDADÓTTIR & MACKIE, *op. cit.*).

*Prionospio fallax* has been recorded worldwide, as *P. malmgreni*, but these records require confirmation, and at present the species can only be confirmed from European waters (SIGVALDADÓTTIR & MACKIE, 1993).

## ***Prionospio fauchaldi*** Maciolek 1985

*Prionospio (Minuspio) fauchaldi* MACIOLEK, 1985: 347-350, fig. 8, tables 2, 4.

**TYPE LOCALITY:** North Atlantic Ocean, 39º56.6'N, 71º03.6'W, 530 meters.

**SELECTED REFERENCES:** *Prionospio (Minuspio) fauchaldi* — AGUIRREZABALAGA & CEBERIO, 2005*b*: 271.

**DISTRIBUTION:** North Atlantic Ocean, 530-4950 meters; Bahamas, 2032 meters; Surinam, 770-1500 meters; Southwest Africa, 1427-2154 meters; Argentine Basin, 1661-4402 meters; Canary Islands, 1780 meters; Bay of Biscay, 1784 meters.

## ***Prionospio plumosa*** (Sars 1872)

*Prionospio plumosus* M. SARS *in* G.O. SARS, 1872*a*: 410.

**TYPE LOCALITY:** Drøbak, Christianafjord (Oslofjord, Norway), in 50-60 fathoms (91.4-109.7 meters).

**SELECTED REFERENCES:** *Prionospio plumosa* — SÖDERSTRÖM, 1920: 233-234, figs. 84-86, 96, 133, 141; MACIOLEK, 1985: tables 1, 3; KIRKEGAARD, 1996: 86, fig. 39. *Prionospio (Prionospio) plumosa* — HARTMANN-SCHRÖDER, 1996: 326-327. *Ctenospio plumosa* — M. SARS, 1867: 291. [?*nomen nudum*].
**DISTRIBUTION:** West Norway; Skagerrak. From 91.4 to 119.7 meters.

## ***Prionospio pulchra*** Imajima 1990

*Prionospio (Minuspio) pulchra* IMAJIMA, 1990*b*: 68-71, figs. 6-7.
**TYPE LOCALITY:** Tokyo Bay (Japan), 35º19.0'N, 139º42.0'E, in 47 meters.
**SELECTED REFERENCES:** *Prionospio pulchra* — MOREIRA, PARAPAR & TRONCOSO, 2000: 234-237, figs. 2-4, table 2. *Prionospio* cf. *pulchra* — PARAPAR, 1991: 181-184, pl. 46.
**DISTRIBUTION:** Japan, intertidal to 90 meters, in soft bottoms, attached to buoys and among organisms attached on rope, and in sediments with a high content of organic matter; Ensenada de Baiona (Galicia, Northwestern Spain), 2-8 meters, in muddy bottoms; Ría de Ferrol (Galicia, Northwestern Spain), 8-17 meters, mainly in sandy mud. Also reported to be present at the Gulf of Nicoya, at the Pacific coast of Costa Rica, by DEAN (1996).
**REMARKS:** MOREIRA, PARAPAR & TRONCOSO (2000) suggested that the presence of this species in the Galician coast, so far away from its type locality, in Japan, could be explained by unintentional introduction by human activity, probably connected with bivalve culturing on rafts, especially oysters.

## ***Prionospio pygmaea*** Hartman 1961

*Prionospio pygmaeus* HARTMAN, 1961: 93-95.
**TYPE LOCALITY:** Off Long Beach breakwater light, Southern California, in 12 fathoms (22 meters)
**SELECTED REFERENCES:** *Apoprionospio pygmaea* — FOSTER, 1971: 94-97, figs. 213-225; MACIOLEK, 1985: 369-370, fig. 17, table 1; BLAKE, 1996*d*: 119-120, fig. 4.8. *Prionospio (Apoprionospio) pygmaea* — LIGHT, 1978: 84-87, figs. 84-86, table 3, pictorial key in page 70; MARTINELLI, MILELLA & LARDICCI, 1992: 18-19, figs. 2-3. *Prionospio (Prionospio) pygmaea* — BLAKE, 1983: 227.
**DISTRIBUTION:** California, 9-39 meters, in hard-packed sandy mud and black sandy mud; Gulf of California, in sand, silty sand, sandy silt and silt; Virginia, between 6-20 meters, in sand and shells; Tampa Bay, Gulf of Mexico, intertidal to 9 meters, in *Thalassia* flats, sand and mud bottoms; Northeast Sardinia (Mediterranean Sea), 3 meters, in muddy bottoms.
**REMARKS:** This species has been only recorded once from European waters, by MARTINELLI, MILELLA & LARDICCI (1992), from shallow water in an internal bay in northern Sardinia Island (Western Mediterranean Sea). The given description seems to fit this species.

## ***Prionospio saccifera*** Mackie & Hartley 1990

*Prionospio saccifera* MACKIE & HARTLEY, 1990: 366-371, figs. 2-3, table 1.
**TYPE LOCALITY:** Hong Kong.
**SELECTED REFERENCES:** *Prionospio saccifera* — ÇINAR & ERGEN, 1999: 107-109, figs. 2-3. *Prionospio (Prionospio) ehlersi* [not Fauvel 1936] — IMAJIMA, 1990*c*: 106-111, figs. 2-3.
**DISTRIBUTION:** Hong Kong (43-49 meters); Japan (5-140 meters, 830 meters); Gulf of Suez (11-21 meters); Turkish Mediterranean coast (65-85 meters). In muddy sediments.

## ***Prionospio sexoculata*** Augener 1918

*Prionospio sexoculata* AUGENER, 1918: 405-406, text-fig. 52, pl. 6, figs. 159, 172.
**TYPE LOCALITY:** Walvis Bay (= Walfisch-Bay), Namibia, at 8 meters in muddy sand.
**SELECTED REFERENCES:** *Prionospio sexoculata* — DAY, 1955: 414; DAY, 1967: 489, fig. 18.8.*m-o*. *Aquilaspio sexoculata* — FOSTER, 1971: 106. *Prionospio (Aquilaspio) sexoculata* — IMAJIMA, 1990*a*: 2-5, fig. 2.
**DISTRIBUTION:** South West Africa; Japan; [?] western coasts of Italy. Intertidal to 27 meters.
**REMARKS:** This species was cited by CASTELLI *et al.* (1995) as being present in the western basins of Italy (Mediterranean Sea). However, the same authors also stated that the record was doubtful, and that it could refer to an undescribed species.

## ***Prionospio steenstrupi*** Malmgren 1867

*Prionospio Steenstrupi* MALMGREN, 1867*a*: 93-94, pl. 9, fig. 55.
**TYPE LOCALITY:** Iceland, near Hofsås, at 40 fathoms (73.2 meters), in a bottom of silt.

**SELECTED REFERENCES:** *Prionospio Steenstrupi* — MCINTOSH, 1915*b*: 216-217. *Prionospio steenstrupi* — SÖDERSTRÖM, 1920: 232-233, figs. 95, 136, 138-140 [in part; in part = *Prionospio dubia* Day 1961]; HANNERZ, 1956: 46-49, fig. 14; FOSTER, 1971: 84-87, figs. 175-185 [in part]; MACIOLEK, 1985: 332-335, fig. 1, tables 1, 3 [in part]; SIGVALDADÓTTIR & MACKIE, 1993: 204-207, figs. 1-2, 5, tables 1-2; KIRKEGAARD, 1996: 86-88, fig. 40 [in part]; SIGVALDADÓTTIR, 2002: 213-214, fig. 1. *Prionospio Malmgreni* [not Claparède 1869] — ELIASON, 1920: 51, fig. 13 [in part; in part = *Prionospio fallax* Söderström 1920]; FAUVEL, 1927*a*: 61-62, fig. 21*a-e* [in part; in part = *Prionospio fallax* Söderström 1920]. *Prionospio malmgreni* [not Claparède 1869] — HARTMANN-SCHRÖDER, 1971*a*: 323-324 [in part; in part = *Prionospio fallax* Söderström 1920]. *Prionospio fallax* [not Söderström 1920] — SÖDERSTRÖM, 1920: 235-237, figs. 135, 144-145 [in part]. *Prionospio (Prionospio) steenstrupi* — HARTMANN-SCHRÖDER, 1996: 327-328 [in part; in part and fig. 148 = *Prionospio fallax* Söderström 1920]. Not *Prionospio Steenstrupi* — FAUVEL, 1927*a*: 60-61, fig. 21*f-i* [= *Prionospio dubia* Day 1961]. Not *Prionospio steenstrupi* — DAY, 1963*b*: 418; DAY, 1967: 489, fig. 18.9.*o-r*; HARTMANN-SCHRÖDER, 1971*a*: 325 [all = *Prionospio dubia* Day 1961].

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: Ria Formosa; continental shelf of Algarve); PARDAL, CALDEIRA & MARQUES, 1992 (as *Prionospio (Prionospio) steenstrupi*; previous records: Ria Formosa); RAVARA, 1997 (off Aveiro).

**DISTRIBUTION:** Arctic; Northern Northeast Atlantic; Greenland; Iceland; North Sea; Skagerrak; Kattegat; [?] Adriatic Sea; [?] Aegean Sea; Atlantic coast of North America. In clay. Between 73-205 meters (shelf depths).

## ***Prionospio tripinnata*** Maciolek 1985

*Prionospio (Prionospio) tripinnata* MACIOLEK, 1985: 343-345, fig. 6, tables 1, 3.

**TYPE LOCALITY:** Mediterranean Sea, 33º57.0'N, 15º08.2'E (off Libia), 500-509 meters.

**DISTRIBUTION:** Known from the type locality.

## ***Prionospio unilamellata*** Sigvaldadóttir & Desbruyères 2003

*Prionospio unilamellata* SIGVALDADÓTTIR & DESBRUYÈRES, 2003: 220-221, figs. 1-2.

**TYPE LOCALITY:** Mid-Atlantic Ridge, at the Azores Triple Junction, "Tour Eiffel" site on the Lucky Strike vent field, 37º17'18"N, 32º16'29"W, at 1690 meters.

**DISTRIBUTION:** Mid-Atlantic Ridge. Azores Triple Junction: "Tour Eiffel" site on the Lucky Strike vent field, 37º17'18"N, 32º16'29"W, at 1690 meters; "Atos" site on the Rainbow vent field, 36º13.76'N, 33º54.11'W, at 2275 meters; Snake Pit vent field, "Elan" site, 23º22'54"N, 44º55'48"W, at 3520 meters.

## ****Prionospio* sp.** sensu Mackie 1984

*Prionospio multibranchiata* BERKELEY, 1927: 414, pl. 1, fig. 1.

**TYPE LOCALITY:** Station Flat, Nanaimo District, Vancouver Island (Canada), low tide.

**SELECTED REFERENCES:** *Prionospio multibranchiata* — KIRKEGAARD, 1996: 84-85, fig. 38. *Prionospio (Minuspio) multibranchiata* — MACKIE, 1984: 40-42, figs. 3-4, table 2; MACIOLEK, 1985: 365-367, fig. 15, tables 1, 4 [in part?]. *Prionospio (Minuspio) multibranchiata* (sensu Mackie 1984) — CAPACCIONI-AZZATI, 1988: 48-52, fig. 2. *Prionospio cirrifera* [not Wirén 1883] — HARTMANN-SCHRÖDER, 1971*a*: 324-325 [in part]; GIANGRANDE & GAMBI, 1982: 12-16 [in part; specimens from Lago di Sabaudia], fig. 2.

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (as *Prionospio (Minuspio)* sp. *sensu* Mackie, 1984; southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 150 (A.3078)**, off Praia de Almograve, 115 m, sandy mud: 1 specimen in bad condition; prostomium posteriorly rounded, with caruncle reaching the middle of chaetiger 2; eyes not visible; peristomium as described; branchiae cirriform, present from chaetiger 2, numbering 11 pairs; notopodial lamellae as described; from chaetiger 13 the notopodial lamellae unite across the dorsum, forming low crests; sabre chaetae from chaetiger 15, neurohooks from chaetiger 16, notohooks from chaetiger 20; width at chaetiger 13 of 325 µm.

**DISTRIBUTION:** Scotland; England; Skagerrak; Portugal; Western Mediterranean Sea; Adriatic Sea; Aegean Sea. In different kinds of muddy sediments. Between 2-115 meters.

**REMARKS:** The specimen from SEPLAT campaign fits well the description given by MACKIE (1984). The same author referred his specimens to the Canadian species *P. multibranchiata* Berkeley 1927, but emended that identification after collecting *P. multibranchiata* from type locality (MACKIE, 1996). The

European specimens belong probably to a new species (ANDREW MACKIE, personal communication, May 1997).

This species was first noted by FAGE & LEGENDRE (1927: 157) who, in spite of some differences, considered it as *P. cirrifera*. FAUVEL (1927*a*) composed latter a wider definition of the species. Differences between populations of what was thought to be *P. cirrifera* specimens were also noted by LAUBIER (1962*c*) and GIANGRANDE & GAMBI (1982).

The two forms can be separated by the number of branchiae (5-6 pairs in *P. cirrifera* against about 10-13 in *Prionospio* sp.), starting chaetiger of sabre chaetae (chaetiger 10 against 14-17), presence of dorsal crests (from chaetigers 10-11 against chaetigers 13-14) or shape of neuropodial lamellae of second chaetiger (typically ventrally pointed against ventrally rounded).

MACKIE (1984), based on confirmed records of both forms, hypothesized that *P. cirrifera* could be a northern species, not occurring southern of Scotland, and *Prionospio* sp. a more southern species, not occurring northern of Scotland. However, he did not notice the work by GIANGRANDE & GAMBI (1982), which extends the distribution of *P. cirrifera* to the Mediterranean. The sympatric occurrence of both species at the Portuguese continental shelf is here confirmed.

## GENUS ***Pseudopolydora*** Czerniavsky 1881

*Pseudopolydora* CZERNIAVSKY, 1881*b*: 362.
**TYPE SPECIES:** *Polydora antennata* Claparède 1869.
**SYNONYMS:** *Carazzia* Mesnil 1896.

**KEY TO SPECIES:**

**1a.** Prostomium anteriorly incised; branchiae numerous (19-24 pairs; 10-12 in Indian specimens of *P. kempi*).....**2**
**1b.** Prostomium anteriorly entire, bluntly rounded; branchiae few (9-12 pairs); palps with branching yellow chromatophores present along palps in living polychaetes, but absent in fixed worms.....***P. paucibranchiata***

**2a (1a).** Prostomium deeply incised; anterior dorsum lacking dark pigmentation; palps without rings or transversal stripes of dark pigment.....***P. antennata***
**2b (1a).** Prostomium weakly incised; anterior dorsum with heavy dark pigmentation.....**3**

**3a (2b).** Prostomium heavily pigmented; pygidium as a well developed cup, only with a dorsal notch; palps with rings or transversal stripes of dark pigment.....***P. pulchra***
**3b (2b).** Prostomium not pigmented; pygidium cuplike, flaring, of 4 fused lobes, with weak midventral notch and a deep dorsal notch, with 2 digitiform dorsal lappets, one on each side of the notch; palps with numerous and irregular white or yellow spots, probably absent in fixed worms.....***P. kempi***

### ***Pseudopolydora antennata*** (Claparède 1869)

*Polydora antennata* CLAPARÈDE, 1869: 60-61, pl. 21 fig. 3.
**TYPE LOCALITY:** Gulf of Naples, living in galeries bored in a piece of wood inhabited by Teredinidae (Mollusca).
**SELECTED REFERENCES:** *Polydora antennata* — CARAZZI, 1893: 25-26, pl. 2 figs. 11-12, table in page 28; LO BIANCO, 1893: 30. *Polydora (Carazzia) antennata* — MESNIL, 1896*a*: 227-229, pl. 14 figs. 22-25, table in page 236; FAUVEL, 1927*a*: 56-57, fig. 19*i-m*; OKUDA, 1937*b*: 237-238, fig. 15; HANNERZ, 1956: 126-130, figs. 45-46. *Pseudopolydora antennata* — WOODWICK, 1964: 148-151, fig. 2.7-*8*, table 2; BLAKE & WOODWICK, 1975: table 2; HUTCHINGS & TURVEY, 1984: 16-17, fig. 6; KIRKEGAARD, 1996: 89-90, fig. 41; SATO-OKOSHI, 2000: 448, appendixes 1-2. *Polydora (Pseudopolydora) antennata* — HARTMANN-SCHRÖDER, 1996: 322-324, fig. 146. Spionid Larva B — THORSON, 1946: 96, fig. 49*A* [in part].
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Tagus Estuary); CALVÁRIO, 1984 (Tagus Estuary); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Ria Formosa; Ria de Alvor; Arrábida; Lagoon of Albufeira; Tagus Estuary; Lagoon of Óbidos; Figueira da Foz); PARDAL,

CALDEIRA & MARQUES, 1992 (previous records: Lagoon of Óbidos; Tagus Estuary; Lagoon of Albufeira; Ria Formosa); MUCHA & COSTA, 1999 (as *Polydora antennata*; Ria de Aveiro and/or Sado Estuary).
**DISTRIBUTION:** Indopacific; Japan; Eastern Atlantic, from Faroes to South Africa; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; North Sea; Skagerrak; Kattegat; Öresund. In mud between crevices of shore rock, and on muddy, sandy, and rocky bottoms. Eulittoral to about 80 meters.

## ***Pseudopolydora kempi*** (Southern 1921)

*Polydora (Carazzia) kempi* — SOUTHERN, 1921: 636-638, pl. 28 fig. 20.
**TYPE LOCALITY:** Chilka Lake, India.
**SYNONYMS:** *Neopygospio laminifera* Berkeley & Berkeley 1954; *Pseudopolydora kempi japonica* Imajima & Hartman 1964; *Pseudopolydora kempi californica* Light 1969.
**SELECTED REFERENCES:** *Polydora (Carazzia) kempi* — OKUDA, 1937*b*: 233-236, figs. 113-114. *Pseudopolydora kempi* — HARTMAN, 1969: 167; BLAKE & WOODWICK, 1975: 118-124, figs. 12-22, table 2; BLAKE & KUDENOV, 1978: 268-269; LIGHT, 1978: 157-160, fig. in page 154 and figs. 155*A-D*, 158, table 7, pictorial key in page 154. *Pseudopolydora kempi japonica* — IMAJIMA & HARTMAN, 1964: 287. *Polydora (Pseudopolydora) kempi japonica* — BANSE, 1972*b*: 219-220. *Pseudopolydora kempi californica* — LIGHT, 1969*b*: 542-548, figs. 9-13, table 2; BLAKE & WOODWICK, 1975: 126. *Pseudopolydora* cf. *kempi* — SATO-OKOSHI, 2000: 448, appendixes 1-2. *Neopygospio laminifera* — BERKELEY & BERKELEY, 1954: 462-463, figs. 6-7; BANSE, 1972*b*: 219-220.
**DISTRIBUTION:** Chilka Bay, India; South Africa; Japan; Korean Archipelago; British Columbia and Puget Sound; California. In waters of highly varying salinity.
**REMARKS**: In spite of *Pseudopolydora kempi* being cited as being present in Europe at MarBEF Data System (http://www.marbef.org/data/aphia.php?p=taxdetails&id=131167, last consulted the 3rd July 2011), I was not able to find its published record for the European waters. The presence of the species in European waters is here considered as doubtful, being probably the result of a misidentification.

## ***Pseudopolydora paucibranchiata*** (Okuda 1937)

*Polydora (Carazzia) paucibranchia* OKUDA, 1937*b*: 231-233, figs. 11-12.
**TYPE LOCALITY:** Onomichi, Hiroshima Prefecture, Japan.
**SELECTED REFERENCES:** *Pseudopolydora paucibranchiata* — BLAKE & WOODWICK, 1975: 110-117, figs. 1-11, tables 1-2; BLAKE & KUDENOV, 1978: 268; LIGHT, 1978: 161-163, fig. in page 154, figs. 155, 162-163, table 7, pictorial key in page 154; RAMBERG & SCHRAM, 1983: 244-246, fig. 8; HUTCHINGS & TURVEY, 1984: 17, fig. 7; RADASHEVSKY, 1993: 50-53, fig. 27; RADASHEVSKY & HSIEH, 2000*b*: 223, figs. 3*G-J*, 11*C*; SATO-OKOSHI, 2000: 448-449, appendixes 1-2. *Polydora (Pseudopolydora) paucibranchiata* — HARTMANN-SCHRÖDER, 1996: 324. *Pseudopolydora* sp. — ELEFTHERIOU, 1970: 467-468, fig. 5, table 1*B*.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** North Pacific, from South Sakhalin, Japan, and China, to California; South Pacific (New Zealand, Australia); Oslofjord (Skagerrak); Portugal. In sand. Lower littoral to shallow subtidal.
**REMARKS:** According to RADASHEVSKY (1993), the Norwegian specimens described by RAMBERG & SCHRAM (1983) differ in some aspects from the specimens from the Sea of Japan. This way, the specimens from Oslofjord do not present a nuchal tentacle, and each egg capsule deposited by females is fastened separately by two threads to the inner wall of the tube, whereas specimens from the Sea of Japan have a nuchal tentacle, and each egg capsule is joined to the next one and attached to the tube by one thin extension (RADASHEVSKY, 1993). The European population could represent a different species, but for the moment being, it is here considered as belonging to *P. paucibranchiata*.

## ***Pseudopolydora pulchra*** (Carazzi 1895)

*Polydora antennata* var. *pulchra* CARAZZI, 1893: 26-27.
**TYPE LOCALITY:** Gulf of Naples, Italy.
**SELECTED REFERENCES:** *Polydora (Carazzia) antennata* var. *pulchra* — FAUVEL, 1927*a*: 57; RULLIER, 1963*a*: 233-249, figs. 1-21. *Polydora (Carazzia) pulchra* — HANNERZ, 1956: 131-136, figs. 47-48. *?Polydora (Polydora) pulchra* — ELIASON, 1962*a*: 54-56, fig. 6. *Polydora (Polydora) pulchra* — HARTMANN-SCHRÖDER & STRIPP, 1968: 17-19, fig. 7*a-e*. *Pseudopolydora pulchra* — ELEFTHERIOU, 1970: 460-466, 468-471, figs. 1-4, tables 1*A*, 2-4; BLAKE & WOODWICK, 1975: table 2; KIRKEGAARD, 1996: 90-92, fig. 42. *Polydora (Pseudopolydora) pulchra* — HARTMANN-SCHRÖDER, 1996: 324-326, fig. 147. Spionid Larva B (in part) — THORSON, 1946: 96, fig. 488.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro).

**DISTRIBUTION:** North Atlantic to the Mediterranean Sea; Aegean Sea; English Channel; North Sea; Skagerrak; Kattegat; Öresund. In sandy grounds, sandy mud, in mud in oyster banks, and in putrid mud. Eulittoral to about 48 meters.

## GENUS ***Pygospio*** Claparède 1863

*Pygospio* CLAPARÈDE, 1863: 37.
**TYPE SPECIES:** *Pygospio elegans* Claparède 1863.

### ***Pygospio elegans*** Claparède 1863

*Pygospio elegans* CLAPARÈDE, 1863: 37-38, pl. 14 figs. 27-31.
**TYPE LOCALITY:** Near St. Vaaste la Hougue (Normandie, Northern France), under stones, intertidal.
**SYNONYMS:** *Spio seticornis* Ørsted 1843 [HOMONYM; ?not *Nereis seticornis* Fabricius 1780]; *Spio Rathbuni* Webster & Benedict 1884; *Pygospio minutus* Giard 1894; *Pygospio elegans* var. *minuta* Mesnil 1896.
**SELECTED REFERENCES:** *Pygospio elegans* — MESNIL, 1897*a*: 85-86; MCINTOSH, 1909: 166; MCINTOSH, 1915*b*: 189-192, text-fig. 119, pl. 93 fig. 2, pl. 96 fig. 9, pl. 97 fig. 8, pl. 98 fig. 14, pl. 106 fig. 1; SÖDERSTRÖM, 1920: 75-80, 267-271, figs. 1-9, 65-67, 113, 114*a*, 117-120, 123, 126; MCINTOSH, 1922*a*: 17; FAUVEL, 1927*a*: 46-47, fig. 16*a-h*; RIOJA, 1931: 62-64, pl. 17; E. RASMUSSEN, 1953: 1161; USCHAKOV, 1955*a*: 269, fig. 91*A-D*; HANNERZ, 1956: 91-100, figs. 32-34; DAY, 1961: 485; DAY, 1967: 475-477, fig. 18.5.*k-o*; HOBSON & GREEN, 1968: 410; FOSTER, 1971: 29-32, figs. 37-47, table 2; LIGHT, 1977: 72-73; LIGHT, 1978: 125-127, fig. 126, table 5, pictorial key in page 119; GILLANDT, 1979: 46-47, pl. 2 figs. 6-7; WARD, 1981: table 1; HARTMANN-SCHRÖDER, 1996: 330-332, fig. 150; KIRKEGAARD, 1996: 92-94, fig. 43. *Spio Rathbuni* — WEBSTER & BENEDICT, 1884: 726-728, pl. 5 figs. 53-59; TREADWELL, 1948: 43. *Pygospio minutus* — GIARD, 1894: 246. *Pygospio elegans* var. *minuta* — MESNIL, 1896*a*: 175-182, pl. 11 figs. 1-17; SOULIER, 1904: 320-324, fig. 1. *Spio seticornis* [?not *Nereis seticornis* Fabricius 1780] — ØRSTED, 1843*a*: 40; DALYELL, 1853: 159, pl. 20 fig. 22; CUNNINGHAM & RAMAGE, 1888: 640; QUATREFAGES, 1866*b*: 307. *Pygospio seticornis* [?not *Nereis seticornis* Fabricius 1780] — ØRSTED, 1844*b*: 86; SOUTHERN, 1914: 96; ELIASON, 1920: 42-44, figs. 10-11.
**REFERENCES FOR PORTUGAL:** COSTA, GAMITO & OLIVEIRA, 1984 (Sado Estuary); QUINTINO & GENTIL, 1987 (Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Ria Formosa; Ria de Alvor; Sado Estuary; Lagoon of Albufeira; Mondego Estuary; Ria de Aveiro); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Aveiro; Mondego Estuary; Lagoon of Óbidos; Lagoon of Albufeira).
**DISTRIBUTION:** Arctic; Eastern North Atlantic, from Norway to France; Baltic Sea; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Western North Atlantic, from Maine to Massachusetts; South Africa; North Pacific, from California to Mexico; Okhotsk Sea. On sandy and muddy bottoms, with or without *Zostera*. In shallow water.
**REMARKS:** This species presents sexual dimorphism, with branchiae in females not appearing before the eleventh chaetiger, while males present one pair on the second chaetiger. The two sexes were normally considered as being different species until SÖDERSTRÖM (1920) discovered this phenomenon.

## GENUS ***Scolelepis*** Blainville 1828

*Scolelepis* BLAINVILLE, 1828: 492.
**TYPE SPECIES:** *Lumbricus squamatus* Abildgaard *in* O.F. Müller 1806.
**SYNONYMS:** *Aonis* Audouin & Milne-Edwards 1833 [invalid junior homonym of *Aonis* Savigny 1822]; *Nerine* Johnston 1838; *Colobranchus* Schmarda 1861; *Pseudomalacoceros* Czerniavsky 1881; *Nerinides* Mesnil 1896; *Scolecolepis* Michaelsen 1897; *Pseudonerine* Augener 1926 [invalid junior homonym of *Pseudonerine* Czerniavsky 1881].
**REMARKS:** PETTIBONE (1963*b*) emended the genus *Scolelepis*, separating it in two subgenera, with base in the presence or absence of a distinct notch in the neuropodial lamellae: *Scolelepis (Scolelepis)*, with bilobed neuropodial lamellae, and *Scolelepis (Nerinides)*, with entire neuropodial lamellae. DAY (1967) raised the subgenera to the level of genera, and indicated the fact that *Scolelepis* had notopodial hooks present in the posterior segments, while *Nerinides* presented no notopodial hooks. The combination of

the two features was later used by most authors in order to distinguish between the two genera (or subgenera), with *Scolelepis* sensu stricto having notched neuropodia and notopodial hooks present, and *Nerinides* notched neuropodia and notopodial hooks absent. However, some species showed one of those features without the other, and could not be adequately assigned to one of the two groups. Besides, a great variation of those features within single populations of the same species was also found (FOSTER, 1971; LIGHT, 1977). BLAKE & KUDENOV (1978) finally concluded that the characters used to separate the two groups were too unstable, and referred all the species to a single genus, *Scolelepis*. In the same year, LIGHT (1978) suggested again the separation in two subgenera, this time by the shape of the hooded hooks: *S. (Scolelepis)* having hooks as unidentate falcigers, or bi- or tridentate with short, conical, blunt or flangelike apical teeth and with a short, stout conical main fang; and *S. (Nerinides)*, with hooks multidentate, with sharp, naillike apical teeth and a very long, thin tapering main fang. In her study, MACIOLEK (1987) found that the type specimen of *S. (Nerinides*) *cantabra* Rioja 1918 (new name for *Nerine longirostris* Saint-Joseph 1894, and type species of *Nerinides*) showed the same type of hooks than those of the type species of *S. (Scolelepis)*, *S. squamata* (O.F. Müller 1806). With the name *Nerinides* being synonymous of *Scolelepis*, MACIOLEK (1987) proposed the new name *Parascolelepis* to designate the species with sharp-fanged, multidentate hooks, with *Nerinides tridentata* Southern 1914 as the type species.

Finally, SIKORSKI (1994) argued the validity of using the shape of the hooded hooks to separate taxa above species. According to him it is possible to find gradations in the genus, from the falciger-like type of hooks with 0-3 short apical teeth typical of subgenus *Scolelepis*, to the sharp-fanged, multidentate hooks typical of subgenus *Parascolelepis*. Besides, many species on the genus show both individual and size variation of the shape of the hooks. SIKORSKI (1994) decided not to use the two subgenera in his work, but he also proposed the use of the presence (subgenus *Parascolelepis*) versus absence (subgenus *Scolelepis*) of a sheath at the base of the palps as a more useful character in order to separate the two subgenera.

The two subgenera are here maintained, as follows: *Scolelepis* Blainville 1828 (BLAINVILLE, 1828: 492), with the type species *Lumbricus squamatus* O.F. Müller 1806, and *Parascolelepis* Maciolek 1987 (MACIOLEK, 1987: 16-17, 33), with the type species *Nerinides tridentata* Southern 1914. The two subgenera are used in the following key, but the species are posteriorly presented in alphabetical order.

### KEY TO SUBGENERA AND SPECIES:

**1a.** Hooded hooks falcate with 0-2 small apical teeth and straight shaft; palps without a sheath at the base of the palps.....**SUBGENUS *Scolelepis (Scolelepis)*.....2**
**1b.** Hooded hooks multidentate with several apical teeth above large main fang and curved shaft; palps with a sheath at the base of the palps.....**SUBGENUS *Scolelepis (Parascolelepis)*.....8**

**2a (1a).** Anterior branchiae completely fused to notopodial postchaetal lamellae; prostomium rounded or trifid anteriorly; notochaetae present or absent in chaetiger 1; branchiae in the middle region of the body with or without superior flag-like process.....**3**
**2b (1a).** Anterior branchiae distally free of notopodial postchaetal lamellae; prostomium pointed anteriorly; notochaetae always present in chaetiger 1; branchiae in the middle region of the body without superior flag-like process.....**5**

**3a (2a).** Notochaetae present in chaetiger 1; prostomium rounded anteriorly; branchiae in the middle region of the body without superior flag-like process; neuropodial hooks from chaetiger 50-67, with 1-2 teeth; notopodial hooks present, from chaetiger 50-70.....***S. (S.) foliosa***
**3b (2a).** Notochaetae absent in chaetiger 1.....**4**

**4a (3b).** Prostomium rounded anteriorly; branchiae in the middle region of the body with superior flag-like process, disappearing gradually; neuropodial hooks from chaetiger 20-25, with 2 teeth; notopodial hooks absent.....***S. (S.) cantabra***
**4b (3b).** Prostomium trifid anteriorly; branchiae in the middle region of the body without superior flag-like process; neuropodial hooks from chaetiger 11-22 (in adults normally not before chaetiger 17), with 3-4 teeth; notopodial hooks present, from chaetiger 13-26.....***S. (S.) matsugae***

**5a (2b).** Anterior chaetigers with superior portion of notopodial lamellae tapered, elongated, but blunt or rounded, not sharply pointed.....**6**
**5b (2b).** Anterior chaetigers with superior portion of notopodial lamellae clearly pointed.....**7**

**6a (5a).** Neuropodial hooks from chaetiger 25-42, with 1-3 teeth; ventral lamellae with a notch after chaetiger 18-20; notopodial hooded hooks from about chaetiger 60-75.....***S. (S.) squamata***
**6b (5a).** Neuropodial hooks from chaetiger 17-19, with 3 teeth; ventral lamellae without notch; notopodial hooded hooks absent.....***S. (S.) burkovskii***

**7a (5b).** Hooks tridentate; neuropodial hooks from chaetiger 18-35 (normally between chaetiger 23-30).....***S. (S.) mesnili***
**7b (5b).** Hooks unidentate (bidentate in juveniles); neuropodial hooks from chaetiger 30-36.....***S. (S.) bonnieri***

**8a (1b).** Notochaete absent on chaetiger 1; neuropodial hooded hooks from chaetiger 14-18; notch between notopodial lobe and branchial bases, separating both structures, from chaetiger 14-19.....***S. (P.) korsuni***
**8b (1b).** Notochaetae present on chaetiger 1.....**9**

**9a (8b).** Posterior branchiae with superior flag-like process; notch between notopodial lobe and branchial bases, separating both structures, from chaetiger 16, deepening in the following 2-3 chaetigers; neuropodial hooks from chaetiger 17-18.....***S. (P.) gilchristi***
**9b (8b).** Posterior branchiae lacking superior flag-like process; notch between notopodial lobe and branchial bases absent at least up to chaetiger 24, in the posterior region the dorsal lamellae projects outwards, forming an angle with the branchia; neuropodial hooks from chaetiger 15-16..***S. (P.) tridentata***

## ***Scolelepis (Scolelepis) bonnieri*** (Mesnil 1896)

*Nerine Bonnieri* MESNIL, 1896*a*: 168-170, 172, pl. 10 figs. 1-12.
**TYPE LOCALITY:** Ponte aux Oies, Wimereux (Pas-de-Calais), Northern France, in sand with *Echinocardium*.
**SELECTED REFERENCES:** *Nerine Bonnieri* — FAUVEL, 1927*a*: 35-36, fig. 12*f-o*. *Scolelepis (Scolelepis) bonnieri* — HARTMANN-SCHRÖDER & STRIPP, 1968: 15-16, fig. 6*h-l*; HARTMANN-SCHRÖDER, 1996: 333-334, fig. 151. *Scolelepis bonnieri* — KIRKEGAARD, 1996: 95-96, fig. 44.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Nerine bonnieri*; Peniche; Tagus Estuary); SOUSA-REIS *et al.*, 1982 (as *Nerine bonnieri*; Peniche region); CALVÁRIO, 1984 (as *Nerine bonnieri*; Tagus Estuary); DEXTER, 1992 (as *Nerine bonnieri*; previous records: Ria Formosa; Tagus Estuary; Peniche); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Peniche; Tagus Estuary).
**DISTRIBUTION:** Northeastern Atlantic; Irish Sea; French Atlantic coast; English Channel; North Sea; Skagerrak; Aegean Sea. In sand and muddy sand, and in oyster banks. Eulittoral to about 50 meters.

## ***Scolelepis (Scolelepis) burkovskii*** Sikorski 1994

*Scolelepis burkovskii* SIKORSKI, 1994: 282-283, fig. 1*i-p*.
**TYPE LOCALITY:** Barents Sea, 69º08'N, 50º22'E, at 19 meters, on sand.
**SELECTED REFERENCES:** *Scolelepis (Scolelepis) burkovskii* — HUTCHINGS, FROUIN & HILY, 1998: table 1.
**DISTRIBUTION:** Known from the type locality.

## ***Scolelepis (Scolelepis) cantabra*** (Rioja 1918)

*Nerinides cantabra* RIOJA, 1918*a*: 55-60, fig. 1.
**TYPE LOCALITY:** Northern Spain (Cantabric Sea): Santander, among *Zostera marina*, in the sand banks; Gijón, in the channel of Dique and in one bay near Cervigón. In sand, at shallow water.
**SYNONYMS:** [?] *Nerine auriseta* Claparède 1869; *Nerinides st. josephi* Jones 1962.
**SELECTED REFERENCES:** *Nerinides cantabra* — FAUVEL, 1927*a*: 31-33, fig. 10*a-e*. *Nerinides Cántabra* — RIOJA, 1931: 46-48, pls. 10-11. *Scolelepis cantabra* — KIRKEGAARD, 1996: 96-97, fig. 45. *Nerine* sp. — RIOJA, 1917*c*: 14-16. *Nerine longirostris* [not Quatrefages 1843] — SAINT-JOSEPH, 1894: 74-77, pl. 4 figs. 86-90; MESNIL, 1896*a*: 152, 164. *Nerine longirostris* [not Quatrefages 1843] — MCINTOSH, 1922*a*: 18-20. *Nerinides st. josephi* — JONES, 1962: 190-191. [?] *Nerine auriseta* — CLAPARÈDE, 1869: 71-73, pl. 24 fig. 2; LO BIANCO, 1893: 32; MESNIL, 1896*a*: 172.
**REFERENCES FOR PORTUGAL:** SOUSA-REIS *et al.*, 1982 (as *Nerinides cantabra*; Peniche region); MONTEIRO-MARQUES, 1987 (as *Nerinides cantabra*; continental shelf of Algarve); DEXTER, 1992 (as *Pseudomalacoceros (Nerinides) cantabra*; previous records: continental shelf of Algarve; Sines; Peniche;

Figueira da Foz; Mondego Estuary); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Peniche; Mondego Estuary; Lagoon of Óbidos); SPRUNG, 1994 (as *Nerinides cantabra*; Ria Formosa).
**DISTRIBUTION:** English Channel; Atlantic coast of France and Spain (Bay of Biscay); Ireland; [?] Mediterranean Sea; [?] Adriatic Sea; [?] Aegean Sea; [?] Black Sea. On the muddy sand of the meadows of *Zostera* and *Posidonia*. From 10-50 meters.

### ***Scolelepis (Scolelepis) foliosa*** (Audouin & Milne Edwards 1833)

*Aonis foliosa* AUDOUIN & MILNE-EDWARDS, 1833*c*: 402-403, pl. 18 figs. 9-13.
**TYPE LOCALITY:** Near La Rochelle (western Atlantic coast of France).
**SYNONYMS:** *Aonis vittata* Grube 1855; *Nerine coniocephala* Johnston 1838; *Nerine Sarsiana* Claparède 1869; *Scolecolepis alaskensis* Treadwell 1914.
**SELECTED REFERENCES:** *Nerine foliosa* — MALMGREN, 1867*a*: 89-90, pl. 9 fig. 53; SAINT-JOSEPH, 1894: 72-74, pl. 4 figs. 84-85; MCINTOSH, 1909: 156; MCINTOSH, 1915*b*: 142-148, text-fig. 113, pl. 90 fig. 1, pl. 96 fig. 13, pl. 97 fig. 1, pl. 102 fig. 7; FAUVEL, 1927*a*: 34-35, fig. 11*a-f*; HANNERZ, 1956: 11-16, fig. 2. *Nerine folisoa* [sic] — MESNIL, 1896*a*: 165-168, 172, pl. 10 figs. 13-18. *Scolecolepis foliosa* — SÖDERSTRÖM, 1920: 218-219, figs. 17-20, 47. *Scolelepis foliosa* — KIRKEGAARD, 1996: 98-99, fig. 46. *Scolelepis (Scolelepis) foliosa* — MACIOLEK, 1987: 27-30, figs. 6-7, table 1; HARTMANN-SCHRÖDER, 1996: 334-335, fig. 152. *Nerine Sarsiana* — CLAPARÈDE, 1869: 70-71, pl. 21 fig. 4; MESNIL, 1896*a*: 172. *Scolelepis alaskensis* — LIGHT, 1977: 76-78, figs. 4, 5*c*.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Nerine foliosa*; previous records: Figueira da Foz).
**DISTRIBUTION:** North Pacific; California; Alaska; Arctic; Greenland; North Atlantic, from Norway to the Mediterranean Sea; Aegean Sea; English Channel; North Sea; Skagerrak; Kattegat; Öresund; Massachusetts. In sand, mud and in the ground between *Zostera*. Intertidal to shallow subtidal, but recorded to be present down to about 800 meters.
**REMARKS:** The redescription of *Scolelepis foliosa* by MACIOLEK (1987) was based on 3 specimens from Massachusetts. One of the specimens, small and with a regenerating posterior end showed clearly bidentate hooks, while bigger specimens had larger unidentate hooks, which MACIOLEK (1987) attributed to the fact of having been worned. All the other published descriptions of the species describe it has having only unidentate hooks. The synonymy between *Scolelepis alaskensis* (Treadwell 1914) and *S. foliosa* had been already suggested by LIGHT (1977) and was confirmed by MACIOLEK (1987), by comparison of the type of *S. alaskensis* with the specimens of *S. foliosa* from Massachusetts.

*S. bonnieri* (Mesnil 1896), which PETTIBONE (1963*b*) suggested to be a juvenile of *S. foliosa*, is here considered as a separate and valid species. It presents the anterior branchiae distally free from the notopodial postchaetal lamellae, while in *S. foliosa* they are completely fused.

### ***Scolelepis (Parascolelepis) gilchristi*** (Day 1961)

*Nerinides gilchristi* DAY, 1961: 491, fig. 5*a-d*.
**TYPE LOCALITY:** Saldanha Bay (South Africa), 33º06'4"S, 17º55'4"E, at 86 meters, in dark green mud.
**SELECTED REFERENCES:** *Nerinides gilchristi* — DAY, 1967: 485, fig. 18.7.*i-l*; [?] CANTONE & FASSARI, 1982: 232.
**DISTRIBUTION:** South Africa, from Western Cape to Natal. In sandy and muddy bottoms. Between 68-130 meters. [?] Catania Gulf, Eastern Sicily (Mediterranean Sea), in soft bottom, at shelf depth; [?] Montpellier, Southern France.
**REMARKS:** I studied a specimen of *Scolelepis* collected off Montpellier (Southern France) that presented multidentate hooks from neuropodia 16, and branchiae with a superior flag-like process from about the same segment. If this is the real *Scolelepis gilchristi*, a variation of *S. tridentata*, or another species, requires further investigation and the finding of more specimens for study.

### ***Scolelepis (Parascolelepis) korsuni*** Sikorski 1994

*Scolelepis korsuni* SIKORSKI, 1994: 280-282, fig. 1*a-h*.
**TYPE LOCALITY:** North Sea, 59º57'42"N, 2º23'44"E, at 108 meters
**SELECTED REFERENCES:** *Scolelepis (Parascolelepis) korsuni* — HARTMANN-SCHRÖDER, 1996: 337. [?] *Nerinides tridentata* [not Southern 1914] — HANNERZ, 1956: 9-11, fig. 1.
**DISTRIBUTION:** Northern North Sea, between 95-116 meters; Barents Sea, between 440-450 meters. On silt.

### ***Scolelepis (Scolelepis) matsugae*** Sikorski 1994

*Scolelepis matsugae* SIKORSKI, 1994: 283-285, fig. 2.

**TYPE LOCALITY:** Barents Sea, Drozdovka Inlet, 68º18'20"N, 38º25'E, at 7.5 meters, on sandy silt with detritus.
**SELECTED REFERENCES:** *Scolelepis (Scolelepis) matsugae* — HUTCHINGS, FROUIN & HILY, 1998: table 1.
**DISTRIBUTION:** Arctic Ocean: Barents Sea, at 7.5 meters, on sandy silt with detritus; Franz Josef Land, Hayes Island, at 3-7 meters, on silt and in *Alaria esculenta* on stones; Kara Sea, at 52 meters, on thin clay.
**REMARKS:** The figure of this species was published upside-down in its original description (SIKORSKI, 1994).

## ***Scolelepis (Scolelepis) mesnili*** (Bellan & Lagardère 1971)

*Nerine mesnili* BELLAN & LAGARDÈRE, 1971: 572-576, figs. 1-3.
**TYPE LOCALITY:** Several localities are referred in the original description, but none is cited as being the type locality: Oléron Island (Charente Maritime) and the coast of Landes (Western France); Basque coast; Porto Santo (Madeira Archipelago); near Rabat (Morocco). On the lowest emerging part of fine sand beaches.
**SELECTED REFERENCES:** *Scolelepis mesnili* — CAPACCIONI-AZZATI, 1991: 57-59, fig. 3. *Nerine* sp. — BELLAN, 1969: 45.
**DISTRIBUTION:** Oléron Island (Charente Maritime) and the coast of Landes (Western France); Basque coast; Porto Santo (Madeira Archipelago); near Rabat (Morocco); Western Mediterranean Sea (Delta of Ebro). On the lowest emerging part of fine sand beaches.
**REMARKS:** BELLAN & LAGARDÈRE (1971) justified *Scolelepis mesnili* as a separate species from *S. squamata* (as *Nerine cirratulus*) based on minor morphological differences in body shape and first appearance of hooded hooks. Besides, they remarked that althought populations of both species co-occur on the same beach, they do not overlap, with *S. squamata* occurring always in a higher horizon than *S. mesnili* (BELLAN & LAGARDÈRE, 1971; MACIOLEK, 1987).

## ***Scolelepis (Scolelepis) squamata*** (O.F. Müller 1806)

*Lumbricus squamatus* O.F. MÜLLER, 1806: 39.
**TYPE LOCALITY:** Denmark.
**SYNONYMS:** *Lumbricus cirratulus* Delle Chiaje 1829; *Malacoceros logirostris* Quatrefages 1843; *Nerine capensis* McIntosh 1925; *Nerine cirratulus chilensis* Hartmann-Schröder 1962.
**SELECTED REFERENCES:** *Scolecolepis squamata* — SÖDERSTRÖM, 1920: 218. *Scolelepis squamata* — DAY, 1967: 483, fig. 18.7.*c-h*; FOSTER, 1971: 59-63, figs. 118-131; LIGHT, 1977: 73-75, figs. 2, 3*a-b*; LIGHT, 1978: 105-110, figs. 105-107, table 4, pictorial key in page 101; KIRKEGAARD, 1996: 99-101, fig. 47. *Scolelepis (Scolelepis) squamata* — FOSTER, 1971: 59-63, figs. 118-131; GILLANDT, 1979: 47-48, fig. 14; MACIOLEK, 1987: 30-33, fig. 8, table 1 [in part; in part = *Scolelepis (Scolelepis) agilis* (Verrill 1874)]; HARTMANN-SCHRÖDER, 1996: 335-336, fig. 153; DELGADO-BLAS, 2006: 76-79, fig. 1. *Lumbricus cirratulus* — DELLE CHIAJE, 1829: 196. *Nerine Cirratulus* — CLAPARÈDE, 1869: 66-70, pl. 24 fig. 1. *Nerine cirratulus* — LO BIANCO, 1893: 32; MESNIL, 1896*a*: 152-165, 171-172, pl. 9; SAINT-JOSEPH, 1898: 349-352, pl. 20 fig. 164; MCINTOSH, 1909: 158; MCINTOSH, 1915*b*: 148-154, pl. 90 fig. 2, pl. 91 fig. 4, pl. 94 figs. 4-6, 12, pl. 97 fig. 2, pl. 98 fig. 1, pl. 105 fig. 1; FAUVEL, 1927*a*: 36, fig. 11*g-n*; WESENBERG-LUND, 1951: 66-68, fig. 5; BERKELEY & BERKELEY, 1952: 27; FAUVEL, 1953: 312-313, fig. 164*g-n*; HANNERZ, 1956: 16-18, fig. 3; FAUVEL & RULLIER, 1959*b*: 953; KIRKEGAARD, 1959: 17-18; BELLAN & LAGARDÈRE, 1971: 576-577, fig. 3. *Nerine cirratulus chilensis* — HARTMANN-SCHRÖDER, 1962: 142-144, figs. 179-182. *Scolelepis chilensis* — BLAKE, 1983: 207-210, fig. 2. *Malacoceros longirostris* — QUATREFAGES, 1843: 13-14, pl. 3 figs. 7-8; QUATREFAGES, 1866*b*: 443. *Nerine capensis* — MCINTOSH, 1925: 71.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Nerine cirratulus*; Tagus Estuary; Peniche); SOUSA-REIS *et al.*, 1982 (as *Nerine cirratulus*; Peniche region); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Lagoon of Albufeira; Tagus Estuary; Lagoon of Óbidos; Peniche); DEXTER, 1992 (as *Nerine cirratulus*, and as *Nerine (Scolelepis) cirratulus*; previous records: Ria de Alvor; Sines; Peniche; Figueira da Foz); SPRUNG, 1994 (as *Nerine cirratulus*; Ria Formosa); RAVARA, 1997 (off Aveiro); CANCELA DA FONSECA *et al.*, 2006 (Aljezur; Odeceixe).
**DISTRIBUTION:** Arctic; off Iceland; Norway and Scotland to Senegal; Skagerrak; North Sea; English Channel; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; South Africa; Mozambique; New England to Florida; Barbados; Central America; Northwest Pacific Ocean, from Western Canada to south California; Antarctic. In sand. Intertidal to about 73 meters.

**REMARKS:** PETTIBONE (1963*b*) placed under synonymy *Lumbricus cirratulus* Delle Chiaje 1828, from the Bay of Naples, with *Scolelepis squamata* (Müller 1806), from Denmark (together with several other species; see details in: PETTIBONE, 1963*b*; MACIOLEK, 1987). This decision was accepted by most authors, but BELLAN & LAGARDÈRE (1971) recognized both species as separate, stating that *S. squamata* sensu PETTIBONE (1963*b*) included several very similar but different and valid species, like *Scolelepis cirratulus* (as *Lumbricus cirratulus* in the synonymy list). The same authors also stated that a detailed statistical study of the chaetal distribution in specimens from Europe would probably separate an Atlantic European form (*S. squamata*), from a Mediterranean form (*L. cirratulus* Delle Chiaje). However, they didn't suggest where would be the possible frontier between the two species, and in the same paper (BELLAN & LAGARDÈRE, 1971) they identify as *Nerine cirratulus* (Delle Chiaje), the *Scolelepis* specimens they collected at the coast of the Île d'Oléron (Atlantic coast of France).

MACIOLEK (1987) compared one specimen labelled as *Nerine cirratulus* from the Bay of Naples with specimens from Netherlands. They were similar with the exception that the Italian specimen showed unidentate hooded hooks, with some indication of wear in the apical teeth, while the Dutch specimens had clearly bi- and tridentate hooded hooks. MACIOLEK (1987) also accepted the necessity to revise the synonymy of *S. squamata*, but pending on examination of more material from Europe and other geographic regions, she decided to accept the synonymy proposed by PETTIBONE (1963*b*) and supported by FOSTER (1971) and LIGHT (1978). The same synonymy will be accepted here.

DELGADO-BLAS (2006) revised the *Scolelepis* species from the Grand Caribbean, and determined that several species that had been synonymized with *Scolelepis (Scolelepis) squamata* were in fact valid, resurrecting some of them as belonging to *Scolelepis (Scolelepis)*. This was the case of *Nerine agilis* Verrill 1874, (and its junior synonym *Nerine heteropoda* Webster 1879), of *Spio acuta* Treadwell 1914, and of *Nerinides goodbodyi* Jones 1962, all of them synonymized with *S. squamata* by PETTIBONE (1963*b*), and of *Nerine minuta* Treadwell 1939, synonymized with *S. squamata* by HARTMAN (1951*b)*.

### ***Scolelepis (Parascolelepis) tridentata*** (Southern 1914)

*Nerinides tridentata* SOUTHERN, 1914: 98-99, pl. 10 figs. 23*A-J*.

**TYPE LOCALITY:** Blacksod Bay (Ireland), in *Laminaria* roots, near the low-water mark.

**SELECTED REFERENCES:** *Nerinides tridentata* — MCINTOSH, 1922*a*: 20-21; FAUVEL, 1927*a*: 33, fig. 10*f-l*; ELIASON, 1962*b*: 263. *Scolelepis (Nerinides) tridentata* — HARTMANN-SCHRÖDER, 1971*a*: 335-336; LIGHT, 1977: 75-76, fig. 3*c-e* [in part; syntype material only]. *Scolelepis (Parascolelepis) tridentata* — MACIOLEK, 1987: 33-34, table 2; HARTMANN-SCHRÖDER, 1996: 337. *Scolelepis tridentata* — KIRKEGAARD, 1996: 101-102, fig. 48. *Pseudomalacoceros tridentata* — PARAPAR, BESTEIRO & URGORRI, 1992*b*: 112, fig. 1*C*.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Nerinides tridentata*; continental shelf of Algarve); DEXTER, 1992 (as *Pseudomalacoceros (Nerinides) tridentata*; previous records: Ria Formosa; continental shelf of Algarve; Sines); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Ria Formosa); SPRUNG, 1994 (as *Nerinides tridentata*; Ria Formosa); RAVARA, 1997 (as *Pseudomalacoceros tridentata*; off Aveiro); CANCELA DA FONSECA *et al.*, 2006 (Aljezur; Odeceixe).

**DISTRIBUTION:** North Atlantic to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; British Isles; English Channel; North Sea; Skagerrak; Öresund; Galicia. On mud, muddy sand, and in *Laminaria* holdfasts. Low water to about 140 meters.

**REMARKS:** SOUTHERN (1914) described this species as having tridentate hooks, but LIGHT (1977), based on type material, observed that they were multidentate, having 3-5 (usually 4 or 5) apical teeth surmounting the main fang. Besides, notochaetae were present on chaetiger 1, instead of absent, and an occipital antenna, not described by SOUTHERN (1914), was also present. These observations were later confirmed by MACIOLEK (1987).

## *GENUS ***Spio*** Fabricius 1785

*Spio* FABRICIUS, 1785 [not König *in* Müller 1771 (Polychaeta)]: 258-259.

**TYPE SPECIES:** *Nereis filicornis* O.F. Müller 1776.

**SYNONYMS:** *Paraspio* Czerniavsky 1881; *Euspio* McIntosh 1915.

**REMARKS:** *Spio creaticornis* Montagu 1813 was considered as indeterminable by HARTMAN (1959: 390) and will not be considered here.

BICK, OTTE & MEIßNER (2010) published a key for the species of *Spio* occurring in the North and Baltic Seas. This key includes the biggest part of the species occurring in Europe, and is reproduced below, as a complement to the key of all species present in the European waters.

**KEY TO SPECIES:**

**1a.** Neuropodial hooks tridentate; neurohooks from chaetiger 11 (10-12; in some Mediterranean populations of *Spio decoratus* they are stated to be present from chaetiger 14); anterior dorsum and venter with dark pigmentation, dorsal as transversal stripes; adults 10-15 mm long.....**2**
**1b.** Neuropodial hooks bidentate.....**3**

**2a (1a).** Third apical tooth of hooded hooks clearly visible; pigmentation on the anterior region as a broad transverse pigmented band on the prostomium and peristomium; metameric dorsal ciliated organs begin between branchiae 5 and 6.....***S. decoratus****
**2b (1a).** Thirs apical tooth of hooded hooks hardly discernible; pigmentation on the anterior region as randomly distributed pigmented patches at the prostomium and peristomium; metameric dorsal ciliated organs begin between branchiae 4 and 5.....***S. symphyta***

**3a (1b).** Neuropodial hooks from chaetiger 11 (10-12); prostomium anteriorly rounded, with slight medial incision.....**4**
**3b (1b).** Neuropodial hooks from chaetiger 13-32; palps not ringed; pigmentation pattern in the anterior region absent; prostomium anteriorly entire, rounded or conical, or truncated, with a slight medial incision (*S. multioculata*).....**5**

**4a (3a).** Palps with ringed pigmentation; prostomium anterior to transverse depression with light to dark brown pigment; peristomium heavily pigmented, especially on median and posterior margin; dark brown pigment in front and in particular behind the dorsal transverse ciliated bands; no pigment ventrally apart from anterior margin of prostomium and median margins of peristomium, ventrolaterally brown pigment spots absent; pattern of pigmentation as in *S. malmgreni*; inferior neuropodial capillaries first appear on chaetiger 1; last 6-10 chaetigers abranchiate; dorsal ciliated organs reaching usually chaetiger 11; additional ciliary tufts adjacent to the dorsal ciliated organs absent; 9 neuropodial hooded hooks at maximum; 1-6 pairs of ventral subepidermal glands or white dots present, from chaetiger 4 (visible after staining with methyl green); posterior-most notopodial lamellae lobe-like; adults 9-20 mm long, for 1-2 mm wide.....***S. filicornis****
**4b (3a).** Palps without ringed pigmentation; pattern of pigmentation similar to *S. filicornis*, but prostomium not pigmented; inferior neuropodial capillaries first appear on chaetiger 3 or 4; last 4-7 chaetigers abranchiate; dorsal ciliated organs reaching chaetiger 14 at maximum; additional ciliary tufts adjacent to the dorsal ciliated organs not known; up to 14 neuropodial hooded hooks; presence of ventral subepidermal glands or white dots not known; posterior-most notopodial lamellae not known; adults up to 40 mm long (50-76 mm, according to MCINTOSH, 1915*b*), for 2.1 mm wide.....***S. malmgreni***
**4c (3a).** Palps without ringed pigmentation; prostomium with light brown pigment from anterior margin to transverse depression, but pigment sometimes completely absent; peristomium dark brown pigmented, especially on median and posterior margins; dark brown pigment in front of the dorsal transverse ciliated bands, sometimes also slightly pigmented behind them; brown pigment spots ventrolaterally present at anterior margin of chaetiger 2 to about chaetiger 9 or 10 (chaetiger 15 at maximum); inferior neuropodial capillaries first appear on chaetiger 1; last 4-5 chaetigers abranchiate; dorsal ciliated organs up to chaetiger 16; additional ciliary tufts adjacent to the dorsal ciliated organs present; up to 9 neuropodial hooded hooks; 1-4 pairs of ventral subepidermal glands or white dots present, from chaetiger 4 (visible after staining with methyl green); posterior-most notopodial lamellae cirriform; adults 9-17 mm long, for 0.7-1.3 mm wide.....***S. arndti***

**5a (3b).** Branchiae of chaetiger 1 long (equal or nearly equal in length to those on chaetiger 2).....**6**
**5b (3b).** Branchiae of chaetiger 1 small (longer than dorsal lamellae but no more than half the length of branchiae on chaetiger 2) or tiny (shorter or equal than the dorsal lamellae).....**7**

**6a (5a).** Neuropodial hooks from chaetiger 14 (13-15); maximal number of neurohooks per bundle 9; adults 20-32 mm long; prostomium anteriorly rounded.....***S. martinensis***
**6b (5a).** Neuropodial hooks from chaetigers 28-32; maximal number of neurohooks per bundle 8; adults 20-25 mm long; prostomium anteriorly truncated, with a slight medial incision.....***S. multioculata***

**7a (5b).** Branchiae of chaetiger 1 short, but clearly longer than the notopodial postchaetal lamellae; anterior margin of prostomium bluntly rounded; neuropodial hooks from chaetiger 16-21; maximal number of neurohooks per bundle 10; adults 8.5-13 mm long.....***S. goniocephala***
**7b (5b).** Branchiae of chaetiger 1 tiny, shorter, as long as, or slightly longer than the notopodial postchaetal lamellae.....**8**

**8a (7b).** Anterior prostomium tapered, conical; neuropodial hooks from chaetiger 16-22, with a weakly developed main fang; maximal number of neurohooks per bundle 9; adults 16.6 mm long.....***S. theeli***
**8b (7b).** Anterior margin of prostomium bluntly rounded or slightly convex; neuropodial hooks from chaetiger 17, with main fang large, nearly forming a right angle to shaft; maximum number of neurohooks per bundle 6-8; no complete adults known.....***S. armata***

**KEY TO SPECIES OF *Spio* FROM THE NORTH AND BALTIC SEAS:**
(adapted from BICK, OTTE & MEIßNER, 2010)

**1a.** Branchiae on chaetiger 1 distinctly shorter than branchiae on chaetiger 2; bidentate neuropodial hooded hooks first appear on chaetigers 16–23 (12–15 in juveniles, width <0.4 mm).....**2**
**1b.** Branchiae on chaetiger 1 as long as those on chaetiger 2, or only slightly shorter; bi- or tridentate neuropodial hooded hooks first appear on chaetigers 11–14 in juveniles and adults.....**3**

**2a (1a).** Branchiae on chaetiger 1 very short, only slightly longer or as long as notopodial postchaetal lamellae; anterior part of prostomium broadly rounded, posterior part tapered; lateral ciliary bands posteriorly curved and going nearly completely back to the transverse ciliary band of chaetiger 2; metameric dorsal ciliated organs double-paired; neuropodial hooded hooks from chaetigers 17 (14–16, according to THULIN, 1957; 8–20, according to SIKORSKI 2001), strongly curved, main fang large, nearly forming a right angle to shaft; inferior sabre chaetae and neuropodial hooks appearing jointly....***S. armata***
**2b (1a).** Branchiae on chaetiger 1 short, but distinctly longer than notopodial postchaetal lamellae; anterior part of prostomium tapered, posterior part broadly rounded; lateral ciliary bands slightly curved outwards in the range of the first transverse ciliary band; single-paired metameric dorsal ciliated organs; neuropodial hooded hooks from chaetigers 16–23 (12–15 in juveniles, width <0.5 mm), uniformly curved, with a weakly developed main fang; inferior sabre chaetae appearing after the first presence of the neuropodial hooded hooks.....***S. goniocephala***

**3a (1b).** Neuropodial hooded hooks bi- or tridentate from chaetiger 11 (rarely 10).....**4**
**3b (1b).** Neuropodial hooded hooks tridentate, from chaetiger 14 (rarely 13); posterior part of prostomium tapered; lateral ciliary bands posteriorly curved and going incompletely backwards to the transverse ciliary band of chaetiger 2; metameric dorsal ciliated organs doublepaired.....***S. martinensis***

**4a (3a).** Neuropodial hooded hooks bidentate; metameric dorsal ciliated organs present from between branchial pairs 3 and 4; posterior part of prostomium with distinct long, keel-shaped elevation (visible in lateral view); lateral ciliary bands curved outwards in the range of the first transverse ciliary band, posteriorly curved and going nearly completely backwards to the transverse ciliary band of chaetiger 2; conspicuous dark-brown pigment on peristomium and no or very faint pigment on prostomium.....***S. arndti***
**4b (3a).** Neuropodial hooded hooks usually tridentate; metameric dorsal ciliated organs present from between branchial pairs 4 and 5 or 5 and 6; posterior part of prostomium pointed or tapered; distinct brown pigment on peristomium and.....**5**

**5a (4b).** Prostomium not distinctly separated from peristomium by a furrow; brown pigment on prostomium and peristomium in irregular patches; lateral ciliary bands curved outwards in the range of the first transverse ciliary band, posteriorly curved and going nearly completely backwards to the transverse ciliary band of chaetiger 2; metameric dorsal ciliated organs from between branchial pairs 4 and 5; third tooth of hooded hooks hardly visible.....***S. symphyta***
**5b (4b).** Prostomium distinctly separated from peristomium by a furrow; broad transverse pigmented band on prostomium and peristomium; lateral ciliary bands posteriorly curved and going only partly backwards to the transverse ciliary band of chaetiger 2; metameric dorsal ciliated organs present from between branchial pairs 5 and 6; third tooth on the hooded hooks clearly visible.....***S. decoratus***

## *Spio armata* (Thulin 1957)

*Microspio armata* THULIN, 1957: 57-59, fig. 4.

**TYPE LOCALITY:** Øresund, between Landskrona and Ven Island (Sweden), in clay with stones and shells, at 17-21 meters.

**SELECTED REFERENCES:** *Spio armata* — HARTMANN-SCHRÖDER, 1971*a*: 302-304, fig. 102; KIRKEGAARD, 1996: 103-104, fig. 49; SIKORSKI, 2001: 319-321, text-figs. 1-11 and map in page 319; BICK, OTTE & MEIßNER, 2010: 162-164, figs. 1, 9*f*, 11-12.

**DISTRIBUTION:** Øresund; Western Baltic Sea; North Sea; Norwegian Sea; Arctic Ocean. In sandy and muddy bottoms. Sublittoral, recorded between 17-27 meters.

**REMARKS:** *Microspio armata* Thulin 1957 was considered as being indeterminable by MACIOLEK (1990), and as a possible junior synonym of *S. goniocephala*, by HARTMANN-SCHRÖDER (1996).

## *Spio arndti* Meißner, Bick & Bastrop 2011

*Spio arndti* MEIßNER, BICK & BASTROP, 2011: 15-19, figs. 7*B*, *D*, 8*B*, 9-10.

**TYPE LOCALITY:** Baltic Sea, 54º30.154N, 11º05.855E, at 15 meters.

**SELECTED REFERENCES:** *Spio filicornis* [not O.F. Müller 1776] — BICK & GOSSELCK, 1985: 242-244, pl. 32 fig. 3. *Spio* cf. *filicornis* — BICK, OTTE & MEIßNER, 2010: 168-171, figs. 4, 9*e*, 11-12

**DISTRIBUTION:** Baltic Sea. In sandy and pebbly sediments in subtidal regions, between 5-24 meters.

## **Spio decoratus* Bobretzky 1870

*Spio decoratus* BOBRETZKY, 1870: 256-257, figs. 74-77.

**TYPE LOCALITY:** Black Sea.

**SELECTED REFERENCES:** *Spio decoratus* — GIORDANELLA, 1969: 329-335, figs. 1-3, fig. without number in page 334, table 1 [specimens from Marseille, Banyuls (juvenile), Naples, and Black Sea]; GUÉRIN, 1972: 324-338, figs. 1-3 [in part]; DAUVIN, 1989: 168, 169-170, 173, fig. 1, tables 1-2; MACIOLEK, 1990: tables 1-2; GIANGRANDE, QUARTA & CAROPPO, 1992: 85-86, figs. 2-4, table 2; BÖGGEMANN, 1997: 120, fig. 94; BICK, OTTE & MEIßNER, 2010: 164-166, figs. 2, 9*b*, 11-12. *Spio filicornis* [not O.F. Müller 1776] — FAUVEL, 1927*a*: 43-44, fig. 15*a-g* [in part].

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Ria de Alvor; Figueira da Foz); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Mondego Estuary; Lagoon of Albufeira; Lagoon of Santo André; Ria Formosa); PARDAL, MARQUES & BELLAN, 1993 (Mondego Estuary); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 186 (A.3925)**, south Sines, 27 m, muddy sand: 1 complete specimen with 31 chaetigers for 4 mm long; prostomium in poor condition; pygidium trilobed; tridentate uncini from chaetiger 11; pigmented spots as specimen from St. 187 (A.3924). **St. 187 (A.3924)**, south Sines, 17 m, sand: 1 specimen; prostomium rounded; 2 pairs of eyes, being the first pair bigger; neurohooks from chaetiger 11; neurohooks tridentate, numbering 4-5 per neuropodium; width of chaetiger 10 of 325 µm; brown spots on dorsal region of the anterior chaetigers. **St. 194 (A.3918)**, south Sines, 84 m, sand: 3 specimens in poor condition, without color patterns; (1) neurohooks from chaetiger 11, with 3 teeth, in number of 5-9, width at chaetiger 10 of 340 µm, prostomium in bad condition; (2) neurohooks tridentate, from chaetiger 11, numbering 4-6 per bundle, width at chaetiger 5 of 300 µm, prostomium in bad condition; (3) neurohooks tridentate from chaetiger 11, in number of 5-7, width at chaetiger 10 of 315 µm; prostomium rounded.

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; English Channel; North Sea. In fine, coarse and muddy sand. Between 0-25 meters.

**REMARKS:** *Spio decoratus* was originally described by BOBRETZKY (1870) as having bidentate hooks, while all the posterior records of the species describe it as having tridentate hooks.

GUÉRIN (1972) described the presence of a *Spio decoratus* "atypique" from the region of Marseille, quite close to the typical form of the species, with the difference of having the neuropodial hooks starting at chaetiger 14, instead of 11. The author considered this difference as being a size related variation, with the typical form being 10-15 mm long, against 20-25 mm in the atypical one. Besides, the same author also found two types of larval development for the Mediterranean larvae of *Spio decoratus*, one pelagic and the second benthonic, which he attributed to different reproductive strategies of the species to the habitat where it lives. These results require confirmation, however, as a different but close species could be involved.

GIANGRANDE, QUARTA & CAROPPO (1992) also described an atypical form from Alimini Lake, a brackish-water environment on the Southern Adriatic coast of Italy, showing neuropodial hooks from chaetigers 8-9, which seems to point to *Microspio* specimens.

## **Spio filicornis* (O.F. Müller 1776)

*Nereis filicornis* O.F. MÜLLER, 1776: 218.

**TYPE LOCALITY:** West Greenland, in the vicinity of Fedrikshåb/Paamiut. MEIßNER, BICK & BASTROP (2011) designated a neotype from Iluilârssuk, near Paamiut (Fedrikshåb), West Greenland, 61º50.059N, 49º25.183W, eulittoral.

**SYNONYMS:** [?] *Spio Gattyi* McIntosh 1909; [?] *Spio martinensis* var. *pacifica* Berkeley 1927.

**SELECTED REFERENCES:** *Nereis filicornis* — FABRICIUS, 1780: 307-308. *Spio filicornis* — FABRICIUS, 1785: 264-269, pl. 5 figs. 8-12. *Spio filicornis* — [?] MCINTOSH, 1915: 172-176, pl. 97 fig. 9, pl. 98 fig. 11, pl. 105 fig. 13; [?] SÖDERSTRÖM, 1920: 245-247, figs. 90, 154-155 [= probably *Spio martinensis* Mesnil 1896, according to GIORDANELLA (1969)]; [?] ELIASON, 1920: 40-42 [in part]; [?] FAUVEL, 1927*a*: 43-44, fig. 15*a-g*; [?] OKUDA, 1937*b*: 224-225, fig. 5; [?] HANNERZ, 1956: 62-66, figs. 18-19; [?] THULIN, 1957: 49-53, fig. 1; [?] DAUVIN, 1989: 168, 172-173, 175, fig. 2, tables 2, 4; [?] GIANGRANDE, QUARTA & CAROPPO, 1992: table 2; [?] HARTMANN-SCHRÖDER, 1996: 338-339, fig. 154; [?] KIRKEGAARD, 1996: 105-106, fig. 50; [?] WORSAAE, 1999*a*: 188-195, figs. 2-5, table 1; [?] WORSAAE, 1999*b*: 166-168, figs. 1-3; MEIßNER, BICK & BASTROP, 2011: 7-15, figs. 1, 3-6, 7*A*, *C*, 8*A*. [?] *Spio Gattyi* — MCINTOSH, 1909: 165. [?] *Spio martinensis* var. *pacifica* — BERKELEY, 1927: 413. [?] Group A — GIORDANELLA, 1969: 337-339, fig. 4, tables 1-2 [specimens from Arcachon, in part]. Not *Spio filicornis* — MALMGREN, 1867*a*: 91-92, pl. 1 fig. 1; GIORDANELLA, 1969: 327, 344-346, figs. 7, table 2 [specimens from Stockhom]; MACIOLEK, 1990: 1116-1118, fig. 1, tables 1-2 [all = *Spio malmgreni* Sikorski 2001, according to SIKORSKI (2001)].

**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Lagoon of Óbidos); SOUSA-REIS *et al.*, 1982 (as *Spio folicornis*; Peniche region; Sines; Sado Estuary; Arrábida; Peniche); COSTA, GAMITO & OLIVEIRA, 1984 (Sado Estuary); PINTO, 1984 (Sado Estuary); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); CANCELA DA FONSECA, COSTA & BERNARDO, 1989 (Lagoon of Santo André); DEXTER, 1992 (previous records: Ria Formosa; continental shelf of Algarve); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Mondego Estuary; Lagoon of Santo André; Ria Formosa); SPRUNG, 1994 (Ria Formosa); CANCELA DA FONSECA *et al.*, 2006 (Aljezur; Odeceixe); [?] present work (southwestern continental shelf). [Probably many, if not all, of these records refer to another species of *Spio*, maybe to *Spio decoratus* or undescribed species].

**MATERIAL: SEPLAT 7 (2nd part) — St. 254 (A.3877)**, off Cape Sardão, 74 m, sand: [?] 1 specimen in poor condition; bilobed prostomium not seen; without color marks or patterns (probably faded by alcohol and formalin); neurohooks with 2 teeth, starting at chaetiger 11, in number of 7; width at chaetiger 10 of 700 µm; 2 pairs of eyes, being the anterior ones bigger.

**DISTRIBUTION:** The species was confirmed by MEIßNER, BICK & BASTROP (2011) to be present only in Iluilârssuk (type locality) and Paamiut (Fedrikshåb), both locations in West Greenland. The record by WORSAAE (1999*b*) from Nipisat, Disko (West Greenland) belongs also probably to *Spio filicornis*, but needs confirmation. West Greenland, in intertidal and shallow subtidal regions (of sandy beaches and in sandy sediments of rockpools between stones, gravel and macrophytes (*Fucus* sp.). All the other records of the species need to be confirmed. [?] Arctic; [?] North Atlantic Ocean; [?] Eastern coast of North America, from Canada to Delaware; [?] North Sea; [?] Skagerrak; [?] Kattegat; [?] Öresund; [?] western coast of France; [?] Portugal; [?] North and Central Pacific; [?] Japan; [?] Ascencion Island; [?] South Africa; [?] Red Sea.

**REMARKS:** Records of *Spio filicornis* previous to the redescriptions of the species given by MEIßNER, BICK & BASTROP (2011) should be revised. The species probably shows a much more limited distribution than the actually attributed to it. It is confirmed as being present only in the west coast of Greenland, in intertidal and shallow subtidal regions. South European records probably refer to different species.

The records by WORSAAE (1999*a*, 1999*b*) from Nipisat, Disko (West Greenland), needs to be confirmed, as some taxonomic important characters for the identification of the species, such as the nuchal and dorsal ciliated organs, were not referred in the descriptions, and there is at least one similar species occurring in Greenland (KARIN MEIßNER, personal communication, May 2011).

The species is easily recognized by the presence of ringed pigmented palps, together with other characters as neurohooks starting at chaetiger 11 (exceptionally 10 or 12). However, WORSAAE (1999*b*) and MEIßNER, BICK & BASTROP (2011) found that the ringed pigmentation in the palps fades in formalin and almost disappears in ethanol, making this character useless in preserved material storaged for a long period. MEIßNER, BICK & BASTROP (2011) also stated that characters formerly used to identify *S. filicornis* have turned out to be inappropriate. Important characters to discriminate the species from other similar species, like *S. arndti*, *S. malmgreni* or *S. readi*, the first two of which are present in European waters, include the beginning and the posterior extension of the dorsal ciliated organs, the number of

posterior chaetigers with short and without branchiae, the shape of the neuropodial lamellae on midbody chaetigers, and the appearance and number of ventral white dots (MEIßNER, BICK & BASTROP, 2011). In the European waters *S. filicornis* can be separated from the similar species *Spio arndti*, from the Baltic Sea, and *S. malmgreni*, from the Barents Sea, according to the above key. Other very similar species, already described or not, might be involved in the previous European and world-wide distribution of the species. This way, all the records of *S. filicornis* need to be confirmed.

The specimens designated by GIORDANELLA (1969) as Group A are close to *Spio filicornis*, due to the presence of pigmentation on the anterior region of the body and bidentate neurohooks from chaetiger 11. GIORDANELLA (1969) considered this possibility, but as it would result in a discontinuous distribution of the species, she considered it as being probably a local variety of *S. decoratus*.

The Portuguese specimen here identified is dubious. The specimen is in poor condition and colour patterns absent.

## ***Spio goniocephala*** Thulin 1957

*Spio goniocephala* THULIN, 1957: 53-57, figs. 2-3.

**TYPE LOCALITY:** Øresund, south of Helsingör, at Grund Disken, at 8-9 meters, in clean sand.

**SYNONYMS:** [?] *Microspio arctica* Söderström 1920.

**SELECTED REFERENCES:** *Spio goniocephala* — HARTMANN-SCHRÖDER, 1971*a*: 301-302, fig. 101; MACIOLEK, 1990: tables 1-2; HARTMANN-SCHRÖDER, 1996: 339-340, fig. 155; KIRKEGAARD, 1996: 106-107, fig. 51; BÖGGEMANN, 1997: 120, fig. 96; SIKORSKI, 2001: 321, text-figs. 1-5 in page 322; BICK, OTTE & MEIßNER, 2010: 171-173, figs. 5-6, 8, 9*a*, 11-12. *Spio filicornis* — ELIASON, 1920: 40-42, figs. 7-9 [in part]. *Microspio arctica* — SÖDERSTRÖM, 1920: 250-251, figs. 158-159 [in part].

**DISTRIBUTION:** Kattegat (Isefjord); Øresund (south Helsingör); North Sea; Baltic Sea. In sandy bottoms, including clean sand with *Macoma baltica*, coarse sand with algae. Between 8-28 meters.

## ***Spio malmgreni*** Sikorski 2001

*Spio malmgreni* SIKORSKI, 2001: 322-324, fig. in page 323, map in page 324.

**TYPE LOCALITY:** Dalnezelenetzkaja Bay (Barents Sea), 69º07'N, 36º05'E, 8 meters, in muddy sand.

**SYNONYMS:** *Euspio Mesnili* McIntosh 1915 [HOMONYM; not *Spio mesnili* Augener 1914].

**SELECTED REFERENCES:** *Euspio Mesnili* — MCINTOSH, 1915*b*: 176-179, pl. 96 fig. 7, pl. 98 fig. 6, pl. 105 figs. 11, 16 [HOMONYM; not *Spio mesnili* Augener 1914]. *Spio filicornis* [not O.F. Müller 1776] — MALMGREN, 1867*a*: 91-92, pl. 1 fig. 1; GIORDANELLA, 1969: 327, 344-346, figs. 7, table 2 [specimens from Stockhom]; MACIOLEK, 1990: 1116-1118, fig. 1, tables 1-2.

**DISTRIBUTION:** Arctic Ocean; circumpolar in the Atlantic and Pacific Oceans; in the Atlantic in Scandinavia, Great Brittain, Canada, and New England; in the Pacific, down to the Sea of Japan. Preferes muddy and sandy sediments, but it can also be found in sandy sediment with boulders, broken shells, and among algae. Common between the low intertidal zone to 15 meters, but can be found down to 150 meters.

**REMARKS:** *Spio malmgreni* Sikorski 2001 is a species very close to *S. filiformis* (O.F. Müller 1776), from which it can be separated by its bigger size, the absence of pigmentation in the prostomium, and absence of ringed pigmentation on the palps. The species was first described as new by MCINTOSH (1915*b*), who noticed that the description of *Spio filicormis* given by MALMGREN (1867*a*) did not correspond to the same species described by O.F. MÜLLER (1776). MCINTOSH (1915*b*) created a new genus for the species, and named it as *Euspio mesnili* McIntosh 1915. However, with the synonymy of *Euspio* with *Spio*, the species became a homonym of *Spio mesnili* Augener 1914, from Australia. For this reason SIKORSKI (2001), who considered the species as being valid and distinct from *S. filicornis*, renamed it as *Spio malmgreni*.

## ***Spio martinensis*** Mesnil 1896

*Spio Martinensis* MESNIL, 1896*a*: 122-128, pl. 7 figs. 1-20.

**TYPE LOCALITY:** Anse St-Martin, La Hague, Northern France. According to MESNIL (1896*a*), the species was found at several places: near the fort of St-Germain-des-Vaux, on maërl, on low tide; in the Racine harbour, on intertidal coarse sand; between Digulleville and Omonville-la-Petite, on fine sand at low tide; at Douët, in the maërl and *Zostera* meadows, at low tide; at Digulleville, in the maërl, at low tide; at Anse d'Escalgrain, in fine sand.

**SELECTED REFERENCES:** *Spio Martinensis* — RIOJA, 1918*a*: 54-55. *Spio martinensis* — MCINTOSH, 1922*a*: 17-18; MESNIL, 1925: 676-677; HANNERZ, 1956: 75-85, figs. 24-28; GIORDANELLA, 1969: 327, 341-342, fig. without number in page 341, fig. 6, table 2 [specimens from Roscoff and Landemer];

DAUVIN, 1989: 168, 170-172, 173-175, tables 1-3; MACIOLEK, 1990: tables 1-2; GIANGRANDE, QUARTA & CAROPPO, 1992: table 2; HARTMANN-SCHRÖDER, 1996: 340; BÖGGEMANN, 1997: 121; BICK, OTTE & MEIßNER, 2010: 173-175, figs. 7, 9*c*, 11-12. *Spio filicornis* [not O.F. Müller 1776] — FAUVEL, 1927*a*: 43-44, fig. 15*a-g* [in part]. [?] Group B — GIORDANELLA, 1969: 339-341, fig. 5, tables 1-2 [specimens from Arcachon, in part]. Not *Spio martinensis* — SOUTHERN, 1914: 95-96.

**REFERENCES FOR PORTUGAL:** QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Lagoon of Albufeira; Lagoon of Óbidos); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Aveiro; Lagoon of Óbidos; Lagoon of Albufeira).

**DISTRIBUTION:** North Atlantic, from Ireland to Portugal; English Channel; southern North Sea; Isefjord (Kattegat); Skagerrak; northern Øresund; [?] Western Mediterranean Sea. In mud, fine sand, and coarse sand. Between 0-40 meters.

**REMARKS:** DAUVIN (1989) states the presence on younger juveniles of a very small tooth above the other two teeth, a tooth that disappears with the growth of the specimens. GIANGRANDE, QUARTA & CAROPPO (1992) also refer the presence of tridentate hooks in larvae of *Spio decoratus*, which become bidentate with the metamorphosis and settlement of the larvae.

The specimens designated by GIORDANELLA (1969) as Group B are here considered as belonging, possibly, to *Spio martinensis*, due to the absence of pigmentation on the anterior region of the body and presence of neurohooks from chaetiger 13. GIORDANELLA (1969) considered them as being probably a local variety of *S. decoratus*, due to the presence of tridentate hooks, being the third tooth very small. In my opinion, these specimens were probably juveniles of *S. martinensis*, and for this reason they presented a small third tooth, above the clearly defined two other teeth.

## ***Spio multioculata*** (Rioja 1918)

*Euspio multioculata* RIOJA, 1918*a*: 60-62, fig. 2.

**TYPE LOCALITY:** Santander (Northern Spain, Cantabric Sea), in the sandbank of Enmedio, burrowed in the sand.

**SELECTED REFERENCES:** *Spio multioculata* — FAUVEL, 1927*a*: 44-45, fig. 15*h-o*; [?] DUMITRESCO, 1962: 61-62, fig. 2; MACIOLEK, 1990: tables 1-2; GIANGRANDE, QUARTA & CAROPPO, 1992: table 2. [?] *Spio multioculata* ? — HANNERZ, 1956: 66-71, figs. 20-21.

**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Lagoon of Santo André).

**DISTRIBUTION:** Cantabric Sea, in sand, at shallow water; Portugal; Adriatic Sea; Aegean Sea; [?] Black Sea, at 73 meters, in a bottom of mud with shells.

## ***Spio symphyta*** Meißner, Bick & Bastrop 2011

*Spio symphyta* MEIßNER, BICK & BASTROP, 2011: 19-23, figs. 11-12.

**TYPE LOCALITY:** North Sea, 55º13.060N, 06º51.297E, at 29 meters.

**SELECTED REFERENCES:** *Spio filicornis* [not O.F. Müller 1776] — BÖGGEMANN, 1997: 120, fig. 95. *Spio* cf. *filicornis* — BICK, OTTE & MEIßNER, 2010: 166-168, figs. 3, 9*d*, 10-12. [?] *Spio sp. nov.* — SIKORSKI, 2001: 282, text-fig. in page 282.

**DISTRIBUTION:** North Sea. In fine and coarse sand areas without silt in subtidal regions, between 14-40 meters.

## ***Spio theeli*** (Söderström 1920)

*Microspio théeli* SÖDERSTRÖM, 1920: 251, figs. 92, 160-161.

**TYPE LOCALITY:** Arctic Ocean: Novaya Zemlya, southern Gaaskap, 71º27'N, 52º10'E, 5-12 meters, in sand and stones; East Siberian Polar Sea, 67º53'N, 176º6'E, in coarse sand, between 4-6 fathoms (7.3-11 meters).

**SELECTED REFERENCES:** *Microspio théeli* — USCHAKOV, 1955*a*: 266, fig. 91*E-F*. *Spio theeli* — HANNERZ, 1956: 71-74, figs. 22-23; MACIOLEK, 1990: tables 1-2; WORSAAE, 1999*b*: 168; SIKORSKI, 2001: 325-327, text-figs. 1-10 in page 326, map in page 327. *Spio* nov. sp. 2 — WORSAAE, 1999*a*: 199-200, figs. 9-11, table 1.

**DISTRIBUTION:** Arctic Ocean; [?] Gullmar Fjord (Sweden, Skagerrak); Western Greenland. At shallow water in soft sediments.

## GENUS ***Spiogalea*** Aguirrezabalaga & Ceberio 2005

*Spiogalea* AGUIRREZABALAGA & CEBERIO, 2005*b*: 276-277.
**TYPE SPECIES:** *Spiogalea vieitezi* Aguirrezabalaga & Ceberio 2005.

### ***Spiogalea vieitezi*** Aguirrezabalaga & Ceberio 2005

*Spiogalea vieitezi* AGUIRREZABALAGA & CEBERIO, 2005*b*: 277-279.
**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, Atlantic Ocean (43º35.35'N, 1º55.15'W), at 1000 meters.
**DISTRIBUTION:** Bay of Biscay, NE Atlantic Ocean, between 1000-1739 meters, soft bottom.

## *GENUS ***Spiophanes*** Grube 1860

*Spiophanes* GRUBE, 1860: 88-89.
**TYPE SPECIES:** *Spiophanes Kröyeri* Grube 1860.
**REMARKS:** This genus was the subject ot two important recent revisions, the first one of species from Eastern Australia (MEIßNER & HUTCHINGS, 2003) and the second one worldwide (MEIßNER, 2005). Both publications are profusely illustrated and include dichotomic keys and comparative tables for species.

MEIßNER & HUTCHINGS (2003) introduced as a new diagnostic character the description of the openings of glandular organs in parapodia of the middle body region. Two different forms of parapodial gland openings are present: a simple vertical slit usually visible at chaetiger 9, or a gland opening exhibiting a species-specific structure called the "*chaetal spreader*", which is found on anterior chaetigers of the body, being a rough translation of the term "*Drüsenborstenspreiter*" used by SÖDERSTRÖM (1920) to designate this structure (MEIßNER & HUTCHINGS, 2003). Five different types of chaetal spreader were found within *Spiophanes* by MEIßNER & HUTCHINGS (2003): (*a*) the "2+3 type" with an undulate glandular opening; (*b*) the "1+2 type" with an undulate glandular opening; (*c*) the "0+1 type" with semicircular or subtriangular glandular opening; (*d*) the "0+1 type" with an undulate glandular opening; and (*e*) with a simple horizontal glandular opening. Terminology refers to the number of projections arising from the anterior and posterior margin of the gland opening, and the shape of the opening along which the bacillary chaetae emerge from inside the parapodial gland (MEIßNER & HUTCHINGS, 2003). This way, in the "2+3 type", there are two projections pointing to the anterior region of the body, and three in the direction of the posterior region of the body. Finally, and always according to MEIßNER & HUTCHINGS (2003), these chaetal spreaders are usually easier to observe after staining with methyl green, and if the material is in good condition, but can be difficult to observe in very small specimens, especially if the bacillary chaetae are exposed. They can be present from chaetigers 5-7 or 5-8, and the same type of chaetal spreader is present both in juveniles and adults.

**KEY TO SPECIES:**
(adapted from MEIßNER, 2005)

**1a.** Neuropodial hooks partially hooded; intersegmental ventrolateral pouches absent; dorsal ciliated organs as short ciliated grooves or bands; occipital antenna present or absent.....**2**
**1b.** Neuropodial hooks without hood; intersegmental ventrolateral pouches present; dorsal ciliated organs as long ciliated bands; occipital antenna present.....**4**

**2a (1a).** Prostomium with long anterolateral horns; dorsal ciliated organs as short bands extending to the end of chaetiger 2; openings of glandular organs of "0+1 type" with undulate opening well developed on chaetigers 5, 7 and 8; occipital antenna absent.....***S. bombyx****
**2b (1a).** Prostomium with short horns, or rounded to subtriangular and without anterolateral projections; dorsal ciliated organs as short bands or double loops; openings of glandular organs otherwise or absent; occipital antenna present or absent.....**3**

**3a (2b).** Dorsal ciliated organs as double loops extending to chaetiger 4; prostomium only slightly bell-shaped, often rounded, without distinct anterolateral projections; occipital antenna absent; openings of glandular organs on chaetigers 5-8 with indistinct crescent-shaped horizontal slit; reddish pigment in

notopodial postchaetal lamellae of chaetigers 9-15 in fresh material; no distinct methyl green staining pattern.....***S. wigleyi***
**3b (2b).** Dorsal ciliated organs as short grooves or bands not exceeding chaetiger 2; prostomium with short anterolateral horns; papilliform occipital antenna present; openings of glandular organs of "0 + 1 type" with semicircular opening developed on chaetigers 5-7, opening absent on chaetiger 8; yellow to orange pigment in neuropodia of chaetigers 11-14, sometimes also faint pigment present posteriorly on neuropodia of chaetiger 10; methyl green staining pattern as three longitudinal stripes on ventrum.....***S. abyssalis***

**4a (1b).** Chaetal spreader "2+3 type" with undulate glandular opening well developed on chaetigers 5-7; ventrolateral intersegmental pouches start from between chaetigers 14 and 15, but are first fully developed between chaetigers 15-16; dorsal ciliated organs two broad, straight thin bands extending to chaetigers 13-15; conspicuous dark brown pigment on parapodia of chaetigers 9-13 encompassing whole neuropodium, also, fair pigment (pinkish to light brown) developed on chaetigers 14-15.....***S. afer****
**4b (1b).** Chaetal spreader "0+1 type" with semicircular opening well developed on chaetigers 5-7 or chaetigers 5-8.....**5**

**5a (4b).** Ventrolateral intersegmental pouches starting from between chaetiger 15-16.....**6**
**5b (4b).** Ventrolateral intersegmental pouches starting from between chaetiger 14-15; dorsal ciliated organs two thin mediolateral, straight bands along the dorsum extending to about chaetiger 13; first four parapodia gradually shifted from almost dorsal positions to almost entirely lateral positions, notopodial postchaetal lamellae long and subulate; dark brown pigment around glandular opening on parapodia of chaetigers 9-14.....***S. mediterraneus***

**6a (5a).** Chaetal spreader in chaetigers 5-7; first four parapodia oriented dorsally, notopodial postchaetal lamellae foliaceous, tapering to subulate; dorsal ciliated organs two thin near middorsal bands extending to chaetigers 14-16; light brown pigment in postchaetal lamellae of chaetigers 1-7; brown pigment in neuropodia of chaetigers 7-14, most conspicuous on chaetigers 8-11; light brown pigment in notopodial postchaetal lobes in chaetigers 14 to about 35.....***S. kroyeri***
**6b (5a).** Chaetal spreader in chaetigers 5-8, well developed in chaetigers 5-7, with simple vertical opening in chaetiger 8; first four parapodia gradually shifted from almost dorsal positions to almost entirely lateral positions, notopodial postchaetal lamellae cirriform to subulate, gradually shorter from chaetigers 2-4; dorsal ciliated organs unknown; pigment unknown.....***S. reyssi***

## ***Spiophanes abyssalis*** Maciolek 2000

*Spiophanes abyssalis* MACIOLEK, 2000: 540-543, fig. 4, table 2.
**TYPE LOCALITY:** Canary Islands, 27º29.8'N, 15º20'W, 2351 meters.
**SELECTED REFERENCES:** *Spiophanes abyssalis* — MEIßNER, 2005: 48-50, fig. 29, table 1.
**DISTRIBUTION:** North Atlantic: between Ireland and Woods Hole, at 3338-3356 meters; Canary Islands, at 2351 meters; Bay of Biscay, at 1922 meters.

## ****Spiophanes afer*** Meißner 2005

*Spiophanes afer* MEIßNER, 2005: 36-38, fig. 20, table 1.
**TYPE LOCALITY:** Mediterranean Sea, Spain, between Cape San Antonio and Valencia harbour.
**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (1st part) — St. 170 (A.3092)**, off Vila Nova de Milfontes, 365 m, sandy mud: 1 specimen, in poor condition (probably due to bad fixation); nuchal organs extending to chaetiger 12; occipital antenna was present; transverse dorsal ridges from chaetiger 17; interparapodial pouches from about chaetiger 15; parapodia of chaetigers 8-14 with dark glandular material; sabre chaetae from chaetiger 4; neurohooks from chaetiger 15; bacillary chaetae as described; it was inside a muddy tube. **St. 236 (A.3140)**, off Vila Nova de Milfontes, 390 m, sandy mud: 1 specimen in poor condition, plus one fragment with about 15 chaetigers; occipital antenna missing; chaetigers 9-14 with dark glandular material; bacillary chaetae typical of the species; chaetae as described; interparapodial pouches present. **SEPLAT 7 (2nd part) — St. 29*A* (A.4090)**, north Sines, 435 m, muddy sand: 1 specimen, plus one fragment with 29 chaetigers; digitiform occipital antenna present on posterior edge of prostomium; nuchal organs extending to chaetiger 8; lamellae as described; parapodia of chaetigers 9-14 with dark glandular material; interparapodial lateral pouches from chaetiger 15; prominent ciliated transverse dorsal ridges from chaetiger 15; sabre chaetae from chaetiger 4; neuropodial hooks from chaetiger 15, 5-6 per

row; bacillary chaetae not seen; 1 mm wide at chaetiger 10. **St. 38 (A.4069)**, north Sines, 120 m, sand with shells: 1 specimen; nuchal organs extending to chaetiger 16; lamellae as described; sabre chaetae from chaetiger 4; neurohooks from chaetiger 15; transverse dorsal ridges from chaetiger 18; interparapodial pouches start between chaetigers 15-16; width at chaetiger 10 of 750 µm; bacillary chaetae as described. **St. 55 (A.4052)**, north Sines, 158 m, sand: 1 small incomplete specimen, broken in 3 pieces; it was still partially inside the tube, made of mud; width at chaetiger 10 of 250 µm; occipital antenna present; interparapodial lateral pouches present from chaetiger 15; prominent ciliated transverse dorsal ridges present from chaetiger 18; notopodial lamellae of chaetiger 1-4 well developed; nuchal organs conspicuous, extending to chaetiger 8; parapodia of chaetigers 9-14 with dark glandular material; neuropodial postchaetal lobe longer in chaetiger 1; bacillary chaetae at least on chaetiger 5, bristled and feathery (at least 8 chaetae); neuropodial hooks from chaetiger 14; neurochaetae of first chaetiger as described. **St. 270 (A.3869)**, SW Cape Sardão, 243 m, muddy sand: 1 small incomplete specimen, with 26 chaetigers, in poor condition; occipital antenna missing; nuchal organs difficult to observe, maybe to chaetiger 10; notopodial lamellae of chaetigers 1-4 well developed, lamellae of posterior notopodia with wide obcordate base and elongate, digitiform tip; parapodia 10-14 with glandular material; bacillary chaetae bristled and feathery; ciliated transverse dorsal ridges from chaetiger 15; neurohooks and interparapodial pouches from chaetiger 15.

**DISTRIBUTION:** Western Mediterranean Sea: Spain (Catalonia and Valencia), 5-25 meters; Eastern Mediterranean Sea, Israel, in 50 meters; Adriatic Sea; Aegean Sea; Portugal (120-435 meters); Mozambique, in 54 meters; South Africa, 30-138 meters; off Namibia, in 60 meters. Usually intertidal to 60 meters.

**REMARKS:** The biggest part of the Western Mediterranean and Southern European Atlantic records of *Spiophanes kroyeri* refer to this species.

## ****Spiophanes bombyx*** (Claparède 1870)

*Spio Bombyx* CLAPARÈDE, 1870: 485-487, pl. 12 fig. 2.

**TYPE LOCALITY:** Gulf of Naples, Italy.

**SYNONYMS:** *Spiophanes Verrilli* Webster & Benedict 1884.

**SELECTED REFERENCES:** *Spiophanes bombyx* — MESNIL, 1896*a*: 249-257, pl. 15; SAINT-JOSEPH, 1898: 352-354, pl. 20 fig. 165; MCINTOSH, 1909: 167; MCINTOSH, 1915*b*: 182-186, text-fig. 118, pl. 93 fig. 1, pl. 94 fig. 14, pl. 97 fig. 6, pl. 98 fig. 10, pl. 105 fig. 9, pl. 106 fig. 9, pl. 107 fig. 16; ELIASON, 1920: 50-51; SÖDERSTRÖM, 1920: 243-244, figs. 97, 153; FAUVEL, 1927*a*: 41, fig. 14*a-i*; OKUDA, 1937*b*: 222-223, figs. 2-3; HANNERZ, 1956: 33-36, fig. 9; HARTMAN, 1966*b*: 22, pl. 5 figs. 14-16; DAY, 1967: 474, fig. 18.5.*a-e*; FOSTER, 1971: 40-43, figs. 66-75; LIGHT, 1978: 60-62, figs. 60-61, table 2, pictorial key in pages 54-55; JOHNSON, 1984: 6.9-6.11, figs. 6.1-6.2; IMAJIMA, 1991: 128-132, figs. 8-9; BLAKE, 1996*d*: 146-147, fig. 4.18.*a-e*; HARTMANN-SCHRÖDER, 1996: 341-342, fig. 156; KIRKEGAARD, 1996: 108-109, fig. 52; MEIßNER, 2005: 54-58, figs. 33-35, table 1. *Spiophanes Verrilli* — WEBSTER & BENEDICT, 1884: 728-729, pl. 6 figs. 65-72. Not *Spiophanes bombyx* — BLAKE & KUDENOV, 1978: 224 [= *Spiophanes modestus* Meißner & Hutchings 2003].

**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche; Lagoon of Óbidos); SOUSA-REIS *et al.*, 1982 (as *Spiophanes bombix*; Peniche region); COSTA, GAMITO & OLIVEIRA, 1984 (Sado Estuary); PINTO, 1984 (as *Spiophanes bombix*; Sado Estuary); AMOUREUX, 1987 (off Porto); MONTEIRO-MARQUES, 1987 (as *Spiophanes bombix*; continental shelf of Algarve); QUINTINO & GENTIL, 1987 (Lagoon of Óbidos); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Ria de Alvor; continental shelf of Algarve; Sines; Sado Estuary; Arrábida; Lagoon of Albufeira; Peniche; Figueira da Foz); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Peniche; Lagoon of Óbidos; Lagoon of Albufeira); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 132 (A.2611)**, off Praia de Vale Figueiras, 51 m, sand: 1 specimen, in poor condition. **St. 192 (A.2664)**, off Arrifana, 110 m, sand: 1 complete specimen, with tube and the 2 palps, which fell during the study. **SEPLAT 7 (1st part) — St. 77 (A.3006)**, off Cape Sardão, 162 m, sand: 1 fragment, with about 40 chaetigers; identified by comparison with other specimens of the species, by the shape of the neuropodial hooks, in rows of 7-9 per parapodium, and the shape of the parapodia. **SEPLAT 7 (2nd part) — St. 38 (A.4069)**, north Sines, 120 m, sand with shells: 2 fragments; first fragment with about 29 chaetigers; second fragment with about 47 chaetigers and pygidium, with 2 anal cirri; chaetae as described; without interparapodial pouches; rows with granular aspect in each chaetiger; rows of cilia also present. **St. 174 (A.3936)**, off Sines, 250 m, muddy sand: 3 specimens plus one middle fragment with about 10 chaetigers; neuropodial hooks from chaetiger 15; glandular region visible, as well as the opening of the glandular organs. **St. 178 (A.3933)**, off Sines, 130 m, sand: 2 specimens, in poor

condition. **St. 185 (A.3926)**, near Sines, 37 m, sandy mud: 8 specimens, plus one posterior fragment with pygidium; some specimens with tube. **St. 186 (A.3925)**, south Sines, 27 m, muddy sand: 15 specimens, plus 2 middle fragments and 1 posterior fragment with pygidium; some specimens still inside the tubes; tubes membranous and translucent, looking like a matrix of crossed fibers, with some sand grains attached. **St. 187 (A.3924)**, south Sines, 17 m, sand: 3 specimens, plus one fragment. **St. 188 (A.3923)**, south Sines, 17 m, sand: 3 specimens, plus 3 middle fragments and one posterior fragment with pygidium. **St. 189 (A.3922)**, south Sines, 29 m, muddy sand: 9 specimens, plus one middle fragment with about 12 chaetigers, and one posterior fragment with 29 chaetigers and pygidium; glandular region in about chaetigers 9 to 19; one specimen in very poor condition. **St. 194 (A.3918)**, south Sines, 84 m, sand: 1 specimen; neuropodial hooks from chaetiger 14. **St. 200 (A.3912)**, SW Sines, 200 m, gravelly sand: 1 specimen, in poor condition. **St. 254 (A.3876)**, off Cape Sardão, 71 m, sand: 1 incomplete specimen, plus one middle fragment with 48 chaetigers, and one posterior fragment with 47 chaetigers and pygidium. **St. 284 (A.3857)**, off Arrifana, 340 m, sand: 1 specimen, with the prostomium in poor condition.

**DISTRIBUTION:** Considered to be cosmopolitan. Records revised by MEIßNER (2005) include: North Sea, 2.9-65 meters; Kattegat, 2-20 meters; Irish Sea; English Channel, 1 meter; North Spain; Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Off Western Sahara, 60-70 meters; Western North Atlantic, off North Carolina, and Massachusetts, intertidal; Gulf of Mexico, off Florida, 18 meters; South Africa, 60 meters; Alaska, 5.2 meters; Southern Chukchi Sea, 5.7 meters; Bering Sea, 22.4-35 meters; British Columbia, intertidal; Oregon; California, 10-67 meters; off Chile, 82 meters. In sandy bottoms, from intertidal to about 190 meters; reported to be present down to 1336 meters. The species is also know to occur in Portugal, the Eastern Mediterranean Sea, and Adriatic Sea.

**REMARKS:** FOSTER (1971) points out the fact that DAY (1967) reports and figures specimens identified by him as *S. bombyx* with an occipital antenna, which could be the result of an error of observation or of being specimens of a different species, as *S. bombyx* lacks such antenna. MEIßNER (2005) studied material from South Africa, and no occipital antenna was observed.

MEIßNER (2005) considered the species as being cosmopolitan in sandy substrates, but when examining specimens from different localities found that variation in important morphological characters was present, which leaded, for instance, to the creation of a new species, *Spiophanes aucklandicus*, from New Zealand. Other specimens from several different localities were considered as *S. bombyx*, but several morphological groups could be identified, some of which apparently sympatric (MEIßNER, 2005): (a) specimens with neuropodial hooks starting on chaetiger 15 both in juveniles and adults, and sabre chaetae only in hook-bearing neuropodia (coastal waters around Europe, Western North Atlantic Ocean off Florida and North Carolina, Eastern North Pacific Ocean off Alaska, British Columbia); (b) specimens with neuropodial hooks from chaetiger 15 both in juveniles and adults, and sabre chaetae from chaetigers 10-12 (Japan); (c) specimens with neuropodial hooks from chaetiger 14 in juveniles and from chaetiger 15 in adult specimens, and sabre chaetae only in hook-bearing chaetigers (off Western Sahara, NW Africa); (d) specimens with neuropodial hooks from chaetiger 14 in juveniles and chaetiger 15 in adults, and sabre chaetae from chaetiger 10 (California).

## *Spiophanes kroyeri* Grube 1860

*Spiophanes Kröyeri* GRUBE, 1860: 88, pl. 5 fig. 1.

**TYPE LOCALITY:** Greenland Sea.

**SYNONYMS:** [?] *Spiophanes cirrata* M. Sars *in* G.O. Sars 1872.

**SELECTED REFERENCES:** *Spiophanes Kröyeri* — MALMGREN, 1867*a*: 94, pl. 9 fig. 56; ELIASON, 1920: 49-50. *Spiophanes kröyeri* — SÖDERSTRÖM, 1920: 240-243, figs. 86, 98, 150-152, pl. 1 figs. 3-4; HANNERZ, 1956: 36-40, figs. 10-11; HARTMANN-SCHRÖDER, 1996: 342-343, fig. 157; KIRKEGAARD, 1996: 110, fig. 53. *Spiophanes kroeyeri* — FAUCHALD, 1972*b*: 99, fig. 4*C-D*; [?] AGUIRREZABALAGA & CEBERIO, 2005: 271-272. *Spiophanes kroyeri* — MEIßNER, 2005: 7-14, figs. 1-3, table 1. [?] *Spiophanes cirrata* — M. SARS *in* G.O. SARS, 1872*a*: 410-411.

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (off Aveiro; off Porto); AMOUREUX, 1987 (off Aveiro; off Porto); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Porto; Aveiro); RAVARA, 1997 (as *Spiophanes kroeyeri*; off Aveiro). [Probably some, if not all, of these records refer to *Spiophanes afer*].

**DISTRIBUTION:** North Atlantic: Arctic; Greenland Sea; Baffin Bay; North Sea; Norway; Skagerrak; Kattegat; Öresund. Between 39-800 meters, possibly down to 1113 meters.

**REMARKS:** *Spiophanes kroyeri* has been reported worldwide, from shallow water to big depths, but according to MEIßNER (2005) it has to be considered that most of the reported records were based on misidentifications and need to be re-examined. MEIßNER (2005) studied the type material, and with base

on this study and redescription of the species she found that only North Atlantic specimens could be assigned to *S. kroyeri*.

*Spiophanes cirrata* M. Sars *in* G.O. Sars 1872, described from Norway, was considered as being a synonym of *Spiophanes kroyeri* Grube 1860 by several authors (*e.g.*, SÖDERSTRÖM, 1920). The type material was lost, and by this reason it was not studied by MEIßNER (2005) in her revision of the genus. The species is maintained here as a possible synonym of *S. kroyeri*.

### ***Spiophanes mediterraneus*** Meißner 2005

*Spiophanes mediterraneus* MEIßNER, 2005: 17-20, figs. 6-7, table 1.
**TYPE LOCALITY:** Mediterranean Sea, off Israel, 32º19.96'N, 34º31.46'E to 32º19.75'N, 34º31.26'E, in 694-700 meters.
**DISTRIBUTION:** Mediterranean Sea, off Israel, between 309-700 meters.

### ***Spiophanes reyssi*** Laubier 1964

*Spiophanes kroyeri reyssi* LAUBIER, 1964*a*: 563-574, figs. 1-5.
**TYPE LOCALITY:** Mediterranean Sea, off France, NE Rech Lacaze-Duthiers, 42º33'N, 3º31'E, in 360 meters, on gray mud.
**SELECTED REFERENCES:** *Spiophanes reyssi* — MEIßNER, 2005: 14-15, table 1.
**DISTRIBUTION:** Known from the type locality. Also recorded from the Adriatic Sea and Aegean Sea.

### ***Spiophanes wigleyi*** Pettibone 1962

*Spiophanes wigleyi* PETTIBONE, 1962: 83-85, figs. 5-6.
**TYPE LOCALITY:** George Bank, Off Massachusetts (40º09'N, 68º58'W), Atlantic coast of USA, at 74 fathoms (135.3 meters).
**SYNONYMS:** *Spiophanes urceolata* Imajima 1991.
**SELECTED REFERENCES:** *Spiophanes wigleyi* — HARTMAN, 1965*b*: 153-154, pl. 28 figs. *e-f*; FOSTER, 1971: 43-46, figs. 76-85; BLAKE & KUDENOV, 1978: 224-225, fig. 26; JOHNSON, 1984: 6.11-6.13, figs. 6.4-6.5; MEIßNER & HUTCHINGS, 2003: 128-130, figs. 1*E*, 2*A*, 2*G*, 8-10; MEIßNER, 2005: 61, table 1; AGUIRREZABALAGA & CEBERIO, 2005*b*: 272. *Siophanes urceolata* — IMAJIMA, 1991: 132-136, figs. 10-12; HARTMANN-SCHRÖDER, 1996: 343-344.
**DISTRIBUTION:** Western Atlantic, from Massachusetts to Gulf of Mexico, intertidal to 200 meters; off California, 741 meters; off Ireland; Norwegian Sea, 330-333 meters; Northern North Sea; Bay of Biscay, 492-1113 meters; South Africa, 59 meters; Indian Ocean; Milne-Edwards Deep, South Pacific Ocean, 991-1317 meters; Australia, 50 meters; Tasmania, Tasman Sea, and Bass Strait, 40-630 and 1130 meters; Japan, 83-350 meters. On fine to coarse sand and gravel.

## GENUS ***Streblospio*** Webster 1879

*Streblospio* WEBSTER, 1879*b*: 120.
**TYPE SPECIES:** *Streblospio benedicti* Webster 1879.
**SYNONYMS:** *Hekaterobranchus* Buchanan 1890.

**KEY TO SPECIES:**
(data from RICE & LEVIN, 1998)

**1a.** Nuchal antenna on the first segment present; hooded neurohooks start between chaetigers 6-9, with 3-4 rows of small teeth in addition to the main unpaired tooth; 3-5 hooks per ramus in the anterior region, and 8-12 in the posterior; dorsal collar at chaetiger 2 in one piece; sabre chaetae begin on chaetiger 7.....**2**
**1b.** Nuchal antenna on the first segment absent; hooded neurohooks start at chaetiger 8, with 2 rows of small teeth in addition to the main unpaired tooth; 2-3 hooks per ramus in the anterior region and 5 in the posterior; dorsal collar at chaetiger 2 two-lobed; sabre chaetae apparently lacking; brood structures on females as transverse mid-segment ridges.....***S. shrubsolii***

**2a (1a).** Hooded neurohooks start at chaetigers 6-9, with 3-4 rows of small teeth in addition to the main unpaired tooth; 3-5 hooks per ramus in the anterior region, and 8-12 in the posterior; brood structures on females as pouches.....***S. benedicti***

**2b (1a).** Hooded neurohooks start at chaetiger 7, with 3-4 rows of small teeth in addition to the main unpaired tooth; 3-4 hooks per ramus in the anterior region, and 8-10 in the posterior; brood structures on females branchiate.....***S. gynobranchiata***

## ***Streblospio benedicti*** Webster 1879

*Streblospio Benedicti* WEBSTER, 1879*b*: 120-121.

**TYPE LOCALITY:** New Jersey, U.S.A., "*at great numbers on beds of Mytilus edulis and also in ditches to which the tide-water had access, very near hight-water mark*" (WEBSTER, 1879*b*: 121).

**SYNONYMS:** *Streblospio lutincola* Hartman 1936.

**SELECTED REFERENCES:** *Streblospio Benedicti* — WEBSTER, 1886: 149-151, pl. 5 figs. 48-50. *Streblospio benedicti* — FOSTER, 1971: 112-115, figs. 276-282 [in part; not fig. 283 and specimens from Maracaibo Estuary = *Streblospio gynobranchiata* Rice & Levin 1998]; RICE & LEVIN, 1998: 699, tables 1-2.

**DISTRIBUTION:** New Jersey, North Carolina, Florida, Texas, California. In Texas and Florida they are sympatric with another species of *Streblospio*, *S. gynobranchiata* Rice & Levin 1998.

**REMARKS:** This species apparently is not present in the European waters. However, it has been recorded from Europe, probably as a consequence of the use of HARTMANN-SCHRÖDER (1996), who considered *Streblospio shrubsolii* (Buchanan 1890) as being a junior synonym of *S. benedicti*. According to RICE & LEVIN (1998), the two species are valid.

## ***Streblospio gynobranchiata*** Rice & Levin 1998

*Streblospio gynobranchiata* RICE & LEVIN, 1998: 694-699, figs. 1-13, tables 1-2.

**TYPE LOCALITY:** Subtidal estuarine sediments of the Hillsborough River adjacent to the University of Tampa, in downtown Tampa, Tampa Bay, Florida, Courtney Campbell Causeway (west), at 1 meter, in muddy sand.

**SELECTED REFERENCES:** *Streblospio gynobranchiata* — ÇINAR *et al.*, 2005: 822-824, fig. 2. *Streblospio benedicti* [not Webster 1879] — FOSTER, 1971: 112-115 [in part; specimens from Maracaibo Estuary], fig. 283.

**DISTRIBUTION:** East and west coasts of Florida; Texas; Trinidad; Eastern Mediterranean (Izmir Bay, Turkey). In mud and muddy sand. Subtidal to 11 meters.

**REMARKS:** ÇINAR *et al.* (2005) found some small morphological differences between their Eastern Mediterranean specimens and the American populations. This way, while RICE & LEVIN (1998) refer that the number of neuropodial hooded hooks of specimens collected at Florida and Gulf of Mexico ranged from 2 to 8, this number varied between 3 and 8 in the Mediterranean specimens. Besides, pigmented palps could be present in the Mediterranean population, but specimens with or without pigmented palps were otherwise identical. Finally, strap-like brooding structures are present in segments 18-30, in the specimens from the Mediterranean, while in the American specimens thay are present in the segments 20-35.

## ***Streblospio shrubsolii*** (Buchanan 1890)

*Hekaterobranchus Shrubsolii* BUCHANAN, 1890: 175-188, 196-197, 199-200, pls. 21-22.

**TYPE LOCALITY:** Sheppey (Thames Estuary, England), on soft mud, at the bottom of gullies, in low water.

**SYNONYMS:** *Streblospio dekhuyzeni* Horst 1909.

**SELECTED REFERENCES:** *Streblospio Shrubsolii* — FAUVEL, 1927*a*: 106-107, fig. 37*n-o*; MCINTOSH., 1915*b*: 230-232, text-fig. 124*a*, pl. 89 fig. 7, pl. 104 fig. 10. *Streblospio shrubsolii* — FRIEDRICH, 1939*b*: 366-369, figs. 6-7; HARTMANN-SCHRÖDER, 1971*a*: 340, figs. 118*e*, 119; KIRKEGAARD, 1996: 111-113, fig. 54; RICE & LEVIN, 1998: 699-670, tables 1-2. *Streblospio shrubsoli* — WESENBERG-LUND, 1942: 39-40, fig. 6. *Streblospio dekhuyzeni* — HORST, 1909: 149, figs. 1-2; HORST, 1922: 271-272, fig. 14. *Streblospio Dekhuyzeni* — FAUVEL, 1927*a*: 107, fig. 37*l-m*. *Streblospio benedicti* [not Webster 1879] — HARTMANN-SCHRÖDER, 1996: 344, fig. 158.

**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Streblospio dekhuyzeni*; Tagus Estuary); CALVÁRIO, 1984 (as *Streblospio dekhuyzeni*; Tagus Estuary); QUINTINO & GENTIL, 1987 (Lagoon of Albufeira; Lagoon of Óbidos); GAMITO, 1989 (as *Streblospio dekhuyzeni*; Ria Formosa); QUINTINO, RODRIGUES & GENTIL, 1989 (Lagoon of Óbidos); DEXTER, 1992 (previous records: Ria de Alvor; Lagoon of Albufeira; Tagus Estuary; Lagoon of Óbidos; Figueira da Foz; Mondego Estuary); PARDAL, CALDEIRA & MARQUES, 1992 (previous records: Aveiro; Mondego Estuary; Peniche; Lagoon of Óbidos; Tagus Estuary; Lagoon of Albufeira; Ria Formosa); PARDAL, MARQUES & BELLAN, 1993

(Mondego Estuary); PARDAL, MARQUES & BELLAN, 1994 (Mondego Estuary); CANCELA DA FONSECA *et al.*, 2006 (as *Streblospio benedicti*; Aljezur; Odeceixe).
**DISTRIBUTION:** Baltic Sea; British Isles; North Sea; Denmark; Netherlands; from the Atlantic coast of France to the Western Mediterranean; Adriatic Sea; Aegean Sea; Black Sea. On mud, on brackish water environments, like estuaries or coastal lagoons. Intertidal or in very shallow water (15 meters).

## *INSERTAE SEDIS*

### ***Scolecolepis lamellata*** McIntosh 1922

*Scolecolepis lamellata* MCINTOSH, 1922*a*: 21-22.
**TYPE LOCALITY:** Tangiers Bay.
**SELECTED REFERENCES:** *Scolecolepis* (I) — MCINTOSH, 1909: 175, pl. 5 figs. 7-8, pl. 6 figs. 1-5. *Scolecolepis lamellata* — SOUTHERN, 1914: 97. *Nerinides lamellata* — FAUVEL, 1927*a*: 63.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** FAUVEL (1927*a*: 63) considered this species as *incertae sedis*, as according to him, and following SOUTHERN (1914), the species could not belong to the genus *Nerinides*, being suggested that it could be a *Scolelepis*. Both genera are considered today as being synonymous.

## INDETERMINABLE SPECIES

### ***Prionospio malmgreni*** Claparède 1869

*Prionospio Malmgreni* CLAPARÈDE, 1869: 73-76, pl. 22 fig. 3 [not pl. 24 fig. 2, as stated in the text].
**TYPE LOCALITY:** Bay of Naples.
**REMARKS:** Considered to be indeterminable, as the original description seems to be derived from the features of several species (see the *REMARKS* section under *Prionospio fallax*). However, figure 3 of plate 22 seems to picture a specimen of *Prionospio fallax*.

# *FAMILY **STERNASPIDAE** Carus 1863

**AS:** *STERNASPIDEA* CARUS, 1863: 453.
**TYPE GENUS:** *Sternaspis* Otto 1821.
**SYNONYMS:** *STERNASPIDIDAE* Malmgren 1867.
**REMARKS:** The family Sternaspidae Carus 1863 is monogeneric, being *Sternaspis* Otto 1821 its single genus. Sternaspid worms are easily recognised by the presence of a conspicuous ventroposterior shield, often of bright colours (yellow, reddish, violet) or black, beneath which are long bristles, tightly coiled branchiae, and filamentous papillae. Because of their unusual appearance, sternaspids were ranged by earlier authors among Echiurida, Sipunculida (where was first described *Sternaspis princeps* Selenka 1885, from New Zealand), and even Echinodermata, while one of the earliest species described in the genus, *Sternaspis elegans* Chamisso & Eysenhardt 1821, from Indonesia, is in reallity an *Aspidosiphon* sipunculan (GRUBE, 1868*a*).

The taxonomic history of the family was described in detail by PETERSEN (2000*b*). The first described species using the binomial nomenclature, *Echinorhynchus scutatus* Renier 1807, was apparently not published at all, and was rejected by the International Commission of Zoological Nomenclature. The first valid description available is the posterior one by RANZANI (1817*b*, as *Thalassema scutatus*). The species was renamed as *Sternaspis thalassemoides* by OTTO (1821), when he erected the genus *Sternaspis*. The type species of the genus, *S. thalassemoides*, is then a junior synonym of *S. scutata*.

There are presently 15 validly described species and subspecies on the genus (PETERSEN, 2000*b*), but no consensus on how many of them are valid. The described taxa and the type locality are the following, by chronological order:

*Thalassema scutatus* Ranzani 1817 — Mediterranean Sea;
*Sternaspis thalassemoides* Otto 1821 — Naples, Italy [type species];
*Sternaspis fossor* Stimpson 1853 — Mouth of Bay of Fundy, East Canada (at about 180 m);
*Sternaspis affinis* Stimpson 1864 — Puget Sound, Washington (18-37 m);
*Sternaspis assimilis* Malmgren 1867 — West of France and Île de Ré, near La Rochelle;
*Sternaspis islandica* Malmgren 1867 — Berufjord, Iceland (about 27 m);
*Sternaspis costata* Marenzeller 1879 — Bay of Miya, South of Japan (and other areas);
*Sternaspis spinosa* Sluiter 1882 — Djakarta, Indonesia;
*Sternaspis princeps* Selenka, 1885 — Off New Zealand (1280 m);
*Sternaspis fossor africana* Augener 1918 — West Africa (11-28 m);
*Sternaspis maior* Chamberlin 1919 — Gulf of California (1148 m);
*Sternaspis laevis* Caullery 1944 — Indonesia (22-55 m);
*Sternaspis laevis minor* Caullery 1944 — Indonesia (9-91 m);
*Sternaspis rietschi* Caullery 1944 — Indonesia (1788 m);
*Sternaspis capillata* Nonato 1966 — Ubatuba, Brazil (52 m).

A sixteenth taxon, *Schreiberius Bremsii* Otto 1821 (from Naples, Italy), is referred in HARTMAN (1959*a*). However, and as stated by CLAPARÈDE (1869), this name is only known from a citation by Otto, and repeated later by other authors. According to CLAPARÈDE (1869: 95), this name would be the result of a wrong copy of the previous work by CHAMISSO & EYSENHART (1821), where it is stated about the genus *Sternaspis*: "*Secunda hujus generis species ea est cui* Renierus *olim nomen* Echinorhynchi scutati*, dein* Schreibersius*,* Bremserius *et* Ranzianus *nomen* Thalassematis scutati *indidere.*" This way, this would be an invalid name.

Many of these taxa were poorly or incompletly described, sometimes with base on a single or few specimens, damaged or poorly preserved, and type material has never existed, or was lost for some of them. This way, it is quite difficult to determine how many of these taxa are valid or are synonymous (besides the case of *Sternaspis thalassemoides*), until better material from the type localities becomes available, or the extant one is reexamined. The problem was (and still is) well resumed in the statements by SELENKA (1885: 5), concerning his new species: "*It does not seem to be beyond question whether the form preserved in the Challenger collection can be regarded as really the representative of a distinct species. All the species of* Sternaspis *as yet known are very likely one another, and our* Sternaspis princeps *is only distinguished by subordinate characters, on the one hand from* Sternaspis spinosa*, Sluiter, from Batavia, and on the other from the* Sternaspis costata *of Marenzeller, from the Bay of Miya. The imperfect preservation of the Challenger specimen unfortunately does not admit of any intimate description of the anatomical structure.*"

The number of valid species depends on authors and their species concept being more or less restrictive: HARTMAN (1959*a*) considered 6 species/subspecies to be valid, FAUCHALD (1977*a*) considered 10 (*S. capillata* was on the meantime described), while FAUVEL (1927*a*), for instance, stated that the differences normally used to separate the species (like the ridges of the ventrocaudal shield) had no taxonomic value, considering as valid one single species with a cosmopolitan distribution, *Sternaspis scutata*. This oppinion was followed by other authors, as PETTIBONE (1954) or USCHAKOV (1955*a*).

One of the problems with the taxonomy of the Sternaspidae has been the difficulty in finding valid taxonomic characters to separate the different taxa. PETERSEN (2000*b*) suggests the separation of the Sternaspidae in two main groups, with base on the distribution of the minute papillae on the surface of the body: in the *S. scutata* group the papillae is evenly distributed over most of the surface, while in the *S. fossor* group they are distributed in more or less conspicuous rows of clusters of papillae resembling rows of pom poms; these rows of papillae would be usually better visible dorsally on the last few segments, even when not visible elsewhere (PETERSEN, 2000*b*). Another possible character to separate both groups of species pointed by PETERSEN (2000*b*), is the presence of capillary chaetae on the pre-shield segments 8-15, which seems to be best developed in species of the *Sternaspis fossor* group, in a laterodorsally position, while in the *S. scutata* group they are also normally present, but in most cases are difficult to see.

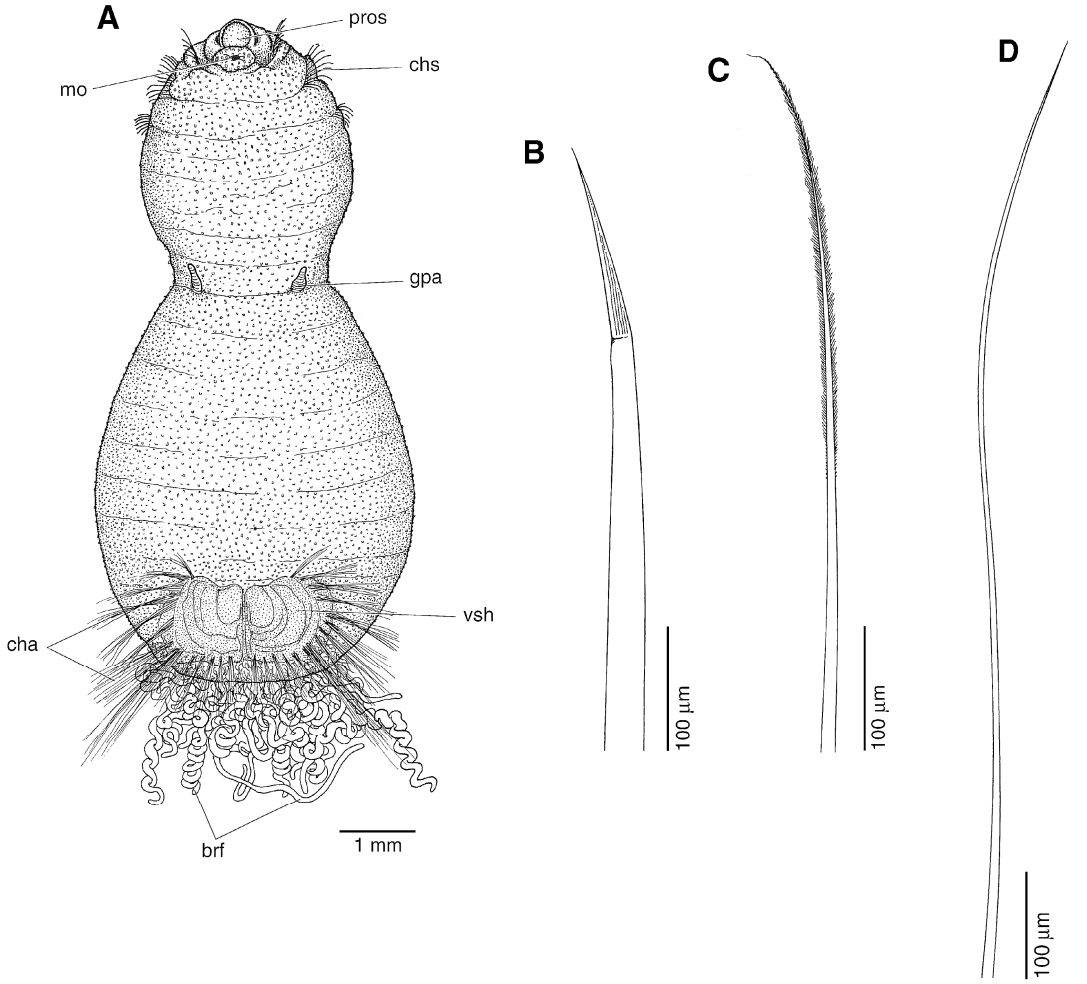


**Figure legend:** Family Sternaspidae. *Sternaspis* specimen. **A**, entire animal, ventral view. **B**, spine from parapodium of chaetiger 3. **C**, pilose capillary chaeta from ventral sclerotinised shield. **D**, smooth capillary chaeta from ventral sclerotinised shield. **brf**, branchial filaments; **cha**, chaetae; **chs**, chaetal spines; **gpa**, genital papilla; **mo**, mouth; **pros**, prostomium; **vsh**, ventral shield. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

Several external morphological characters with possible taxonomic value have been suggested in order to separate sternaspid taxa (*e.g.* MARENZELLER, 1890; PETERSEN, 2000*b*). Others can be searched or purposed with base on the increasing knowledge of the group. However, the corroboration of the taxonomic value of these characters stands both on the comparison between different populations as well as on the better knowledge of the ontogeny and variation inside each population. Some of the purposed characters are:

1) the overall shape of the ventrocaudal shield, its color and proportions, the sculptures that can be observed at its surface (ribs, concentric rings, subdivisions into two or more parts, and relative sizes of these, or lack of anything recognizable), whether the two halves of the shield are apparently fused, or more or less separated, and if so, by how much, and even if there is sediment present on the shield; ventral shields as a character to separate different species of *Sternaspis* were first studied by MARENZELLER (1890);

2) the presence, shape, length and density of cuticular papillae, as well as the distribution of these papillae in the different regions of the body surface, and if they form a regular pattern in the whole body or in parts of it; many of these papillae attach sediment, which can give a specific feature to certain species, but the same attached sediment can difficult the observation of other characters, like the details of the papillae;

3) the shape of the branchial plates or cushions; these plates are located in the posterior region of the body, dorsally, one on each side of the anal tube, and group the branchiae; in order to see better their shape, the branchiae must be removed, being the plates easily recognized by the presence of a compact rug of papillae; however the shape of these plates wasn't described for some species, and their shape could depend on the contraction of the specimens;

4) morphology of the chaetae and its distribution in segments 2-4; according to PETERSEN (2000*b*), the chaetae of segments 2-4 can vary in shape, color, number and relative sizes (with or without an abrupt change from larger to smaller) of spines, which could be specific characters, as well as the relative length of the rows of chaetae (how much of the circumference at that level they occupy) and whether the dorsal spines are widely separated or close to one another;

5) the number of chaetiger segments between the genital papillae and the ventrocaudal shield (normally segments 8-15); some descriptions speak of 7 chaetigerous segments, while others refer 8; the chaetae are very short and thin, and in many cases very difficult to observe, as they can break off when the specimens are collected and processed;

6) the number of chaetal bundles on each side of the ventrocaudal shield and their morphology; in some cases an accurate counting can be very difficult or impossible, due to the presence of the branchiae, papillae, attached material or the poor delimitation of the bundles themselves, especially in the *S. fossor* group and juveniles; normally there are 9-11 lateral and 5-7 posterior bundles; most of these chaetae are hirsute capillaries, relatively broad, with the lateral bundles being longest, and becoming longer posteriorly, with the last 2-3 bundles overlapping, while the posterior bundles have much shorter chaetae (often arranged in "spines", where the tips of the chaetae of each bundle are close to the next one); the lengths of the posterior chaetae relative to the shield could be of taxonomic value; in addition to the hirsute chaetae, the last lateral bundle contains a few (3-4 or more) very long, smooth, hairlike capillaries that extend well beyond the longest hirsute capillaries; RALLO & MOYA (1987) also found bidentate hooks to be present among the capillaries of the lateral bundles, in specimens identified as *S. scutata* from the Bay of Biscay;

7) finally, the exact location and shape of the genital papillae could also be species-specific, unless it is demonstrated that it is the result of intraspecific variability (PETERSEN, 2000*b*); they are normally located between the segments 7/8, but AUGENER (1918) indicated their presence between segments 5/6 for West African specimens, being this character probably directly related with the number of chaetigers between the genital papillae and the ventral shield; following PETERSEN (2000*b*), the genital papillae would usually be long and broad and extended in larger specimens of *S. scutata*, and much more slender and not very extended in *S. fossor*, but in some specimens they can also be invaginated; besides, it is not clear how the contraction of the specimens can affect the shape of the genital papillae.

Some of these characters (like the shape of the ventral shields or of the chaetae of segments 2-4) could present variations during the ontogeny of the worms, so specimens of different sizes from a given population should be studied in order to detect changes with growth.

*Sternaspis scutata* was recently studied by FIEGE & BUETFERING (2000) using SEM and internal anatomy, and it was suggested that it is probably the single valid species of the family, while other studies are in progress in order to determine which characters have taxonomic value to separate taxa or

which of the already described taxa are valid. The use of molecular techniques to elucidate the taxonomy of this group would be particularly interesting.

## *GENUS ***Sternaspis*** Otto 1821

*Sternaspis* OTTO, 1821: 619.
**TYPE SPECIES:** *Sternaspis thalassemoides* Otto 1821 [= *Thalassema scutatus* Ranzani 1817].

**KEY TO SPECIES:**

**1a.** Minute papillae evenly distributed over most of the surface of body.....***S. scutata***
**1b.** Minute papillae distributed in more or less conspicuous rows of clusters of papillae, resembling rows of pom poms (better visible dorsally on the last segments, even when not visible elsewhere.....***S. fossor***

### ***Strenaspis fossor*** Stimpson 1853

*Sternaspis fossor* STIMPSON, 1853: 29, pl. 2 fig. 19.
**TYPE LOCALITY:** Island of Grand Manan (Bay of Fundy, Canada), on muddy bottoms in the coralline zone.
**SYNONYMS:** [?] *Sternaspis assimilis* Stimpson 1864; *Sternaspis islandica* Malmgren 1867.
**SELECTED REFERENCES:** *Sternaspis fossor* — AUGENER, 1906: 191-192; [?] MOORE, 1908: 358; MOORE, 1909*c*: 144; TREADWELL, 1914: 215; CHAMBERLIN, 1919*a*: 405-406; MOORE, 1923: 218; BERKELEY, 1930: 69; BERKELEY & BERKELEY, 1941: 19, 51; BERKELEY & BERKELEY, 1952: 59-60, fig. 123; BARNARD & HARTMAN, 1959: 6-7, tables 1-3; HARTMAN, 1969: 351-351, fig. 1, 1 map; FAUCHALD, 1972*a*: 238-239; BLAKE, 1975: 224, pl. 26 fig. 65; BILYARD & CAREY, 1979: fig. 2, table 2; BILYARD & CAREY, 1980: 22; FAUCHALD & HANCOCK, 1981: 35, 51. [?] *Sternaspis* cf. *fossor* — PETERSEN, 2000*b*: 323-326, fig. 11.2. *Sternaspis islandica* — MALMGREN, 1867*a*: 87-88, pl. 14 fig. 85. [?] *Sternaspis assimilis* — STIMPSON, 1864: 159. [?] *Sternapis scutata* [probably not Ranzani 1817, according to PETERSEN (2000*b*)] — HOBSON & BANSE, 1981: 18-19, 63, table 3 fig. *F*; GILBERT, 1984: 45.3-45.4, figs. 45.1-45.2.
**DISTRIBUTION:** North American Atlantic coast; Gulf of Mexico; Eastern Pacific; western Beaufort Sea; Iceland. In sandy and muddy bottoms. Between 10-3000 meters.
**REMARKS:** See the *REMARKS* section under *Sternaspis scutata*.

### *****Sternaspis scutata*** (Ranzani 1817)

*Thalassema scutatus* RANZANI, 1817*b*: 1461.
**TYPE LOCALITY:** Naples, Italy, Mediterranean Sea.
**SYNONYMS:** *Echinorhynchus scutatus* Renier 1807 [invalid name]; *Sternaspis thalassemoides* Otto 1821; *Sternaspis assimilis* Malmgren 1867 [not Stimpson 1864; HOMOMYM].
**SELECTED REFERENCES:** *Sternaspis scutata* — FAUVEL, 1927*a*: 216-218, fig. 76; HARTMANN-SCHRÖDER, 1996: 479; PETERSEN, 2000*b*: 328-329, fig. 11.3.*B-C*; TOWNSEND *et al.*, 2006: 281-284, figs. 1-2, table 1. *Sternaspis assimilis* [not Stimpson 1864; HOMONYM] — MALMGREN, 1867*a*: 87.
**REFERENCES FOR PORTUGAL:** ROULE, 1906 (Cape São Vicente); BELLAN, 1960*a* (off Cascais; Setúbal Canyon; NW Cape Sardão; Cape Santa Maria); MONTEIRO-MARQUES, 1979 (southern continental shelf of Algarve); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).
**MATERIAL: FAUNA 1 — St. 0*A***, Galicia, off Cies Islands, Ria de Vigo, 82-96 m, unknown substrate: 7 specimens, 3 with everted proboscis; smaller specimen with ventral shields orange colored, shields in bigger specimens darker; 18 chaetal bundles around the shields, the 2 latero-posterior ones with very long capillar chaetae. **St. 5*A***, Alborán Sea, off Veléz-Málaga, 67-68 m, mud: 2 specimens; proboscis everted; 17 pairs of chaetal bundles observed around the ventral shields. **St. 14*A***, Alborán Sea, off Castell de Ferro, Granada, 285-290 m, mud: 10 specimens, one with the proboscis everted; epithelium covered by mud. **St. 47*P***, Gulf of Cádiz, off Cádiz, 370-380 m, pelagic: 1 specimen in poor condition. **St. 67*A***, Gulf of Cádiz, off Chipiona, 55-56 m, mud: 16 specimens, some with the anterior region totally or partially inverted. **St. 69*A***, Gulf of Cádiz, off mouth of Guadiana, 110-112 m, mud: 4 specimens, 2 juveniles, very small (more or less 3mm long); other 2 bigger; ventral shields of juveniles orange colored; digitiform glands present, with attached sand.

**DISTRIBUTION:** *Sternaspis scutata* has been considered by many authors as a cosmopolitan species. However, as stated above, this opinion is not shared by other authors, who consider that several similar species are present, instead of a single cosmopolitan one. This opinion is followed here. For the moment, and while waiting for further studies, *S. scutata* is reported here to be present in the Mediterranean Sea (including Adriatic Sea, Aegean Sea, and Black Sea), and nearby Atlantic Ocean, including the English Channel and North Sea, occurring in muddy bottoms, normally at moderate or shelf depths (7-400 meters), but also recorded as intertidal at the Île de Ré (TOWSEND *et al.*, 2006).

**REMARKS:** The material collected during FAUNA 1 Cruise is here identified as *S. scutata*. This species was described from the Mediterranean Sea, and the present material agrees with the description given by FAUVEL (1927*a*). Besides, the material was also compared with specimens collected at Nice (France), especially in what concerns the general morphology and the distribution of the chaetae around the ventral shield, and it was not possible to find relevant differences between them.

As stated by previous authors, the general appearance of the species is grubelike or, when both ends are invaginated, spherical. The surface is smooth, greyish, light brownish, or yellowish white (depending on the attached sediment), and leathery. It is covered with small filiform papillae, with the longest reaching 50-60 µm in juveniles, and about 100 µm in adults, for a maximum of 5 µm wide near the base. Sediment is attached at the base of these papillae. Bigger specimens (about 1 cm or more, with both ends invaginated) show 7 segments between the genital papillae and the beginning of the ventral shield. In smaller specimens the segmentation can be more difficult to perceive. Thin chaetae on the preshield segments can be easily recognized on some chaetigers, in a laterodorsal position, but is absent (probably lost) in others.

Observation of the chaetae of the ventrocaudal shield provided some interesting results. The number and shape of bundles, as well as type of chaetae, was found to be quite constant in specimens of *Sternaspis scutata* with more than about 1 cm (in smaller juveniles it is difficult to count some of the bundles), supporting the observations by PETERSEN (2000*b*). The ventral shield can be divided in two regions, the lateral and the posterior one, which can be separated by the lateroposterior corner of the shield, which in *S. scutata* can be easily recognized by the presence of an obliquely rib in the shield, ending at the lateroposterior corner, dividing each half in two parts. Dorsally, the separation between bundles of the lateral and posterior regions of the shield can be also recognized by the presence of a fold of tegument that surrounds the last bundle of lateral chaetae (the "*peg*" chaetae; see below and also figure), forming a peduncle.

The lateral region of the shield presents 11 pairs of bundles, which can be divided in three groups, from anterior to posterior:

1) 9 anterior bundles of broad hirsute chaetae, becoming increasingly longer posteriorly, each bundle disposed in a spiral, with shorter chaetae located in the interior of that spiral (best seen in the last bundles);

2) one bundle (the 10th) of hirsute chaetae, longer than the anterior ones, and disposed in a line;

3) one bundle (the 11th) formed by rows of chaetae, tightly packed, forming a thornlike or peglike structure (designated also only as "*peg*"); the peg is a round and very compact bundle of chaetae, consisting of 6 consecutive rows of capillar chaetae (3 Mediterranean specimens observed), surrounded by a sheath of tissue; the most ventral (or external) chaetae are normally shorter, apparently ending in a thin tip, while the dorsal (or internal) ones are very long (extending well beyond the hirsute chaetae), smooth and thin, like hairlike capillaries, some of which (or all) may be broken, which reinforces the thornlike aspect of the bundle. The dorsalmost row of chaetae normally emerges from the cuticle slightly away from the rest, being separated from it by a short line of tegument, which can give the appearence of being an extra bundle of chaetae.

In order to clarify this observation, a cut of of the lateroposterior region of a specimen from St. 67*A* was performed, in order to include in the same fragment the lateral bundles 9, 10 and 11, and the posterior bundles 6 and 7. Internally, it was possible to see that the five bundles are independent, with a different origin, and it was confirmed that the 11th lateral bundle is formed internally by 6 rows of about 8-10 chaetae each, disposed in a regular pattern of equidistant and perfectly aligned consecutive rows. The constant number of six rows of chaetae in this position in the observed specimens (three), seems to indicate that this character do has taxonomic value. PETERSEN (2000*b*) had already pointed the question that as the pegs appeared to consist of several bundles of chaetae, how should be counted the segments in the shield region. Being the bundle formed by six rows of chaetae, there is still the question on whether those six rows form a single bundle, or are remnant of six independent bundles (and so, of six independent segments).

The posterior region presents 7 pairs of bundles, with the first pair located outside the fold of tegument that surrounds the 11th lateral bundle (and partially the 10th), which can be divided in two groups, being from midventral to lateral:

1) 6 pairs of strong chaetae, shorter than the lateral ones, surrounded by a sheath but not hirsute, disposed in opened U-shaped bundles, with external chaetae being longer than internal ones in each bundle, and in relation to the median line of the body;

2) 1 pair of long capillaries (shorter than lateral pair 11), disposed in a line, easily overlooked, but noticed and pictured by PETERSEN (2000*b*).

This way, adults of *S. scutata* show 18 pairs of bundles around the ventral shield. Some specimens show some slight variations, normally asymetric, in relation to this number: for instance, 5+6 (specimen from Nice) or 6+7 (specimen from St. 47P) bundles of strong chaetae in the posterior region.

I compared briefly this chaetal formula with specimens from populations of *Sternaspis* from Mianmar, Thailand, Vietnam and Congo (collections of Daniel Martin) and it was possible to see that *S. scutata* can be easily separated from those populations by the presence of an extra pair of bundles of strong chaetae in the posterior region: 1 lateral pair of thin hairlike chaetae and 6 midventral pairs of thick chaetae in *S. scutata*, against 1 pair of thin hairlike chaetae and 5 midventral pairs of thick chaetae in all the other populations.

Probably *S. scutata* occurs only in the Mediterranean Sea and nearby Atlantic Ocean. Its northern and southern distribution requires confirmation, as well as the boundaries between this species and others. On the other hand, its bathymetric distribution requires also confirmation. For the moment *S. scutata* is here referred to occur from about 20 to 400 meters, on muddy bottoms.

*Sternaspis assimilis* Malmgren 1867 was defined as a new species different from *S. scutata* with base on the presence of longitudinal wrinkles on the surface of the posterior region of the body (MALMGREN, 1867*a*). However, these wrinkles are quite frequent on fixed material from different geographic origins, as already noted by FAUVEL (1913*b*), and also observed by me on *S. scutata* material from Southwest Europe and Mediterranean Sea. PETERSEN (2000*b*) observes that these wrinkles are rarely observed in specimens referred to *S. fossor*. I compared Mediterranean specimens of *S. scutata* with one adult (in poor condition) and one juvenile of *Sternaspis* collected off Brittany, about 200 Km north of the type locality of *S. assimilis* (West of France and Île de Ré). No differences were found between specimens from the two populations, especially in what concerns the shape and disposition of the chaetae, which gives support to the synonymy proposed by FAUVEL (1913*b*) between *S. assimilis* and *S. scutata*.

In Northern Europe, *S. islandica* was described from Iceland by MALMGREN (1867*a*), stating the presence of papillae in the posterior part of the body. This species was later synonymized with *S. fossor* by LEVINSEN (1884: 310), who gave the distribution of the species as being Iceland, Greenland and Eastern North America (the type locality of *S. fossor* being East Canada). *S. fossor* was used by several authors for specimens with the cuticle densely covered by papillae found in North America, both Atlantic and Pacific (*e.g.* MOORE, 1909*c*, 1923; E. BERKELEY, 1930; BERKELEY & BERKELEY, 1952; C. BERKELEY, 1968), while PETTIBONE (1954: 310) designated as *S. scutata* specimens mainly from Alaska with the "*integument densely pilose, covered with fine filiform papillae*", probably following the cosmopolitan concept of the species suggested by FAUVEL (1913*b*, 1927*a*, 1953*c*).

MOORE (1923: 218) remarks about the Southern California specimens of *S. fossor* the fact that "*as in specimens previously reported from the North Pacific there is one less pair of anterior scutal costae and setae bundles than in* S. scutata" against "[S. scutata] *bear six pairs of anterior and ten pairs of lateral scutal setae bundles*". BERKELEY & BERKELEY (1952) also refer (and draw) five bundles of chaetae for Canadian Pacific specimens, in what is in reallity the posterior region of the shield. The same geographical area is the type locality of *S. affinis*, defined by STIMPSON (1864: 159) as being "*with the body smoother about the middle, where there is no trace of the echinated annuli, which may be discerned even on the middle segments in* S. fossor".

Particularly interesting is the remark by MOORE (1909*c*: 144) on specimens of *S. fossor* from Nova Scotia: "*These specimens are identical with some collected near the type locality (...). They differ greatly from the southern New England species (...) which I am unable to distinguish from Mediterranean examples of* S. scutata *(Ranzani).* S. fossor *has seven segments between the genital pores and the anterior margin of the caudal shields, which have obscure ridges (...). The cuticle is more or less densely pilose, especially behind the genital pores, where most of the cutaneous papillae become aggregated in a regular row of low tufts on many of the segments (...). Southern specimens, in striking contrast, have eight segments between the genital pores and the caudal shield and the cuticle is nearly smooth.*" This way, it seems that in the northern waters of the Atlantic Ocean (and probably around the

Arctic Ocean), there are at least one different species from *S. scutata*, namely *S. fossor*, with the cuticle densely covered by papillae. The range of both species in North European waters is not clear, as well as it is not clear the boundary between the two species referred by MOORE (1909*c*) from the Atlantic coast of North America, as well as if the southern form is really similar to the European *S. scutata* (it seems to exist a difference in the number of segments between the genital pores and the ventral shield). Interesting is the fact that another species quite similar to *S. fossor*, named *S. capillata* Nonato 1966, was described from Brazil, Atlantic coast of South America, but regrettably in the discussion of this new species, the similarity with *S. fossor* was scarcely argued (NONATO, 1966).

In what concerns the southeastern Atlantic distribution of *S. scutata*, West Africa is the type locality of the subspecies *S. fossor africana* Augener 1918 (Senegal, Guinea Conakry, Liberia, Ivory Coast, Cameroon, Fernando Pó, Congo). Specimens from West Africa have been repeatedly described as having the body densely covered by papillae, and slender chaetae in the anterior chaetigers, which occur also in a greater number by bundle (about 20 against 10-12, in *S. scutata*) (AUGENER, 1918; MONRO, 1930; TEBBLE, 1955; KIRKEGAARD, 1959; DAY, 1967). The boundary between *S. scutata* and the African form could be as close as at the Atlantic coasts of Morocco, as FAUVEL (1936*c*: 88) states the presence of cuticular filiform papillae in the specimens collected at that region ("*Téguments couverts de fines papilles filiformes*"). According to PETERSEN (2000*b*), the differences found between the descriptions given by AUGENER (1918) and KIRKEGAARD (1959) may indicate the presence of more than one species in West African coasts.

# *FAMILY **SYLLIDAE** Grube 1850

**AS:** *SYLLIDEA* GRUBE, 1850: 308-309.
**TYPE GENUS:** *Syllis* Savigny *in* Lamarck 1818.
**SYNONYMS:** *AMYTIDEA* Grube 1850; *CALAMYZIDAE* Hartmann-Schröder 1971; *LEVIDORIDAE* Perkins 1987.
**REMARKS:** The family Syllidae has been traditionally separated into four subfamilies: Syllinae GRUBE (1850: 308), Exogoninae LANGERHANS (1879: 561), Autolytinae LANGERHANS (1879: 573), and Eusyllinae MALAQUIN (1893: 66). AGUADO & SAN MARTÍN (2009) performed a phylogenetic analysis of the Syllidae with base on morphological data, and determined that three of the subfamilies (Autolytinae, Exogoninae and Syllinae) were monophyletic [which was already known for the Autolytinae, following NYGREN & SUNDBERG (2003) and NYGREN (2004)], while Eusyllinae was polyphyletic. Besides, a new subfamily was erected for the genera *Anoplosyllis* Claparède 1868, *Astreptosyllis* Kudenov & Dorsey 1982, *Streptosyllis* Webster & Benedict 1884, *Streptospinigera* Kudenov 1983, and *Syllides* Ørsted 1845, named Anoplosyllinae (AGUADO & SAN MARTÍN, 2009: 395). Finally, the genera *Amblyosyllis* Grube 1857, *Brachysyllis* Imajima & Hartman 1964, and *Dioplosyllis* Gidholm 1962 formed a still un-named well supported monophyletic group. The genus *Calamyzas* was not considered in this analysis. The following keys, as well as all the other keys in this work, are artificial and do not intend to reflect the phylogenetic relationships among taxa. For each genus in the key is also provided the subfamily to which it belongs. The genera which used to be included in the paraphyletic subfamilly Eusyllinae and were not assigned to another subfamily or clade, are still designated as belonging to Eusyllinae, including the cases of *Amblyosyllis* and *Dioplosyllis* (the genus *Brachysyllis* is not known to occur in Europe).

The Syllidae is one of the biggest families of Polychaeta in number of genera, and the biggest one in number of species. HUTCHINGS *et al.* (2000) reported 66 genera with 819 species, but this number has not stopped to increase since them. On the other side, the numerous synonymies and some poor descriptions, not denoting the intraspecific variability, makes difficult to trace the validity of some taxa.

The bibliography concerning the family is huge, and will not be discussed here. Many of the pertinent publications are cited below.

It is difficult to know with sure how many valid genera and species were cited from the European waters. In the current work, 46 genera including 232 species (3 of which undescribed) are considered to be present in the European and nearby waters. Among the studied material were found 17 genera, represented by 43 species, two of which undescribed.

## KEY TO GENERA:

(adapted from: FAUCHALD, 1977*a*; SAN MARTÍN, 2003, 2005; NYGREN, 2004; SAN MARTÍN & HUTCHINGS, 2006; FAULWETTER *et al.*, 2008)

**1a.** Prostomium without appendages; two pairs of tentacular cirri; chaetae composite; sucking mouth on the ventral side; eversible pharynx with stylet-shaped sucking tube, otherwise without specializations; external parasite on the ampharetid polychaete *Amphicteis gunneri* [subfamily *incertae sedis*]..***Calamyzas***
**1b.** Prostomium normally with appendages (when without appendages, tentacular cirri absent and chaetae simple); mouth and eversible pharynx not as above; tentacular cirri absent, or present as one or two pairs; chaetae simple or composite; free living or parasitic, but not as external parasites of *Amphicteis gunneri*.....**2**

**2a (1b).** Ventral cirri present.....**3**
**2b (1b).** Ventral cirri absent (probably fused with parapodial lobes), or fused all along their length to parapodial lobes.....**5**

**3a (2a).** Palps fused for at least half their lengths; small forms (usually less than 8 mm); direct reproduction, with brooding by females; short or very short appendages, always inarticulated [subfamily EXOGONINAE].....**17**
**3b (2a).** Palps, if fused at all, only fused basally; larger forms; incubation absent, with some exceptions; appendages normally long, smooth or articulated.....**4**

**4a (3b).** Appendages smooth, irregularly articulated, wrinkled; reproduction by epigamy.....**23**

**4b (3b).** Appendages articulated, but can be composed by a single article, or in some cases can present smooth and articulated appendages; reproduction by schizogamy, with production of stolons [subfamily SYLLINAE].....**42**

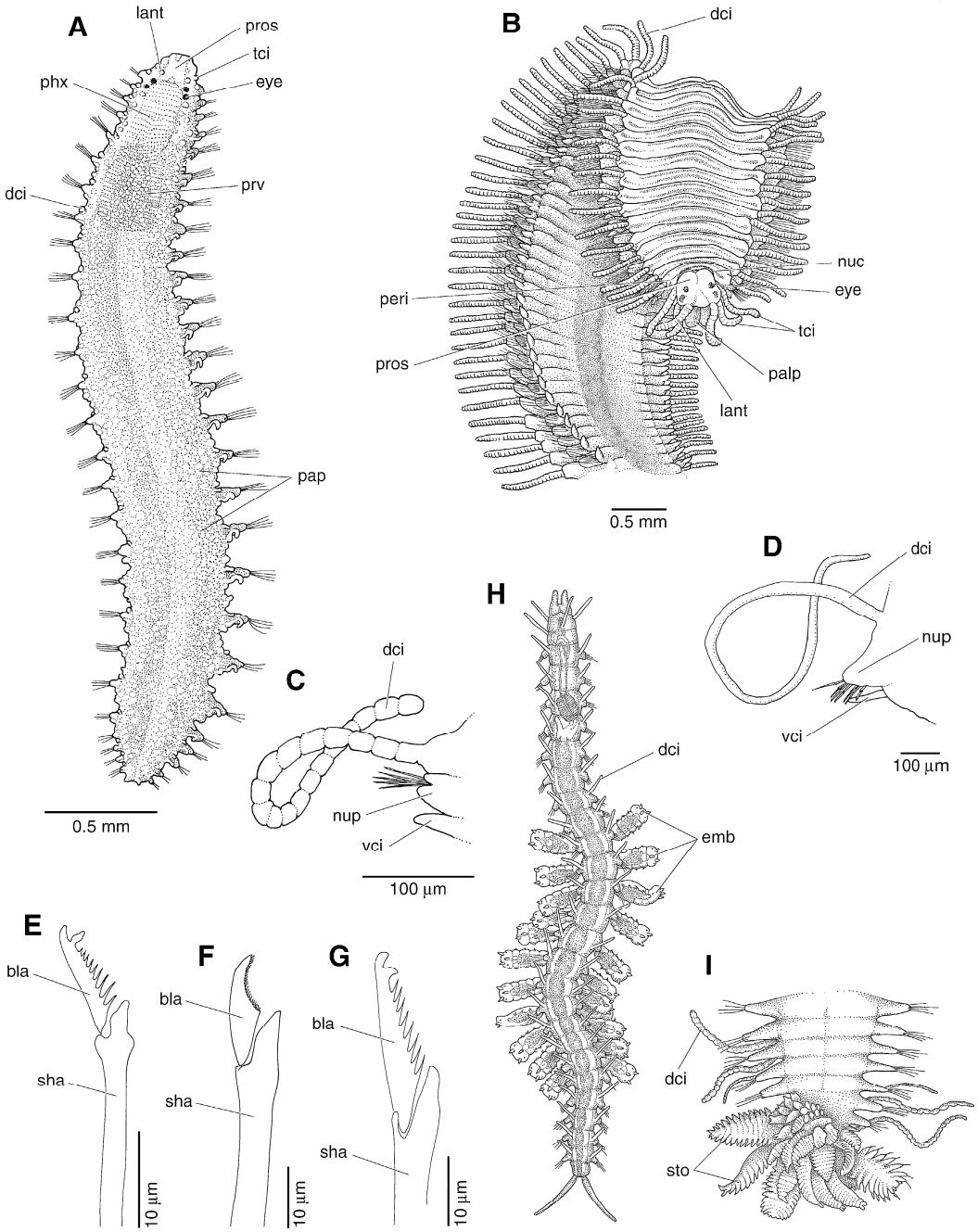


**Figure legend:** Family Syllidae. **A**, entire animal of *Sphaerosyllis* specimen (Exogoninae), dorsal view; **B**, dorsal view of anterior end and ventral view of mid-body ot *Trypanosyllis* specimen (Syllinae); median antenna absent. **C**, parapodium from mid-body, a sylline species. **D**, parapodium of chaetiger 31, an eusylline species. **E**-**G**, chaetae: **E**, heterogomph falciger from mid-body chaetiger, a sylline species; **F**, heterogomph falciger from posterior chaetiger, *Trypanosyllis* specimen; **G**, heterogomph falciger from chaetiger 31, an eusylline species. **H**, externally brooded embryos in *Pionosyllis* specimen are attached to the ventral cirri by glandular secretions. **I**, multiple male stolon production from the venter of posterior segments in *Trypanosyllis* specimen. **bla**, blade; **dci**, dorsal cirrus; **emb**, embryos; **eye**, eye; **lant**, lateral antenna; **nuc**, nuchal organ; **nup**, neuropodium; **palp**, palp; **pap**, papillae; **peri**, peristomium; **phx**, pharynx; **pros**, prostomium; **prv**, proventricle; **sha**, shaft; **sto**, stolons; **tci**, tentacular cirri; **vci**, ventral cirrus. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

**5a (2b).** Appendages absent [subfamily AUTOLYTINAE; in part].....***Levidorum***
**5b (2b).** At least antennae present.....**6**

**6a (5b).** Dorsal cirri on chaetiger 1 only [subfamily AUTOLYTINAE; in part].....***Procerastea***
**6b (5b).** Dorsal cirri on all chaetigers.....**7**

**7a (6b).** Median antenna absent; single pair of tentacular cirri present; trepan absent; compound chaetae with blades long, thin, slender, and smooth on margin, similar to those found in the family Phyllodocidae [subfamily *incertae sedis*].....***Acritagasyllis***
**7b (6b).** Median antenna present; two pairs of tentacular cirri; trepan present; blades of compound chaetae, if present, otherwise [subfamily AUTOLYTINAE; in part].....**8**

**8a (7b).** Large, clavate, dorsal cirri alternate with much smaller, cylindrical or clavate cirri; nuchal epaulletes on special outgrowths.....***Virchowia***
**8b (7b).** Not so.....**9**

**9a (8b).** Cirrophores on tentacular cirri and chaetiger 1 only; cirri from chaetiger 3, of equal length.....**10**
**9b (8b).** Cirrophores present on all chaetigers; cirri equal or unequal in length.....**13**

**10a (9a).** Bayonet chaetae thin, with subdistal denticulation.....***Imajimaea***
**10b (9a).** Bayonet chaetae with distal denticulation.....**11**

**11a (10b).** Only simple chaetae in all chaetigers; trepan with equal teeth, in one ring.....**12**
**11b (10b).** All chaetae, except bayonet chaetae, compound, with uni- or bidentate blades; trepan with unequal teeth in 2 sizes, arranged in 2 rings.....***Proceraea***

**12a (11a).** Trepan with equal teeth in one ring; chaetigers with 3-4 bidentate chaetae, with unequal teeth and serration along the "fusion line"; bayonet chaetae present.....***Paraprocerastea***
**12b (11a).** Trepan with single large tooth and small equal teeth, in one ring; only 1-2 simple unidentate chaetae in all chaetigers, bayonet chaetae absent.....***Erseia***

**13a (9b).** Compound chaetae with large distal tooth.....**14**
**13b (9b).** Compound chaetae with small distal tooth.....**16**

**14a (13a).** Large teeth in trepan fused to adjacent smaller teeth, colour pattern consisting of 4 red dorsal spots across each segment.....***Myrianida rubropunctata***
**14b (13a).** Trepan with unequal teeth, with 1 large alternating with 1-4 small teeth, large teeth not fused to adjacent teeth.....**15**

**15a (14b).** Large difference in size between large and small teeth in trepan; live specimens without distinct colour markings.....***Epigamia alexandri***
**15b (14b).** Smaller difference in size between large and small teeth in trepan; live specimens with broad red middorsal logitudinal band.....***Myrianida irregularis***

**16a (13b).** Relatively long chaetal blades in all chaetigers (2.5 times longer than wide); trepan with teeth with 3 sizes, in 2 or 3 rings.....***Epigamia* [in part]**
**16b (13b).** "Normal" length in chaetal blades (= 2 times longer than wide); trepan variously denticulated, in 1 ring.....***Myrianida* [in part]**

**17a (3a).** Two pairs of tentacular cirri.....**18**
**17b (3a).** One pair of tentacular cirri.....**19**

**18a (17a).** Palps fused on basal half to 2/3 of their length; dorsal cirri bowling-pin shaped or truncate; parapodial glands distinct, sometimes inside dorsal cirri; aciculae distally rounded, apparently hollow at tip; pharynx slender, with distal soft papillae; pharyngeal tooth conical, located at opening; females brooding ventrally, developing juveniles, or viviparous.....***Brania****
**18b (17a).** Palps joined all along their length or mostly by a dorsal membrane; dorsal cirri spindle-shaped, usually elongate; parapodial glands absent; aciculae acuminate; pharynx and proventricle long and wide; usually without papillae on pharyngeal opening; pharyngeal tooth rhomboidal to ovate, usually

located far from pharyngeal opening; females brooding dorsally, by means of simple, capillary notochaetae.....***Salvatoria****

**19a (17b).** Body without papillae; females brooding ventrally, developing juveniles, or viviparous.....**20**
**19b (17b).** Body papillate; females brooding ventrally, developing juveniles, or viviparous, or brooding dorsally.....**21**

**20a (19a).** Palps fused on basal half to 2/3 of their length; dorsal cirri bowling-pin shaped; parapodial glands distinct; dorsal simple chaetae distally serrated.....***Parapionosyllis****
**20b (19a).** Palps usually fused all along their length or with a distal, short notch; dorsal cirri small, papilliform; parapodial glands indistinct; dorsal simple chaetae otherwise.....***Exogone****

**21a (19b).** Prostomium with 4-eyes, without eyespots, or eyes absent; proventricle short, with few large muscular bands; pharynx slender; pharyngeal tooth small, conical, located on anterior rim on pharynx; antennae and dorsal cirri flask- to onion-shaped; aciculae distally with tip forming a right angle; females brooding ventrally, developing juveniles, or viviparous.....***Sphaerosyllis****
**21b (19b).** Prostomium with 4-eyes and 2 anterior eyespots; proventricle barrel-shaped, long and relatively wide, with numerous, slender muscular bands; pharynx relatively large; aciculae acuminate; females brooding dorsally, by means of simple, capillary notochaetae.....**22**

**22a (21b).** Pharynx distinctly wide, without papillae; pharyngeal tooth rhomboidal to oval, long, usually located far from anterior rim; antennae and dorsal cirri similar to *Sphaerosyllis*, but typically having an elongate cirrophore and a retractile cirrostyle; compound chaetae always with short, unidentate falcigers.....***Prosphaerosyllis****
**22b (21b).** Pharynx proportionally more slender, sometimes with soft papillae surrounding opening; pharyngeal tooth small, located near anterior rim; antennae and dorsal cirri elongate, but sometimes similar to those of *Sphaerosyllis*, always without retractile cirrostyle; compound chaetae usually with elongate blades bidentate, bidentate and unidentate, or unidentate.....***Erinaceusyllis***

**23a (4a).** Nuchal organs as lappets; pharynx long, highly convoluted with trepan, without mid-dorsal pharyngeal tooth [subfamily EUSYLLINAE; in part].....***Amblyosyllis***
**23b (4a).** Nuchal organs as two ciliated grooves between prostomium and peristomium; pharynx straight, not convoluted.....**24**

**24a (23b).** Pharynx unarmed [subfamilly ANOPLOSYLLINAE].....**25**
**24b (23b).** Pharynx armed with a single tooth, and/or pharyngeal denticles [subfamily EUSYLLINAE].....**28**

**25a (24a).** Two kinds of compound chaetae within the bundle, a few long dorsal ones, and numerous short ventral ones, all lacking dorso-ventral gradation in length; usually aciculae of some anterior parapodia with inflated tips, or aciculae without inflated tips.....***Streptosyllis***
**25b (24a).** Blades of compound chaetae with dorso-ventral gradation in length within fascicle; aciculae without inflated tips.....**26**

**26a (25b).** Dorsal cirri all smooth throughout body, more or less club-shaped; compound chaetae unidentate or indistinctly bidentate.....***Anoplosyllis***
**26b (25b).** Dorsal cirri articulated in some segments; compound chaetae bidentate.....**27**

**27a (26b).** Dorsal cirri of chaetigers 1-2 smooth, from chaetiger 3 distinctly articulated; at least some compound chaetae long.....***Syllides****
**27b (26b).** Dorsal cirri of the first 3-6 chaetigers articulated, being smooth or rugose after that; all compound chaetae short.....***Syllides articulocirratus*** **[check *insertae sedis*]**

**28a (24b).** Pharynx with incomplete trepan formed by few teeth, backwardly directed, without mid-dorsal tooth.....***Odontosyllis****
**28b (24b).** Pharynx with mid-dorsal tooth.....**29**

**29a (28b).** Pharyngeal tooth surrounded by an incomplete circle of small denticles, forwardly directed, forming an incomplete trepan.....**30**
**29b (28b).** Single pharyngeal tooth present, trepan absent.....**32**

**30a (29a).** Palps completely separated; small size (0.7 to 1 mm long, for 10-13 segments); with short cirri.....***Miscellania***
**30b (29a).** Palps free, fused at the base; size medium to big (about 12-32 mm long, for about 53-124 segments); with long cirri.....**31**

**31a (30b).** Dorsal cirri very long, coiled, in the middle region of the body much longer than body width; few pharyngeal teeth; ventral cirri inserted distally on parapodial lobes.....***Dioplosyllis****
**31b (30b).** Dorsal cirri not so long, in the middle region of the body about as long as body width; numerous pharyngeal teeth; ventral cirri inserted at bases of parapodia.....***Eusyllis****

**32a (29b).** Pharyngeal tooth located far from anterior rim.....**33**
**32b (29b).** Pharyngeal tooth located on, or close to anterior rim.....**34**

**33a (32a).** Several anterior parapodia with distally inflated aciculae; palps short, fused basally, triangular in shape; ventral cirri of most anterior parapodia not fused to parapodial lobes; pharyngeal tooth located distinctly posteriorly; blades of compound chaetae lacking tendon connecting proximal tooth with margin.....***Streptodonta***
**33b (32a).** Without distally inflated aciculae; palps free, not fused at base; ventral cirri of most anterior parapodia partially fused to parapodial lobes; pharyngeal tooth located medially; some species with blades of compound chaetae with tendon connecting proximal tooth with margin.....***Opisthodonta****

**34a (32b).** Ventral cirri inserted distally on parapodial lobes; dorsal cirri after first chaetiger short, shorter than parapodial lobes; palps apparently biarticulated.....***Neopetitia***
**34b (32b).** Ventral cirri inserted at bases of parapodia; dorsal cirri short or long, but longer than parapodial lobes at least in part of the body; palps without the appearance of being biarticulated.....**35**

**35a (34b).** Antennae, tentacular and anterior dorsal cirri articulated (adults).....**36**
**35b (34b).** Antennae and cirri smooth, sometimes rugose, pseudoarticulated.....**38**

**36a (35a).** Segments posterior to proventricle fused in units of 2–3 segments; subcirral papilla absent; palps completely free.....***Synmerosyllis***
**36b (35a).** Segments not fused; palps fused at base.....**36**

**37a (36b).** Small subcirral papilla present on parapodia, shorter than width of dorsal cirrus; dorsal surface of segments ciliated.....***Paraehlersia****
**37b (36b).** Small subcirral papilla absent on parapodia; dorsal surface of segments not ciliated.....***Pionosyllis dionisi*** **[check *insertae sedis*]***

**38a (35b).** Dorsal cirri (except some anteriormost) exogonid-like, short, slightly longer than parapodial lobes.....**39**
**38b (35b).** Dorsal cirri long, clearly longer than parapodial lobes.....**40**

**39a (38a).** Dorsal cirri absent on chaetiger 2; blades of compound chaetae unidentate, with blunt tips; dorsal and ventral cirri of posterior segments longer than in previous segments; antennae, tentacular cirri and dorsal cirri of first chaetiger smooth.....***Palposyllis***
**39b (38a).** Dorsal cirri present on chaetiger 2; blades of compound chaetae bidentate; dorsal and ventral cirri of posterior segments of about the same size than in previous segments; antennae, tentacular cirri and dorsal cirri of first chaetiger smooth to rugose, pseudoarticulated when very long.....***Brevicirrosyllis***

**40a (38b).** Small to minute size (<5 mm in length); pharynx short, shorter than proventricle, with a long tooth; compound chaetae unidentate or provided with small, spine-like proximal tooth.....***Nudisyllis***
**40b (38b).** Medium to large size (usually >5 mm in length, but can be smaller); pharynx long; compound chaetae bidentate.....**41**

**41a (40b).** Distinct prechaetal lobe present; aciculae straight, usually protruding from parapodial lobes; blades of compound chaetae without long, fine spines; without spiniger-like chaetae; large size, distinctly macrofaunal (usually >10 mm in length).....***Pionosyllis***

**41b (40b).** Prechaetal lobe absent; aciculae distally knobbed, with 2 unequal lobes; blades of compound chaetae with long, fine, distally ornamented spines; sometimes with spiniger like chaetae; medium size (usually >5 mm in length).....***Perkinsyllis***

**42a (4b).** Antennae, tentacular cirri, and dorsal cirri formed by a single globular article; body flattened dorso-ventrally.....**43**
**42b (4b).** Antennae, tentacular cirri, and dorsal cirri pluriarticulated; body subcylindrical or flattened dorso-ventrally.....**44**

**43a (42a).** Body with dorsal globular papillae similar to the dorsal cirri, forming longitudinal rows.....***Eurysyllis****
**43b (42a).** Body without dorsal globular papillae.....***Plakosyllis***

**44a (42b).** Body flattened dorso-ventrally; palps free, with bases placed away one from each other.....**45**
**44b (42b).** Body subcylindrical; palps fused at the bases, normally with a scar clearly visible.....**46**

**45a (44a).** Eversible pharynx unarmed; body covered by small papillae and grooves.....***Xenosyllis****
**45b (44a).** Eversible pharynx with a trepan of several teeth and an additional large single tooth; body smooth.....***Trypanosyllis****

**46a (44b).** All chaetae simple, normally distally furcated and with a subdistal knob or boss; eversible pharynx with a single median tooth or with a trepan of several teeth and an additional larger median tooth.....***Haplosyllis****
**46b (44b).** At least some chaetae compound.....**47**

**47a (46b).** Eversible pharynx unarmed.....**48**
**47b (46b).** Eversible pharynx armed with a single middorsal tooth (may be attached anteriorly or posteriorly).....**49**

**48a (47a).** Two pairs of tentacular cirri; antennae, tentacular cirri and dorsal cirri pluriarticulated.....***Inermosyllis***
**48b (47a).** One single pair of tentacular cirri; antennae, tentacular cirri and dorsal cirri with only two articles.....***Paratyposyllis (?) peresi* [check *insertae sedis*]**

**49a (47b).** Middorsal tooth attached posteriorly.....***Opisthosyllis***
**49b (47b).** Middorsal tooth attached anteriorly, near the oppening or slightly later.....**50**

**50a (49b).** Parapodia with a pair of digitate distal lobes attached pre- and postchaetally (sometimes designated as branchiae); blades of some or all chaetae in the middle and posterior regions of body rotated 180º, claw-shaped.....***Branchiosyllis***
**50b (49b).** Parapodia without digitate distal lobes; blades of chaetae not rotated 180º.....**51**

**51a (50b).** Dorsal cirri in posterior region alternately long, slender and articulated, or short and large, bulbously fusiform and unarticulated.....***Parasphaerosyllis***
**51b (50b).** Dorsal cirri may alternate between long and short, but normally all are of similar thickness and articulated, not bulbously fusiform.....***Syllis****

## GENUS *Acritagasyllis* Lucas, San Martín & Sikorski 2010

*Acritagasyllis* LUCAS, SAN MARTÍN & SIKORSKI, 2010: 252-253.
**TYPE SPECIES:** *Acritagasyllis longichaetous* Lucas, San Martín & Sikorski 2010.

### *Acritagasyllis longichaetous* Lucas, San Martín & Sikorski 2010

*Acritagasyllis longichaetous* LUCAS, SAN MARTÍN & SIKORSKI, 2010: 256, figs. 1-2.
**TYPE LOCALITY:** Northern North Sea, 61º21'85"N, 2º27'57"E, at 330 meters.
**DISTRIBUTION:** Northern North Sea, at 61º21'85"N, 2º27'57"E, 330 meters, and at 61º25'88"N, 2º34'25"E, 379 meters.

**REMARKS:** The species, and only representative of the genus, has some unusual characters in the Syllidae, and its systematic position in the family is uncertain. It lacks palps, eyes, and median antenna, and has a single pair of tentacular cirri. Some segments of the anterior region of the body seem to be fused into units, like in the genera *Murrindisyllis* San Martín, Aguado & Murray 2007, and *Synmerosyllis* San Martín, López & Aguado 2009, but other characters separate *Acritagasyllis* from these genera. Ventral cirri are present, but they are fused all along their length to the parapodial lobes. The presence of nuchal epaulettes, the general shape of the parapodia, and the bayonet-shaped dorsal simple chaetae are characteristic of the subfamily Autolytinae, like the coiled pharynx, typical of this subfamily and of the genus *Amblyosyllis*, but a trepan is absent and is replaced by a pharyngeal tooth. Finally, the compound chaetae has long shafts, distally enlarged and spinose, and blades long, thin, slender, and smooth on margin, being more similar to those found in the family Phyllodocidae than to those common among syllids (LUCAS, SAN MARTÍN & SIKORSKI, 2010).

## GENUS *Amblyosyllis* Grube 1857

*Amblyosyllis* GRUBE, 1857: 186.

**TYPE SPECIES:** *Amblyosyllis rhombeata* Grube 1857.

**SYNONYMS:** *Pterosyllis* Claparède 1863; *Nicotia* Costa 1864; *Gattiola* Baird 1861; *Gattioa* Verrill 1874; *Thylaciphorus* Quatrefages 1866; *Amblyosillis* Eisig 1881 [lapsus]; *Pseudosyllides* Czerniavsky 1882.

**REMARKS:** According to MALMGREN (1867*a*), the date of publication of the genus *Gattiola*, which authorship is stated by him as being Johnston, should be 1861, instead of 1865, year of the posthumous publication of Dr. George Johnston's "*A Catalogue of the British Non-Parasitical Worms in the Collection of the British Museum*" (JOHNSTON, 1865). This name would have been used by W. Baird, in the chapter *Annelida* of *The Museum of Natural History*, Volume II, page 298 (note), published in 1861, in which case the correct authorship of the genus should be *Gattiola* Baird 1861. I wasn't able to consult Baird's 1861 note in order to confirm this, but it is worth to comment that in the "*Addenda and Corrigenda*" of the Supplement prepared for Jonhston's 1865 posthumous work by Dr. Baird himself, it is stated (page 342): "*Page 195,* (...) *after* Syllis tigrina*, Gosse add* Gattiola spectabilis*, Baird,* Art. *Annelida in Mus. Nat. Hist.* vol. ii. P. 298 (note), 1861". In both cases the name *Amblyosyllis* still has priority, but in the list of synonymies given above the authorship and year of publication of the genus *Gattiola* is considered to be Baird 1861.

### KEY TO SPECIES:

**1a.** Compound chaetae with unidentate tips; nuchal epaulettes reaching end of chaetiger 1; coloration light brown or brownish red, uniform or with imperceptible dark lines and white spots; white in preserved material.....***A. finmarchica***

**1b.** Compound chaetae with bidentate tips; coloration otherwise.....**2**

**2a (1b).** Long nuchal epaulettes, reaching chaetiger 2; trepan formed by 6 monocuspid teeth (tricuspid in bigger specimens, with small secondary cusps, more or less developed, on each side of the big cusps; coloration variable, apparently absent in some specimens (faded?), others present the dorsal region very dark with about 3 light spots per segment in the anterior region, which become 2-3 dark transversal stripes in the middle and posterior segments.....***A. formosa***

**2b (1b).** Short nuchal epaulettes, more or less spherical, reaching the beginning of chaetiger 1; trepan formed by 6 pentacuspid teeth; coloration can fade in preserved specimens, or present transversal stripes in each segment, being the posterior one more conspicuous.....***A. madeirensis***

## *Amblyosyllis finmarchica* (Malmgren 1867)

*Gattiola finmarchica* MALMGREN, 1867*a*: 38-39, pl. 6, fig. 36.

**TYPE LOCALITY:** Finmark (Norway).

**SELECTED REFERENCES:** *Pterosyllis finmarchica* — USCHAKOV, 1955*a*: 187, fig. 84*A-C*. *Ambliosyllis finmarchica* — PETTIBONE, 1963*a*: 128, fig. 34*e-f* [in part; not specimens from Maine = *Amblyosyllis cincinnata* (Verrill 1874) (see RISER, 1982: 105-107); HELGASON *et al.*, 1990: 206-207, fig. 2.

**DISTRIBUTION:** Sea of Japan (Siaukhu Bay); La Pérouse Strait; Bering Island; Newfoundland; Iceland; Norwegian coast; White Sea. Littoral to 56 meters.

### *Amblyosyllis formosa* (Claparède 1863)

*Pterosyllis formosa* CLAPARÈDE, 1863: 46, pl. 13 figs. 30-34.
**TYPE LOCALITY:** Near St. Vaaste la Hougue (Normandie, Northern France).
**SYNONYMS:** *Amblyosyllis lineata* Grube 1863; *Gattiola spectabilis* Johnston 1865; *Amblyosyllis dorsigera* Claparède 1864; *Amblyosyllis inmatura* Langerhans 1879; *Amblyosyllis algefnae* Viguier 1886.
**SELECTED REFERENCES:** *Pterosyllis formosa* — FAUVEL, 1923*c*: 280, fig. 105*h-n*; COGNETTI, 1957: 34-35, tables 1*a*, 2. *Amblyosyllis formosa* — HARTMANN-SCHRÖDER, 1996: 156; LICHER, 1999: 271-272; ÇINAR & ERGEN, 2003: 769-770; SAN MARTÍN, 2003: 93-96, figs. 39-40. *Pterosyllis dorsigera* — CLAPARÈDE, 1864: 560-562, pl. 7 fig. 1. *Amblyosyllis dorsigera?* — SAN MARTÍN, 1984*b*: 72-76, pls. 8-9, table 1. *Amblyosyllis dorsigera* — SAN MARTÍN, 1990: 612, fig. 15*a*. *Amblyosyllis algefnae* — SAN MARTÍN, 1990: 612-613, fig. 15*b*. *Amblyosyllis lineata* — GRUBE, 1863: 48-49, pl. 5 fig. 1. *Gattiola spectabilis* — JOHNSTON, 1865: 195-196, pl. 16*a* figs. 1-7. *Pterosyllis (Gattiola) spectabilis* — SAINT-JOSEPH, 1887: 187-190, pl. 9 figs. 64-67. *Amblyosyllis granosa* [not Ehlers 1897] — SARDÁ, 1983: 13-16, fig. 1.
**DISTRIBUTION:** North-eastern Atlantic, from the North Sea to Madeira; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; South Africa; Japan; North-western Atlantic. Among algae, mussels, and vermetids, and in *Posidonia* meadows, and coralligenous bottoms. On shallow waters.

### *Amblyosyllis madeirensis* Langerhans 1879

*Amblyosyllis madeirensis* LANGERHANS, 1879: 561, pl. 32 fig. 19.
**TYPE LOCALITY:** Madeira Island.
**SELECTED REFERENCES:** *Amblyosyllis madeirensis* — SAN MARTÍN, 1984*b*: 68-72, pl. 7, table 1; SAN MARTÍN, 1990: 612, fig. 15*c*; NÚÑEZ & SAN MARTÍN, 1996: 203, fig. 1*A-B*; SAN MARTÍN, 2003: 96-99, figs. 41-42.
**DISTRIBUTION:** Madeira Island; Canary Islands; Cape Verde Islands; Mediterranean Sea; Aegean Sea; Cuba. Amongst algae, vermetids, rhizomes of *Posidonia*, coralligenous bottoms, intertidal pools. On shallow water and intertidal pools.

## GENUS *Anoplosyllis* Claparède 1868

*Anoplosyllis* CLAPARÈDE, 1868: 524.
**TYPE SPECIES:** *Anoplosyllis edentula* Claparède 1868.

### *Anoplosyllis edentula* Claparède 1868

*Anoplosyllis edentula* CLAPARÈDE, 1868: 524-525, pl. 12 fig. 2.
**TYPE LOCALITY:** Gulf of Naples, Mediterranean Sea.
**SELECTED REFERENCES:** *Syllides edentula* — FAUVEL, 1923*c*: 284-285, fig. 108*h-n*; COGNETTI, 1957: 37-38, fig. 6, table 1*a*; COGNETTI-VARRIALE, 1971: 111-114, fig. 1, pl. 1. *Anoplosyllis edentula* — SAN MARTÍN, 2003: 134-136, fig. 65.
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Northeastern Atlantic, from Bretagne to the Canary Islands; [?] Galapagos Islands. On sandy bottoms. From intertidal to infralittoral.

## GENUS *Branchiosyllis* Ehlers 1887

*Branchiosyllis* EHLERS, 1887: 148.
**TYPE SPECIES:** *Branchiosyllis oculata* Ehlers 1887.

### *Branchiosyllis exilis* (Gravier 1900)

*Syllis (Typosyllis) exilis* GRAVIER, 1900*b*: 160-162, text-figs. 28-30, pl. 9 fig. 9.
**TYPE LOCALITY:** Djibouti, Gulf of Tadjourah (Gulf of Aden).
**SYNONYMS:** *Branchiosyllis lamellifera* Verrill 1900; *Syllis grandigularis* Verrill 1900; *Syllis (Ehlersia) nitida* Verrill 1900; *Syllis (Typosyllis) cirropunctata* Michel 1909; *Syllis (Typosyllis) fusco-suturata* Augener 1924; *Trypanosyllis uncinigera* Hartmann-Schröder 1960; *Syllis (Typosyllis) pleissisi* Rullier 1972.

**SELECTED REFERENCES:** *Syllis (Typosyllis) exilis* — FAUVEL, 1917: 195-198, text-fig. 11, pl. 5 fig. 24; FAUVEL, 1953*c*: 151-152, fig. 75*a'-f*; DAY, 1967: 250, figs. 12.4.*h-j*. *Syllis exilis* — FAUVEL, 1947: 34-35, fig. 31. *Branchiosyllis exilis* — WESTHEIDE, 1974*b*: 60-64, fig. 26; HARTMANN-SCHRÖDER, 1978: 57-61, figs. 15-20, table 3; UEBELACKER, 1982: 583-584; UEBELACKER, 1984*f*: 30.105-30.107, figs. 30.99-30.100; SAN MARTÍN, 1984*b*: 294-303, pls. 69-72, photo 19; LICHER, 1999: 272-274; SAN MARTÍN, 2003: 332-336, figs. 184-185; RUIZ-RAMÍREZ & HARRIS, 2008: 2-3, fig. 1; SAN MARTÍN, HUTCHINGS & AGUADO, 2008: 127-130, figs. 7, 8*B-F*, 10*A-B*. *Typosyllis grandigularis* — HARTMAN, 1942*a*: 46, figs. 66-67. *Syllis (Typosyllis) cirropunctata* — FAUVEL, 1923*c*: 266-267, fig. 99*n-p*; DAY, 1967: 250, fig. 12.4.*k-l*. *Syllis (Typosyllis) fusco-suturata* — AUGENER, 1924*a*: 43; AUGENER, 1927*b*: 52. *Syllis fuscosuturata* — MONRO, 1933*b*: 250-251, fig. 4; MONRO, 1933*c*: 32-34, fig. 14. *Trypanosyllis uncinigera* — HARTMANN-SCHRÖDER, 1960*b*: 86-87, plate 7 figs. 54, 57-58, plate 9 figs. 55-56. *Branchiosyllis uncinigera* — HARTMANN-SCHRÖDER, 1965*a*: 112-113, fig. 42; HARLOCK & LAUBIER, 1966: 18-25, figs. 1-3; HARTMANN-SCHRÖDER, 1974*a*: 120-121, pl. 8 figs. 72-74; CANTONE, 1976: 228, fig. 1; CANTONE, FASSARI & BRIGANDI, 1978: 59-61, fig. 1. *Syllis (Typosyllis) plessisi* — RULLIER, 1972: 61, fig. 7.

**DISTRIBUTION:** Circumtropical. Mediterranean Sea; Adriatic Sea; Aegean Sea; Red Sea; Hawaii; New Caledonia; Japan; Galapagos Islands; Panama; Bermuda; Costa Rica; Florida; Angola; South Africa; Somalia; Mozambique; Madagascar; Indian Ocean; Australia. Under stones, among algae, sponges, corals, coral rubble, rhizomes or leafs of *Posidonia oceanica*, on coarse to medium-fine sand or silty fine sand. Intertidal to 400 meters.

## *GENUS ***Brania*** Quatrefages 1866

*Brania* QUATREFAGES, 1866*b*: 18.

**TYPE SPECIES:** *Exogone pusilla* Dujardin 1851.

**SYNONYMS:** *Grubea* Quatrefages 1866.

**KEY TO SPECIES:**
(adapted from SAN MARTÍN, 2003)

**1a.** Dorsal cirri distally truncated, with fibrillar inclusions.....***B. pusilla****

**1b.** Dorsal cirri bottle-shaped; glands at the base of parapodia.....***B. arminii***

### ***Brania arminii*** Langerhans 1881

*Grubea Arminii* LANGERHANS, 1881: 105-106, pl. 4 fig. 11.

**TYPE LOCALITY:** Puerto de la Orotava, northern coast of Tenerife, Canary Islands, in littoral rocks.

**SYNONYMS:** [?] *Grubea rhopalophora* Ehlers 1897; *Pionosyllis oculata* Hartmann-Schröder 1960; [?] *Brania glandulosa* Hartmann-Schröder 1980.

**SELECTED REFERENCES:** *Brania arminii* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 44; SAN MARTÍN, 2003: 153-156, figs. 75-76. *Pionosyllis oculata* — HARTMANN-SCHRÖDER, 1960*b*: 93-94, pl. 10 fig. 85, pl. 11 figs. 83-84; TENERELLI, 1964: 236, fig. 4. *Brania oculata* — HARTMANN-SCHRÖDER, 1974*a*: 131-132, pl. 12 figs. 107-110; WESTHEIDE, 1974*a*: 9-10, fig. 5; BEN-ELIAHU, 1977*b*: 66-68, 79, fig. 2; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 69-70, fig. 10; CAMPOY, 1982: 259-262, pl. 16; SAN MARTÍN, 1984*b*: 176-181, pls. 36-37. [?] *Grubea rhopalophora* — EHLERS, 1897: 53-55, pl. 3 figs. 66-70. [?] *Brania glandulosa* — HARTMANN-SCHRÖDER, 1980*a*: 394-395, figs. 16-20.

**DISTRIBUTION:** Madeira Island; Mediterranean Sea; Red Sea; Canary Islands; [?] Caribbean Sea; Brazil; Angola; Namibia; Mozambique; Tanzania; Galapagos Islands. On coarse and detritic sand, coralligenous bottoms, among algae, rhizomes of *Posidonia*, *Sabellaria* reefs, mussels. Intertidal to about 6 meters.

### ****Brania pusilla*** (Dujardin 1851)

*Exogone pusilla* DUJARDIN, 1851: 299-300, pl. 5 figs. 9-10.

**TYPE LOCALITY:** Saint-Malo, Bretagne (Northern France).

**SYNONYMS:** *Grubea pusilloides* Haswell 1920.

**SELECTED REFERENCES:** *Sphærosyllis pusilla* — CLAPARÈDE, 1864: 549-550, pl. 6 fig. 3. *Grubea pusilla* — LANGERHANS, 1879: 565, pl. 32 fig. 22; SAINT-JOSEPH, 1887: 203-204, pl. 10 figs. 77-78; SOULIER, 1904: 333-338, fig. 4; FAUVEL, 1923*c*: 299, fig. 115*a-f*; COGNETTI, 1957: 52-53, tables 1*b*, 2.

*Brania pusilla* — DAY, 1967: 267-269, fig. 12.9.*d-f*; GARDINER, 1976: 130, fig. 10*o*; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 70, fig. 11; CAMPOY, 1982: 248-251, pl. 14 figs. *a-g*; SAN MARTÍN, 1984*b*: 181-184, pl. 38, photo. 2; HARTMANN-SCHRÖDER, 1996: 169-170, fig. 72; LICHER, 1999: 275; SAN MARTÍN, 2003: 151-153, figs. 73-74; SAN MARTÍN, 2005: 102-103, fig. 57. *Grubea rhopalophora* [not Ehlers 1897] — AUGENER, 1918: 295-297, pl. 4 fig. 94.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (as *Grubea pusilla*; Ponta do Baleal); MONTEIRO-MARQUES, 1987 (as *Grubea pusilla*; continental shelf of Algarve); DEXTER, 1992 (as *Grubea pusilla*; previous records: continental shelf of Algarve).

**MATERIAL: FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 specimen. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 2 specimens.

**DISTRIBUTION:** Northeastern Atlantic, from English Channel to Morocco; Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Western Africa; Indian Ocean; North Carolina. On rocky bottoms, among algae, corals, gorgonians, vermetid reefs, and meadows of seagrasses. Between 0-90 meters.

**REMARKS:** The authorship's year of this species is 1851, but some authors use 1839 as the year of description of the species (*e.g.*: FAUVEL, 1923*c*; SAN MARTÍN, 2005), referring to "Dujardin, 1839: 298, pl. 5 figs. 9-10". However, this is incorrect, and in spite of fact that he number of pages and figures are the correct ones, the species was only described in 1851 (DUJARDIN, 1851).

## GENUS ***Brevicirrosyllis*** San Martín, López & Aguado 2009

*Brevicirrosyllis* SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1468-1469.

**TYPE SPECIES:** *Pionosyllis weismanni* Langerhans 1879.

**KEY TO SPECIES:**

(adapted from SAN MARTÍN, LÓPEZ & AGUADO, 2009)

**1a.** Ventral simple chaetae of similar width to shafts of compound chaetae, with both teeth similar in size, without hood; compound chaetae heterogomph; dorsal cirri without fibrillar inclusions.....***B. gorringensis***

**1b.** Ventral simple chaetae very large, with proximal tooth longer than distal tooth, provided with a hood; compound chaetae hemigomph; dorsal cirri with fibrillar inclusions.....***B. weismanni***

### ***Brevicirrosyllis gorringensis*** (Hartmann-Schröder 1977)

*Pionosyllis gorringensis* HARTMANN-SCHRÖDER, 1977*a*: 86, figs. 36-40.

**TYPE LOCALITY:** Gorringe Bank, 36º42.1'N, 11º09.0'W (SW Portugal), at 72 meters.

**SELECTED REFERENCES:** *Brevicirrosyllis gorringensis* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1469.

**DISTRIBUTION:** Known from the type locality.

### ***Brevicirrosyllis weismanni*** (Langerhans 1879)

*Pionosyllis Weismanni* LANGERHANS, 1879: 546-547, pl. 32 fig. 11.

**TYPE LOCALITY:** Madeira Island, from great depth ("*aus grösserer Tiefe*").

**SYNONYMS:** *Pionosyllis pierantonii* Cognetti 1957.

**SELECTED REFERENCES:** *Pionosyllis weismanni* — BANSE, 1959*c*: 431, fig. 4; COGNETTI, 1961*b*: 299-300; BEN-ELIAHU, 1977*a*: 50-51, fig. 20, table 4; HARTMANN-SCHRÖDER, 1977*a*: 85-86, figs. 27-35; HARTMANN-SCHRÖDER, 1981: 29; UEBELACKER, 1984*a*: 30.67-30.67, figs. 30.59-30.60; SAN MARTÍN, 2003: 70-73, figs. 24-25; ÇINAR & GAMBI, 2005: 752. *Pionosyllis weissmanni* — CAMPOY, 1982: 337-340, pl. 27 figs. *a-i*; NÚÑEZ & SAN MARTÍN, 1996: 209-210, fig. 4*F-J*. *Brevicirrosyllis weismanni* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1469. *Pionosyllis pierantonii* — COGNETTI, 1957: 42-43, fig. 8, tables 1*a*, 2.

**DISTRIBUTION:** North-eastern Atlantic, from Bretagne to Mediterranean Sea; Aegean Sea; Madeira Island; Canary Islands; Gorringe and Great Meteor Banks; Cape Verde; Gulf of Mexico; Red Sea; Hawaii. On coralligenous, detritic and rocky bottoms. Intertidal to 200 meters. SAN MARTÍN (2003) suggests the possibility that this species is in reallity a complex of species.

**REMARKS:** SAN MARTÍN (1990) states that specimens from Cuba and the Gulf of Mexico have ventral simple chaetae with subterminal spines, while specimens from Madeira, Mediterranean Sea, and Red Sea

have these chaetae provided with a subterminal hood. This difference, in spite of small, could indicate the existence of different taxa being recorded as *B. weismanni*.

## GENUS ***Calamyzas*** Arwidsson 1932

*Calamyzas* ARWIDSSON, 1932: 201-202.
**TYPE SPECIES:** *Calamyzas amphictenicola* Arwidsson 1932.
**REMARKS:** The Calamyzidae was erected by HARTMANN-SCHRÖDER (1971*a*) as a subfamily of Syllidae. Later it was raised to the familial status by FAUCHALD (1977*a*). GLASBY (1993) synonymized the family with the Syllidae, considering that the unique features of the family (losses of antennae and specialized mouth parts) were acquired after the appearance of the syllidin clade. The presence of a proboscis containing stylets, is considered to be a parasitic adaptation for the attachment to the host (GLASBY, 1993), and the absence of antennae could also be a consequence of the parasitic way of life of these worms.

### ***Calamyzas amphictenicola*** Arwidsson 1932

*Calamyzas amphictenicola* ARWIDSSON, 1932: 155-204, text-figs. 1-14, pls. 1-23.
**TYPE LOCALITY:** ARWIDSSON (1932) described the species with base on numerous specimens collected at several places, living as ectoparasites of the Ampharetidae *Amphicteis gunneri* (M. Sars 1835), where the adults live mainly on the anterior part of the host, among the basis of the gills, while the younger animals can be found on the whole body surface and also on the gills. The localities are on the Swedish coast of Bohuslän (Skagerrak coast and North Øresund ), mainly at the Gullmarfjord and Kosterfjord, between 20-70 meters, and at the Trondheimsfjord (western Norway), between 90-140 meters, in mud.
**SELECTED REFERENCES:** *Calamyzas amphictenicola* — KIRKEGAARD, 1992: 286-288, fig. 141; HARTMANN-SCHRÖDER, 1996: 193-194.
**DISTRIBUTION:** On the Swedish Skagerrak coast (Gullmarfjord, Kosterfjord), North Øresund , and at the Norwegian west coast (Trondheimfjord), between 20-140 meters. Lives as an ectoparasite of the Ampharetidae *Amphicteis gunneri* (M. Sars 1835), where the adults live mainly on the anterior part of the host, among the basis of the gills, while the younger animals can be found on the whole body surface and also on the gills.

## *GENUS ***Dioplosyllis*** Gidholm 1962

*Dioplosyllis* GIDHOLM, 1962: 253.
**TYPE SPECIES:** *Dioplosyllis cirrosa* Gidholm 1962.

**KEY TO SPECIES:**

**1a.** Pharynx with a ventral arc of 5 small teeth, inserted away from the edge; length of the pharynx almost twice as long as the proventriculus; proventriculus with about 45 rows of muscle cells; shafts of compound chaetae not deeply notched distally.....***D. cirrosa****
**1b.** Pharynx with a ventral arc of 7 small teeth on the edge; ratio pharynx length with proventriculus length of about 1.5:1; proventriculus with about 33 rows of muscle cells; shafts of compound chaetae distally deeply notched.....***D. octodentata***

### ****Dioplosyllis cirrosa*** Gidholm 1962

*Dioplosyllis cirrosa* GIDHOLM, 1962: 253-255, fig. 2, pl. 1.
**TYPE LOCALITY:** Trezen ar Skoden, submerged dune near Roscoff (Northern France), at 45-60 meters, among shell fragments.
**SELECTED REFERENCES:** *Dioplosyllis cirrosa* — MUELLER & FAUCHALD, 1976: table 1; CAMPOY, 1982: 309-312, plate not numbered in page 310; GIL & SARDÁ, 1999: 292; SAN MARTÍN, 2003: 110-111, fig. 50.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: southwestern

coast of Portugal; Sado Estuary); SAN MARTÍN, 2003 (previous records: Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 182 (A.3929)**, near Sines, 61 m, gravelly sand: 1 specimen, in poor condition and incomplete; ciliated rings not observed; all cirri lost, only one lateral antenna remaining; ciliated nuchal organs visible; proventriculus with about 35 muscular rows.

**DISTRIBUTION:** North-eastern Atlantic, from Roscoff to Portugal; Western Mediterranean. On bottoms of sand, and muddy sand. Between 9-70 meters.

**REMARKS:** This species is characterized by extremely long and smooth dorsal cirri, long and divergent palps, fused at base, and by a pharynx twice as long as the proventriculus, and armed with a middorsal anterior tooth and a ventral arc of 5 smaller teeth. The aciculae of this species have truncate tips, with very small teeth.

This is the only known strictly European species of the genus. However, another species, *Dioplosyllis octodentata* Perkins 1981 was recorded at the Canary Islands (NÚÑEZ & SAN MARTÍN, 1992). The differences between both species are presented in the above key.

### ***Dioplosyllis octodentata*** Perkins 1981

*Dioplosyllis octodentata* PERKINS, 1981: 1087-1090, fig. 4.

**TYPE LOCALITY:** Hutchinson Island (Florida, Atlantic coast), 27º21.6'N, 80º13.2'W, at about 11 meters, on coarse calcareous sand.

**SELECTED REFERENCES:** *Dioplosyllis octodentata* — NÚÑEZ & SAN MARTÍN, 1992: 2-6, figs. 1-2.

**DISTRIBUTION:** Florida, on coarse calcareous sand, at 11 meters; Ensenada de los Abades (Tenerife, Canary Islands), on basaltic sand, at 5 meters.

## GENUS ***Epigamia*** Nygren 2004

*Epigamia* NYGREN, 2004: 163-165.

**TYPE SPECIES:** *Autolytus noroi* Imajima & Hartman 1964.

**KEY TO SPECIES:**
(adapted from NYGREN, 2004)

**1a.** Compound chaetae with large distal tooth; trepan with unequal teeth, alternating one large with 1-4 small teeth, with a large difference in size between large and small teeth; live specimens without distinct colour markings.....***E. alexandri***

**1b.** Compound chaetae with small distal tooth; trepan teeth with 3 sizes, in 2 or 3 rings.....**2**

**2a (1b).** Cirrostyles from chaetiger 3 flattened; nuchal epaulettes extending to end of chaetiger 1.....***E. macrophthalma***

**2b (1b).** Cirrostyles cylindrical; nuchal epaulettes extending to at least beginning of chaetiger 4.....***E. labordai***

### ***Epigamia alexandri*** (Malmgren 1867)

*Autolytus Alexandri* MALMGREN, 1867*a*: 37, pl. 7 fig. 39.

**TYPE LOCALITY:** West Greenland, Davis Strait, 65ºN, 60ºW.

**SYNONYMS:** *Autolytus Newtoni* Malmgren 1867; *Stephanosyllis ornata* Verrill 1874; *Autolytus longigula* Verrill 1881; *Autolytus longeferiens* Saint-Joseph 1887; *Autolytus paradoxus* Saint-Joseph 1887; *Autolytus verrilli* Marenzeller 1892; *Proceraea rzhavskyi* Britayev & San Martín 2001.

**SELECTED REFERENCES:** *Autolytus alexandri* — PETTIBONE, 1963*a*: 147-148, fig. 37*f-g*; SAN MARTÍN, 1994: 271-272, fig. 1; HARTMANN-SCHRÖDER, 1996: 180-181. *Epigamia alexandri* — NYGREN, 2004: 165-168, fig. 83. *Autolytus longeferiens* — SAINT-JOSEPH, 1887: 217-219, pl. 10 figs. 95-97; FAUVEL, 1923*c*: 319-320, fig. 122*h-k*; GIDHOLM, 1967: 201-203, figs. 2*C*, 7*G*, 13*C*, 27; KIRKEGAARD, 1992: 230-231, fig. 112; HARTMANN-SCHRÖDER, 1996: 183; SAN MARTÍN, 2003: 483. *Autolytus paradoxus* — SAINT-JOSEPH, 1887: 216-217, pl. 10 figs. 92-94; FAUVEL, 1923*c*: 318, fig. 122*e-f*; HARTMANN-SCHRÖDER, 1996: 183-184. *Autolytus verrilli* — MARENZELLER, 1892*b*: 416-420, pl. 19 fig. 4; WESENBERG-LUND, 1950*b*: 52, chart 13. *Autolytus verillii* — WESENBERG-LUND, 1947: 33-36, figs. 14-

15. *Proceraea rzhavskyi* — BRITAYEV & SAN MARTÍN, 2001: 106-112, figs. 1 [only adult material; see NYGREN (2004: 168), for details].
**REFERENCES FOR PORTUGAL:** [?] BOAVENTURA *et al.*, 2006 (as *Autolytus* cf. *alexandri*; Ancão, Algarve).
**DISTRIBUTION:** Arctic; Greenland; North Atlantic, as southerly to Galicia and Gulf of Mexico; [?] Portugal; North Pacific, southerly to Mednyy Island (Commander Islands) and Washington. Amongst hydroids and algae, and on gravel, rocks and stones. Between 0-100 meters.

## ***Epigamia labordai*** (San Martín & López 2002)

*Autolytus labordai* SAN MARTÍN & LÓPEZ, 2002: 136-139, figs. 1-2.
**TYPE LOCALITY:** Galicia Bank (NW Spain, 42º42.70'N, 11º46.82'W), in a biocenosis of *Madrepora oculata*, at 769-780 meters.
**SELECTED REFERENCES:** *Autolytus labordai* — SAN MARTÍN, 2003: 502-505, figs. 278-279. *Epigamia labordai* — NYGREN, 2004: 170-172, fig. 86.
**DISTRIBUTION:** Known from the type locality.

## ***Epigamia macrophthalma*** (Marenzeller 1875)

*Proceraea macrophthalma* MARENZELLER, 1875: 165-167, pl. 4 fig. 2.
**TYPE LOCALITY:** Harbour of Mali Lošinj (= Lussin Piccolo), in the Losinj (= Lussin) Island, Croatia, Adriatic Sea.
**SYNONYMS:** *Autolytus sardai* Martin & Alós 1987.
**SELECTED REFERENCES:** *Epigamia macrophtalma* — NYGREN, 2004: 172-173, fig. 87. *Autolytus sardai* — MARTIN & ALÓS, 1987: 581-583, figs. 2, 3*a*; SAN MARTÍN, 2003: 498-500, fig. 276. Not *Autolytus macrophthalmus* — COGNETTI, 1955: 8, fig. 5*b*; COGNETTI, 1957: 65-66, fig. 12*B*, tables 1*b*, 2 [according to NYGREN (2004)].
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea. On calcareous algae and among corals and vermetids. Between 8-33 meters.
**REMARKS:** According to NYGREN (2004), none of the previous records of *E. macrophtalma* by earlier authors seems to be correct, referring to a species other than *E. macrophtalma*. It is a species with 20 equal teeth in the trepan, and with a pharynx poorly convoluted.

# GENUS ***Erinaceusyllis*** San Martín 2003

*Erinaceusyllis* SAN MARTÍN, 2003: 227-228.
**TYPE SPECIES:** *Sphaerosyllis erinaceus* Claparède 1863.

**KEY TO SPECIES:**
(adapted from SAN MARTÍN, 2005)

**1a.** Dorsal cirri present on chaetiger 2.....***E. erinaceus***
**1b.** Dorsal cirri absent in chaetiger 2.....**2**

**2a (1b).** All blades of the compound chaetae unidentate; blades can be very long; long and mid-sized blades of each parapodium provided basally with long, erect pointed spines.....***E. serratosetosa***
**2b (1b).** At least some blades of the compound chaetae bidentate.....**3**

**3a (1b).** Longer blades of compound chaetae bidentate, with a small subdistal tooth; remaining blades unidentate.....***E. belizensis***
**3b (1b).** All blades of compound chaetae bidentate.....***E. cryptica***

## ***Erinaceusyllis belizensis*** (Russell 1989)

*Sphaerosyllis belizensis* RUSSELL, 1989: 375-377, fig. 1.
**TYPE LOCALITY:** West Bay, Twin Cays (Belize), immediately seaward and outside the mangrove forest, in a habitat of *Rhizophora mangle* rootmat covered with *Caulerpa verticilliata*, at 9-130 cm depth.
**SELECTED REFERENCES:** *Erinaceusyllis belizensis* — OLANO, LÓPEZ & SAN MARTÍN, 1998: 86-88, fig. 2; SAN MARTÍN, 2003: 230-233, figs. 122-123.

**DISTRIBUTION:** Caribbean Sea (Belize), shallow water, on mangrove roots; Mediterranean Sea (Murcia, Spain; Chafarinas Islands; Turkey). On bryozoans, corals, algae, and muddy bottoms. From shallow water to 30 meters.

### ***Erinaceusyllis cryptica*** (Ben-Eliahu 1977)

*Sphaerosyllis erinaceus cryptica* BEN-ELIAHU, 1977*b*: 73-77, 82, fig. 6, table 4.
**TYPE LOCALITY:** Mediterranean coast of Israel, in a exposed shore north of Shavei Zion, on *Dendropoma* reefs, at the intertidal zone.
**SELECTED REFERENCES:** *Sphaerosyllis cryptica* — CAMPOY, 1982: 273-274; SAN MARTÍN, 1984*b*: 233-236, pl. 53. *Sphaerosyllis (Sphaerosyllis) cryptica* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 47-48; PARAPAR *et al.*, 1994*b*: 99. *Erinaceusyllis cryptica* — SAN MARTÍN, 2003: 233-234, fig. 124.
**REFERENCES FOR PORTUGAL:** BOAVENTURA *et al.*, 2006 (as *Sphaerosyllis cryptica*; Ancão, Algarve).
**DISTRIBUTION:** Northeastern Atlantic, from Gulf of Biscay to the Canary Islands; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Red Sea; Florida; Belize. On rocky bottoms, vermetid reefs, sponges, coralligenous bottoms, and coarse calcareous sand. Intertidal to 115 meters.

### ***Erinaceusyllis erinaceus*** (Claparède 1863)

*Sphaerosyllis erinaceus* CLAPARÈDE, 1863: 45-46, pl. 13 fig. 38.
**TYPE LOCALITY:** Near St. Vaaste la Hougue (Normandie, Northern France).
**SYNONYMS:** *Sphaerosyllis latipalpis* Levinsen 1883; *Sphaerosyllis longicauda* Eliason 1920.
**SELECTED REFERENCES:** *Sphaerosyllis erinaceus* — SAINT-JOSEPH, 1887: 207-208, pl. 10 figs. 81-83; SOUTHERN, 1914: 20; FAUVEL, 1923*c*: 302, fig. 115*q-r*; COGNETTI, 1957: 55, table 1*b*. IMAJIMA, 1966*a*: 402-404, fig. 5; BEN-ELIAHU, 1977*b*: table 4; KIRKEGAARD, 1992: 266-268, fig. 131. *Sphaerosyllis (Sphaerosyllis) erinaceus* — HARTMANN-SCHRÖDER, 1996: 175, fig. 75. *Sphaerosyllis latipalpis* — LEVINSEN, 1883: 244; AUGENER, 1939: 140; WESENBERG-LUND, 1947: 13, fig. 4. *Sphaerosyllis longicauda* — ELIASON, 1920: 11; GIANGRANDE, 1990: 73, fig. 4*a*.
**DISTRIBUTION:** Arctic; Greenland; Barents Sea; North Atlantic, from Iceland and Spitsbergen to the Mediterranean Sea (Livorno, Italy), Adriatic Sea, and Aegean Sea, and from Labrador to Virginia; Baltic Sea; Bering Sea; north Japan; Australia; South Africa. On hard bottoms, among algae, hydroids, bryozoans, and also in muddy and sandy bottoms. Between 0-150 meters.
**REMARKS:** SAN MARTÍN (2003, 2005) designated *Sphaerosyllis erinaceus* Claparède 1863 as the type species of his new genus *Erinaceusyllis*. However, and as stated by himself (SAN MARTÍN, 2005), this designation presents some problems, as the original description of the species by CLAPARÈDE (1863) is incomplete, and the species has been reported to be present worldwide, being probably a complex of species that needs to be re-examined.

### ***Erinaceusyllis serratosetosa*** (Hartmann-Schröder 1982)

*Sphaerosyllis erinaceus serratosetosa* HARTMANN-SCHRÖDER, 1982*b*: 70-71, figs. 57-59, table 1.
**TYPE LOCALITY:** Cervantes (Western Australia), in the beach in front of the village, in *Posidonia* with fine sand.
**SELECTED REFERENCES:** *Erinaceusyllis serratosetosa* — SAN MARTÍN, 2003: 228-230, fig. 121; SAN MARTÍN, 2005: fig. 34.
**DISTRIBUTION:** Australia (Western Australia, Queensland, New South Wales), in seagrasses, sand, or mud, at shallow water; Western Mediterranean Sea: Balearic Islands (Cala Fornells, Menorca), in a meadow of *Cymodocea nodosa*, at 2 meters.

## GENUS ***Erseia*** Nygren, Sundkvist, Mikac & Pleijel 2010

*Erseia* NYGREN, SUNDKVIST, MIKAC & PLEIJEL, 2010: 42.
**TYPE SPECIES:** *Erseia oligochaeta* Nygren, Sundkvist, Mikac & Pleijel 2010.

### ***Erseia oligochaeta*** Nygren, Sundkvist, Mikac & Pleijel 2010

*Erseia oligochaeta* NYGREN *et al.*, 2010: 42-44, fig. 2.
**TYPE LOCALITY:** Adriatic Sea: Croatia, Istria, 2 km west of Rovinj, 45º05.220'N, 13º36.517'E, 27 meters, in sponges, hydroids, and *Holothuria* sp.
**DISTRIBUTION:** Known from the type locality.

## *GENUS ***Eurysyllis*** Ehlers 1864

*Eurysyllis* EHLERS, 1864: 264.
**TYPE SPECIES:** *Eurysyllis tuberculata* Ehlers 1864.
**SYNONYMS:** *Polymastus* Claparède 1864.

## ****Eurysyllis tuberculata*** Ehlers 1864

*Eurysyllis tuberculata* EHLERS, 1864: 264-268, pl. 11 figs. 4-7.
**TYPE LOCALITY:** Martinšćica coast (Cres Island) and Žurkova Bay (south Rijeka = Fiume), Kvarner Gulf, Croatia, Adriatic Sea.
**SYNONYMS:** *Polymastus paradoxus* Claparède 1864; *Eurysyllis lenta* Quatrefages 1866.
**SELECTED REFERENCES:** *Eurysyllis tuberculata* — FAUVEL, 1923*c*: 271-272, fig. 101*i-o*; COGNETTI, 1957: 29-30, pl. 1 fig. 6, tables 1*a*, 2; LAUBIER, 1966*a*: 251; LAUBIER, 1968*a*: 93-96, figs. 7-8, 10*C*; HARTMANN-SCHRÖDER, 1977*a*: 87, figs. 44-46; CAMPOY, 1982: 300-301; SAN MARTÍN, 1984*b*: 264-266, pl. 60; SAN MARTÍN & ALVARADO, 1984: 225, fig. 4; UEBELACKER, 1984*f*: 30.99, figs. 30.93-30.94; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 113, fig. 1*A-B*; HARTMANN-SCHRÖDER, 1996: 179; SAN MARTÍN, 2003: 296-300, figs. 162-164; SAN MARTÍN, HUTCHINGS & AGUADO, 2008: 141-144, fig. 20. *Polymastus paradoxus* — CLAPARÈDE, 1864: 569-571, pl. 8 fig. 3. *Eurysyllis paradoxa* — LANGERHANS, 1879: 574, pl. 32 fig. 27. *Eurysyllis (Polymastus) paradoxa* — SAINT-JOSEPH, 1887: 191-195, pl. 9 figs. 68-74.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); RAVARA, 1997 (off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: Peniche).
**MATERIAL: FAUNA 1 — St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 14 specimens, plus 2 fragments. **St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 2 specimens, one in very poor condition due to its mounting on gelatinized glycerine. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 specimen, found among rhizomes of laminarians. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 1 specimen.
**DISTRIBUTION:** Northeastern Atlantic, from Kattegat to Madeira and Canary Islands; Gorringe Bank; Mediterranean Sea; Adriatic Sea; Aegean Sea; Red Sea; from North Carolina to Gulf of Mexico; Australia; Tasman Sea. On rocks, coralligenous bottoms, detritic, sandy and muddy bottoms, rhizomes of *Posidonia oceanica*. Intertidal to 760 meters.

## *GENUS ***Eusyllis*** Malmgren 1867

*Eusyllis* MALMGREN, 1867*a*: 40.
**TYPE SPECIES:** *Eusyllis blomstrandi* Malmgren 1867.
**SYNONYMS:** *Desmosyllis* Verrill 1900; *Eudontosyllis* Knox 1960.

### KEY TO SPECIES:

**1a.** Compound chaetae unidentate, with curved blunt tips; from middle parapodia one dorsal simple chaetae present, bayonet-shaped; aciculae with rounded, inflated tips.....***E. kuppferi***
**1b.** Compound chaetae bidentate; simple chaetae never bayonet-shaped.....**2**

**2a (1b).** Ventral cirri of chaetiger 1 foliaceous and rounded, much larger than the following ones, which are elongated; blades of compound chaetae with length decreasing dorsoventrally in each parapodium; acicula with tricuspid tip.....***E. lamelligera***
**2b (1b).** Ventral cirri of chaetiger 1 not enlarged, similar to the following ones.....**3**

**3a (2b).** All compound chaetae with blades of similar size; aciculae with blunt tips and a subterminal crown of small spines.....***E. blomstrandi****
**3b (2b).** In each parapodium there are compound chaetae with long and short blades; thick aciculae, with strongly bent tips, generally one per parapodium (except in the first chaetigers, where a second straight acicula is also present).....***E. assimilis****

## **Eusyllis assimilis* Marenzeller 1875

*Eusyllis assimilis* MARENZELLER, 1875: 158-160, pl. 3 fig. 2.

**TYPE LOCALITY:** Harbour of Mali Lošinj (= Lussin Piccolo), in the Losinj (= Lussin) Island, Croatia, Adriatic Sea, under algae, at 2-3 meters.

**SYNONYMS:** [?] *Eusyllis intermedia* Saint-Joseph 1887; [?] *Eudontosyllis aciculata* Knox 1960.

**SELECTED REFERENCES:** *Eusyllis assimilis* — FAUVEL, 1923*c*: 294, fig. 112*a-g*; BERKELEY & BERKELEY, 1948: 84, fig. 125; COGNETTI, 1957: 47-48, tables 1*a*, 2; HARRIS, 1971: 693-694, fig. 3, table 1; CAMPOY, 1982: 333-335, pl. 26; SAN MARTÍN, 1984*b*: 82-83, pl. 10, pl. 12 figs. *A-C*, table 2; HARTMANN-SCHRÖDER, 1996: 157; NÚÑEZ & SAN MARTÍN, 1996: 206, fig. 2*E-J*; SAN MARTÍN, 2003: 114-117, figs. 52-53; SAN MARTÍN & HUTCHINGS, 2006: 273-276, figs. 10-11, 12*A-C*. [?] *Eusyllis intermedia* — SAINT-JOSEPH, 1887: 172-173; FAUVEL, 1923*c*: 295-296. [?] *Eudontosyllis aciculata* — KNOX, 1960*b*: 105, figs. 113-117.

**REFERENCES FOR PORTUGAL:** [?] SALDANHA, 1974 (as *Eusyllis assimilis?* and as *Eusyllis intermedia?*; coast of Arrábida); [?] CAMPOY, 1982 (as *Eusyllis assimilis* and as *Eusyllis intermedia*; previous records: Arrábida); DEXTER, 1992 (as *Eurysyllis assimilis*; previous records: Sines; Sado Estuary).

**MATERIAL: FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 2 specimens; anterior parapodia with 3 aciculae, 2 with a straight tip and the third one with the tip bent; antennae and cirri missing. **St. 52*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 22-24 m, rock: 1 specimen, plus one fragment; anterior parapodia with 3 aciculae.

**DISTRIBUTION:** North-eastern Atlantic, from the English Channel to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Canary Islands; North-western Pacific, from Canada to Mexico; South Africa; Australia (Western Australia, South Australia, New South Wales). On photophile and sciaphile algae, *Posidonia* meadows, rocks, maërl, sand and coralligenous bottoms. Intertidal to about 500 meters.

**REMARKS:** The synonymy of *Eusyllis intermedia* Saint-Joseph 1887 with *Eusyllis assimilis* Marenzeller 1875, is here suggested with base on the description of both species. The described characters given for *E. intermedia* in SAINT-JOSEPH (1887), and repeated in FAUVEL (1923*c*), fit the description given by SAN MARTÍN (2003) for *E. assimilis*, except in the length of the blades of the compound chaetae (short and similar in *E. intermedia*, and short and long in *E. assimilis*). A definitive statement should be based on the comparison between type (if existent) or topotype material, of both species or populations.

## **Eusyllis blomstrandi* Malmgren 1867

*Eusyllis Blomstrandi* MALMGREN, 1867*a*: 40-41, pl. 6 fig. 43.

**TYPE LOCALITY:** Spitsbergen.

**SYNONYMS:** *Syllis tubifex* Gosse 1855; *Eusyllis monilicornis* Malmgren 1867; *Typosyllis collaris* Hartman 1948.

**SELECTED REFERENCES:** *Eusyllis Blomstrandi* — SAINT-JOSEPH, 1887: 171-172, pl. 8 fig. 39; FAUVEL, 1923*c*: 293-294, fig. 112*h-m*; RIOJA, 1925*b*: 27-28, fig. 12. *Eusyllis blomstrandi* — WESENBERG-LUND, 1947: 11-13, fig. 3; BERKELEY & BERKELEY, 1948: 84-85, fig. 126; PETTIBONE, 1954: 260-261, fig. 28*G-I*; COGNETTI, 1957: 46-47, table 1*a*; PETTIBONE, 1963*a*: 119-120, fig. 31*n-p*; IMAJIMA, 1966*c*: 92-94, fig. 29; BANSE & HOBSON, 1968: 15-16, figs. 4*a-c*; BANSE & HOBSON, 1974: 56, figs. 14*b-c*; SAN MARTÍN, 1984*b*: 81-83, pl. 12 figs. *G-I*, table 2; KIRKEGAARD, 1992: 240-242, fig. 118; PARAPAR *et al.*, 1994*b*: 92, fig. 1*A-C*; KUDENOV & HARRIS, 1995: 41, fig. 1.13; HARTMANN-SCHRÖDER, 1996: 157-158, fig. 68; LICHER, 1999: 279; SAN MARTÍN, 2003: 112-114, fig. 51. *Syllis tubifex* — GOSSE, 1855*a*: 31-32. *Eusyllis tubifex* — SOUTHERN, 1914: 32. *Eusyllis monilicornis* — MALMGREN, 1867*a*: 41, pl. 6 fig. 43. *Typosyllis collaris* — HARTMAN, 1948*b*: 23-24, fig. 6.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); SAN MARTÍN, 2003 (previous records: Arrábida).

**MATERIAL: FAUNA 1 — St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 specimen; chaetae and aciculae as described; blades of chaetae without gradation, being 15-20 µm long; proventriculus with about 60 muscular rows; occipital fold present; trepanus not observed.

**DISTRIBUTION:** Arctic; Greenland; Iceland; Faroes; Spitsbergen; Norway; Kara Sea; Japan; Northern Pacific, from Alaska to California; Northern Atlantic, from the North Sea to the Mediterranean Sea, and Adriatic Sea, and from Labrador to Massachusetts; Red Sea; West Africa. On photophile algae, bryozoans, hydroids, rhizomes of *Posidonia*, maërl, rocky, sandy and muddy bottoms. Intertidal to 850 meters.

**REMARKS:** If *Syllis tubifex* Gosse 1855 is a synonym of *Eusyllis blomstrandi* Malmgren 1867, as maintained by some authors (*e.g.*: SOUTHERN, 1914; LICHER, 1999), it would have priority over Malmgren's species. BANSE & HOBSON (1968) noted differences in the pharyngeal morphology between

specimens from the west coast of North America and the ones described by MALMGREN (1867*a*) and IMAJIMA (1966*c*). KUDENOV & HARRIS (1995) stated that probably specimens identified as *E. blomstrandi* from at least Southern California belong to an undescribed species.

### ***Eusyllis kupfferi*** Langerhans 1879

*Eusyllis Kupfferi* LANGERHANS, 1879: 552-553, pl. 32 fig. 14.

**TYPE LOCALITY:** Madeira Island, in intertidal rocks, and in a bottom of stones at 15-20 fathoms (27.4-36.6 meters).

**SYNONYMS:** *Odontosyllis multidentata* Hartmann-Schröder 1982; *Eusyllis autolytoides* Hartmann-Schröder 1991.

**SELECTED REFERENCES:** *Eusyllis kupfferi* — SAN MARTÍN, 1990: 607-609, figs. 12-13; NÚÑEZ & SAN MARTÍN, 1996: 204-205, fig. 2*A-D*; ÇINAR & ERGEN, 2003: 771-772, fig. 1; SAN MARTÍN & HUTCHINGS, 2006: 276-278, figs. 12*D-F*, 13-14; AGUADO & SAN MARTÍN, 2007: 209. *Odontosyllis multidentata* — HARTMANN-SCHRÖDER, 1982*b*: 64-65, figs. 41-46; HARTMANN-SCHRÖDER, 1990: 51, fig. 17. *Eusyllis autolytoides* — HARTMANN-SCHRÖDER, 1991: 33-34, figs. 47-53.

**DISTRIBUTION:** Madeira Island; Canary Islands (La Gomera); Eastern Mediterranean Sea (Lebanon; Cyprus); Cuba; Australia (Queensland, Western Australia, New South Wales). Amongst algae, mangle roots, hydroids, dead corals, sand and mud. Intertidal to about 20 meters.

### ***Eusyllis lamelligera*** Marion & Bobretzky 1875

*Eusyllis lamelligera* MARION & BOBRETZKY, 1875: 33-35, pl. 3 fig. 9.

**TYPE LOCALITY:** Île de Riou (SE Cap Croisette), in coralligenous bottoms, and Port d'Arenc, under stones, Marseille (France, Mediterranean Sea).

**SYNONYMS:** *Eusyllis habei* Imajima, 1966; *Eusyllis dentata* Hartmann-Schröder 1990.

**SELECTED REFERENCES:** *Eusyllis lamelligera* — MARION & BOBRETZKY *in* MARION, 1874: 399 [*nomen nudum*]; FAUVEL, 1923*c*: 294-295, fig. 113; COGNETTI, 1957: 48-49, pl. 1 fig. 8, tables 1*a*, 2; PETTIBONE, 1963*a*: 120-122, figs. 33, 34*a-d*; SAN MARTÍN, 1984*b*: 83-87, pl. 11, pl.12 figs. *D-F*, table 2; HARTMANN-SCHRÖDER, 1996: 159; NÚÑEZ & SAN MARTÍN, 1996: 205-206, fig. 2*K-R*; SAN MARTÍN, 2003: 117-120, figs. 54-55; SAN MARTÍN & HUTCHINGS, 2006: 278-280, figs. 15-16. *Eusyllis habei* — IMAJIMA, 1966*c*: 97-99, fig. 31. *Eusyllis dentata* — HARTMANN-SCHRÖDER, 1990: 50, figs. 13-16.

**DISTRIBUTION:** North-eastern Atlantic, from the English Channel to the Canary Islands; North-western Atlantic, from Massachusetts to Cuba; Mediterranean Sea; Adriatic Sea; Aegean Sea; Japan; Australia (New South Wales, Tasmania, Western Australia). Amongst algae, *Posidonia*, sponges, ascideans, bryozoans, coralligenous and shelly bottoms, coarse sand, gravel, or corals. Intertidal to 509 meters.

## *GENUS ***Exogone*** Ørsted 1845

*Exogone* ØRSTED, 1845*a*: 20.

**TYPE SPECIES:** *Exogone naidina* Ørsted 1845.

**SYNONYMS:** *Cystonereis* Kölliker 1847; *Microsyllis* Claparède 1863; *Spermosyllis* Claparède 1864; *Sylline* sensu Claparède 1864; *Exotokas* Ehlers 1864; *Oophylax* Ehlers 1864; *Syllia* Quatrefages 1866; *Goosia* Quatrefages 1866; *Schmardia* Quatrefages 1866; *Paedophyllax* Claparède 1868.

**REMARKS:** SAN MARTÍN (1991) divided the genus *Exogone* in three subgenera: *Exogone* Örsted 1845, *Parexogone* Mesnil & Caullery 1916, and *Sylline* Claparède 1864 (see key for differences between the three subgenera).

However, there is an error concerning the last subgenus. *Sylline* was created by GRUBE (1860) for *Sylline rubropunctata*, a species described from the Mediterranean Sea, and nowadays considered to belong to *Myrianida* (see NYGREN, 2004: 156). This way, the genus *Sylline* Grube 1860 is a junior synonym of *Myrianida* Milne-Edwards 1845.

CLAPARÈDE (1864) emmended the definition of *Sylline* Grube 1860, in order to include his new species *Sylline brevipes*, from Port-Vendres, as well as the species *Exogone gemmifera* Pagenstecher 1862, and *E. kefersteinii* Claparède 1863. Later, the same author (CLAPARÈDE, 1868) stated that the *Sylline* sensu Claparède 1864 was a synonym of *Exotokas* Ehlers 1864, created to include *Exogone gemmifera* Pagenstecher 1862, and *Exogone kefersteinii* Claparède 1863 (see EHLERS, 1864: 251), and also that *Sylline rubropunctata* could not belong to the same genus than *Sylline brevipes* and the other two species placed by EHLERS (1864) in *Exotokas*, something already perceived by EHLERS (1864) for these last two species. This way, CLAPARÈDE (1868) adopted Ehlers' genus, and *Sylline brevipes* was

included in *Exotokas*, as *Exotokas brevipes*. *Exotokas* was finally considered to be a junior synonym of *Exogone* Ørsted 1845, but *Sylline* sensu Claparède 1864 is not an available name, as it is a synonym of *Myrianida*, and even if it was considered in a different sense than the one used by GRUBE (1860), and considered as designating a different taxon, it would be a homonym of Grube's name. This way, the subgenus designated by SAN MARTÍN (1991) needs a new name, as it is considered to be valid (SAN MARTÍN, 2003, 2005), and apparently there is no other available name for this subgenus.

**KEY TO SUBGENERA AND SPECIES:**

**1a.** Compound chaetae not modified, as bidentate tapering falcigers, all similar in shape and length, with both teeth similar, and sometimes some compound spiniger-like chaetae on each parapodium, with blades relatively similar to the falciger ones but longer (elongate falcigers) [except in *Exogone (Parexogone) campoyi*, which has compound chaetae with blades long, slender, unidentate, and pointed, with upwardly dressed spines on margin]; shafts of compound chaetae not modified, with heterogomph articulations; dorsal simple chaetae similar throughout the body, with tips unidentate or bidentate; probably viviparous species (only confirmed on a few species).....**SUBGENUS *Parexogone*.....17**
**1b.** Compound chaetae otherwise, with both elongated, spiniger-like blades, and short falcigers, or blades fused to the shaft or missing; females brooding eggs ventrally, developing juveniles.....**2**

**2a (1b).** Compound chaetae on most parapodia generally with short blades, with proximal tooth bigger than distal tooth, together with a single (or few) compound chaeta with a long, filiform, spiniger-like blade, with very fine tip; sometimes blades of spiniger-like chaetae modified, being very wide basally; shafts of compound chaetae can be modified and complex; tips of dorsal simple chaetae of the first chaetigers finely spinulose subterminally and with rounded tip, becoming the dorsal simple chaeta thicker posteriorly, changing slightly its shape; some species described with antennae reduced or absent.....**SUBGENUS *Exogone*.....3**
**2b (1b).** Compound chaetae bayonet-shaped, with blades minute, fused to the shaft, or absent; shaft tips and tips of the simple chaetae generally truncated and serrated.....**SUBGENUS *Sylline* sensu San Martín 1991.....16**

**3a (2a).** Shafts of spiniger-like compound chaetae distally wide and spinose; blades of spinigers widened at the base.....**4**
**3b (2a).** Shafts of spiniger-like chaetae not widened; blades of spiniger-like compound chaetae thin, slender, filiform.....**5**

**4a (3a).** Eyes absent; median antenna very long, being longer than the combined length of prostomium and palps; lateral antennae about one third the length of the median antenna; length of the blade of spinigers about five times the width of the shaft.....***E. longiantennata***
**4b (3a).** Eyes present; median antenna clearly shorter than the combined length of prostomium and palps; lateral antennae about half the length of the median antenna; length of the blade of spinigers about twice the width of the shaft.....***E. mompasensis***

**5a (3b).** Shaft tips of compound spiniger-like chaetae of chaetigers 1 and/or 2 massively enlarged compared to those of adjacent chaetigers.....**6**
**5b (3b).** Shafts of spiniger-like compound chaetae similar throughout.....**7**

**6a (5a).** Chaetae with modified shafts on chaetiger 1.....***E. rostrata***
**6b (5a).** Chaetae with modified shafts on chaetiger 2 (some specimens with modified shafs on chaetigers 1 and 2).....***E. lourei***

**7a (5b).** Falcigers with long spines, surpassing the tips of the blades.....**8**
**7b (5b).** Falcigers with short spines, not surpassing the tips of the blades.....**9**

**8a (7a).** Anterior 5 chaetigers only with compound chaetae with long, stout, unidentate blades with very long spines, arranged in several rows; from chaetiger 5 falcigers present, with distal long spines, surpassing largely the tips; dorsal simple chaetae from chaetiger 1, provided subdistally with long fine spines; only one antenna known, (lateral right), being digitiform, not minute or inconspicuous....***E. sorbei***

**8b (7a).** Anterior chaetigers with both spinigers and falcigers; falcigers with fine long spines on margin, surpassing tips of blades; dorsal simple chaetae from chaetiger 1, smooth, without spines; antennae ovoid, minute, inconspicuous (may be covered by peristomium).....***E. lopezi***

**9a (7b).** Compound chaetae of first 2-3 chaetigers short, with deeply bifid blades (unidentate with long basal spine); following chaetigers with spinigers and falcigers.....***E. naidina****
**9b (7b).** Spinigers present from chaetiger 1.....**10**

**10a (9b).** Antennae absent [?]; shaft tips of spinigers with long spines.....***E. acerata***
**10b (9b).** Antennae present; shaft tips of spinigers without such long spines.....**11**

**11a (10b).** Only the median antenna present, being rudimentary.....***E. torulosa***
**11b (10b).** Three antennae present.....**12**

**12a (11b).** All antennae similar, being very short and ovoid.....**13**
**12b (11b).** Median antenna longer than lateral antennae.....**14**

**13a (12a).** Adults with dorsal cirri on chaetiger 2; proventriculus short, through about 2 segments.....***E. breviantennata***
**13b (12a).** Adults without dorsal cirri on chaetiger 2; proventriculus long, through about 4 segments.....***E. verugera****

**14a (12b).** Median antenna small, only slightly longer than lateral antennae; blades of falcigers very reduced, mostly having lost the distal tooth; dorsal simple chaetae with long subdistal spines...***E. marisae***
**14b (12b).** Median antenna clearly longer than the lateral antennae.....**15**

**15a (14b).** Eyes present; falcigers short (about 10 μm).....***E. dispar***
**15b (14b).** Eyes absent; falcigers long (about 30 μm).....***E. fauveli***

**16a (2b).** Without ventral cirri [?]; dorsal cirri in all chaetigers; blades of compound chaetae both long and short, fine, unidentate; short blades provided with 1-2 accessory spines at the base.....***E. brevipes***
**16b (2b).** With ventral cirri; dorsal cirri lacking in chaetiger 2; blades of compound chaetae with different lengths, but all short, unidentate, without accessory spines at base.....***E. aquadulcensis***

**17a (1a).** All compound chaetae short, of similar sizes or with a reduced dorsoventral gradation.....**18**
**17b (1a).** At least in anterior part of body each parapodium with 1-3 compound chaetae with blades longer than the rest, or all blades long.....**19**

**18a (17a).** Posterior dorsal simple chaetae smooth, besides a subdistal tooth; blades of compound chaetae with short spines.....***E. hebes****
**18b (17a).** Posterior dorsal simple chaetae serrated, besides a subdistal tooth; blades of compound chaetae with long spines.....***E. meridionalis***

**19a (17b).** Dorsal simple chaetae with some very long and thin spines subdistally, surpassing the tips of the chaetae; compound chaetae with long spines, especially distally.....**20**
**19b (17b).** Dorsal simple chaetae without long spines, or spines not surpassing the tips.....**22**

**20a (19a).** Lateral antennae minute; proventriculus through 3 segments.....**21**
**20b (19a).** Lateral antennae as long as prostomium; proventriculus through 1.5 segments (population from Gulf of Mexico) or 3 segments (population from Capbreton Canyon).....***E. wolfi***

**21a (20a).** Eyes present.....***E. longicirris***
**21b (20a).** Eyes absent.....***E. canyonincolae***

**22a (19b).** All compound chaetae with long blades, slender and unidentate, provided with moderately long, upwardly dressed spines on margin; dorsal simple chaetae slender, pointed, with long, upwardly dressed spines; posterior aciculae with rounded tips, with a terminal spike.....***E. campoyi***

**22b (19b).** Biggest part of compound chaetae with short blades, without long spines in the margin; dorsal simple chaetae without a thin pointed tip; posterior aciculae rounded at the tip, but without a terminal spike.....**23**

**23a (22b).** All three antennae small, papilliform.....***E. cognetti***
**23b (22b).** Median antenna clearly longer than the lateral antennae.....**24**

**24a (23b).** Lateral antennae inconspicuous; median antenna shorter than prostomium plus palps.....***E. caribensis***
**24b (23b).** Lateral antennae as long as prostomium; central antenna longer than prostomium plus palps.....**25**

**25a (24b).** Dorsal cirri very small, present in chaetiger 2; dorsal simple chaetae faintly bidentate; proventriculus through 5 segments.....***E. convoluta***
**25b (24b).** Dorsal cirri as long as parapodial lobes, missing in chaetiger 2; dorsal simple chaetae clearly bidentate; proventriculus through 4 segments.....***E. gambiae***

## *Exogone (Exogone) acerata* San Martín & Parapar 1990

*Exogone acerata* SAN MARTÍN & PARAPAR, 1990: 687-689, fig. 1.
**TYPE LOCALITY:** El Pineo, Ceuta (African coast of Gibraltar Strait, 36º52'36"N, 5º19'46"W), at 11 meters.
**SELECTED REFERENCES:** *Exogone acerata* — SAN MARTÍN, 2003: 269-270, fig. 146.
**DISTRIBUTION:** Ceuta (African coast of Gibraltar Strait), between 11-23 meters.

## *Exogone (Sylline* sensu San Martín 1984*) aquadulcensis* Pascual, Núñez & San Martín 1996

*Exogone (Sylline) aquadulcensis* PASCUAL, NÚÑEZ & SAN MARTÍN, 1996: 76-78, fig. 3.
**TYPE LOCALITY:** Agua Dulce, Tenerife (Canary Islands, UTM CS 447 013), at 5-7 meters, in sponges covering the wall and ceiling surface in the innermost zone of a marine cave, in darkness. The sponges were: *Aaptos aaptos* (Schmidt 1864), and *Erylus discophorus* (Schmidt 1862).
**DISTRIBUTION:** Known from the type locality.

## *Exogone (Exogone) breviantennata* Hartmann-Schröder 1959

*Exogone breviantennata* HARTMANN-SCHRÖDER, 1959: 125-127, figs. 75-78.
**TYPE LOCALITY:** La Herradura (Estero Jaltepeque), El Salvador, in mud with some fine sand, 31.9‰.
**SYNONYMS:** [?] *Paedophylax insignis* Langerhans 1879; *Exogone ovalis* Hartmann-Schröder 1960; *Exogone breviantennata ovalis* Hartmann-Schröder 1974; *Exogone occidentalis* Westheide 1974.
**SELECTED REFERENCES:** *Exogone (Exogone) breviantennata* — SAN MARTÍN, 1991: 730-731, fig. 8; NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 47, fig. 3; PASCUAL, NÚÑEZ & SAN MARTÍN, 1996: 70. *Exogone breviantennata* — AGUADO & SAN MARTÍN, 2007: 209-210. *Exogone occidentalis* — WESTHEIDE, 1974*b*: 113-117, figs. 52-53; RUSSELL, 1991: 59-61, fig. 4. *Exogone verugera* [not Claparède 1868] — RIOJA, 1943: 221-222, figs. 12-16; BERKELEY & BERKELEY, 1948: 78, fig. 116; COGNETTI, 1957: 58-60, pl. 2 figs. 12-13, tables 1*b*, 2; IMAJIMA, 1966*a*: 399, fig. 3; DAY, 1967: 272-274, fig. 12.10*g-l*; GARDINER, 1976: 132, fig. 11*a-e*. [?] *Paedophylax insignis* — LANGERHANS, 1879: 570, pl. 32 fig. 26.
**DISTRIBUTION:** Madeira Island; Canary Islands; Eastern Mediterranean Sea (Lebanon); Cuba; Belize; North Carolina; South Africa; Galapagos Islands; Japan; Pacific coast of Mexico; Western Canada. On algae, vermetids, calcareous crusts, mangle roots, and as endobiontics of sponges. Intertidal to 21 meters.
**REMARKS:** SAN MARTÍN (1991) and PASCUAL, NÚÑEZ & SAN MARTÍN (1996) stated that *Paedophylax insignis* Langerhans 1879, described from Madeira Island, is probably the same species than *E. breviantennata*, but that LANGERHANS (1879) omitted important characters in the original description necessary to establish the synonymy.

## *Exogone (Sylline* sensu San Martín 1984*) brevipes* (Claparède 1864)

*Sylline brevipes* CLAPARÈDE, 1864: 551-552, pl. 6 fig. 4.
**TYPE LOCALITY:** Port-Vendres, Mediterranean coast of France.
**SELECTED REFERENCES:** *Exotokas brevipes* — CLAPARÈDE, 1868: 210; SOULIER, 1904: 345-348, fig. 7. *Exogone brevipes* — FAUVEL, 1923*c*: 306-307, fig. 117*e-l*; COGNETTI, 1957: 57-58, table 1*b*.

**DISTRIBUTION:** Mediterranean coast of France (Port-Vendres; Étang de Thau, Séte); Adriatic Sea. On muddy bottoms, on shells of *Ostrea*.

### ***Exogone (Parexogone) campoyi*** San Martín, Ceberio & Aguirrezabalaga 1996

*Exogone (Parexogone) campoyi* SAN MARTÍN, CEBERIO & AGUIRREZABALAGA, 1996: 252-255, figs. 4-5.
**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, from 43º42.89'N, 2º18.71'W, 984 meters, to 43º43.25'N, 2º18.80'W, 1029 meters; on mud.
**SELECTED REFERENCES:** *Exogone (Parexogone) campoyi* — SAN MARTÍN, 2003: 244-247, figs. 131-132.
**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay; northern Aegean Sea. In muddy and sandy bottoms. Between 320-1230 meters.

### ***Exogone (Parexogone) canyonincolae*** Sardá, Gil, Taboada & Gili 2009

*Exogone (Parexogone) canyonincolae* SARDÁ *et al.*, 2009: 15-17, fig. 7.
**TYPE LOCALITY:** Western Mediterranean Sea, submarine canyon of Foix (off Barcelona, Spain, 41º02'N, 01º56'E), at 990 meters, collected by a sediment trap located 30 meters above bottom.
**DISTRIBUTION:** Western Mediterranean Sea, submarine canyons of Lacaze-Duthiers (off Banyuls-sur-Mer) and Foix (off Barcelona), at 990-1020 meters, collected by sediment traps located 30 and 500 meters above bottom.

### ***Exogone (Parexogone) caribensis*** San Martín 1991

*Exogone (Parexogone) caribensis* SAN MARTÍN, 1991: 725-726, fig. 5.
**TYPE LOCALITY:** South Texas Outer Continental Shelf, 27º32'5"N, 96º28'19"W, at 75 meters.
**SELECTED REFERENCES:** *Exogone (Parexogone) caribensis* — SAN MARTÍN, CEBERIO & AGUIRREZABALAGA, 1996: 251-252, fig. 2; ÇINAR & ERGEN, 2002: 173, table 1; SAN MARTÍN, 2003: 248-251, figs. 134-135. *Exogone* sp. B. — UEBELACKER, 1984*f*: 30.39, figs. 30.31-30.32.
**DISTRIBUTION:** Gulf of Mexico; Bay of Biscay; Eastern Mediterranean Sea (Aegean Sea); Australia. In coarse to fine sand and in mud. Between 43-88 meters, but recorded from the Capbreton Canyon (Bay of Biscay), between 505-1113 meters.

### ***Exogone (Parexogone) cognettii*** Castelli, Badalamenti & Lardicci 1987

*Exogone cognettii* CASTELLI, BADALAMENTI & LARDICCI, 1987: 155-156, figs. 1-2.
**TYPE LOCALITY:** Bay of Calvi, Northern Corsica, at 35 meters, in coarse sand.
**SELECTED REFERENCES:** *Exogone (Parexogone) cognettii* — OLANO, LÓPEZ & SAN MARTÍN, 1998: 84-86, fig. 1; SAN MARTÍN, 2003: 247-248, fig. 133.
**DISTRIBUTION:** Northern Corsica; Western Mediterranean Sea (Murcia, Spain); Eastern Mediterranean Sea (Aegean sea). On sandy bottoms. Between 30-35 meters.

### ***Exogone (Parexogone) convoluta*** Campoy 1982

*Exogone convoluta* CAMPOY, 1982: 286-289, pl. 20.
**TYPE LOCALITY:** Punta Endata (Guipúzcoa, Bay of Biscay), on a muddy bottom with shell fragments, at 100 meters.
**SELECTED REFERENCES:** *Exogone (Parexogone) convoluta* — SAN MARTÍN, 2003: 251-252.
**DISTRIBUTION:** Known from the type locality.

### ***Exogone (Exogone) dispar*** (Webster 1879)

*Paedophylax dispar* WEBSTER, 1879*a*: 223, pl. 4 fig. 49, pl. 5 figs. 50-55.
**TYPE LOCALITY:** Virginia, Atlantic coast of USA.
**SYNONYMS:** [?] *Paedophylax longiceps* Verrill 1880.
**SELECTED REFERENCES:** *Exogone dispar* — PETTIBONE, 1963*a*: 130-131, fig. 35*d*; WESTHEIDE, 1974*b*: 106-109, figs. 48-49; GARDINER, 1976: 132, fig. 11*f-i* [in part; not *E. dispar* Hartmann-Schröder 1971 in the synonymy list]; PERKINS, 1981: 1090-1091; CAMPOY, 1982: 290-292, pl. 21; SAN MARTÍN, 1984*b*: 221-224, pl. 52. *Exogone (Exogone) dispar* — SAN MARTÍN, 2003: 274-275, figs. 149-150.
**DISTRIBUTION:** Australia; Galapagos Islands; Arctic to South California and Mexico; Japan; South Africa; Western Atlantic, from Maine to Florida; Mediterranean Sea; Adriatic Sea; Aegean Sea. On muddy and sandy bottoms, with shells, rocks, corals, photophile algae, or rhizomes of *Posidonia*. Between 0-130 meters, but recorded down to 5023 meters.

**REMARKS:** PERKINS (1981) discusses the synonymy of *Exogone dispar*. From all the species synonymized with it, only *Paedophylax longiceps* Verrill 1880 is considered to be very similar, if not identical, with *E. dispar*. The types of *P. longiceps* apparently have been lost (PERKINS, 1981).

### ***Exogone (Exogone) fauveli*** Cognetti 1961

*Exogone fauveli* COGNETTI, 1961*a*: 67-68, fig. 1.
**TYPE LOCALITY:** North of Île de Batz, in front of Roscoff (Northern France), at 60 meters, in a bottom of coarse sand and detritic.
**SELECTED REFERENCES:** *Exogone fauveli* — COGNETTI, 1961*b*: 302-303, fig. 2.
**DISTRIBUTION:** North of Île de Batz, in front of Roscoff (Northern France), at 60 meters, in a bottom of coarse sand and detritic; [?] Adriatic Sea.

### ***Exogone (Parexogone) gambiae*** Lanera, Sordino & San Martín 1994

*Exogone (Parexogone) gambiae* LANERA, SORDINO & SAN MARTÍN, 1994: 236, figs. 2-3.
**TYPE LOCALITY:** Mediterranean Sea, Island of Ponza (Italy), 40º55'21"N, 12º58'50"E, on a *Posidonia oceanica* bed, at 10 meters.
**SELECTED REFERENCES:** *Exogone (Parexogone) gambiae* — SAN MARTÍN, 2003: 252-254, fig. 136. *Exogone* sp. — GIANGRANDE, 1990*b*: 73, fig. 4*b*.
**DISTRIBUTION:** Mediterranean Sea: Chafarinas Islands; South Spain; Tyrrhenian Sea; Cyprus; Aegean Sea. On *Posidonia oceanica* beds, mainly on rhizomes and "matte morte", and photophile algae, between 4-30 meters.

### ****Exogone (Parexogone) hebes*** (Webster & Benedict 1884)

*Paedophylax hebes* WEBSTER & BENEDICT, 1884: 716-717, pl. 3 figs. 31-36.
**TYPE LOCALITY:** Provincetown or Wellfleet (or both), Massachusetts (East coast of USA), from low water to 25 fathoms (45.7 meters), in sand with shells.
**SYNONYMS:** *Exogone hebes* var. *hibernica* Southern 1914.
**SELECTED REFERENCES:** *Exogone hebes* — FAUVEL, 1923*c*: 308-309, fig. 118*g-p*; WESENBERG-LUND, 1947: 16-18, fig. 6; PETTIBONE, 1963*a*: 131, fig. 31*e-f*; HARTMANN-SCHRÖDER, 1974*d*: 199; HARTMANN-SCHRÖDER, 1977*a*: 87-88; CAMPOY, 1982: 296-298; POCKLINGTON & HUTCHESON, 1983: 240-241, figs. 2-5; SAN MARTÍN, GONZÁLEZ & LÓPEZ-JAMAR, 1985: 29-30, fig. 2; KIRKEGAARD, 1992: 244-246, fig. 120. *Exogone hebes hebes* — COGNETTI, 1955: 5-7; COGNETTI, 1957: fig. 11*a*, table 1*b*. *Exogone (Parexogone) hebes* — HARTMANN-SCHRÖDER, 1996: 173-174, fig. 74; SAN MARTÍN, 2003: 236-239, figs. 125-126. *Exogone hebes* var. *hibernica* — SOUTHERN, 1914: 17-19, pl. 1 fig. 1. *Exogone hebes hibernica* — COGNETTI, 1955: 5-7, fig. 3*a*.
**REFERENCES FOR PORTUGAL:** HARTMANN-SCHRÖDER, 1977*a* (Bay of Setúbal); GIL & SARDÁ, 1999 (southwestern continental shelf); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 210 (A.3902)**, off Porto Covo, 163 m, sand: 1 specimen in very poor condition and incomplete.
**DISTRIBUTION:** East coast of North America (Maine, Massachusetts); Davis Strait; Northeastern Atlantic, from the Norwegian Sea and Ireland to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Canary Islands. On sandy and muddy bottoms, and among *Zostera* meadows. Eulittoral to about 100 meters, but recorded to be present to 1000 meters.
**REMARKS:** *Exogone hebes* was first recorded in Portuguese waters by HARTMANN-SCHRÖDER (1977*a*).

### ***Exogone (Exogone) longiantennata*** Hartmann-Schröder 1979

*Exogone longiantennata* HARTMANN-SCHRÖDER, 1979*a*: 82, figs. 51-54.
**TYPE LOCALITY:** Great Meteor Bank, 29º58.5'N, 28º39.2'W (South Azores), at 335-343 meters.
**SELECTED REFERENCES:** *Exogone longiantennata* — HARTMANN-SCHRÖDER, 1981: 29.
**DISTRIBUTION:** Great Meteor Bank (South Azores Archipelago), between 300-343 meters.

### ***Exogone (Parexogone) longicirris*** (Webster & Benedict 1887)

*Pædophylax longicirris* WEBSTER & BENEDICT, 1887: 722, pl. 3 figs. 46-50.
**TYPE LOCALITY:** Eastport, Maine (Atlantic coast of USA), from low water, in sand, to 26 fathoms (36.6 meters), in sand, gravel, and shells.
**SYNONYMS:** *Exogone furcifera* Eliason 1962.

**SELECTED REFERENCES:** *Exogone longicirris* — PERKINS, 1981: 1092, fig. 5*a-f*; HELGASON *et al.*, 1990: 207-209, fig. 4. *Exogone furcifera* — ELIASON, 1962*b*: 243-246, fig. 11. *Exogone (Parexogone) furcifera* — HARTMANN-SCHRÖDER, 1996: 172-173. *Exogone dispar* [not Webster 1879] — HARTMANN-SCHRÖDER, 1971*a*: 170 [in part]; HARTMANN-SCHRÖDER, 1974*d*: 199-200; KIRKEGAARD, 1992: 243-244, fig. 119.
**DISTRIBUTION:** Maine (USA); Iceland; Skagerrak. In sandy and muddy bottoms. From shallow water to 681 meters.
**REMARKS:** The synonymy between *Exogone furcifera* Eliason 1962 and *Exogone longicirris* (Webster & Benedict 1887) was established by HELGASON *et al.* (1990), who compared the type material of both species, and also studied material collected in Iceland. The syntypes of *E. longicirris* had been previously redescribed by PERKINS (1981).

### ***Exogone (Exogone) lopezi*** San Martín, Ceberio & Aguirrezabalaga 1996

*Exogone (Exogone) lopezi* SAN MARTÍN, CEBERIO & AGUIRREZABALAGA, 1996: 255, fig. 6.
**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, from 43º42.89'N, 2º18.71'W, 984 meters to 43º43.25'N, 2º18.80'W, 1029 meters, in mud.
**SELECTED REFERENCES:** *Exogone (Exogone) lopezi* — SAN MARTÍN, 2003: 259-262, figs. 140-141.
**DISTRIBUTION:** Capbreton Canyon (Bay of Biscay); Aegean Sea. On muddy and sandy bottoms. Between 306-1113 meters.

### ***Exogone (Exogone) lourei*** Berkeley & Berkeley 1938

*Exogone lourei* BERKELEY & BERKELEY, 1938: 44.
**TYPE LOCALITY:** False Narrows, British Columbia (Pacific coast of Canada).
**SELECTED REFERENCES:** *Exogone lourei* — BERKELEY & BERKELEY, 1948: 79, fig. 117; BANSE, 1972*b*: 200-202, fig. 5*A-D*; PERKINS, 1981: 1092-1094; UEBELACKER, 1984*f*: 30.41-30.43, figs. 30.33-30.34; RUSSELL, 1991: 55-57, fig. 2. *Exogone (Exogone) lourei* — SAN MARTÍN, 1991: 735; NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 45-47, fig. 2; KUDENOV & HARRIS, 1995: 15-17, fig. 1.3; PASCUAL, NÚÑEZ & SAN MARTÍN, 1996: 71.
**DISTRIBUTION:** British Columbia and Washington, to South California (Pacific coast of North America); Gulf of Mexico and Cuba; Madeira and Canary Islands. In coarse sand, mud, gravel with mud, and among algal flats, calcareous algae, and as endobiont in sponges. Lower intertidal to 153 meters.
**REMARKS:** NÚÑEZ, SAN MARTÍN & BRITO (1992*b*) refer two specimens from Tenerife, with modified spinigers both on chaetigers 1 and 2. *Exogone lourei* Berkeley & Berkeley 1938 was described with base on material from the British Columbia. Examination of the holotype by PERKINS (1981) and RUSSELL (1991) revealed that the modified spinigers are present only in chaetiger 2. However, SAN MARTÍN (1991) identified several specimens from Cuba as *E. lourei*, stating that 2 of them had modified spinigers also on the first chaetiger, and the same occurs with specimens identified by LÓPEZ & SAN MARTÍN (1994) from Cape Verde Islands. The same was also observed by BANSE (1972*b*), and is reported by KUDENOV & HARRIS (1995), but in this case it is not clear if this statement is based on personal observations or on the remarks by other authors. It is possible that specimens from the Canary Islands and Cape Verde Archipelago belong to a different species, present also in Azores (personal observation). On the other side, *E. lourei* is quite similar to *E. rostrata* Naville 1933, but in this species the modified spinigers are present only in chaetiger 1, instead on chaetiger 2.

### ***Exogone (Exogone) marisae*** Pascual, Núñez & San Martín 1996

*Exogone (Exogone) marisae* PASCUAL, NÚÑEZ & SAN MARTÍN, 1996: 72-74, fig. 2.
**TYPE LOCALITY:** Agua Dulce, Tenerife (Canary Islands, UTM CS 447 013), at 5-7 meters, in sponges covering the wall and ceiling surface in the middle zone of a marine cave, at half-light. The sponges were: *Petrosia ficiformis* (Poiret 1789), *Erylus discophorus* (Schmidt 1862), *Ircinia muscarum* (Schmidt 1864), *Ircinia fasciculata* (Pallas 1766), and *Rhaphidostyla incisa* (Schmidt 1880).
**DISTRIBUTION:** Known from the type locality.

### ***Exogone (Parexogone) meridionalis*** Cognetti 1955

*Exogone hebes meridionalis* COGNETTI, 1955: 5-7, fig. 3*b*.
**SYNONYMS:** *Exogone parahomoseta mediterranea* San Martín 1984.
**TYPE LOCALITY:** Gulf of Naples, in rhizomes of *Posidonia oceanica*, at 10 meters.
**SELECTED REFERENCES:** *Exogone hebes meridionalis* — COGNETTI, 1957: 61-62, fig. 11*b*. *Exogone (Parexogone) meridionalis* — ÇINAR & GAMBI, 2005: 747-749, fig. 11. *Exogone parahomoseta*

*mediterranea* — SAN MARTÍN, 1984*b*: 204-208, pl. 45, photos. 15-16; SAN MARTÍN, 1991: 728, fig. 7*h-i*. *Exogone (Parexogone) mediterranea* — SAN MARTÍN, 2003: 239-241, figs. 127-128. *Exogone* sp. — CAMPOY, 1982: 298, pl. 23.
**DISTRIBUTION:** Mediterranean Sea and Aegean Sea; Canary Islands; Florida. In coarse sand. Between 0-76 meters.

### ***Exogone (Exogone) mompasensis*** Martínez, Adarraga & San Martín 2002

*Exogone (Exogone) mompasensis* MARTÍNEZ, ADARRAGA & SAN MARTÍN, 2002: 676-680, figs. 1-2.
**TYPE LOCALITY:** Mompás, Donosti (Guipúzcoa, Spain), 43º20'10"N, 01º57'40"W, intertidal in a rocky substrate dominated by a community of *Corallina elongata*, near a spring of residual waters.
**SELECTED REFERENCES:** *Exogone (Exogone) mompasensis* — SAN MARTÍN, 2003: 255, fig. 137.
**DISTRIBUTION:** Known from the type locality.

### ****Exogone (Exogone) naidina*** Ørsted 1845

*Exogone naidina* ØRSTED, 1845*a*: 20-23, pl. 2.
**TYPE LOCALITY:** Near Striib (= Strib, Fyn), Lille Bælt Channel (Denmark), in a bottom of mud with stones.
**SYNONYMS:** *Exogone gemmifera* Pagenstecher 1862; [?] *Paedophylax claviger* Claparède 1868; *Syllis longiseta* Gosse 1855; *Exogone Kefersteinii* Claparède 1863; *Schmardia chauseyana* Quatrefages 1866.
**SELECTED REFERENCES:** *Exogone naidina* — GARDINER, 1976: 132-133, fig. 11*j-n*; GILLANDT, 1979: 39-40, fig. 12; SAN MARTÍN, 1984*b*: 208-210, pl. 46; KIRKEGAARD, 1992: 246-247, fig. 121; LICHER, 1999: 279. *Exogone (Exogone) naidina* — HARTMANN-SCHRÖDER, 1996: 170-172, fig. 73; SAN MARTÍN, 2003: 262-265, figs. 142-143. *Exogone gemmifera* — PAGENSTECHER, 1862: 267-283, pls. 25-26; FAUVEL, 1923*c*: 305-306, fig. 117*a-d*; RIOJA, 1943: 223-224, figs. 38-46; BERKELEY & BERKELEY, 1948: 79-80, fig. 118; USCHAKOV, 1955*a*: 192, fig. 56*C-D*; COGNETTI, 1957: 56-57, pl. 2 fig. 11, tables 1*b*, 2; IMAJIMA, 1966*a*: 397, fig. 2; DAY, 1967: 274-275, fig. 12.10.*p-v*; BEN-ELIAHU, 1977*b*: 78, fig. 7. [?] *Pædophylax claviger* — CLAPARÈDE, 1868: 521-523, pl. 13 fig. 2; LANGERHANS, 1879: 569-570, pl. 32 fig. 24; SAINT-JOSEPH, 1887: 209-214, pl. 10 figs. 84-91. *Syllis longiseta* — GOSSE, 1855*a*: 32-33, pl. 4 figs. 14-21. *Exogone Kefersteinii* — CLAPARÈDE, 1863: 42-44, pl. 12 figs. 3-6.
**REFERENCES FOR PORTUGAL:** HARTMANN-SCHRÖDER, 1977*a* (Bay of Setúbal); [?] RAVARA, 1997 (as *Exogone* cf. *naidina*; off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); [?] MUCHA & COSTA, 1999 (as *Exogone* cf. *geminifera*; Ria de Aveiro and/or Sado Estuary); RAVARA, SAN MARTÍN & MOREIRA, 2004 (as *Exogone (Exogone) naidina*; off Aveiro; previous records: Ria Formosa; Sado Estuary); BOAVENTURA *et al.*, 2006 (Ancão, Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 7 (A.4097)**, off Lagoa de Santo André, 132 m, sand with shells: 1 specimen; falcigers with modified chaetae on the first 3 chaetigers. **St. 283 (A.3851)**, off Arrifana, 245 m, muddy sand: 1 specimen in poor condition; first 3 chaetigers with modified blades; proventriculus through about 3 chaetigers, with about 14 muscular rows. **FAUNA 1 — St. 6*A***, Alborán Sea, off Nerja, 70-74 m, sand with mud: 2 specimens. **St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 1 specimen. **St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 22 specimens plus one fragment; modified chaetae in the first 2-3 chaetigers (in the third chaetiger can occur the 2 types of chaetae); one specimen with natatorial chaetae from chaetiger 9. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 5 specimens, juveniles. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 2 specimens, one very damaged due to its mounting on gelatinized glycerine; shaft of chaetae of the first 3 chaetigers with many spines. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 42 specimens, plus one posterior fragment; one specimen with natatorial chaetae from chaetiger 10. **St. 52*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 22-24 m, rock: 1 specimen. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 specimen with natatorial chaetae from chaetiger 9. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 6 specimens; modified chaetae in the first 3 chaetigers. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 2 specimens, one very damaged due to its mounting on gelatinized glycerine, plus one posterior fragment with pygidium. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 2 specimens; first 3 chaetigers with modified blades. **St. 71*A***, Gulf of Cádiz, off Islantilla, 13-15 m, muddy sand: 1 specimen; modified blades in the first 2 chaetigers, only. **Unknown station**, leftovers of 1st plastic drum ("*Sobras Bidón 1º*"): 1 juvenile specimen, with 8 chaetigers.
**DISTRIBUTION:** Reported to be cosmopolitan. Arctic; Northeastern Atlantic, from the Norwegian Sea and the Baltic Sea to the Mediterranean Sea and Morocco; Adriatic Sea; Aegean Sea; Black Sea; Madeira and

Canary Islands; West and South Africa; North Carolina; Northern Pacific Ocean; Pacific coast of Mexico. Recorded from a great variety of bottoms, but especially abundant among superficial algae. Also as endobiont in sponges, and among vermetids, bryozoans, ascidians, sandy and detritic bottoms. Intertidal to 225 meters, but also recorded down to 1000 meters.

**REMARKS:** *E. naidina* was first recorded in Portuguese waters by HARTMANN-SCHRÖDER (1977*a*).

The synonymy between *E. naidina* and *E. gemmifera* Pagenstecher 1862 does not seem clear, in spite of the fact that the two taxa are at least very similar. Some authors consider *E. gemmifera* as a junior synonym of *E. naidina*, while others take *E. gemmifera* as a valid species. The status of both species should be revised.

This species has a very typical habitus, being very small and thin, with the prostomium anteriorly rounded, 3 digitiform antennae, with the median one longer, red eyes, and proventriculus very short, slightly longer than larger.

### ***Exogone (Exogone) rostrata*** Naville 1933

*Exogone rostrata* NAVILLE, 1933: 190, figs. 13-14.

**TYPE LOCALITY:** Banyuls, Southern France (Western Mediterranean Sea).

**SELECTED REFERENCES:** *Exogone rostrata* — COGNETTI, 1953*d*: 123; COGNETTI, 1957: 60-61, fig. 10, tables 1*b*, 2; ALÓS, SAN MARTÍN & SARDÁ, 1983: 286-289, figs. 1-2; SAN MARTÍN, 1984*b*: 210-216, pls. 47-50. *Exogone (Exogone) rostrata* — PASCUAL, NÚÑEZ & SAN MARTÍN, 1996: 72; SAN MARTÍN, 2003: 265-269, figs. 144-145.

**DISTRIBUTION:** Mediterranean Sea, Aegean Sea, and Canary Islands. In sand, sponges, rhizomes of *Posidonia*, among vermetids, and on calcareous bottoms. Shallow depth, to about 10 meters.

### ***Exogone (Exogone) sorbei*** San Martín, Ceberio & Aguirrezabalaga 1996

*Exogone (Exogone) sorbei* SAN MARTÍN, CEBERIO & AGUIRREZABALAGA, 1996: 255-257, fig. 7.

**TYPE LOCALITY:** Capbreton Canyon, Bay of Biscay, from 43º35.87'N, 2º17.43'W, 505 meters, to 43º35.87'N, 2º17.73'W, 512 meters; in mud.

**SELECTED REFERENCES:** *Exogone (Exogone) sorbei* — SAN MARTÍN, 2003: 257-259, figs. 138-139.

**DISTRIBUTION:** Capbreton Canyon, Bay of Biscay; northern Aegean Sea. In mud. Between 505-1113 meters.

### ***Exogone (Exogone) torulosa*** Claparède 1864

*Spermosyllis torulosa* CLAPARÈDE, 1864: 553-554, pl. 6 fig. 5.

**TYPE LOCALITY:** Port-Vendres, Mediterranean coast of France.

**SELECTED REFERENCES:** *Spermosyllis torulosa* **—** SOULIER, 1904: 342-345, fig. 6; FAUVEL, 1923*c*: 309-310, fig. 118*a-f*.

**DISTRIBUTION:** Mediterranean Sea. In muddy sand. On shallow water.

### ****Exogone (Exogone) verugera*** (Claparède 1868)

*Pædophylax veruger* CLAPARÈDE, 1868: 523-524, pl. 12 fig. 3.

**TYPE LOCALITY:** Gulf of Naples.

**SELECTED REFERENCES:** *Exogone verugera* — FAUVEL, 1923*c*: 307-308, fig. 117*m-r*; WESENBERG-LUND, 1947: 14-16, fig. 5; PETTIBONE, 1963*a*: 129-130, fig. 31*a-d*; HARTMANN-SCHRÖDER, 1974*d*: 197-199, figs. 16-18; CAMPOY, 1982: 292-295, pl. 22; SAN MARTÍN, 1984*b*: 218-221, pl. 51; KIRKEGAARD, 1992: 248-249, fig. 122. *Exogone (Exogone) verugera* — HARTMANN-SCHRÖDER, 1996: 172; SAN MARTÍN, 2003: 271-274, figs. 147-148. [?] *Exogone verugera profunda* — HARTMAN, 1965*b*: 75-76, pl. 9. Not *Exogone verugera* — COGNETTI, 1957: 58-60, pl. 2 figs. 12-13, tables 1*b*, 2. [?] Not *Paedophylax verruger* [*sic*] **—** LANGERHANS, 1879: 570, pl. 32 fig. 25 [= *Exogone breviantennata* Hartmann-Schröder 1959]. Not *Exogone verugera* **—** IMAJIMA, 1966*a*: 399, fig. 3 [= *Exogone breviantennata* Hartmann-Schröder 1959].

**REFERENCES FOR PORTUGAL:** MUCHA & COSTA, 1999 (Ria de Aveiro and/or Sado Estuary); BOAVENTURA *et al.*, 2006 (Ancão, Algarve).

**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 2 specimens, very damaged due to their mounting on gelatinized glycerine. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 11 specimens; 3 juveniles, one of which in poor condition; one adult with natatorial chaetae from chaetiger 12; proventriculus through 2 chaetigers. **St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse

gravel: 2 specimens, one of which with natatorial chaetae from chaetiger 15, sexual products present. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 31 specimens. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 specimen. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 7 specimens. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 2 specimens; natatorial chaetae from chaetiger 14. **St. 60*A***, Gibraltar Strait, Tarifa, 12-16 m, sand, stones, photophile algae: 1 specimen.

**DISTRIBUTION:** Northern Atlantic, from Norwegian Sea and Faroes to the Mediterranean Sea, and from Gulf of St. Lawrence to Massachusetts; Greenland; Adriatic Sea; Aegean Sea; Black Sea; Madeira and Canary Islands; South Africa; [?] Pacific coast of America, from Vancouver Island to Mexico. On soft bottoms, bryozoans, gorgonians, calcareous concretions, seaweeds and algae. Between 0-520 meters, but also recorded between 492-1113 meters, in Capbreton Canyon (Bay of Biscay),.

**REMARKS:** FAUVEL (1923*c*) stated that the specimens from Madeira Island described by LANGERHANS (1879) differed slightly from the Mediterranean specimens, by presenting bidentate simple chaetae. These specimens could belong to the same species identified as *Exogone breviantennata* Hartmann-Schröder 1959, by NÚÑEZ, SAN MARTÍN & BRITO (1992*b*), with base on specimens from the Canary Islands. Besides, and as noted by SAN MARTÍN (1991), CLAPARÈDE [1868: pl. 12 fig. 3; reproduced later by FAUVEL (1923*c*: fig. 117*m*)] pictured *Exogone verugera* with dorsal cirri in the second chaetiger, which are in reallity absent. As noted by SAN MARTÍN (1991), the same was done for other species that lack dorsal cirri in the second chaetiger, like *Sphaerosyllis pirifera* and *S. hystrix*. SAN MARTÍN (1991) assumed that the specimens studied by him from the Spanish Mediterranean were *E. verugera*, that this species lacks dorsal cirri in the second chaetiger, and that probably CLAPARÈDE (1868) drew them in spite of being absent, probably thinking that they had been lost.

### ***Exogone (Parexogone) wolfi*** San Martín 1991

*Exogone (Parexogone) wolfi* SAN MARTÍN, 1991: 726, fig. 6.

**TYPE LOCALITY:** Florida (U.S.A.), off Port Everglades, 26º0.9'N, 80º3.4'W, at 188 meters, on muddy sand.

**SELECTED REFERENCES:** *Exogone (Parexogone) wolfi* — SAN MARTÍN, CEBERIO & AGUIRREZABALAGA, 1996: 252, fig. 3; SAN MARTÍN, 2003: 243-244, figs.129-130; ÇINAR & GAMBI, 2005: 749-751, fig. 3. *Exogone* sp. A. — UEBELACKER, 1984*f*: 30.37-30.39, figs. 30.29-30.30.

**DISTRIBUTION:** Florida and Gulf of Mexico, 37-188 meters, on coarse to medium sand and very fine silty sand; Capbreton Canyon, Bay of Biscay, 984-1029 meters, in mud; northern Aegean Sea; Cyprus, 70 meters; Australia.

**REMARKS:** SAN MARTÍN, CEBERIO & AGUIRREZABALAGA (1996) identified as *Exogone wolfi* three specimens collected at the Capbreton Canyon, at a depth of 1000 meters. However, these specimens present a proventriculus extending through 3 segments, while in the specimens from the Gulf of Mexico, the proventriculus is described as extending through 1.5 segments. In my opinion, this fact, together with the different habitat between the two populations, could indicate that two similar but different species are involved.

## *GENUS ***Haplosyllis*** Langerhans 1879

*Haplosyllis* LANGERHANS, 1879: 527.

**TYPE SPECIES:** *Syllis spongicola* Grube 1855.

**SYNONYMS:** *Hemisyllis* Verrill 1900; *Trypanosyllis (Trypanoseta)* Imajima & Hartman 1964; *Geminosyllis* Imajima 1966.

**REMARKS:** The genus *Haplosyllis* was recently revised by LATTIG & MARTIN (2009). One of the results of this study was the finding that many of the species normally considered to be junior synonyms of *H. spongicola* (Grube 1855) were in fact valid species. The following taxa are in this situation: *Syllis streptocephala* Grube 1857, described from St. Croix, in the Caribbean Sea (GRUBE, 1857: 181-182); *Syllis (Haplosyllis) djiboutiensis* Gravier 1900, described from Djibouti, Gulf of Aden (GRAVIER, 1900*b*: 147-149, text-figs. 4-7, pl. 9 fig. 3); *Syllis uncinigera* Grube 1878, described from Bohol, Philippines (GRUBE, 1878*c*: 113-114); and *Haplosyllis gula* Treadwell 1924, from Barbados, Caribbean Sea (TREADWELL, 1924: 11-12).

Other species were considered to be *incertae sedis*, due to poor descriptions and lack of type material, which did not enable the characterization of the species. It is possible that the status of some of these species will be revised in the future with the collection of new material from the type localities.

This is the case of the following species: *Syllis oligochaeta* Bobretzky 1870, described from the Black Sea (BOBRETZKY, 1870: 229-230, figs. 51-52); *Syllis violaceo-flava* Grube 1878, described from Bohol, Philippines (GRUBE, 1878*c*: 115-116, pl. 7 fig. 3); *Haplosyllis palpata* Verrill 1900, from Bermudas, Caribbean Sea (VERRILL, 1900: 615; already considered as *nomen dubium* by LICHER, 1999: 300-302); and *Syllis (Haplosyllis) spongicola brevicirra* Rioja 1941, from Acapulco, Pacific coast of Mexico (RIOJA, 1941*b*: 695-696, pl. 4 figs. 5-6).

*Haplosyllis anthogorgicola* Utinomi 1956, described as a commensal species of the flabellate gorgonean *Anthogorgia bocki* (Aurivillius 1931) from Southern Japan (UTINOMI, 1956), is cited as being present in the Mediterranean Sea by ARIÑO (1987). ARIÑO (1987) refers to LAUBIER (1966*a*) as the original record of the species in the Mediterranean Sea, from the "coralligéne" of Albères. However, Ariño's record is based on an erroneous interpretation of Laubier's 1966 work. LAUBIER (1966*a*) refers the species *Haplosyllis anthogorgicola* in the framework of a wider discussion of the morphological adaptations of *Haplosyllis* species to their biology and habitat, as symbiontic polychaetes, mainly of gorgonians. The discussion refers mainly to *Haplosyllis depressa chamaeleon*, a subspecies described earlier by LAUBIER (1960*a*) from the "coralligéne" of Albères, and to which other forms of *Haplosyllis* are compared: *Haplosyllis depressa depressa* Augener 1913, from SW Australia; *H. depressa dollfusi* Fauvel 1933, from the Gulf of Suez; and *H. anthogorgicola* Utinomi 1956, from Southern Japan. *H. anthogorgicola* is still only known from its type locality, and being a false European record, will not be included here.

The subgenus *Trypanosyllis (Trypanoseta)* was created by IMAJIMA & HARTMAN (1964) in order to include the species *Trypanosyllis (Trypanoseta) ohma* Imajima & Hartman 1964, characterized by possessing simple chaetae and a trepan with 10 teeth and a middorsal tooth. Two years later IMAJIMA (1966*d*) created a new genus, *Geminosyllis*, to include this species, but the name *Trypanoseta* Imajima & Hartman 1964 had priority over *Geminosyllis* Imajima 1966. The genus *Trypanoseta* is mainly characterized by the presence of a trepan, as the rest of the characters of the genus match the diagnosis of *Haplosyllis*. LATTIG, SAN MARTÍN & MARTIN (2007) considered the genus (as *Geminosyllis*) as doubtful, and in fact, their diagnosis of both genera were only separated by the presence *versus* absence of a trepanus. In spite of this, and of stating that further studies were required to assess the validity of the genus, a new species was described as belonging to *Geminosyllis*. The two genera, *Trypanoseta* and *Geminosyllis* were finally synonymized with *Haplosyllis* in LATTIG & MARTIN (2009).

**KEY TO SPECIES:**

(adapted from: LATTIG, SAN MARTÍN & MARTIN, 2007; LATTIG & MARTIN, 2009)

**1a.** Anterior chaetae clearly different from midbody chaetae: anterior-most chaetae with a thin small main fang, median and posterior chaetae wider, with a longer, well defined main fang; all chaetae bidentate; 2 chaetae par parapodium (1-3); anterior chaetae with small denticles on the main fang, usually eroded in midbody chaetae; dorsal cirri long, whip shaped, in midbody longer cirri up to 35-45 articles, short cirri with 25-30 articles.....***H. spongicola***
**1b.** Anterior chaetae similar to midbody chaetae, often small, with short main fang.....**2**

**2a (1b).** Midbody chaetae with proximal apical tooth long, with pointed tip; distal apical tooth absent or very short, thin; upper side of the main fang without long spines; 3-5 hooked chaetae per parapodium.....**3**
**2b (1b).** Midbody chaetae with apical teeth of similar length, sometimes proximal tooth slightly shorter; long spines on the upper side of the main fang; 2-7 chaetae per parapodium.....**4**

**3a (2a).** Anterior and midbody chaetae distally unidentate, or with a very small, hair-like distal tooth, becoming more hooked and clearly bidentate when posterior-most; dorsal cirri alternating between long (26-32 articles) and short (13-20 articles); body yellow to violet *in vivo*, with dark violet dorsal marks, persistent in preserved specimens; normally associated with the gorgonian *Paramuricea clavata* in the Mediterranean and *Paramuricea grayii* in Galicia.....***H. chamaeleon***
**3b (2a).** All chaetae bidentate, distal tooth small, often difficult to see, and very similar in shape along the body, anterior-most chaetae markedly less hooked than the midbody and posteriormost ones; dorsal cirri alternating between long (14-44 articles) and short (13-22 articles); body uniformly yellowish, without marks; associated with the gorgonian *Villogorgia bebrycoides* in the Canary Islands.....***H. villogorgicola***

**4a (2b).** Pharynx half as thin as proventricle; trepan absent; dorsal cirri alternating between long (10-15 articles) and short (5-11 articles); 2 chaetae per parapodia; dorsal surface not granulose.....***H. carmenbritoae***

**4b (2b).** Pharynx broad, similar to proventricle width or slightly thinner; trepan with 10 small teeth; dorsal cirri alternating between long (11-17 articles) and short (4-13 articles); 2-7 chaetae per parapodia; dorsal surface granulose.....***H. granulosa***

## ***Haplosyllis carmenbritoae*** Lattig, San Martín & Martin 2007

*Haplosyllis carmenbritoae* LATTIG, SAN MARTÍN & MARTIN, 2007: 557-561, figs. 3-4, tables 1-2.

**TYPE LOCALITY:** Canary Islands: off Tabaiba, eastern coast of Tenerife, at 100 meters, on calcareous concretions from a bottom of *Dendrophyllia ramea*.

**SELECTED REFERENCES:** *Haplosyllis carmenbritoae* — LATTIG & MARTIN, 2009: 13. *Haplosyllis spongicola* [not Grube 1855] **—** NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 115-116, figs. 2*H*, 3*F* [at least in part].

**DISTRIBUTION:** Known from the type locality.

## ***Haplosyllis chamaeleon*** Laubier 1960

*Haplosyllis depressa chamaeleon* LAUBIER, 1960*a*: 76-86, figs. 1-2.

**TYPE LOCALITY:** In the original description, LAUBIER (1960*a*) makes reference to specimens collected in two locations: near Île Grosse, Banyuls-sur-Mer (Mediterranean Sea), as symbiont on the gorgonian *Paramuricea clavata* Risso 1826 (as *Muricea chamaeleon* von Koch 1882), at 15 meters (one single specimen); and Cape of Creus (Mediterranean Sea), as symbiont on the gorgonian *Paramuricea clavata* Risso 1826 (as *Muricea chamaeleon* von Koch 1882), at 40-60 meters (several specimens). Both locations are separated in straight line by about 25 Km. LAUBIER (1960*a*, and later 1968*a*) didn't stated specifically which one was the type localiy, always referring himself to "*Banyuls*" or to the "*région de Banyuls*" as the type locality. This way, it seems that the type locality should be considered as the station near Île Grosse, unless type material is deposited somewhere and clear states the Cape of Creus as the type locality. Apparently the type material is not deposited at the Muséum National d'Histoire Naturelle, in Paris (SOLÍS-WEISS *et al.*, 2004).

**SELECTED REFERENCES:** *Haplosyllis depressa chamaeleon* — LAUBIER, 1966*a*: 246-249; LAUBIER, 1968*a*: 84-85, fig. 10*A*. *Haplosyllis depressa chamaleon* — BARATECH & SAN MARTÍN, 1987: 45-46, figs. 8-9. *Haplosyllis chamaeleon* — SAN MARTÍN, 1984*b*: table 12 (page 323); LÓPEZ, SAN MARTÍN & JIMÉNEZ, 1996: 108-110, fig. 2; LICHER, 1999: 280; MARTIN *et al.*, 2002: 461-470, figs. 5*B-G*, 6-10, table 1; SAN MARTÍN, 2003: 320-323, figs. 177-178; LATTIG, SAN MARTÍN & MARTIN, 2007: table 2; LATTIG & MARTIN, 2009: 15-16, fig. 9.

**DISTRIBUTION:** Western Mediterranean Sea and Aegean Sea, associated with *Paramuricea clavata* Risso 1826, between 15-70 meters; Ria de Arosa (Pontevedra, Galicia, NW Spain), associated with *Paramuricea grayii* (Johnson 1861), at 30 meters.

**REMARKS:** LATTIG & MARTIN (2009) extended the geographical distribution of the species to the Atlantic coasts of the Iberian Peninsula, for which reason it can no longer be regarded as a Mediterranean endemism.

## ***Haplosyllis granulosa*** (Lattig, San Martín & Martin 2007)

*Geminosyllis granulosa* LATTIG, SAN MARTÍN & MARTIN, 2007: 562-564, figs. 5-6, table 3.

**TYPE LOCALITY:** Western Mediterranean, Nerja (Málaga, Spain), on calcareous concretions, between 3-4.5 meters.

**SYNONYMS:** *Syllis hamata* Claparède 1868.

**SELECTED REFERENCES:** *Haplosyllis granulosa* — LATTIG & MARTIN, 2009: 20. *Syllis (Haplosyllis) spongicola* [not Grube 1855] — FAUVEL, 1923*c*: 257, fig. 95*a-d* [in part?]; [?] FAUVEL, 1953*c*: 147, fig. 75*b-d* [in part?; at least fig. 75*a* = *Haplosyllis granulosa* (Lattig, San Martín & Martin 2007)]. *Haplosyllis spongicola* [not Grube 1855] — SAN MARTÍN, 1984*b*: 318-322 [in part], pl. 77 fig. *A* [at least]; SAN MARTÍN, 2003: 323-325 [in part], fig. 179*B*. *Syllis spongicola spongicola* [not Grube 1855] — COGNETTI, 1955: 1-3, fig. 1*a*; COGNETTI, 1957: 10-12, fig. 2*a*, tables 1*a*, 2; COGNETTI, 1961*b*: 294. *Syllis hamata* **—** CLAPARÈDE, 1868: 505-507, pl. 15 fig. 2. [?] *Haplosyllis (Syllis) hamata* — LANGERHANS, 1879: 527-528, pl. 31 fig. 1. [?] *Syllis (Haplosyllis) hamata* — SAINT-JOSEPH, 1887: 142-146, pl. 7 figs. 5-8; SAINT-JOSEPH, 1895: 185-186.

**DISTRIBUTION:** Spanish Western Mediterranean Sea: Cape of Creus; Balearic Islands; Columbretes Islands; Nerja (Málaga); Almería; Cape of Palos (Murcia). Very probably also in other parts of the western Mediterranean Sea. On calcareous concretions of *Mesophyllum lichenoides* and *Lithophyllum expansum*, between 3-25 meters, and also among rhizomes of *Posidonia oceanica*, between 2-20 meters. Also found between 80-85 meters, associated to detritic bottoms.

**REMARKS:** According to LATTIG & MARTIN (2009) the type material of *Haplosyllis hamata* Claparède 1868 (described as *Syllis*, from the Gulf of Naples) does not exist, and the original description does not allow its correct characterization and comparison with the other valid species in the genus. However, the same authors suggested that *H. hamata* and *H. granulosa* could be synonymous, according to the slender body, short cirri, presence of dorsal granules and length of proventricle and pharynx. These shared characters, together with the fact that both species are known from the Mediterranean Sea, seem to be sufficient to consider the two species as synonymous, but such a synonymy will not be made here. The description given by FAUVEL (1923*c*) is largely (if not all) based on Claparède's description.

## **Haplosyllis spongicola* (Grube 1855)

*Syllis spongicola* GRUBE, 1855: 104-105.

**TYPE LOCALITY:** Lošinj Island, Croatia (Adriatic Sea).

**SYNONYMS:** *Syllis setubalensis* McIntosh 1885; *Syllis spongicola tentaculata* Marion 1878.

**SELECTED REFERENCES:** *Syllis spongicola* — MARION & BOBRETZKY, 1875: 24-25, pl. 2 fig. 7; MCINTOSH, 1908*c*: 197-200, pl. 51 fig. 4, pl. 70 fig. 21, pl. 79 fig. 15; [?] OKADA, 1929: 542-599, fig. 29; WISSOCQ, 1966: 338-341, pls. 1-4. *Syllis (Haplosyllis) spongicola* — [?] GRAVIER & DANTAN, 1928: 45-49, figs. 6-7; [?] LA GRECA, 1949*a*: 161, fig. 10; [?] USCHAKOV, 1955*a*: 179, fig. 50*A*; [?] DAY, 1967: 240-241, fig. 12.1.*e-i*; [?] GARDINER, 1976: 139, fig. 12*i-k*. *Haplosyllis spongicola* — [?] WILLEY, 1905: 269, pl. 3 figs. 79-80; WESENBERG-LUND, 1950*a*: 15, pl. 4 fig. 18, chart 19; [?] HARTMAN, 1968: 433-434, figs. 1-4; [?] DUEÑAS, 1981: 91, pl. 13; HARTMANN-SCHRÖDER, 1981: 27, figs. 3-4; CAMPOY, 1982: 363-368, pl. 31, figs. *m-q* [in part]; SAN MARTÍN, 1984*b*: 318-322, pl. 77 figs. *B-F* [in part; in part and pl. 77 fig. *A* = *Haplosyllis granulosa* (Lattig, San Martín & Martin 2007)]; [?] PARAPAR *et al.*, 1996*a*: 56, fig. 1; LICHER, 1999: 281-283, figs. 3*D*, 5*E*, 10*D* [in part]; SAN MARTÍN, 2003: 323-325 [in part], figs. 179*A*, *C-D*, 180 [in part and fig. 179*B* = *Haplosyllis granulosa* (Lattig, San Martín & Martin 2007)]; LATTIG, SAN MARTÍN & MARTIN, 2007: 554-556, figs. 1-2, table 1; LATTIG & MARTIN, 2009: 25-27, figs. 17-18. *Syllis setubalensis* — MCINTOSH, 1885*a*: 195-196, pl. 30 figs. 5-6, pl. 33 fig. 6, pl. 15*A* figs. 16-17; ROULE, 1906: 57-60. *Syllis spongicola* var. *tentaculata* — MARION, 1879: 19-21, pl. 15 figs. 4*a*, 4*b*, 4*c*, pl. 16 fig. 4. *Syllis spongicola tentaculata* — COGNETTI, 1955: 1-3, fig. 1*b*; COGNETTI, 1957: 12-14, fig. 2*b*, tables 1*a*, 2; COGNETTI, 1961*b*: 294. [?] *Haplosyllis spongicola tentaculata* — IMAJIMA, 1966*d*: 221-223, fig. 38*i-n*; IMAJIMA, 1982*a*: 460, fig. 29*h-l*. *Geminosyllis* sp.1 — LATTIG, SAN MARTÍN & MARTIN, 2007: 564-566, figs. 7-8, table 3. Not *Syllis spongicola spongicola* — COGNETTI, 1955: 1-3, fig. 1*a*; COGNETTI, 1957: 10-12, fig. 2*a*, tables 1*a*, 2; COGNETTI, 1961*b*: 294 [all = *Haplosyllis granulosa* (Lattig, San Martín & Martin 2007)]. Not *Haplosyllis spongicola* — IMAJIMA, 1966*d*: 220-221, fig. 38*a-h*; WESTHEIDE, 1974*b*: 35-37, fig. 14; UEBELACKER, 1984*f*: 30.109-30.111, figs. 30.103-30.104. Not *Syllis (Haplosyllis) spongicola* — FAUVEL, 1923*c*: 257, fig. 95*a-d*; FAUVEL, 1953*c*: 147, fig. 75*b-d* [both at least in part = *Haplosyllis granulosa* (Lattig, San Martín & Martin 2007)].

**REFERENCES FOR PORTUGAL:** MCINTOSH, 1885*a* (as *Syllis setubalensis*; off Setúbal); AMOUREUX, 1974*b* (as *Syllis (Haplosyllis) spongicola*; off Aveiro; off Porto); SALDANHA, 1974 (as *Syllis spongicola*; coast of Arrábida); HARTMANN-SCHRÖDER, 1977*a* (as *Syllis (Haplosyllis) spongicola*; off Cape Sardão); HARTMANN-SCHRÖDER, 1979*a* (western continental shelf of Algarve); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: off Setúbal; Aveiro; Porto); AMOUREUX, 1987 (off Aveiro; off Porto); MONTEIRO-MARQUES, 1987 (as *Syllis (Haplosyllis) spongicola*; continental shelf of Algarve); DEXTER, 1992 (as *Syllis (Haplosyllis) spongicola*; previous records: continental shelf of Algarve); SALDANHA, 1995 (Portugal); LATTIG & MARTIN, 2009 (off Setúbal; southwestern continental shelf); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 15**, off Ponta Ruiva, 65 m, rock: 1 specimen, with pseudotrepanus, plus one posterior fragment. **St. 21**, off Praia de Castelejo, 70 m, rock: 1 specimen; pharynx armed only with an anterior tooth. **St. 22**, off Praia de Castelejo, 52 m, rock: 4 specimens, plus one posterior fragment. **St. 25*R* (A.2524)**, off Praia de Castelejo, 61 m, shelly sand: 1 specimen. **St. 54 (A.2547)**, off Praia do Amado, 58 m, sand and rock: 3 specimens. **St. 55*R* (A.2548)**, off Praia do Amado, 64 m, sand and rock: 1 specimen. **St. 89 (A.2572)**, off Carrapateira, 490 m, rock: 1 specimen. **SEPLAT 7 (1st part) — St. 212 (A.3124)**, off Vila Nova de Milfontes, 147 m, muddy sand: 1 specimen; pharynx armed with a single anterior tooth. **SEPLAT 7 (2nd part) — St. 96 (A.4011)**, near Sines, 118 m, stones: 1 specimen; pharynx armed only with an anterior tooth. **St. 105**, near Sines, 69 m, rock, 1 specimen. **St. 149**, near Sines, 113 m, rock with organisms: 1 specimen; pharynx with trepanus of small and irregular teeth, besides the anterior main tooth. **St. 175 (A.3935)**, off Sines, 205 m, gravelly sand: 5 specimens. **St. 179 (A.3932)**, off Sines, 120 m, rock: 1 specimen, a female with eggs. **St. 220 (A.3895)**, off NW Porto Covo, 28 m, rock: 2 specimens, one of which with trepanus. **St. 223 (A.3894)**, off Porto Covo, 38 m, schists: 1 specimen. **St. 231**, off Praia do Malhão, 32 m, rock: 1 specimen. **St. 289 (A.3856)**, off Arrifana, 338 m,

sand: 1 specimen; pharynx armed with a single anterior tooth. **FAUNA 1 — St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 11 specimens plus 3 fragments. **St. 14*A***, Alborán Sea, off Castell de Ferro, Granada, 285-290 m, mud: 1 specimen, plus one fragment that appears to be a stolon. **St. 17*A***, Alborán Sea, Alborán Island, 70-74 m, stones: 3 specimens plus one middle fragment and 2 posterior fragments with pygidia; one of the posterior fragments has natatorial chaetae from a certain chaetiger, from which increase also the number of simple chaetae per parapodium, reaching the number of 7, being the distal tooth very small; one of the specimens has the anterior pair of eyes divided in several ocular spots. **St. 18*A***, Alborán Sea, Alborán Island, 45-52 m, stones: 1 specimen. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 6 specimens, one juvenile, plus one fragment. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 4 specimens, one among rhizomes of laminarians. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 1 specimen. **St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 middle fragment with 16 chaetigers. **St. 52*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 22-24 m, rock: 1 specimen. **St. 55*A***, Gulf of Cádiz, off Cape Trafalgar, 38-42 m, gravel: 1 specimen. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 2 specimens. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 13 specimens, plus 2 fragments and 3 posterior regions with pygidia; up to 4 chaetae per parapodium; tips of chaetae can be simple, instead of bifid, probably due to the worn of the chaetae. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 43 specimens, plus 3 middle fragments and 9 posterior fragments with pygidia; aciculae very thick, with curved tips in a right angle; some chaetae with the second distal tooth missing. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 3 specimens, plus one fragment. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 2 specimens. **[?] St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 3 specimens. **St. 70*A***, Gulf of Cádiz, off Isla Cristina, 22 m, muddy sand: 1 specimen, in poor condition.

**DISTRIBUTION:** Adriatic Sea; Mediterranean Sea; European Atlantic waters. It has been recorded to be cosmopolitan, but all these records need to be confirmed, including the ones from the Indo-Pacific. It was found in association with different species of sponges, and was normally considered to be endobiont in sponges. However, besides being found in sponges, it has been recorded in many types of hard substrata, like vermitid tubes, *Posidonia*, algae, maërl, rocky, coralligenous or detritic bottoms, for which reason it is possible that it is free living, using the sponges as a food resource. Between 5-1000 meters.

**REMARKS:** The species presents a great variation of the structure of the opening of the pharynx. This way, ans besides the median dorsal tooth, the anterior margin of the pharynx can vary from being smooth to present a well defined trepanus, which can occupy the whole ring of the opening or only a semicircle, usually opposite to the long anterior tooth (LATTIG & MARTIN, 2009).

The specimens described as *Geminosyllis* sp. 1 in LATTIG, SAN MARTÍN & MARTIN (2007) were later referred to *Haplosyllis spongicola* by LATTIG & MARTIN (2009), as they fitted within the morphological variability of the species. LATTIG & MARTIN (2009) also confirmed the synonymy of *Syllis setubalensis* McIntosh 1885, described with base on specimens collected from off Portugal, with *H. spongicola*, something already suggested by previous authors (*e.g.*: FAUVEL, 1923*c*; LICHER, 1999).

### ***Haplosyllis villogorgicola*** Martin, Núñez, Riera & Gil 2002

*Haplosyllis villogorgicola* MARTIN *et al.*, 2002: 457-461, figs. 2-4, 5*A*, 6, tables 1-2.

**TYPE LOCALITY:** Punta Guadamojete, Radazul (south-eastern coast of Tenerife, Canary Islands), 28º24'N, 16º19'W, inhabiting the largest colonies (14 cm to 17 cm high) of *Villogorgicola bebrycoides* (Koch), attached to hard bottoms, at 84 meters.

**SELECTED REFERENCES:** *Haplosyllis villogorgicola* — LATTIG, SAN MARTÍN & MARTIN, 2007: table 2; LATTIG & MARTIN, 2009: 34.

**DISTRIBUTION:** Known from the type locality, inhabiting colonies of *Villogorgicola bebrycoides*.

## GENUS ***Imajimaea*** Nygren 2004

*Imajimaea* NYGREN, 2004: 105-106.

**TYPE SPECIES:** *Autolytus japonensis* Imajima & Hartman 1964.

### ***Imajimaea draculai*** (San Martín & López 2002)

*Paraprocerastea draculai* SAN MARTÍN & LÓPEZ, 2002: 139-141, fig. 3.

**TYPE LOCALITY:** Off Foz (NW Spain, 43º58.46'N, 7º11.8'W), at 177 meters, in sand.

**SELECTED REFERENCES:** *Paraprocerastea draculai* — SAN MARTÍN, 2003: 460-462, fig. 252. *Imajimaea draculai* — NYGREN, 2004: 106-107, fig. 48; NYGREN & PLEIJEL, 2010: 1444-1445, figs. 1-3.
**DISTRIBUTION:** Off Foz, NW Spain, at 177 meters, in sand with *Funiculina quadrangularis* (Pennatulacea, Cnidaria); Bratten Area, Sweden, 237-321 meters, in clay with *F. quadrangularis*. The species lives inside thin mucus tubes in between the polyps of *F. quadrangularis*. The association between *I. draculai* and its host seems to be the use of the host by the syllid to build a tube on, and presumably also to prey and feed upon (NYGREN & PLEIJEL, 2010).
**REMARKS:** The absence of compound chaetae, in Syllidae, is normally associated with symbiontic life, which led SAN MARTÍN & LÓPEZ (2002) to suggest that this species could live as a parasite in one of the following species with which it was collected: *Leptomera* sp. (Crinoidea, Echinodermata), *Munida* sp. (Decapoda, Crustacea), or *Funiculina quadrangularis* (Pennatulacea, Cnidaria). NYGREN & PLEIJEL (2010) later collected specimens at the Swedish west coast living associated with *Funiculina quadrangularis*, inside thin mucus tubes in between the polyps of the host, identifying this way the host of the species.

## GENUS ***Inermosyllis*** San Martín 2003

*Inermosyllis* SAN MARTÍN, 2003: 326.
**TYPE SPECIES:** *Pseudosyllides curacaoensis* Augener 1927.
**SYNONYMS:** *Pseudosyllides* Augener 1927 [not *Pseudosyllides* Czerniavsky 1882; homonym].

### ***Inermosyllis balearica*** (San Martín 1982)

*Pseudosyllides balearica* SAN MARTÍN, 1982*a*: 22-26, fig. 1, table 1.
**TYPE LOCALITY:** Cap Enderrocat, on the western margin of the Bay of Palma de Mallorca (Mallorca Island, Western Mediterranean Sea), among algae of the genus *Cystoseira* on a rocky bottom, at 0 meters.
**SELECTED REFERENCES:** *Pseudosyllides balearica* — SAN MARTÍN, 1984*b*: 287-293, pls. 67-68. *Inermosyllis balearica* — SAN MARTÍN, 2003: 326-329, figs. 181-182; AGUADO & SAN MARTÍN, 2007: 211.
**DISTRIBUTION:** Western Mediterranean Sea: Balearic Islands, Cape of Palos, and Chafarinas Islands; Eastern Mediterranean Sea: Lebanon. On algae of the genus *Cystoseira*, rhizomes of *Posidonia*, and blocks of *Cladocora caespitosa*. On shallow water.

## GENUS ***Levidorum*** Hartman 1967

*Levidorum* HARTMAN, 1967: 84-85.
**TYPE SPECIES:** *Levidorum scotiarum* Hartman 1967.
**REMARKS:** When HARTMAN (1967) described the monotypic genus *Levidorum* for the species *L. scotiarum* from the Scotia Sea (Antarctic), she included it in the family Sphaerodoridae, in spite of considering it as an aberrant form. She also stated that the definition of the family should be emended in order to include this genus, but this was not done neither by her nor by the following authors. FAUCHALD (1977*a*) retained the genus in the Sphaerodoridae, although his definition and key of the family would have exclude it. PERKINS (1987) created the family Levidoridae to include both the type species and two new species from the Gulf of Mexico, *L. pettiboneae* and *L. hartmanae*. The family would be characterized by the absence of antennae, lack of peristomial cirri, absence of dorsal and ventral parapodial cirri, uniramous neuropodia starting from the second segment, chaetae simple and similar, and a foregut formed by chitinous, very slender, and possibly eversible pharynx and muscular proventriculus (PERKINS, 1987). These characters approached the family to the Syllidae, as noted by GLASBY (1993), who synonymised the Levidoridae with the Syllidae.

### ***Levidorum pori*** (Ben-Eliahu 1977)

*Procerastea pori* BEN-ELIAHU, 1977*b*: 84-85, fig. 11.
**TYPE LOCALITY:** Gulf of Elat, coast of Israel, in a exposed shore opposite Wadi Kabila, on *Dendropoma* reefs, at the intertidal zone.
**SELECTED REFERENCES:** *Procerastea pori* — SAN MARTÍN, 1984*b*: 428-430, pl. 117; MARTIN, 1987: 62-63, fig. 1. *Levidorum pori* — SAN MARTÍN, 2003: 449-452, figs. 246-247; NYGREN, 2004: 91.

**DISTRIBUTION:** Red Sea; Western Mediterranean Sea. On rocks, in *Dendropoma* vermetid reefs, and inside the sponge *Cliona viridis*. Intertidal to 47 meters.

**REMARKS:** The described characters of *Procerastea pori* Ben-Eliahu 1977 seem to approach it to the genus *Levidorum* Hartman 1967. However, the only available description of the anterior region of the species, by SAN MARTÍN (1984*b*), was based on a specimen from the Balearic Islands, in poor condition and clearly states that a single antenna is present, being very short and triangular, as well as a single and small tentacular cirri, and a pair of tiny dorsal cirri on the first chaetiger. SAN MARTÍN (2003) revised the species, using two newly collected specimens, one from Catalonia and the second from the Columbretes Islands, an assigned it to the genus *Levidorum* for the first time, stating that the described appendices from the Balearic specimen were the result of the wrong interpretation of the presence of small impurities attached to the body of the worm. The assignation of *P. pori* to *Levidorum* was also accepted by NYGREN (2004).

SAN MARTÍN (2003) also stated that one of the species described from the Gulf of Mexico by PERKINS (1987), namely *Levidorum pettiboneae*, could be a junior synonym of *L. pori*, due to the shape of the chaetae. However, this idea seems to be based on the examination of the Mediterranean specimens, instead of the examination of type or topotype material from the Gulf of Elat (Red Sea). On the other hand, NYGREN (2004) approaches *L. pori* to *L. hartmanae*, also with base on the chaetae, this time from the type material. Any further decision concerning possible synonymies of *L. pori* should be based on the study of type (one specimen in poor condition) or topotype material, as the Mediterranean and the Red Sea specimens could belong to different species.

## GENUS ***Miscellania*** Martin, Alós & Sardá 1990

*Miscellania* MARTIN, ALÓS & SARDÁ, 1990: 169.

**TYPE SPECIES:** *Miscellania dentata* Martin, Alós & Sardá 1900.

### ***Miscellania dentata*** Martin, Alós & Sardá 1990

*Miscellania dentata* MARTIN, ALÓS & SARDÁ, 1990: 169-172, figs. 2-4.

**TYPE LOCALITY:** L'Estartit, Girona (Catalunya, Spain), at 17 meters.

**SELECTED REFERENCES:** *Miscellania dentata* — SAN MARTÍN, 2003: 99-101, fig. 43. *Miscelanea dentata* — PARAPAR *et al.*, 1993*a*: 369; NÚÑEZ & SAN MARTÍN, 1996: 204, fig. 1*F-G*. *Pionosyllis* sp. juv. indet. — BANSE, 1959*c*: 432-433, fig. 5.

**DISTRIBUTION:** Western Mediterranean Sea: Gulf of Naples, Catalonia, Menorca Island, Chafarinas Islands, Gibraltar, Ceuta; Adriatic Sea; Canary Islands. Amongst photophile algae. Between 6-27 meters.

## GENUS ***Myrianida*** Milne-Edwards 1845

*Myrianida* MILNE-EDWARDS, 1845: 180.

**TYPE SPECIES:** *Myrianida fasciata* Milne Edwards 1845 [*nomen protectum*, according to Article 23.9.1, of the ICZN 1999 (NYGREN, 2004)].

**SYNONYMS:** *Scolopendra* Slabber 1781 [*nomen oblitum*, according to Article 23.9.1, of the ICZN 1999 (NYGREN, 2004)]; *Podonereis* Blainville 1818 [*nomen oblitum*, according to Article 23.9.1, of the ICZN 1999 (NYGREN, 2004)]; *Autolytus* Grube 1850; *Diploceraea* Grube 1850; *Sacconereis* J. Müller 1853; *Crithida* Gosse 1855; *Sylline* Grube 1860; *Diplocerea* Schmarda 1861; *Autolytides* Malaquin 1893.

**KEY TO SPECIES:**
(adapted from NYGREN, 2004)

**1a.** Compound chaetae with large distal tooth.....**2**
**1b.** Compound chaetae with small distal tooth.....**3**

**2a (1a).** Large teeth in trepan fused to adjacent smaller teeth; colour pattern consisting of 4 red dorsal spots across each segment.....***M. rubropunctata***

**2b (1a).** Trepan with 1 large alternating with variously 1-4 small teeth, not fused, with small different size between large and small teeth; live colour pattern with broad red middorsal longitudinal band.....***M. irregularis***

**3a (1b).** Cirrostyles distinctly flattened; proventricle with about. 35 rows of muscle cells.....***M. pinnigera***
**3b (1b).** Cirrostyles cylindrical.....**4**

**4a (3b).** Cirrophores swollen; cirrostyles attached subterminally on cirrophores; trepan with indistinct teeth.....***M. inermis***
**4b (3b).** Cirrophores not swollen; cirrostyles attached terminally on cirrophores; trepan with distinct teeth.....**5**

**5a (4b).** Cirri of equal length or nearly so.....**6**
**5b (4b).** Cirri of unequal length.....**9**

**6a (5a).** Pharynx with several sinuations.....***M. convoluta***
**6b (5a).** Pharynx with one, sometimes twisted sinuation.....**7**

**7a (6b).** Pharynx with a rather long, often twisted sinuation anterior and lateral to proventricle.....**8**
**7b (6b).** Pharynx with a short sinuation, mostly anterior to proventricle; trepan with 24-34 equal teeth; live specimens with reddish sides anterior to proventricle.....***M. edwarsi***

**8a (7a).** Trepan with 12-24 equal teeth; live specimens with white median antenna and anal cirri (direct light).....***M. quindecimdentata***
**8b (7a).** Trepan with 12-13 teeth, appendages never white.....***M. hesperidium***

**9a (5b).** Trepan with equal teeth.....**10**
**9b (5b).** Trepan with unequal teeth.....**11**

**10a (9a).** Large confluent eyes; long first dorsal cirri; trepan with 35 teeth; proventricle with 33-37 rows of muscle cells.....***M. longoprimicirrata***
**10b (9a).** Eyes not confluent; first dorsal cirri of more "normal" length; trepan with 24-33 teeth; proventricle with 28-35 rows of muscle cells.....***M. prolifera***

**11a (9b).** Trepan with 2 large lateral teeth, a dorsal arc with 7-11 teeth, and a ventral arc with 14-19 teeth; dorsal teeth smaller than ventral.....***M. dentalia***
**11b (9b).** Trepan with at least 4 large teeth.....**12**

**12a (11b).** Trepan with 4-5 large and 25-39 small teeth, 1 large alternating with 4-13 small; small teeth fused with adjacent large teeth.....***M. langerhansi***
**12b (11b).** Trepan with 8-10 large and 14-21 small teeth, 1 large alternating with 1-3 small; small teeth not fused with adjacent large teeth.....***M. brachycephala***

## ***Myrianida brachycephala*** (Marenzeller 1874)

*Proceraea brachycephala* MARENZELLER, 1874: 460-462, pl. 6 fig. 2, pl. 7 fig. 2.
**TYPE LOCALITY:** Adriatic Sea.
**SYNONYMS:** *Proceraea luxurians* Marenzeller 1874; *Autolytus mirabilis* Verrill 1882; *Autolytus punctatus* Saint-Joseph 1887; *Autolytus Ehbiensis* Saint-Joseph 1887 [in part]; *Autolytus benazzii* Cognetti 1953.
**SELECTED REFERENCES:** *Autolytus brachycephalus* — FAUVEL, 1923*c*: 316-317, fig. 121*g* [in part; not fig. 121*h* and *A. brachycephalus* Southern 1914 = *A. langerhansi* Gidholm 1967]; GIDHOLM, 1967: 182, 188-191, figs. 7*B*, 13*A-B*, 14*B*, 15, 19*A*, 20, table in page 182; HAMOND, 1967: 4, fig. 5; HAMOND, 1969: 291-294, 294-297 [in part], figs. 3, 4.1, 5.1 [?], 6-7; SCHIEDGES, 1980: 210, 212-215, pl. 1 figs. 3-6, pl. 2 figs. 3-5, table 1; KIRKEGAARD, 1992: 224-225, fig. 108; HARTMANN-SCHRÖDER, 1996: 181; PARAPAR *et al.*, 1996*b*: 142-143, fig. 1*B*, pl. 1 figs. *C-D*; SAN MARTÍN, 2003: 500-502, fig. 277. *Myrianida brachycephala* — NYGREN, 2004: 120-123, fig. 57. *Proceraea luxurians* — MARENZELLER, 1874: 456-460, pl. 6 fig. 1, pl. 7 fig. 1. *Autolytus mirabilis* — VERRILL, 1882: 367-368. *Autolytus punctatus* — SAINT-JOSEPH, 1887: 233-234, pl. 11 figs. 108-109. *Autolytus Ehbiensis* — SAINT-JOSEPH, 1887: 228-233, pl. 11 figs. 106-107, pl. 12 figs. 114-115 [in part; in part = *Myrianida prolifera* (O.F. Müller 1788)];

FAUVEL, 1923*c*: 314-315, fig. 121*i*, *l* [in part; in part = *Myrianida prolifera* (O.F. Müller 1788)]. *Autolytus benazzii* — COGNETTI, 1953*c*: 89-90, fig. 1; COGNETTI, 1957: 70-71, figs. 14, 18, pl. 2 fig. 16, tables 1*b*, 2; SAN MARTÍN, 2003: 478-480, figs. 261-262. *Autolytus benazzi* — PARAPAR *et al.*, 1996*b*: 140-142, fig. 1*A*, pl. 1 fig. *B*. [?] *Autolytus* sp. — SAN MARTÍN, 2003: 480-482, figs. 263-264.

**REFERENCES FOR PORTUGAL:** [?] RAVARA, 1997 (as *Autolytus* cf. *brachycephalus*; off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (as *Autolytus brachycephalus*; off Aveiro; previous records: Ria de Aveiro); [?] RAVARA, SAN MARTÍN & MOREIRA, 2004 (as *Autolytus* cf. *benazzi*; off Aveiro); [?] BOAVENTURA *et al.*, 2006 (as *Autolytus* cf. *brachycephalus*; Ancão, Algarve).

**DISTRIBUTION:** Northeastern Atlantic, from Scandinavia and Faroes to the Mediterranean Sea and Adriatic and Aegean seas. In rocky, detritic and gravel bottoms, amongst algae, rhizomes, hydroids, ascidians and bryozoans. Intertidal to 120 meters.

**REMARKS:** The specimens described by SAN MARTÍN (2003) as *Autolytus* sp., from Ria de Aveiro (Portugal) are quite close to the specimens described by HAMOND (1969) as "*extreme* brachycephalus-*type*", from Norfolk (East England). However, these Norfolk's specimens are different from the stem-type of the species by bearing dorsal cirri with cirrophores much longer than the cirrostyles. Besides, their cirri are much longer than the ones described by SAN MARTÍN (2003) for the Portuguese population. Cirrophores being longer than cirrostyles are typical of *Myrianida langerhansi* (Gidholm 1967), but this species presents the large teeth fused with the adjacent ones, while in the Portuguese specimens all teeth are free, not fused.

## ***Myrianida convoluta*** (Cognetti 1953)

*Autolytus convolutus* COGNETTI, 1953*a*: 323-330, figs. 1-2, plate 1.

**TYPE LOCALITY:** Gulf of Naples (Mediterranean Sea), among algae (*Gelidium*, *Ulva*, *Corallina*) covering rocks at less than one meter deep, just in front of the Stazione Zoologica di Napoli (Naples).

**SELECTED REFERENCES:** *Autolytus convolutus* — COGNETTI, 1957: 71-72, fig. 15, pl. 2 figs. 14, 17-18, tables 1*b*, 2; BEN-ELIAHU, 1977*b*: 85-86, fig. 12; SAN MARTÍN, 2003: 483-486, figs. 265-266; ÇINAR & GAMBI, 2005: 732-734, fig. 4. *Myrianida convoluta* — NYGREN, 2004: 125-126, fig. 60. *Autolytus* cf. *convolutus* — BEN-ELIAHU, 1972*b*: 217-218, fig. 14.

**DISTRIBUTION:** Mediterranean Sea; Aegean Sea; Suez Canal; Red Sea; California. On vermetid reefs, and amongst hydroids, bryozoans, and tunicates. Intertidal to 20 meters.

## ***Myrianida dentalia*** (Imajima 1966)

*Autolytus (Autolytus) dentalius* IMAJIMA, 1966*b*: 36-37, fig. 7*i-l*.

**TYPE LOCALITY:** Off Senda-zaki, Urago Strait (Japan), at 10 meters.

**SELECTED REFERENCES:** *Autolytus dentalius* — GARDINER, 1976: 127, fig. 10*A-D*; UEBELACKER, 1984*f*: 30.12, figs. 30.3-30.4; [?] ÇINAR, ERGEN & BENLI, 2003: 745-746, fig. 2; [?] SAN MARTÍN, 2003: 505-507, figs. 280-281. *Myrianida dentalia* — NYGREN, 2004: 127-128, fig. 61.

**DISTRIBUTION:** North West Atlantic (North Carolina; Gulf of Mexico); North Pacific (Japan; Washington); [?] Mediterranean Sea (Balearic Islands). On gravel, and amongst hydroids, bryozoans, sponges, and tunicates. Intertidal to 120 meters.

**REMARKS:** NYGREN (2004) noticed the fact that the species was originally described with base on an anterior end in poor condition, and that the identity of the newly collected material may be problematic, as the status of the cirri was not possible to determine in the holotype. In what concerns the material collected at the Mediterranean Sea (SAN MARTÍN, 2003), it differs from the *M. dentalia* described by NYGREN (2004) by the length of the cirrophores, as in the Mediterranean specimens the cirrophores do not alternate in length, and are shorter than the parapodial lobes (against being unequal, and longer than parapodial lobes on long cirri). Collecting of topotype material is necessary in order to solve these questions (NYGREN, 2004). On the other side, the specimen described by ÇINAR, ERGEN & BENLI (2003) differs from the description given by NYGREN (2004) by the distribution of the teeth in the trepan.

## ***Myrianida edwarsi*** (Saint-Joseph 1887)

*Autolytus Edwarsi* SAINT-JOSEPH, 1887: 235-337, pl. 11 fig. 110.

**TYPE LOCALITY:** Coast of Dinard (France, English Channel), among laminarian rhizomes, at Cézembre, and among *Sertularia operculata*, collected by dredging.

**SELECTED REFERENCES:** *Autolytus Edwarsi* — FAUVEL, 1923*c*: 317-318, fig. 122*a*. *Autolytus edwarsi* — GIDHOLM, 1967: 181-186, figs. 1*A-C*, 5*B*, 9, 15-17, table in page 182; SAN MARTÍN, 2003: 496-498, figs. 274-275. *Autolytus edwardsi* — HAMOND, 1967: 4, fig. 4; HAMOND, 1969: 290, fig. 7, table 1; KIRKEGAARD, 1992: 226-227, fig. 109; HARTMANN-SCHRÖDER, 1996: 181-182, fig. 78; [?] PARAPAR *et*

*al.*, 1996*b*: 143, fig. 1*C*, pl. 2 figs. *A-B*. *Myrianida edwarsi* — NYGREN, 2004: 128-130, fig. 62. [?] *Autolytus edwardsii* — COGNETTI, 1957: 69-70, table 1*b* [according to NYGREN, 2004]. [?] *Autolytus prolifer* [not O.F. Müller 1788] — COGNETTI, 1957: 62-63, table 1*b*.

**DISTRIBUTION:** Northeastern Atlantic, from North Sea to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Kattegat; Skagerrak. On organic calcareous bottoms, algae, hydroids, bryozoans, and rhizomes of *Posidonia*. Intertidal to 40 meters.

**REMARKS:** NYGREN (2004) states the difficulty to separate *M edwardsi* from *M. prolifera* in preserved specimens. *M. edwardsi* presents equal cirri (unequal in *M. prolifera*), and nuchal epaulettes reach only the beginning of chaetiger 2 (they reach the end of chaetiger 2 in *M. prolifera*, but there is overlap in variation, in this case).

## ***Myrianida hesperidium*** (Claparède 1868)

*Autolytus hesperidium* CLAPARÈDE, 1868: 526-529, pl. 14 fig. 1.

**TYPE LOCALITY:** Gulf of Naples.

**SYNONYMS:** *Autolytus tyrrhenicus* Cognetti 1953.

**SELECTED REFERENCES:** *Myrianida hesperidium* — NYGREN, 2004: 133-135, fig. 64. *Autolytus tyrrhenicus* — COGNETTI, 1953*d*: 125-126, fig. 2; COGNETTI, 1957: 72-73, fig. 16, pl. 2 fig. 15, tables 1*b*, 2; ÇINAR & GAMBI, 2005: 740-742, fig. 8.

**DISTRIBUTION:** Mediterranean Sea (Naples; Banyuls-sur-Mer). Among hydroids, mussels, bryozoans, and sponges. Shallow waters (about 1 meter).

## ***Myrianida inermis*** (Saint-Joseph 1887)

*Autolytus inermis* SAINT-JOSEPH, 1887: 237-238, pl. 12 fig. 117.

**TYPE LOCALITY:** Coast of Dinard (English Channel, France), rare among *Rytiphlaea pinastroides* collected by dredging.

**SELECTED REFERENCES:** *Autolytus inermis* — GIDHOLM, 1967: 193-195, figs. 7*D-E*, 12, 22*A-B*; KIRKEGAARD, 1992: 227-228, fig. 110; HARTMANN-SCHRÖDER, 1996: 182-183; SAN MARTÍN, 2003: 487-489, figs. 267*A* [in part; not figs. 267*B-E*]. *Autolytus (Autolytoides) inermis* — FAUVEL, 1923*c*: 322, fig. 123*h-k*. *Myrianida inermis* — NYGREN, 2004: 135-137, fig. 65. Not *Autolytus inermis* — SAN MARTÍN, 1994: 274, fig. 4.

**REFERENCES FOR PORTUGAL:** [?] RAVARA, 1997 (as *Autolytus inermis*; off Aveiro).

**DISTRIBUTION:** Northeastern Atlantic, from Faroes and Norway to Galicia; [?] Portugal; Skagerrak; [?] Western Mediterranean Sea; North East Pacific (Washington; California). On algae, hydroids, bryozoans and tunicates, and detritic bottoms. Between 0-120 meters.

**REMARKS:** The specimens described as *Autolytus inermis* by SAN MARTÍN (1994) from the west coast of the USA (North Carolina) are here considered as not belonging to *Myrianida inermis*. The pharynx of the species is normally described as having several sinuations (*e.g.* NYGREN, 2004), which is not the case of the North Carolina specimens.

## ***Myrianida irregularis*** (Imajima & Hartman 1964)

*Autolytus irregularis* IMAJIMA & HARTMAN, 1964: 90-92, pl. 16 fig. *h*, pl. 17 figs. *a-f*.

**TYPE LOCALITY:** Off Shiriyazaki (Japan), 140-350 meters.

**SYNONYMS:** *Autolytus rubrolineatus* Gidholm 1967.

**SELECTED REFERENCES:** *Myrianida irregularis* — NYGREN, 2004: 137-138, fig. 66. *Autolytus rubrolineatus* — GIDHOLM, 1967: 198-201, figs. 13*D*, 25, 26*A-B*; KIRKEGAARD, 1992: 234-236, fig. 115; HARTMANN-SCHRÖDER, 1996: 186.

**DISTRIBUTION:** North Pacific (Japan; Washington); North Atlantic (Brattholmen, off Bergen, Norway; Faroes; Skagerrak). On sponges, barnacles, tunicates, hydroids, dead *Lophelia*. Intertidal to 350 meters.

## ***Myrianida langerhansi*** (Gidholm 1967)

*Autolytus langerhansi* GIDHOLM, 1967: 191-192, figs. 15, 19*B*, 21, table in page 182.

**TYPE LOCALITY:** Gullmar area, Gåsöränna, at Löken (Sweden), 30-40 meters, on detritic bottom with stones, shells, and slag.

**SYNONYMS:** *Autolytus cognetti* Çinar & Gambi 2005.

**SELECTED REFERENCES:** *Autolytus langerhansi* — KIRKEGAARD, 1992: 229-230, fig. 111; HARTMANN-SCHRÖDER, 1996: 183. *Myrianida langerhansi* — NYGREN, 2004: 140-141, fig. 68. *Autolytus cognetti* — ÇINAR & GAMBI, 2005: 730-732, fig. 3. *Autolytus brachycephala* [not Marenzeller 1874] — SOUTHERN,

1914: 41-42, pl. 5 fig. 10; FAUVEL, 1923*c*: 316-317 [in part], fig. 121*h* [?]. [?] *Proceraea brachycephala* [not Marenzeller 1874] — LANGERHANS, 1879: 580-581, pl. 33 fig. 32.
**REFERENCES FOR PORTUGAL:** BOAVENTURA *et al.*, 2006 (as *Autolytus langerhansi*; Ancão, Algarve).
**DISTRIBUTION:** Northeastern Atlantic, from Sweden to the Mediterranean Sea; [?] Madeira Island. On detritic bottoms with stones and shells, and amongst algae, tunicates, hydroids, bryozoans and shells. From low intertidal to 62 meters.

## ***Myrianida longoprimicirrata*** (López, San Martín & Jiménez 1997)

*Autolytus longoprimicirratus* LÓPEZ, SAN MARTÍN & JIMÉNEZ, 1997: 296-298, fig. 2.
**TYPE LOCALITY:** Isabel II Island (Chafarinas Islands, Western Mediterranean Sea), at 15 meters, in *Cladocora caespitosa* blocks.
**SELECTED REFERENCES:** *Autolytus longoprimicirratus* — SAN MARTÍN, 2003: 492-494, fig. 271. *Myrianida longoprimicirrata* — NYGREN, 2004: 141-142, fig. 69; NYGREN *et al.*, 2010: 49-50, figs. 4*A-C*, 5*F-H*.
**DISTRIBUTION:** Mediterranean Sea: Chafarinas Islands, near Morocco; Banyuls-sur-Mer, France; Istria, Croatia, Adriatic Sea. Among *Cladocera caespitosa* blocks, *Padina* and other algae, and in coralligène. Between 5-30 meters.

## ***Myrianida pinnigera*** (Montagu 1808)

*Nereis pinnigera* MONTAGU, 1808: 111, pl. 6 fig. 3.
**TYPE LOCALITY:** South coast of Devonshire (England).
**SYNONYMS:** *Myrianida fasciata* Milne-Edwards 1845; *Myrianida maculata* Claparède 1868.
**SELECTED REFERENCES:** *Myrianida pinnigera* — FAUVEL, 1923*c*: 322-324, fig. 124; GRAVIER & DANTAN, 1928: 98-100, fig. 54. *Myrianida pinnigera* — NYGREN, 2004: 149-150, fig. 74. *Myrianida fasciata* — SAN MARTÍN, 2003: 466-468, fig. 255. *Myrianida maculata* — SAINT-JOSEPH, 1887: 241-245, pl. 12 figs. 119-126.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); CAMPOY, 1982 (previous records: Arrábida); SAN MARTÍN, 2003 (as *Myrianida fasciata*; previous records: Portugal).
**DISTRIBUTION:** Northeastern Atlantic Ocean, from British Isles to Madeira and Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea. In algae, sponges, hydroids, tunicates, and coralligenous bottoms. Between 0-100 meters.

## ***Myrianida prolifera*** (O.F. Müller 1788)

*Nereis prolifera* O.F. MÜLLER, 1788: 15, pl. 52 figs. 5-9.
**TYPE LOCALITY:** Denmark.
**SYNONYMS:** *Autolytus Ehbiensis* Saint-Joseph 1887 [in part].
**SELECTED REFERENCES:** *Autolytus prolifer* — SAINT-JOSEPH, 1887: 238-240, pl. 12 figs. 118; FAUVEL, 1923*c*: 311-312, fig. 119; [?] WESENBERG-LUND, 1947: 19-24, figs. 8-9; GIDHOLM, 1967: 186-188, figs. 2*A*, 2*D*, 7*A*, 8*A*, 14*A*, 15, 18, table in page 182; HAMOND, 1969: 290, 294-297 [in part], figs. 1-2, 4.2, 5.2, 7, table 1; SCHIEDGES, 1980: 210, 212-215, 216, pl. 1 figs. 1-2 pl. 2 figs. 1-2, 6, table 1; KIRKEGAARD, 1992: 231-233, fig. 113; HARTMANN-SCHRÖDER, 1996: 184, fig. 79; PARAPAR *et al.*, 1996: 143-144, fig. 1*D*, pl. 2 figs. *C-D*; LICHER, 1999: 272, fig. 6; SAN MARTÍN, 2003: 489-492, figs. 269-270. *Myrianida prolifera* — NYGREN, 2004: 151-152, fig. 75. *Autolytus Ehbiensis* — SAINT-JOSEPH, 1887: 228-233, pl. 11 figs. 106-107, pl. 12 figs. 114-115 [in part; in part = *Myrianida brachycephala* (Marenzeller 1874)]; FAUVEL, 1923*c*: 314-315, fig. 121*i-l* [in part; in part = *Myrianida brachycephala* (Marenzeller 1874)]. Not *Autolytus prolifer* **—** COGNETTI, 1957: 62-63, table 1*b* [= ? *Myrianida edwarsi* (Saint-Joseph 1887)].
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Autolytus prolifer*; Peniche); MONTEIRO-MARQUES *et al.*, 1982 (as *Autolytus prolifer*; Cape Carvoeiro; Ponta do Baleal; Ponta do Surdão); DEXTER, 1992 (as *Autolytus prolifer*; previous records: Ria Formosa; Ria de Aveiro).
**DISTRIBUTION:** Arctic Ocean; Northeastern Atlantic, from Norway, Scotland, Faroes, and Skagerrak to the Mediterranean Sea and Adriatic Sea; Aegean Sea; Black Sea; Greenland. On algae, rhizomes, rocks and detritic bottoms. Intertidal to 120 meters. Feeds on hydroids like *Obelia geniculata* (Linnaeus 1758), *O. longissima* (Pallas 1766), *Lafoeina maxima* (Levinsen 1893), or *Lafoea* sp., to which they may be attached by strong translucent tubes.
**REMARKS:** NYGREN (2004) points the fact that preserved specimens of *Myrianida prolifera* can be confused with a number of other taxa that occur in the same area of distribution, especially with *M. edwarsi*.

NYGREN (2004) pointed that the description of *Autolytus ehbiensis* by SAINT-JOSEPH (1887), and later repeated by FAUVEL (1923*c*), refers to *Myrianida prolifera*, at least in what concerns the structure of the trepan, but also that several of the syntypes marked as *A. ehbiensis* are in fact *M. brachycephala*.

### ***Myrianida quindecimdentata*** (Langerhans 1884)

*Autolytus quindecim-dentatus* LANGERHANS, 1884: 249, pl. 15 fig. 3*a*-*b*.
**TYPE LOCALITY:** Madeira Island, in a fish basket.
**SYNONYMS:** *Autolytus lugens* Saint-Joseph 1887; *Autolytus lugens mediterraneus* Cognetti 1953; *Odontosyllis longicornis* Hartmann-Schröder 1960.
**SELECTED REFERENCES:** *Autolytus quindecimdentatus* — GIDHOLM, 1967: 195-198, figs. 2*B*, 7*F*, 12, 23*A*-*C*; BEN-ELIAHU, 1977*b*: 86-87, fig. 13; SAN MARTÍN, 2003: 494-495, figs. 272-273. *Autolytus quinquedecimdentatus* — [?] HARTMANN-SCHRÖDER, 1979*a*: 82-83, figs. 55-56; KIRKEGAARD, 1992: 233-234, fig. 114; HARTMANN-SCHRÖDER, 1996: 185-186. *Myrianida quindecimdentata* — NYGREN, 2004: 153-155, fig. 77. *Autolytus lugens* — SAINT-JOSEPH, 1887: 234-235, pl. 12 fig. 116; FAUVEL, 1923*c*: 318-319, fig. 122*g*. *Autolytus lugens lugens* — COGNETTI, 1955: 7, fig. 4*a*; COGNETTI, 1957: fig. 13*a*. *Autolytus lugens mediterraneus* — COGNETTI, 1953*d*: 123-125, fig. 1; COGNETTI, 1955: 7, fig. 4*b*; COGNETTI, 1957: 68-69, fig. 13*b*-*c*, tables 1*b*, 2. *Autolytus mediterraneus* — ÇINAR & GAMBI, 2005: 734-736, fig. 5. *Odontosyllis longicornis* — HARTMANN-SCHRÖDER, 1960*b*: 98, figs. 101-104.
**REFERENCES FOR PORTUGAL:** HARTMANN-SCHRÖDER, 1979*a* (as *Autolytus quinquedecimdentatus*; western continental shelf of Algarve); CAMPOY, 1982 (as *Autolytus quindecimdentatus*; previous records: Portuguese coast); SAN MARTÍN, 2003 (previous records: Portugal).
**DISTRIBUTION:** Northeastern Atlantic, from Scandinavia to Madeira Island; Mediterranean Sea; Adriatic Sea; Red Sea. On gravel, detritic and coralligenous bottoms. Intertidal to 150 meters.

### ***Myrianida rubropunctata*** (Grube 1860)

*Sylline rubropunctata* GRUBE, 1860: 87-88, pl. 3 fig. 8.
**TYPE LOCALITY:** Kraljevica (= Porto Ré), Croatia, Adriatic Sea.
**SYNONYMS:** *Autolytus (Proceræa) ornatus* Marion & Bobretzky 1875.
**SELECTED REFERENCES:** *Autolytus rubropunctatus* — FAUVEL, 1923*c*: 314, fig. 120*e*-*i*; COGNETTI, 1957: 66-67, table 1*b*; KIRKEGAARD, 1992: 236-238, fig. 116; HARTMANN-SCHRÖDER, 1996: 186, fig. 80; SAN MARTÍN, 2003: 486; ÇINAR & GAMBI, 2005: 738-740, fig. 7. *Myrianida rubropunctata* — NYGREN, 2004: 156-157, fig. 79. *Autolytus (Proceræa) ornatus* — MARION & BOBRETZKY *in* MARION, 1874: 399 [*nomen nudum*]; MARION & BOBRETZKY, 1875: 44-46, pl. 5 fig. 14; SAINT-JOSEPH, 1887: 220-221, pl. 10 figs. 98-99.
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Autolytus rubropunctatus*; Peniche).
**DISTRIBUTION:** Northeastern Atlantic, from North Sea to Madeira; Mediterranean Sea; Adriatic Sea. On algae, gravel and detritic bottoms. Between 0-100 meters.

## GENUS ***Neopetitia*** San Martín 2003

*Neopetitia* SAN MARTÍN, 2003: 49.
**TYPE SPECIES:** *Petitia amphophthalma* Siewing 1956.
**SYNONYMS:** *Petitia* Siewing 1955 [not *Petitia* Chitty 1857 (Mollusca)].

**KEY TO SPECIES:**

**1a.** Males with modified chaetiger 11, characterized by the presence of a modified ventral acicular chaeta and the absence of long-bladed dorsal chaetae.....***N. abadensis***
**1b.** Males without modified chaetiger 11.....***N. amphophthalma***

### ***Neopetitia abadensis*** Riera, Núñez & Brito 2007

*Neopetitia abadensis* RIERA, NÚÑEZ & BRITO, 2007: 222-223, figs. 2-3.
**TYPE LOCALITY:** Playa de los Abrigos, east coast of Tenerife (Canary Islands), 28º08'34"N, 16º26'21"W, intertidal, in well selected medium sands ($Q_{50}$ = 0.42, $S_0$ = 1.04), with 1.62% of organic matter content, and 5.64% of carbonate.

**DISTRIBUTION:** Playa de los Abrigos and Cueva de los Cerebros, Tenerife (Canary Islands), intertidal to 7 meters, in sandy bottoms.

## *Neopetitia amphophthalma* (Siewing 1955)

*Petitia amphophthalma* SIEWING, 1955: 414-425, figs. 1-8, tables 1-2.

**TYPE LOCALITY:** The type locality wasn't clearly designated by the author, but the original description was largely based on specimens collected on French sandy beaches of the Gulf of Gascony: St-Jean-de-Luz, Hossegor, Vieux-Boucau-Plage, Contis-Plage, Mimizan-Plage, and Lacanau-Ócean. In the description the species was also referred to occur in Cannes and Le Racou, on the Mediterranean Sea. In all localities it was found in the interstitial water of littoral sandy beaches, at very shallow depths.

**SELECTED REFERENCES:** *Petitia amphophthalma* — HARTMANN-SCHRÖDER, 1958: 235, pl. 37 figs. 5-7; LAUBIER, 1964*d*: 814-815; LAUBIER, 1968*b*: 588-589; LAUBIER, 1969: 427-428; HARTMANN-SCHRÖDER, 1977*b*: 56, figs. 15-16; WESTHEIDE, 1974*a*: 8-9, fig. 4; WESTHEIDE, 1974*c*: 367; DING & WESTHEIDE, 1997: 282-283, fig. 4. *Neopetitia amphophthalma* — SAN MARTÍN, 2003: 49-51, fig. 12.

**REFERENCES FOR PORTUGAL:** LAUBIER, 1969 (as *Petitia amphophthalma*; Francelos); GALHANO, 1970 (as *Petitia amphophthalma*; Francelos); CAMPOY, 1982 (as *Petitia amphophthalma*; previous records: Francelos); SAN MARTÍN, 2003 (previous records: Francelos).

**DISTRIBUTION:** French Western Atlantic coast; Portugal; Mediterranean Sea; Black Sea; Red Sea; Indian Ocean; Bahamas; Cuba; Brazil; Ivory Coast; China. Interstitial, on exposed sandy beaches. Intertidal and at low water.

**REMARKS:** So far the only record of this species in the Iberian Peninsula is from Francelos (northern Portugal), by LAUBIER (1969).

The hypothetical cosmopolitan status of *Neopetitia amphophthalma* was analyzed by SOOSTEN, SCHMIDT & WESTHEIDE (1998), with base on population genetics investigations using the RAPD-PCR method. As a result, four population clusters were find (Florida, France-Atlantic, Mediterranean, and Tenerife), and it was considered that each one of those clusters may represent different but very closely related species. WESTHEIDE & HASS-CORDES (2001) went further, and using RAPD markers and ITS2 sequences described *Petitia oculta* from Seychelles, a species phenotypically indistinguishable from *Petitia amphophthalma*, but genotypically a distinct taxonomic entity. This way, the actual distribution of the species will be quite certainly restricted in the future, probably to the Atlantic coast of France.

## GENUS *Nudisyllis* Knox & Cameron 1970

*Nudisyllis* KNOX & CAMERON, 1970: 77.

**TYPE SPECIES:** *Nudisyllis tinihekea* Knox & Cameron 1970.

**REMARKS:** The genus definition was emended by SAN MARTÍN & HUTCHINGS (2006).

### KEY TO SPECIES:

(adapted from SAN MARTÍN, LÓPEZ & AGUADO, 2009)

**1a.** Each parapodia with compound chaetae provided with bidentate blades dorsally and unidentate blades ventrally.....***N. pulligera***

**1b.** All blades of compound chaetae indistinctly bidentate, with proximal tooth reduced to a small spine.....***N. divaricata***

## *Nudisyllis divaricata* (Keferstein 1862)

*Syllis divaricata* KEFERSTEIN, 1862: 111-113, pl. 9 figs. 45-47.

**TYPE LOCALITY:** St. Vaast (Northern France).

**SYNONYMS:** *Syllis normannica* Claparède 1863.

**SELECTED REFERENCES:** *Pionosyllis divaricata* — MCINTOSH, 1908*c*: 164-166, pl. 59 fig. 12, pl. 70 fig. 7, pl. 78 figs. 17*a-b*; FAUVEL, 1923*c*: 287-288, fig. 109*f-i*; COGNETTI, 1957: 39-40, table 1*a*; CAMPOY, 1982: 337; SAN MARTÍN, 1990: 591-592, fig. 1; LICHER, 1999: 285-286; SAN MARTÍN, 2003: 85-86, fig. 34. *Nudisyllis divaricata* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1470. *Syllis normannica* — CLAPARÈDE, 1863: 40-41, pl. 13 fig. 24.

**DISTRIBUTION:** North-eastern Atlantic, from the English Channel to Madeira Island and Cape Verde Islands; Western Mediterranean Sea; Cuba. On coralligenous bottoms, among algae and in *Amphioxus*-sands. From the coast to 500 meters.

## ***Nudisyllis pulligera*** (Krohn 1852)

*Syllis pulligera* KROHN, 1852*b*: 251-253, pl. 10.
**TYPE LOCALITY:** Villefranche-sur-Mer, Mediterranean coast of France.
**SYNONYMS:** *Pionosyllis serrata* Southern 1914; *Pionosyllis confusa* Hartmann-Schröder 1960.
**SELECTED REFERENCES:** *Syllides pulliger* [sic] — CLAPARÈDE, 1864: 541-545, pl. 6 fig. 6. *Pionosyllis pulligera* — SAINT-JOSEPH, 1898: 223-224, pl. 13 fig. 1; PIERANTONI, 1905: 1-10, 1 pl.; AUGENER, 1913*b*: 221-223, text-fig. 29, pl. 2 fig. 8; SCHNEIDER, 1914: 621-627, figs. 1-4; FAUVEL, 1923*c*: 286-287, fig. 109*k-o*; COGNETTI, 1957: 38-39, tables 1*a*, 2; MARINOV, 1959*a*: 85-86, fig. 2; CAMPOY, 1982: 336-337; HARTMANN-SCHRÖDER, 1996: 162; LICHER, 1999: 286; SAN MARTÍN, 2003: 82-84, figs. 32-33. *Nudisyllis pulligera* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1471-1472. *Pionosyllis serrata* — SOUTHERN, 1914: 23-24, pl. 3 fig. 5*A-C*, pl. 4 fig. 5*D-E*; FAUVEL, 1923*c*: 286, fig. 109*a-e*; HARTMANN-SCHRÖDER, 1971*a*: 153-154; CAMPOY, 1982: 342-343; SAN MARTÍN, 1984*b*: 111-113, pl. 19. *Pionosyllis confusa* — HARTMANN-SCHRÖDER, 1960*b*: 92-93, pl. 10 figs. 81-82, pl. 11 fig. 80.
**REFERENCES FOR PORTUGAL:** [?] SALDANHA, 1974 (as *Pionosyllis pulligera?*; coast of Arrábida); CAMPOY, 1982 (as *Pionosyllis pulligera*; previous records: Arrábida); DEXTER, 1992 (as *Pionosyllis serrata*; previous records: Ria Formosa).
**DISTRIBUTION:** Northeastern Atlantic, from the North Sea and Ireland to the Mediterranean Sea; Adriatic Sea; Black Sea; Cape Verde; Red Sea; SW Australia. On algae, sponges, rocks, sand, and calcareous bottoms. Intertidal to about 200 meters, sometimes found as pelagic.

## *GENUS ***Odontosyllis*** Claparède 1863

*Odontosyllis* CLAPARÈDE, 1863: 47.
**TYPE SPECIES:** *Syllis fulgurans* Audouin & Milne-Edwards 1833.
**SYNONYMS:** [?] *Photocharis* Ehrenberg 1834; [?] *Eurymedusa* Kinberg 1865; *Umbellisyllis* M. Sars 1869; [?] *Fauvelia* Gravier 1900; *Parautolytus* Ehlers 1900; [?] *Alluaudella* Gravier 1905; [?] *Atelesyllis* Pruvot 1930; *Pharyngeovalvata* Day 1951; *Odontoautolytus* Hartmann-Schröder 1979; [?] *Synpalposyllis* Hartmann-Schröder 1983.
**REMARKS:** I propose here the possible synonymy between the genus *Fauvelia* Gravier 1900, with type species *F. martinensis* Gravier 1900, with *Odontosyllis*. According to the figures presented by GRAVIER (1900*c*) and later repeated by FAUVEL (1923*c*), the new genus and species seem to be based in a poorly conserved specimen of *Odontosyllis ctenostoma* Claparède 1868, which would have lost all its appendages, both antennae and cirri. The shape of the body, the peristomial nuchal fold covering partially the prostomium, and the shape of the chaetae and aciculae are identical to the described for *O. ctenostoma*. The only important described difference, which should be checked through the study of the type material (if still existing), or topotype material, is the absence of any trace of teeth or trepan in the anterior region of the pharynx. The similarity of *Fauvelia martinensis* with the genus *Odontosyllis* was already stated by GRAVIER (1900*c*), who approached his new species with *O. fulgurans*, stating however that the rest of the external characters, as well as the absence of the trepan in the anterior region of the pharynx, separated both taxa.

### KEY TO SPECIES:

**1a.** Blades of compound falcigers long and unidentate; pharynx extending through 1 to 1.5 segments; proventriculus extending through nearly 4 segments, with about 37-40 rows of muscle cells.....***O. gibba***
**1b.** Blades of compound falcigers short.....**2**

**2a (1b).** Compound falcigers with unidentate blades, some of them with a subdistal spine.....**3**
**2b (1b).** Compound falcigers with clearly bidentate blades.....**4**

**3a (2a).** Dorsal cirri alternating long and short, with long ones as long as the body width; proventriculus extending through about 12-13 segments.....***O. cucullata***

**3b (2a).** Dorsal cirri alternating long and short, but always shorter than the body width; pharynx extending through about 5 segments; proventriculus extending through nearly 8 segments, with about 70 rows of muscle cells.....***O. ctenostoma****

**4a (2b).** Dorsal cirri long; pharynx with 4-5 teeth, and extending through 4 segments; proventriculus extending through nearly 6 segments, with about 90-110 (?) rows of muscle cells.....***O. dugesiana***
**4b (2b).** Dorsal cirri short.....**5**

**5a (4b).** Pharynx with 6-7 teeth, and extending through 2 segments; proventriculus extending through nearly 6 segments, with about 43-45 rows of muscle cells.....***O. fulgurans****
**5b (4b).** Pharynx with a great number of teeth, on two levels, and being very short and connected with the proventriculus; proventriculus through nearly 2 segments, with about 20 rows of muscle cells.....***O. polyodonta***

## ******Odontosyllis ctenostoma* Claparède 1868

*Odontosyllis ctenostoma* CLAPARÈDE, 1868: 512, pl. 12 fig. 4.
**TYPE LOCALITY:** Gulf of Naples, Mediterranean Sea.
**SYNONYMS:** *Odontosyllis virescens* Marenzeller 1874; [?] *Fauvelia martinensis* Gravier 1900.
**SELECTED REFERENCES:** *Odontosyllis ctenostoma* — FAUVEL, 1923*c*: 277-278, fig. 104*f-l*; RIOJA, 1925*b*: 26-27, fig. 11; COGNETTI, 1957: 33-34, tables 1*a*, 2; DAY, 1967: 261, fig. 12.7*g-h*; SAN MARTÍN, 1984*b*: 97-100, pl. 15, table 3; PARAPAR *et al*., 1994*b*: 92-93; HARTMANN-SCHRÖDER, 1996: 159; NÚÑEZ & SAN MARTÍN, 1996: 203-204, fig. 1*C-E*; SAN MARTÍN, 2003: 107-109, figs. 48-49. *Odontosyllis virescens* — MARENZELLER, 1874: 447-449, pl. 4 fig. 2. [?] *Fauvelia martinensis* — GRAVIER, 1900*c*: 371-373, figs. 1-7; FAUVEL, 1923*c*: 278-279, fig. 105*a-g*.
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta Surdão); SALDANHA, 1995 (Portugal); RAVARA, 1997 (as *Fauvelia Martinensis*; off Aveiro).
**MATERIAL: FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 specimen; blades of chaetae shorter than the described in SAN MARTÍN (1984), being about 11 µm long; anterior region of pharynx not observed.
**DISTRIBUTION:** North Sea; Western Atlantic, from Ireland and English Channel to South Africa; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Canary Islands. On photophile infralittoral algae, rhizomes of *Posidonia oceanica*, intertidal mussels, hydroids, calcareous algae, on *Paramuricea clavata*, dead corals, and rocks. Intertidal to 60 meters.
**REMARKS:** For the proposed synonymy between *Fauvelia martinensis* Gravier 1900 and *O. ctenostoma*, see the *REMARKS* section under the genus *Odontosyllis*.

## ***Odontosyllis cucullata*** (McIntosh 1908)

*Syllis cucullata* MCINTOSH, 1908*c*: 191-192, pl. 60 fig. 3, pl. 70 fig. 17, pl. 79 fig. 11.
**TYPE LOCALITY:** Luccombe, Chine, Isle of Wight (English Channel), at low tide, under stones.
**SELECTED REFERENCES:** *Syllis (Typosyllis?) cucullata* — FAUVEL, 1923*c*: 267, fig. 100*a-d*. *Odontosyllis cucullata* — IMAJIMA, 1966*c*: 108-109; LICHER, 1999: 284.
**DISTRIBUTION:** Known from the type locality.

## ***Odontosyllis dugesiana*** Claparède 1864

*Odontosyllis Dugesiana* CLAPARÈDE, 1864: 557-558, pl. 8 fig. 2.
**TYPE LOCALITY:** Port-Vendres (France, Mediterranean Sea).
**SELECTED REFERENCES:** *Odontosyllis Dugesiana* — FAUVEL, 1923*c*: 275, fig. 103*a-e*; COGNETTI, 1957: 32, table 1*a*.
**DISTRIBUTION:** Port-Vendres and Gulf of Naples (Mediterranean Sea); Aegean Sea; Madeira Island. On sandy bottoms.

## ******Odontosyllis fulgurans* (Audouin & Milne-Edwards 1833)

*Syllis fulgurans* AUDOUIN & MILNE-EDWARDS, 1833*b*: 229-230.
**TYPE LOCALITY:** Mediterranean Sea, probably near Montpellier.

**SYNONYMS:** *Odontosyllis fulgurans japonica* Imajima 1966; *Odontosyllis fulgurans dolorens* Westheide 1974.

**SELECTED REFERENCES:** *Odontosyllis fulgurans* — CLAPARÈDE, 1864: 555-556, pl. 8 fig. 1; SAINT-JOSEPH, 1887: 175-176, pl. 8 figs. 41-42; MCINTOSH, 1908*c*: 178-181, pl. 49 fig. 5, pl. 59 figs. 15, 15*a-b*, pl. 70 fig. 11, pl. 79 fig. 4; FAUVEL, 1923*c*: 274-275, fig. 103*f-i*; COGNETTI, 1957: 31-32, table 1*a*; PETTIBONE, 1963*a*: 122-124, fig. 35*c*; GARDINER, 1976: 135-137, fig. 12*a-c*; SAN MARTÍN, 1984*b*: 93-97, pl. 14, table 3; KIRKEGAARD, 1992: 249-251, fig. 123; HARTMANN-SCHRÖDER, 1996: 159-160; LICHER, 1999: 284-285; SAN MARTÍN, 2003: 104-106, figs. 46-47. *Odontosyllis fulgurans fulgurans* — CAMPOY, 1982: 326-327. *Odontosyllis fulgurans japonica* — IMAJIMA, 1966*c*: 109-111, fig. 35. *Odontosyllis fulgurans dolorens* — WESTHEIDE, 1974*b*: 73-77, figs. 33-34; CAMPOY, 1982: 325-326. [?] *Odontosyllis polydonta* [not Saint-Joseph 1887] — HARRIS, 1971: 694-696, fig. 4.

**MATERIAL: FAUNA 1 — St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 1 specimen, very damaged due to its mounting on gelatinized glycerine; chaetae clearly bidentate; proventriculus much longer than pharynx. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 2 specimens. **Unknown station**, Gulf of Cádiz, associated to an Echinodermata ("*Asociado a Echinodermata*"): 1 incomplete specimen with 13 chaetigers; palps completely separated.

**DISTRIBUTION:** North Atlantic, from Massachusetts to North Carolina, and from the English Channel to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Canary Islands; Galapagos Islands; Japan; Australia. According to SAN MARTÍN (2003) it could be cosmopolitan in tropical and template seas. In photophile infralittoral algae, at shallow water, in coralligenous bottoms, under stones in intertidal pools, among calcareous algae, mussels, rhizomes of *Posidonia*, ascideans, and sponges, and on bottoms of sand and gravel. Intertidal, mesolittoral, infralittoral and circalittoral, between 0-75 meters.

## ***Odontosyllis gibba*** Claparède 1863

*Odontosyllis gibba* CLAPARÈDE, 1863: 47-48, pl. 12 figs. 7-8.

**TYPE LOCALITY:** Near St. Vaaste la Hougue (Normandie, Northern France), in rocky pools.

**SYNONYMS:** *Syllis brevicornis* Grube 1863; [?] *Umbellisyllis fasciata* M. SARS 1869; *Odontosyllis gibba* var. *robertianae* McIntosh 1908; *Odontosyllis freycinetensis* Augener 1913.

**SELECTED REFERENCES:** *Odontosyllis gibba* — SAINT-JOSEPH, 1887: 173-174, pl. 8 fig. 40; FAUVEL, 1923*c*: 275-276, fig. 104*a-e*; COGNETTI, 1957: 32-33, table 1*a*; DAY, 1967: 261, fig. 12.7*e-f*; CAMPOY, 1982: 324-325; SAN MARTÍN, 1984*b*: 91-93, pl. 13, table 3; HARTMANN-SCHRÖDER, 1996: 160; LICHER, 1999: 285; SAN MARTÍN, 2003: 102-104, figs. 44-45. *Odontosyllis gibba* var. *robertianae* — MCINTOSH, 1908*c*: 183. *Syllis brevicornis* — GRUBE, 1863: 44-45, pl. 4 fig. 7. *Odontosyllis brevicornis* — MARENZELLER, 1875: 160-164, pl. 4 fig. 1. *Odontosyllis freycinetensis* — AUGENER, 1913*b*: 234-236, text-fig. 33, pl. 2 fig. 33. [?] *Umbellisyllis fasciata* — M. SARS, 1869: 254 [*nomen nudum*].

**DISTRIBUTION:** North-eastern Atlantic, from Scandinavia to the Mediterranean Sea; Adriatic Sea; Aegean Sea; South Africa; Mozambique; North Pacific. On algae, rhizomes, hydroids, *Amphioxus*-sand, maërl, calcareous algae, muddy sand, and detritic bottoms. Infralittoral to 70 meters.

**REMARKS:** According to NYGREN (2004), *Umbellisyllis fasciata* M. Sars 1869 is a member of *Odontosyllis*, possibly close to *O. gibba* Claparède 1863.

## ***Odontosyllis polyodonta*** Saint-Joseph 1887

*Odontosyllis polyodonta* SAINT-JOSEPH, 1887: 178-179, pl. 8 figs. 43-50.

**TYPE LOCALITY:** Coast of Dinard (English Channel, Northern France).

**SELECTED REFERENCES:** *Odontosyllis polyodonta* — FAUVEL, 1923*c*: 276-277, fig. 103*k-n*; COGNETTI, 1961*b*: 297; CAMPOY, 1982: 329-331.

**DISTRIBUTION:** North-eastern Atlantic, from the English Channel to the Gulf of Vizcaya. On algae, sand and gravel. Infralittoral to epibathyal.

## *GENUS ***Opisthodonta*** Langerhans 1879

*Opisthodonta* LANGERHANS, 1879: 547.

**TYPE SPECIES:** *Opisthodonta morena* Langerhans 1879.

**KEY TO SPECIES:**
(adapted from SAN MARTÍN, LÓPEZ & AGUADO, 2009)

**1a.** Some blades of compound chaetae with a tendon connecting proximal tooth, which is always very curved downwards, with blade edge; pharyngeal tooth located near anterior margin of pharynx.....**2**
**1b.** Blades without such tendon; pharyngeal tooth located distinctly back from anterior margin.....***O. morena****

**2a (1a).** Blades of compound chaetae from midbody with distal tooth indistint or non-existent.....***O. longocirrata***
**2b (1a).** Blades with distal tooth, smaller than subdistal one.....***O. serratisetosa***

## ***Opisthodonta longocirrata*** (Saint-Joseph 1887)

*Pionosyllis longocirrata* SAINT-JOSEPH, 1887: 160-163, pl. 8 figs. 24-29.
**TYPE LOCALITY:** Coast of Dinard (English Channel, Northern France), among old shells, between 8-15 meters, and also among rhizomes of laminarians at the coast, near the signpost ("*balise*") of Rochardien.
**SYNONYMS:** *Pionosyllis morenoae* San Martín 1984.
**SELECTED REFERENCES:** *Pionosyllis longocirrata* — FAUVEL, 1923*c*: 288, fig. 110*h-l*; COGNETTI, 1957: 40-41, table 1*a*; DAY, 1967: 264, fig. 12.8.*l-m*; SAN MARTÍN, 2003: 86-89, figs. 35-36. *Opisthodonta longocirrata* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1473. *Pionosyllis morenoae* — SAN MARTÍN, 1984*b*: 109-111, pl. 18, photo 17; NÚÑEZ & SAN MARTÍN, 1996: 211, fig. 4*N-Q*. *Pionosyllis divaricata* [not Keferstein 1862] — HASWELL, 1920: 104-105, pl. 13 figs. 2-3. [?] *Pionosyllis* sp. — CAMPOY, 1982: 343-344, pl. 27 figs. *j-p*.
**DISTRIBUTION:** Northeastern Atlantic, from the English Channel to the Mediterranean Sea; Canary Islands; South Africa; Australia. Bottoms with shells and laminarians, harbours, meadows of *Posidonia oceanica*, infralittoral algae, coralligenous bottoms, pools with algae and sediment, caves, sand with stones and rocks. Intertidal to 135 meters.

## ****Opisthodonta morena*** Langerhans 1879

*Opisthodonta morena* LANGERHANS, 1879: 547, pl. 32 fig. 12.
**TYPE LOCALITY:** Madeira Island.
**SELECTED REFERENCES:** *Opisthodonta morena* — PÉRÈS, 1954: 107-108, figs. 3-6; LAUBIER, 1966*a*: 249; STORCH, 1966: 173-174, pl. 1 fig. 2; LAUBIER, 1968*a*: 99, fig. 10*D*; HARTMANN-SCHRÖDER, 1971*c*: 100-104, figs. 1-3; HARTMANN-SCHRÖDER, 1977*a*: 86; HARTMANN-SCHRÖDER, 1979*a*: 80; CAMPOY, 1982: 307-308; BARATECH & SAN MARTÍN, 1987: 44-45, fig. 6; NÚÑEZ & SAN MARTÍN, 1996: 206-207, fig. 3*A-C*; SAN MARTÍN, 2003: 54-57, figs. 15-16; SAN MARTÍN & HUTCHINGS, 2006: 306-308, figs. 40-41, 42*A-B*; SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1474.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro); GIL & SARDÁ, 1999 (southwestern continental shelf); SAN MARTÍN, 2003 (previous records: Portugal); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: southwestern coast of Portugal); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 6 — St. 54 (A.2547)**, off Praia do Amado, 58 m, sand and rock: 1 complete specimen, antennae lost; pharynx everted.
**DISTRIBUTION:** Madeira Island; Canary Islands; Gorringe and Josephine Banks; Mediterranean Sea; Red Sea; Australia (New South Wales, Western Australia). Coralligenous and detritic bottoms. Intertidal to 240 meters.

## ***Opisthodonta serratisetosa*** (López, San Martín & Jiménez 1997)

*Pionosyllis serratisetosa* LÓPEZ, SAN MARTÍN & JIMÉNEZ, 1997: 293-296, fig. 1.
**TYPE LOCALITY:** Congreso Island (Chafarinas Islands, Western Mediterranean), on *Udotea petiolata*, at 25 meters.
**SELECTED REFERENCES:** *Pionosyllis* sp. — BARATECH & SAN MARTÍN, 1987: 44 figs. 4-5; [?] PARAPAR *et al*., 1994*b*: 93-94, fig. 1*D-E*. *Pionosyllis serratisetosa* — SAN MARTÍN, 2003: 89-92, figs. 37-38. *Opisthodonta serratisetosa* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1475.
**DISTRIBUTION:** Western Mediterranean Sea (Chafarinas Islands; Alborán Sea); [?] Ría de Ferrol and Galicia Bank (Galicia, NW Spain); Cyprus (Eastern Mediterranean Sea). Among anthozoans (*Corallium rubrum*, *Cladocora caespitosa*, *Madrepora oculata*), photophile and sciaphile algae, seagrass meadows, and in muddy and sandy bottoms. Between 1-300 meters, but recorded to occur at the Galicia Bank down to 760 meters (SAN MARTÍN, 2003).

## GENUS *Opisthosyllis* Langerhans 1879

*Opisthosyllis* LANGERHANS, 1879: 541.
**TYPE SPECIES:** *Opisthosyllis brunnea* Langerhans 1879.

**KEY TO SPECIES:**

**1a.** Dorsum covered with numerous spherical papillae.....***O. viridis***
**1b.** Dorsum smooth, without papillae.....***O. brunnea***

### *Opisthosyllis brunnea* Langerhans 1879

*Opisthosyllis brunnea* LANGERHANS, 1879: 541-543, pl. 31 fig. 7.
**TYPE LOCALITY:** Madeira Island, among algae in littoral rocks.
**SELECTED REFERENCES:** *Opisthosyllis brunnea* — FAUVEL, 1914*f*: 103; AUGENER, 1918: 274-276, text-fig. 25; FAUVEL, 1953*c*: 155-156, fig. 78; FAUVEL, 1955: 109; TEBBLE, 1955: 90-91, fig. 5*d-e*; DAY, 1967: 253, fig. 12.5.*c-e*; CANTONE, 1976: 229-230, figs. 2-3; SAN MARTÍN, 1984*b*: 311-315, pls. 75-76; NÚÑEZ, 1990: 374-376, fig. 116; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 115, figs. 2*I*, 3*C-E*; SAN MARTÍN, 2003: 330-331, fig. 183. Not *Opisthosyllis brunnea* — IMAJIMA, 1966*d*. 230, fig. 42.
**DISTRIBUTION:** Circumtropical: Madeira and Canary Islands; Azores; Mediterranean Sea; West coast of Africa; South Africa; Red Sea; Somalia; Mozambique; Indian Ocean. Among algae, vermetids, or sponges. Intertidal to 130 meters.

### *Opisthosyllis viridis* Langerhans 1879

*Opisthosyllis viridis* LANGERHANS, 1879: 543, pl. 31 fig. 9.
**TYPE LOCALITY:** Madeira Island, among intertidal vegetation.
**SELECTED REFERENCES:** *Opisthosyllis viridis* — MONRO, 1939*b*: 390, fig. 301*a-b*; IMAJIMA, 1966*d*: 224-226, fig. 39; NÚÑEZ, 1990: 372-374, fig. 115; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 115, fig. 3*A-B*; LÓPEZ & SAN MARTÍN, 1994: 130-132, fig. 1.
**DISTRIBUTION:** Madeira Island; Canary Islands; Cape Verde Islands; Marquesas Islands; Japan. Can occur as endobiont of *Verongia aerophoba*. Intertidal to about 2 meters.

## GENUS *Palposyllis* Hartmann-Schröder 1977

*Palposyllis* HARTMANN-SCHRÖDER, 1977*a*: 86-87.
**TYPE SPECIES:** *Palposyllis prosostoma* Hartmann-Schröder 1977.

### *Palposyllis prosostoma* Hartmann-Schröder 1977

*Palposyllis prosostoma* HARTMANN-SCHRÖDER, 1977*a*: 87, figs. 41-43.
**TYPE LOCALITY:** Gorringe Bank, , 36º42.1'N, 11º09.0'W, at 72 meters.
**SYNONYMS:** *Pionosyllis prope-weismanni* Dauvin & Lee 1983.
**SELECTED REFERENCES:** *Palposyllis prosostoma* — SAN MARTÍN & AGUIRREZABALAGA, 1988: 30-31, fig. 1; SAN MARTÍN, 2003: 57-61, figs. 17-18; RAVARA, SAN MARTÍN & MOREIRA, 2004: 8. *Pionosyllis prope-weismanni* — DAUVIN & LEE, 1983: 129-133, fig. 1.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Pionosyllis prope-weissmanni*; off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro).
**DISTRIBUTION:** From Bretagne (France) to Portugal, and Canary Islands; Sicily. On coarse sand, between 25-75 meters, or muddy sand, between 176-200 meters.

## *GENUS *Paraehlersia* San Martín 2003

*Paraehlersia* SAN MARTÍN, 2003: 61.
**TYPE SPECIES:** *Ehlersia ferrugina* Langerhans 1881.

## **Paraehlersia ferrugina* (Langerhans 1881)

*Ehlersia ferrugina* LANGERHANS, 1881: 104-105, pl. 4 fig. 10.

**TYPE LOCALITY:** Canary Islands.

**SELECTED REFERENCES:** *Ehlersia ferrugina* — LAUBIER, 1966*a*: 249; LAUBIER, 1968*a*: 85-88, fig. 3; SAN MARTÍN, 1984*b*: 306-310, pls. 73-74; NÚÑEZ & SAN MARTÍN, 1996: 207-208, fig. 3*D-I*. *Syllis (Ehlersia) ferrugina* — SOUTHERN, 1914: 38-39; FAUVEL, 1923*c*: 269, fig. 100*k-u*. *Langerhansia ferrugina* — BEN-ELIAHU, 1977*a*: 44, fig. 17; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 76, fig. 17; CAMPOY, 1982: 400-404, pl. 44. *Syllis (Langerhansia) ferrugina* — DAY, 1967: 244, fig. 12.2.*o-r*; DAY, 1973: 29, fig. 4*n-q*; GARDINER, 1976: 140, fig. 12*t-u*. *Paraehlersia ferrugina* — SAN MARTÍN, 2003: 61-65, figs. 19-21; SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1478-1479.

**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (as *Ehlersia ferrugina*; Peniche); MONTEIRO-MARQUES *et al.*, 1982 (as *Ehlersia ferrugina*; Ponta do Baleal); QUINTINO & GENTIL, 1987 (as *Elhersia ferruginea*; Lagoon of Albufeira); MONTEIRO-MARQUES, 1987 (as *Syllis (Ehlersia) ferrugina*; continental shelf of Algarve); DEXTER, 1992 (as *Syllis (Ehlersia) ferrugina*; previous records: continental shelf of Algarve); RAVARA, 1997 (as *Langerhansia ferrugina*; off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: continental shelf of Algarve; Lagoon of Albufeira; Lagoon of Óbidos; Peniche); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 223 (A.3894)**, off Porto Covo, 38 m, schists: 1 specimen, in poor condition, without any cirri or antennae. **FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 1 specimen. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 2 specimens; one incomplete, with 22 chaetigers, the second specimen very coiled. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 7 specimens, plus one posterior fragment with pygidium.

**DISTRIBUTION:** Cosmopolitan, in template and tropical seas. Northeastern Atlantic, from Ireland to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Canary Islands; Red Sea; West and South Africa; North Carolina; Japan. On algae, *Posidonia*, rocks, coralligenous and sandy bottoms. Intertidal to 130 meters.

## *GENUS *Parapionosyllis* Fauvel 1923

*Parapionosyllis* FAUVEL, 1923*c*: 289-290.

**TYPE SPECIES:** *Pionosyllis gestans* Pierantoni 1903.

**REMARKS:** In my opinion the definition of some of the European species of *Parapionosyllis* is confused, and need to be revised in detail. Whenever possible this revision should be done with base on material, alive if possible, collected at the Gulf of Naples (Italy), from where some of the older species in the genus were described, including the type species. The actual taxonomy of the group is mainly based on the relative lengths of the blades of the compound chaetae, a character that was in many cases ill-defined by PIERANTONI (1903*a*). For this reason, the actual taxonomy of the genus is largely dependent on the drawings given by COGNETTI (1965), and following Cognetti's interpretation of the species, as well as in the interpretation that different authors have made of these drawings. The type material of Pierantoni's species are apparently lost, which difficults even more the task of defining the *Parapionosyllis* species. Besides, there is no evidence that COGNETTI (1965) based his drawings in Pierantoni's material, and apparently some errors in the interpretation of the species were introduced with these drawings.

In spite of these problems, the following key is adapted from SAN MARTÍN (2003). The identification of certain specimens is subject to intraspecific variation and its interpretation. This is the case of *Parapionosyllis elegans* and *P. gestans*, as defined here.

**KEY TO SPECIES:**
(adapted from SAN MARTÍN, 2003)

**1a.** All compound chaetae with very short blades (about 7 µm long), of about the same size.....***P. labronica****

**1b.** Compound chaetae with blades of different sizes, some clearly longer than the others.....**2**

**2a (1b).** Chaetae with long blades, the longer ones in each parapodium having more than 3 times the length of the shorter blades (up to 45-55 µm against 13 µm long in the middle of the body).....**3**

**2b (1b).** Chaetae with shorter blades.....**4**

**3a (2a).** Tentacular segment with an occipital protuberance covering partially the prostomium; longer blades in each parapodium have more than 3 times the length of the shorter blades (up to 45 µm long against 13 µm in the midbody); parapodial glands with fibrilar and granular material; serrations of blades short and straight; dorsal simple chaetae with similar spines on its margin.....***P.* cf. *brevicirra****
**3b (2a).** Tentacular segment reduced, without an occipital protuberance covering the prostomium; longer blades in each parapodium have more than 4 times the length of the shorter blades (up to 55 µm long against 10 µm in the midbody); parapodial glands only with granular material; compound chaetae, especially the long bladed ones, with very long, upwardly extending serrations on the margins; dorsal simple chaetae with spines of different sizes on its margin.....***P. macaronesiensis***

**4a (2b).** Blades of the dorsalmost chaetae of each parapodium only twice longer than the length of the shorter blades, and with long spines at the cutting margin.....***P. elegans****
**4b (2b).** Blades of the dorsalmost chaeta of each parapodium more than twice longer than the length of the shorter blade (and ventralmost).....**5**

**5a (3b).** Blade of the dorsalmost chaeta of each parapodium clearly longer than the rest, about 3 times longer than the length of the blade of the ventralmost chaeta.....***P. minuta***
**5b (3b).** Blade of the dorsalmost chaeta of each parapodium longer than the rest, but the size decreasing is gradual and homogenous (difference of about 3 µm between the most dorsal and the following one).....***P. gestans****

## ******Parapionosyllis* cf. *brevicirra*** Day 1954

*Parapionosyllis brevicirra* DAY, 1954: 16, fig. 2*j-o*.

**TYPE LOCALITY:** Nightingale Island (Tristan da Cunha, South Atlantic), 20-40 meters.

**SELECTED REFERENCES:** [?] *Parapionosyllis brevicirra* — HARTMANN-SCHRÖDER, 1962*b*: 98-99, figs. 81-83; ALÓS, SAN MARTÍN & SARDÁ, 1983: 289-292, fig. 3; SAN MARTÍN, 1984*b*: 186-191, pls. 39-40, photo. 18; SAN MARTÍN, 2003: 281-285, figs. 153-155. [?] *Parapionosyllis* sp. — SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 68-69, fig. 9.

**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 172 specimens, plus 6 fragments, some with pygidium; 2 females with eggs attached ventrally; 1 specimen with juveniles attached ventrally; 1 specimen with the anterior region apparently regenerating, prostomium not present; 2 mature females, full of ovulae; 2 specimens with natatorial chaetae from chaetiger 11; 1 male stolon, without proventriculus, prostomium poorly defined, natatorial chaetae from chaetiger 2. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 2 specimens; blades of chaetae 25-30 µm long; occipital protuberance not seen; rest of characters like the described by SAN MARTÍN (1984*b*). **St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse gravel: 1 specimen in poor condittion; proventriculus through 4 chaetigers, instead of 2. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 3 specimens; proventriculus through 3-4 chaetigers. **St. 42*A***, Alborán Sea, NE La Linea de la Concepción, 86-87 m, coastal detritic: 1 specimen; chaetae longer in the anterior region of the body, diminishing progressivelly along the whole body; prostomium through 4 chaetigers. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 4 specimens. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 1 specimen; proventriculus slightly longer than the described. **St. 76*A***, Gulf of Cádiz, off Isla Cristina, 535-546 m, muddy sand: 1 specimen in poor condition; natatorial chaetae from chaetiger 13.

**DISTRIBUTION:** Nightingale Island (Tristan da Cunha), 20-40 meters; [?] Magellan Strait and Patagonian coast of Chile; [?] Mediterranean Sea; [?] Aegean Sea. [?] On rhizomes of *Posidonia* and sand. [?] Between 3-546 meters.

**REMARKS:** *Parapionosyllis brevicirra* was described with base on a single specimen, incomplete posteriorly, collected at Tristan da Cunha (South Atlantic). The species was described as lacking parapodial glands (or at least they were not seen), as having the tentacular segment partially fused with the first chaetiger, and as having each parapodium with "*about 5 compound, unidentate, falcigerous setae of which the superior one is long bladed* [...] *while the rest have shorter and shorter blades until the most inferior* [...] *has a blade one third the length of the superior one*" (DAY, 1954: 16).

ALÓS, SAN MARTÍN & SARDÁ (1983), and SAN MARTÍN (1984*b*) identified as *Parapionosyllis brevicirra* a series of specimens collected at the Balearic Islands, characterized by having the dorsalmost chaetae very large (up to 45 µm long) and an occipital protuberance that covers partially the prostomium. Besides, the species is also described as having two types of parapodial glands: some with golden fibrilar material and the other with dark red granular material. However, I do not think that it is possible to

identify the Mediterranean specimens as *P. brevicirra* without studying directly the type material of this species. DAY (1954) doesn't refer any measurements for the species, including the chaetae, so it is not possible to be sure that *P. brevicirra* do present dorsal compound chaetae up to 45 µm long, or how these chaetae change along the bundle (if there is one single long chaetae, or if the length changes gradually). Besides, the presence of an occipital protuberance that covers the prostomium can also be a matter of discussion. It is not a strict occipital lap as appearing in other species of syllids, as in *Odontosyllis*, but appears as the overlapping of the tentacular segment over the prostomium. This could be the result of the state of contraction of the worms, and not a real structure with taxonomic value. Besides, in Day's description nothing is said about such protuberance, and its presence or absence in the species can depend on the interpretation of the giving drawing (DAY, 1954: fig. 2*j*). However, it is possible that when fixed this species shows a tendency to contract in a bigger degree than other species. In what concerns the presence or absence of the parapodial glands, I agree in that it seems a variable character, like stated by ALÓS, SAN MARTÍN & SARDÁ (1983).

This way, the presence of *Parapionosyllis brevicirra* in the European waters is here considered as doubtful, until a confirmation with base on type material is done, and the European species are here referred as *Parapionosyllis* cf. *brevicirra*.

## ****Parapionosyllis elegans*** (Pierantoni 1903)

*Pionosyllis elegans* PIERANTONI, 1903*a*: 236-237, pl. 10 fig. 2, pl. 11 fig. 27.

**TYPE LOCALITY:** Gulf of Naples, in sand rich in organic debris, at 3-4 meters.

**SELECTED REFERENCES:** *Parapionosyllis elegans* — COGNETTI, 1957: 45, table 1*a*; COGNETTI, 1965: 68, fig. 2*c*; CAMPOY, 1982: 270-271; SAN MARTÍN, 1984*b*: 194-198, pls. 42-43; SAN MARTÍN, 2003: 285-288, figs. 156-157.

**REFERENCES FOR PORTUGAL:** [?] MONTEIRO-MARQUES, 1987 (as *?Parapionosyllis elegans*; continental shelf of Algarve); [?] DEXTER, 1992 (as *Parapionosyllis elegans?*; previous records: continental shelf of Algarve).

**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 1 specimen, very damaged due to its mounting on gelatinized glycerine.

**DISTRIBUTION:** Mediterranean Sea; Gulf of Biscay; Galicia. In sandy bottoms, sometimes rich in organic detritus. Intertidal to about 10 meters.

## ****Parapionosyllis gestans*** (Pierantoni 1903)

*Pionosyllis gestans* PIERANTONI, 1903*a*: 237-238, pl. 10 fig. 1, pl. 11 figs. 22-24, 26.

**TYPE LOCALITY:** Gulf of Naples, in sand rich in organic debris, at 3-4 meters.

**SYNONYMS:** [?] *Pionosyllis papillosa* Pierantoni 1903; [?] *Parapionosyllis cabezali* Parapar, San Martín & Moreira 2000.

**SELECTED REFERENCES:** *Parapionosyllis gestans* — FAUVEL, 1923*c*: 290, fig. 111*a-b*; COGNETTI, 1957: 43-44, tables 1*a*, 2; COGNETTI, 1965: 66, fig. 2*B*. [?] *Parapionosyllis* cf. *gestans* — CAMPOY, 1982: 267-269, pl. 18; PARAPAR *et al.*, 1994*b*: 96-97, fig. 2. [?] *Pionosyllis papillosa* — PIERANTONI, 1903: 238, pl. 10 fig. 3, pl. 11 fig. 25. [?] *Parapionosyllis papillosa* — FAUVEL, 1923*c*: 290-291, fig. 111*c*; COGNETTI, 1957: 44, table 1*a*; CAMPOY, 1982: 266-267; SAN MARTÍN, 2003: 278. [?] *Parapionosyllis cabezali* — PARAPAR, SAN MARTÍN & MOREIRA, 2000: 527-531, figs. 1-2; SAN MARTÍN, 2003: 291-293, figs. 160-161; RAVARA, SAN MARTÍN & MOREIRA, 2004: 7.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Ria Formosa); [?] RAVARA, 1997 (as *Parapionosyllis* cf. *gestans*; off Aveiro); [?] GIL & SARDÁ, 1999 (as *Parapionosyllis* cf. *gestans*; southwestern continental shelf); RAVARA, SAN MARTÍN & MOREIRA, 2004 (as *Parapionosyllis cabezali*; off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 43 (A.4064)**, north Sines, 39 m, sand: 1 specimen.

**DISTRIBUTION:** Portugal; Mediterranean Sea; Aegean Sea. On sandy bottoms, between 3-40 meters. [?] Along the Atlantic coast of Iberian Peninsula: Bay of Biscay, Galicia (Ría de Ferrol, Ría de Baiona), Huelva (Punta Umbría); in sublittoral muddy sand, medium sand, and coarse sand, between 8-70 meters.

**REMARKS:** SAN MARTÍN (2003) suggests that the characteristic papillae of *Parapionosyllis papillosa* (Pierantoni 1903) are some kind of parasites, attached to the surface of the body wall of the specimens, and that the rest of the characters of the species fit *Parapionosyllis minuta*. I agree partially with this view, and in my opinion these "papillae" are symbiontic Ciliata (Protozoa). However, the species pictured by Pierantoni seems more close to *Parapionosyllis gestans* than to *Parapionosyllis minuta*, as already stated by PIERANTONI (1903*a*) in the original description. Though, if *P. papillosa* and *P. minuta* are shown to represent the same taxon, the name *Parapionosyllis papillosa* would have priority over *P.*

*minuta*, due to the pagination number where the species were published. CAMPOY (1982) identified as *P. papillosa* 3 specimens collected from 2 stations at Aguilas (Murcia, Mediterranean coast of Spain), stating that the external morphology of these specimens was close to *P. minuta*. These are quite probably specimens of *P. minuta*, a species that is also present at the same two stations, with the same kind of external symbiotic Ciliata than the ones from the original description of *P. papillosa*. A definitive statement on the validity of *P. papillosa*, and especially on its synonymy, would require the study of the type material, is extant. Otherwise, *P. papillosa* could be considered as an indeterminable species.

*Parapionosyllis gestans* was first recorded in Portuguese waters by SANTOS *et al. in* DEXTER (1992). However, it is not clear if the Iberian species (from the Atlantic and Mediterranean) is the same than the one described by PIERANTONI (1903*a*) from the Gulf of Naples. FAUVEL (1923*c*) referred that all the falcigers of *P. gestans* had the same length, while COGNETTI (1965) represented a bundle of four chaetae, which show very (if any) little gradation. CAMPOY (1982) was the first to notice that the falcigers of Iberian the specimens clearly presented a homogeneous and progressive dorso-ventral gradation, in opposition to COGNETTI's drawings (*op. cit.*), but he also said that it could be due to the fact that only four chaetae were represented in Cognetti's work, which could be not representative. PARAPAR *et al.* (1994*b*) and PARAPAR, SAN MARTÍN & MOREIRA (2000) argued that the drawing is representative of the chaetae present in the species, as the same author also represented only four chaetae of other *Parapionosyllis* species, clearly showing the differences between them, when differences occurred.

In spite of the fact that only one compound chaetae was drawn in PIERANTONI's work (1903*a*), he mentioned the presence of chaetae of different lengths: "*Le setole composte di ciascun fascio hanno l'articolo mobile allungatissimo, con dentatura molto pronunziata. (...) Altre setole composte di ciascun fascio hanno l'articolo mobile più corto, ma di egual forma.*" (PIERANTONI, 1903*a*: 237). By considering all falcigers to have the same length on the basis of Pierantoni's drawing, it appears that FAUVEL (1923*c*) committed an error, as well as COGNETTI (1965). In my opinion, the Iberian species is probably the same than the described by Pierantoni from the Gulf of Naples.

However, PARAPAR, SAN MARTÍN & MOREIRA (2000) finally described the Iberian specimens previously identified as *P.* cf. *gestans*, as a new species, namely *P. cabezali*, with type locality at Ría de Baiona (Galicia, NW Spain), on medium and coarse sand, at 9-12 meters. The erection of the new species was justified by two main differences found by these authors, between the Iberian specimens and the available descriptions of *P. gestans*. The first was the difference found in the length of the falcigers, already discussed above. The second, was the presence of numerous and conspicuous parapodial glands, of two kinds and different in size, which were not described in the Mediterranean species. As stated by PARAPAR, SAN MARTÍN & MOREIRA (2000), the type material of *P. gestans* is apparently lost.

A comparison between specimens from both type localities (Galicia and Gulf of Naples) is desirable, in order to state if the two species are valid or synonymous. For the moment, I refer the Portuguese specimens to *P. gestans*, and consider *P. cabezali* as a possible junior synonym of the same species.

## ****Parapionosyllis labronica*** Cognetti 1965

*Parapionosyllis labronica* COGNETTI, 1965: 68, fig. 2*d*.

**TYPE LOCALITY:** Meloria Islet (Ligurian Sea, about 4 miles off Livorno, Italy), in coarse sand areas rich in detritus, located between "*secche*", at a depth of 1 meter. The "*secche*" of Meloria are shallow water rocky platforms covered mainly by algae, but also with fine and coarse sand and *Posidonia*, and raising from a muddy bottom located at a depth of 10 meters. In the central part of the "*secche*" the bottom can be located between 2-5 meters, but in some points it can emerge from the sea surface.

**SELECTED REFERENCES:** *Parapionosyllis labronica* — CAMPOY, 1982: 269-270; SAN MARTÍN, 1984*b*: 191-194, pl. 41; SAN MARTÍN, 2003: 278-281, figs. 151-152.

**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 8 specimens, plus one posterior fragment; proventriculus through 2 chaetigers; one of the specimens without cirri on chaetiger 2, probably lost. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 1 specimen; natatorial chaetae from chaetiger 17. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 1 complete specimen. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 1 specimen.

**DISTRIBUTION:** Mediterranean Sea; Galicia; Canary Islands. On sand, at the superior infralittoral.

## ***Parapionosyllis macaronesiensis*** Brito, Núñez & San Martín 2000

*Parapionosyllis macaronesiensis* BRITO, NÚÑEZ & SAN MARTÍN, 2000: 1147-1150, fig. 1.

**TYPE LOCALITY:** Arrecife de Lanzarote (Canary Islands).

**SELECTED REFERENCES:** *Parapionosyllis* sp. (juvenile specimens) — NÚÑEZ *et al.*, 1995: 6.
**DISTRIBUTION:** Central East Atlantic: Canary Islands (Lanzarote, Tenerife); Madeira Island; Selvagens Islands. In sandy areas without vegetation, as well as within beds of the seagrass *Cymodocea nodosa*. Between 4-18 meters.

### ***Parapionosyllis minuta*** (Pierantoni 1903)

*Pionosyllis minuta* PIERANTONI, 1903*a*: 239, pl. 10 fig. 5.
**TYPE LOCALITY:** Gulf of Naples, in sand rich in organic debris, at 3-4 meters.
**SELECTED REFERENCES:** *Parapionosyllis minuta* — FAUVEL, 1923*c*: 292, fig. 111*f*; COGNETTI, 1957: 45-46, table 1*a*; COGNETTI, 1965: 66, fig. 2*a*; HARRIS, 1971: 696-697, fig. 5; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 68, fig. 8; CAMPOY, 1982: 263-266, pl. 17; SAN MARTÍN, 1984*b*: 198-201, pl. 44, photo 1; SAN MARTÍN, 2003: 288-291, figs. 158-159.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Ria Formosa); MUCHA & COSTA, 1999 (Ria de Aveiro and/or Sado Estuary).
**DISTRIBUTION:** Mediterranean Sea; Northeastern Atlantic, from Roscoff to Galicia; [?] North Carolina. In sandy bottoms, and also in rhizomes of *Posidonia* and inside sponges. Intertidal to about 5 meters.

## GENUS ***Paraprocerastea*** San Martín & Alós 1989

*Paraprocerastea* SAN MARTÍN & ALÓS, 1989: 872-874.
**TYPE SPECIES:** *Paraprocerastea crocantinae* San Martín & Alós 1989.

### ***Paraprocerastea crocantinae*** San Martín & Alós 1989

*Paraprocerastea crocantinae* SAN MARTÍN & ALÓS, 1989: 874, fig. 1.
**TYPE LOCALITY:** Cabo de Creus, Cala Taballera (Girona, Spain), on calcareous concretions of *Mesophyllum lichenoides* and *Lithophyllum expansum*, at 12 meters.
**SELECTED REFERENCES:** *Paraprocerastea crocantinae* — SAN MARTÍN, 2003: 458-460, fig. 251; NYGREN, 2004: 99-100, fig. 44.
**DISTRIBUTION:** Mediterranean coast of Spain (Girona and Almeria); Aegean Sea. Amongst calcareous concretions of *Mesophyllum lichenoides* and *Lithophyllum expansum*, and rhizomes of *Posidonia oceanica*. Between 3-20 meters.

## GENUS ***Parasphaerosyllis*** Monro 1937

*Parasphærosyllis* MONRO, 1937*c*: 273-275.
**TYPE SPECIES:** *Parasphaerosyllis indica* Monro 1937.

### ***Parasphaerosyllis indica*** Monro 1937

*Parasphærosyllis indica* MONRO, 1937*c*: 273-275, fig. 8.
**TYPE LOCALITY:** South Arabian Coast, 13.5 meters.
**SYNONYMS:** *Parasphaerosyllis ezoensis* Imajima & Hartman 1964.
**SELECTED REFERENCES:** *Parasphaerosyllis indica* — FAUVEL, 1953*c*: 162, fig. 80c-*d*; RIOJA, 1958: 246-251, figs. 21-27; HARTMANN-SCHRÖDER, 1960*b*: 84, pl. 6 fig. 50; RULLIER, 1964: 165-166, fig. 11; HARTMANN-SCHRÖDER, 1974*a*: 123; WESTHEIDE, 1974*b*: 64-67, figs. 27-29; NÚÑEZ, 1990: 367, fig. 113; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 115, fig. 2*G*; SAN MARTÍN, HUTCHINGS & AGUADO, 2008: 146-147, figs. 19*E-F*, 22, 24*A-B*. *Parasphaerosyllis ezoensis* — IMAJIMA & HARTMAN, 1964: 120-122, pl. 28 figs. *a-h*.
**DISTRIBUTION:** Circumtropical: Arabian Sea; Red Sea; Canary Islands; Cape Verde; East and West Africa; Annam; South Australia; Marshall Islands; Japan; Galapagos Islands. On rocky and coralligenous bottoms; also among *Thalassodendron*. Intertidal to 40 meters.

## GENUS *Perkinsyllis* San Martín, López & Aguado 2009

*Perkinsyllis* SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1479.
**TYPE SPECIES:** *Pionosyllis longisetosa* Hartmann-Schröder 1965.

**KEY TO SPECIES:**
(adapted from SAN MARTÍN, LÓPEZ & AGUADO, 2009)

**1a.** Falcigers of the midbody provided with a double curvature in the convex side, especially visible in the basal region of the falciger, giving it a falciform look.....***P. anophthalma***
**1b.** Falcigers of compound chaetae with "normal" curvature.....***P. spinisetosa***

### *Perkinsyllis anophthalma* (Capaccioni & San Martín 1989)

*Pionosyllis anophthalma* CAPACCIONI & SAN MARTÍN, 1989: 41-44, figs. 1-3.
**TYPE LOCALITY:** Near the peninsula of La Baña, at the Alfaques Inlet (Ebro Delta, Tarragona, Spain), at 0.4 meters, on fine sand with *Cymodocea nodosa*, and some stalks of *Caulerpa prolifera*, and *Zostera nana*; sediment as fine sand ($Q_{50}$ = 0.185 mm), moderately well sorted (Trask coeficient = 1.3) with 1.45% of organic matter, and 2% of pelites.
**SELECTED REFERENCES:** *Pionosyllis anophthalma* — ÇINAR & ERGEN, 2003: 774; SAN MARTÍN, 2003: 76-79, figs. 28-29. *Perkinsyllis anophthalma* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1480.
**DISTRIBUTION:** West Mediterranean, at the River Ebro Delta (Tarragona, Spain); Adriatic Sea; Aegean Sea; Cyprus. In fine sand with meadows of *Cymodocea nodosa*, *Cystoseira crinita*, and *Caulerpa taxifolia*. Between 0-15 meters.

### *Perkinsyllis spinisetosa* (San Martín 1990)

*Pionosyllis spinisetosa* SAN MARTÍN, 1990: 592-595, figs. 2-3.
**TYPE LOCALITY:** Gulf of Mexico, 29º54'58.6"N, 86º4'58.5"W, in coarse sand, at 37 meters.
**SELECTED REFERENCES:** *Pionosyllis spinisetosa* — NÚÑEZ & SAN MARTÍN, 1996: 209, fig. 4*A-E*. *Perkinsyllis spinisetosa* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1481. *Pionosyllis* sp. — UEBELACKER, 1984*f*: 30.72-30.75, figs. 30.65-30.66.
**DISTRIBUTION:** Cuba; Gulf of Mexico; Canary Islands (Tenerife). Interstitial, in coarse sand, sometimes mixed with mud, and in sponges on *Rhizophora mangle* roots. Intertidal to 37 meters.

## GENUS *Pionosyllis* Malmgren 1867

*Pionosyllis* MALMGREN, 1867*a*: 39-40.
**TYPE SPECIES:** *Pionosyllis compacta* Malmgren 1867.
**SYNONYMS:** *Hesiosyllis* Wesenberg-Lund 1950

**KEY TO SPECIES:**
(adapted from SAN MARTÍN, LÓPEZ & AGUADO, 2009)

**1a.** Ventral cirri of chaetiger 1 laminar.....***P. compacta***
**1b.** Ventral cirri of chaetiger 1 not laminar.....***P. nidrosiensis***

### *Pionosyllis compacta* Malmgren 1867

*Pionosyllis compacta* MALMGREN, 1867*a*: 40, pl. 7 fig. 48.
**TYPE LOCALITY:** Spitsbergen, 80ºN, 13ºE.
**SELECTED REFERENCES:** *Pionosyllis compacta* — PETTIBONE, 1954: 262-263, fig. 28*J*; USCHAKOV, 1955*a*: 187-188, fig. 54*I-J*; KIRKEGAARD, 1992: 251-253, fig. 124; HARTMANN-SCHRÖDER, 1996: 161; LICHER, 1999: 285; SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1482, figs. 9-10.
**DISTRIBUTION:** Arctic; Barents Sea; North Atlantic: Spitsbergen and Skagerrak; North Pacific; Bering Strait. In low water to 145 meters.

### *Pionosyllis nidrosiensis* (Bidenkap 1907)

*Syllis nidrosiensis* BIDENKAP, 1907: 21-22, text-fig. 7, pl. 3 figs. 19-20.

**TYPE LOCALITY:** Trondheimsfjorden (Norway), found north of Garten, in a muddy bottom with gravel and laminarians.
**SYNONYMS:** [?] *Hesiosyllis enigmatica* Wesenberg-Lund 1950.
**SELECTED REFERENCES:** *Syllis nidrosiensis* — HARTMAN, 1959*a*: 228; HOLTHE, 1977*a*: 19; LICHER, 1999: 292. [?] *Hesiosyllis enigmatica* — WESENBERG-LUND, 1950*a*: 14-15, pl. 3 fig. 16, pl. 4 fig. 17, chart 19. [?] *Pionosyllis enigmatica* — SAN MARTÍN, 2003: 73-76, figs. 26-27; SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1482-1486, figs. 11-14.
**DISTRIBUTION:** Northeast Atlantic: Iceland; Sweden; North Sea; Galicia Bank. In muddy bottoms and among *Madrepora oculata* corals. Between 90-769 meters.
**REMARKS:** *Syllis nidrosiensis* Bidenkap 1907 has been considered to belong to the genus *Syllis* almost since its description (BIDENKAP, 1907; HARTMAN, 1959*a*; HOLTHE, 1977*a*; LICHER, 1999). However, the only available description of the species is still the original one (BIDENKAP, 1907), and the type material was not found, so far (LICHER, 1999). From the drawings by BIDENKAP (1907: text-fig. 7, and plate 3 figs. 19-20), it is possible to see that the species doesn't belong to *Syllis*, due to its smooth antennae and cirri, but to the subfamily Eusyllinae, probably to *Pionosyllis* or *Eusyllis*. HANSSON (1998), placed the species tentatively under the genus *Pionosyllis*, and considered *Hesiosyllis enigmatica* Wesenberg-Lund 1950, a species described with base on material from east Iceland, collected at 584 meters, as a junior synonym. However, it is remarked that *Syllis nidrosiensis* could also belong to *Eusyllis*. The species is maintained here in *Pionosyllis*, but a redescription of the species is necessary to state the generic placement of the species, and to confirm or discard the proposed synonymy. No comments were made by SAN MARTÍN, LÓPEZ & AGUADO (2009) concerning this possible synonymy, on their redescription of *Pionosyllis enigmatica*.

## GENUS ***Plakosyllis*** Hartmann-Schröder 1956

*Plakosyllis* HARTMANN-SCHRÖDER, 1956: 87.
**TYPE SPECIES:** *Plakosyllis brevipes* Hartmann-Schröder 1956.

### ***Plakosyllis brevipes*** Hartmann-Schröder 1956

*Plakosyllis brevipes* HARTMANN-SCHRÖDER, 1956: 87-89, figs. 1-5.
**TYPE LOCALITY:** Western Mediterranean Sea: Naples (Italy), and Banyuls-sur-Mer (South France), on "*Amphioxus*"-sand.
**SYNONYMS:** *Plakosyllis quadrioculata* Perkins 1981.
**SELECTED REFERENCES:** *Plakosyllis brevipes* — WEINSTEIN, 1961: 119-123, figs. 1-2; CAMPOY, 1982: 302-303; ÇINAR & ERGEN, 2003: 777; SAN MARTÍN, 2003: 300-303, figs. 165-166; SAN MARTÍN, HUTCHINGS & AGUADO, 2008: 148, figs. 23, 24*C-D*. *Eurysyllis brevipes* — GIDHOLM, 1962: 250-252, fig. 1, 1 table; TENERELLI, 1966: 231, tables 1-2. *Plakosyllis quadrioculata* — PERKINS, 1981: 1108-1112, figs. 11-12.
**DISTRIBUTION:** Northeastern Atlantic, from Roscoff to Mediterranean Sea; Aegean Sea; Atlantic coast of Florida, at 11 meters; Cuba; Red Sea; Indian Ocean; New Caledonia; Australia. Mesopsammic, on sand and maërl, sometimes also among algae (*Halopteris*) and rhizomes of *Posidonia oceanica*. Between 15-60 meters.

## GENUS ***Proceraea*** Ehlers 1864

*Proceraea* EHLERS, 1864: 256 [*nomen protectum*, according to Article 23.9.1, of the ICZN 1999 (NYGREN, 2004)].
**TYPE SPECIES:** *Proceraea picta* Ehlers 1864.
**SYNONYMS:** *Amytis* Savigny 1822 [*nomen oblitum*, according to Article 23.9.1, of the ICZN 1999 (NYGREN, 2004)]; *Polynice* Savigny 1822 [*nomen oblitum*, according to Article 23.9.1, of the ICZN 1999 (NYGREN, 2004)]; *Nereisyllis* Blainville 1828; *Polybostrichus* Ørsted 1843 [not *Polybostricha* Brandt 1837 (Cnidaria)]; *Stephanosyllis* Claparède 1864; *Pterautolytus* Ehlers 1907; *Regulatus* Imajima 1966.
**REMARKS:** The following key is adapted from the monography by NYGREN (2004), who studied both live and preserved specimens. Many specimens present colour patterns quite conspicuous and characteristic. For this reason, and due to the fact that many species (or all) loose their colour pattern

when fixed and preserved, the key includes dichotomies for specimens with and without colour patterns. In some cases the species can only be clearly separated with base on live specimens.

NYGREN *et al.* (2010) determined that the genus *Proceraea* as defined today is paraphyletic, and stated that new generic names should be introduced in order to keep *Proceraea* monophyletic. However, the authors decided to postpone the erection of new genera, while awaiting more data and better taxon sampling to fund their resolutions.

**KEY TO SPECIES:**
(adapted from NYGREN, 2004)

**1a.** With distinct colour pattern, or with a proventricle striped red (colour often not retained in preserved specimens).....**2**
**1b.** Without distinct colour pattern (applies to both living and preserved specimens).....**6**

**2a (1b).** Colour pattern consisting of only brown/black longitudinal lines.....**3**
**2b (1b).** Colour pattern consisting of longitudinal lines in combination with brown squares or transverse bands on dorsum, or of transverse bands only.....**4**

**3a (2a).** Colour pattern consisting of 3 brown/black longitudinal lines.....***P. prismatica* [in part]**
**3b (2a).** Colour pattern consisting of 2 brown/black longitudinal lines.....***P. scapularis* [in part]**
**3c (2a).** Colour pattern consisting of 2 brown logitudinal lines on dorsum, and two faint brown lines laterally along body; prostomium with mid-ventral white spot/gland.....***P. albocephala***

**4a (2b).** Colour pattern consisting of longitudinal lines in combination with squares or transverse bands.....**5**
**4b (2b).** Colour pattern consisting of transverse brown intrasegmental bands on every segment.....***P. madeirensis* [in part]**

**5a (4a).** Colour pattern consisting of longitudinal lines and transverse bands of orange and brown.....***P. pleijeli* [in part]**
**5b (4a).** Colour pattern consisting of longitudinal lines and brown squares.....***P. picta* [in part]**

**6a (1b).** Trepan with 9 large and 18 small teeth, 1 large alternating with 2 small; colour unknown in live specimens.....***P. bifidentata***
**6b (1b).** Trepan with 9 large and 9 small teeth.....**7**

**7a (6b).** Nuchal epaulettes extending to end of tentacular segment or beginning of chaetiger 1.....**8**
**7b (6b).** Nuchal epaulettes extending to end (rarely middle) of chaetiger 1.....**12**

**8a (7a).** Compound chaetae with a small distal tooth and serrated blade in median and posterior chaetigers.....**9**
**8b (7a).** Compound chaetae with a large distal tooth in median and posterior chaetigers.....**10**

**9a (8a).** Live specimens without distinct colour pattern, may have very faint longitudinal lines.....***P. cornuta***
**9b (8a).** Live specimens with 2 brown logitudinal lines on dorsum, two faint brown lines laterally along body, and prostomium with mid-ventral white spot/gland.....***P. albocephala* [in part]**

**10a (8b).** Palps with a ciliated ridge; live specimens yellowish, with red spot on parapodia.....***P. paraurantiaca***
**10b (8b).** Palps without a ciliated ridge.....**11**

**11a (10b).** Live specimens with distinct colour pattern; pharynx with 1 sinuation; trepan in chaetiger 4; proventricle in chaetiger 7-10 (covering 3-4 body segments); proventricle with 55-60 rows of muscle cells.....***P. madeirensis* [in part]**
**11b (10b).** Live specimens with distinct colour pattern; pharynx with 1 sinuation; trepan in chaetiger 1-2; proventricle in chaetiger 6-9 (covering 2.5 body segments); proventricle with 31-32 rows of muscle cells.....***P. prismatica* [in part]**

**11c (10b).** Live specimens without colour pattern; pharynx with 1 or 2 sinuations, like an 8; trepan in chaetiger 1-2; proventricle in chaetiger 7-10 (covering 2-3 body segments; proventricle with 31-38 rows of muscle cells.....***P. aurantiaca* [in part]**

**12a (7b).** Live specimens without colour pattern; pharynx with 1 or 2 sinuations, like an 8; trepan in chaetiger 1-2; proventricle in chaetiger 7-10 (covering 2-3 body segments); proventricle with 31-38 rows of muscle cells.....***P. aurantiaca* [in part]**
**12b (7b).** Live specimens with colour pattern, consisting of longitudinal lines and brown squares; pharynx with 1 sinuation; trepan between tentacular segment and chaetiger 3; proventricle in chaetiger 6-10 (covering 2.5-4 segments); proventricle with 45-48 rows of muscle cells.....***P. picta* [in part]**
**12c (7b).** Live specimens with colour pattern, consisting of longitudinal lines and transverse bands of orange and brown; pharynx with 1 sinuation; trepan between tentacular segment and chaetiger 1; proventricle in chaetiger 5-7 (covering 3 segments); proventricle with 44-46 rows of muscle cells.....***P. pleijeli* [in part]**
**12d (7b).** Live specimens with colour pattern, consisting of 2 brown/black longitudinal lines; pharynx with 1 sinuation; trepan in chaetiger 2-3; proventricle in chaetiger 6-9 (covering 3-4 segments); proventricle with 45-50 rows of muscle cells.....***P. scapularis* [in part]**

## ***Proceraea albocephala*** Nygren, Sundkvist, Mikac & Pleijel 2010

*Proceraea albocephala* NYGREN *et al.*, 2010: 44-45, figs. 3*A*, *C*, 5*A*-*B*.
**TYPE LOCALITY:** NW Madeira, East of Porto Moniz, 32º51.664'N, 17º09.105'W, in balanids with hydroids, between 5-15 meters.
**SELECTED REFERENCES:** [?] *Proceraea picta* [not Ehlers 1864] — LANGERHANS, 1879: 577-578, pl. 32 fig. 28.
**DISTRIBUTION:** Known from the type locality.

## ***Proceraea aurantiaca*** Claparède 1868

*Proceraea aurantiaca* CLAPARÈDE, 1868: 529-531, pl. 15 fig. 1.
**TYPE LOCALITY:** Gulf of Naples.
**SELECTED REFERENCES:** *Proceraea aurantiaca* — NYGREN, 2004: 44-45, fig. 6. [?] *Proceraea aurantiaca* — LANGERHANS, 1879: 578-579; GIDHOLM, 1967: 203; KIRKEGAARD, 1992: 253-255, fig. 125; HARTMANN-SCHRÖDER, 1996: 188; SAN MARTÍN, 2003: 473-474, figs. 259-260. [?] *Autolytus aurantiacus* — FAUVEL, 1923*c*: 313, fig. 120*a*-*d* [in part; not *Proceraea macrophthalma* Marenzeller 1875 = *Epigamia macrophtalma* (Marenzeller 1875); not *Proceraea luxurians* Marenzeller 1874 = *Myrianida brachycephala* (Marenzeller 1874)]; COGNETTI, 1955: 7, fig. 5*a*; COGNETTI, 1957: 64-65, fig. 12*a*, tables 1*b*, 2. [?] *Proceraea* cf. *macrophthalma* [not Marenzeller 1875] — SAN MARTÍN, 1984*b*: 424-427, pl. 116. Not *Proceraea aurantiaca* — NYGREN & GIDHOLM, 2001: fig. 3*D* [= *Proceraea paraurantiaca* Nygren 2004].
**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Autolytus aurantiacus*; coast of Arrábida); [?] AMOUREUX & CALVÁRIO, 1981 (as *Autolytus* cf *aurantiacus*; Peniche); CAMPOY, 1982 (previous records: Arrábida); SALDANHA, 1995 (as *Autolytus aurantiacus*; Portugal).
**DISTRIBUTION:** North East Atlantic, from Scandinavia to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea. On hydroids, bryozoans, algae, and coralligenous bottoms. Intertidal to about 40 meters.
**REMARKS:** According to NYGREN (2004), the records of *P. aurantiaca* should be taken with caution, as the species has been confused with others, especially with *P. paraurantiaca* Nygren 2004, in the European waters. However, *P. paraurantiaca* has a shorter sinuation of the pharynx, anterior to the proventricle, and a well-developed ciliated ridge on their palps, which is not present on *P. aurantiaca*.

## ***Proceraea bifidentata*** Ben-Eliahu 1977

*Proceraea bifidentata* BEN-ELIAHU, 1977*b*: 87-88, fig. 14*A*-*C*.
**TYPE LOCALITY:** Wadi Kabila (Gulf of Elat, Red Sea), on intertidal vermetid reefs of *Dendropoma* sp., exposed to waves.
**SELECTED REFERENCES:** *Proceraea bifidentata* — NYGREN, 2004: 45-46, fig. 7.
**DISTRIBUTION:** Known from the type locality.

## ***Proceraea cornuta*** (Agassiz 1863)

*Autolytus cornutus* AGASSIZ, 1863: 389-403, pls. 9-11.

**TYPE LOCALITY:** Massachusetts Bay, New England, USA. Specimens of this species were referred by AGASSIZ (1863: 400) as being "*found in large numbers on the stems of all the Campanularians of our bay, where they build their thin, transparent cases. Especially numerous upon those Campanularians which are attached to Laminaria. This same species I have also observed south of Cape Cod, in Buzzard's Bay.*". The bay to which Agassiz refers as "*our bay*" is securely Massachusetts Bay, as he was working as assistant in Zoology at the Harvard Museum of Natural History, in Cambridge (Massachusetts), and published the description of *Proceraea cornuta* (as *Autolytus*) at the *Boston Journal of Natural History*.
**SYNONYMS:** *Autolytus fallax* Malmgren 1867; *Myriana cirrata* Treadwell 1931; [?] *Proceraea micropedata* Hartmann-Schröder 1962.
**SELECTED REFERENCES:** *Autolytus cornutus* — TREADWELL, 1948: 30, fig. 16; PETTIBONE, 1963*a*: 144, fig. 37*e*. *Proceraea cornuta* — GIDHOLM, 1967: 205-206, figs. 13*E-F*, 28*A*; HAMOND, 1967: 4, fig. 2; KIRKEGAARD, 1992: 255-257, fig. 126; HARTMANN-SCHRÖDER, 1996: 188, fig. 81; NYGREN, 2004: 47-49, fig. 9.
**DISTRIBUTION:** Arctic; North Atlantic, southward to South Carolina, and to the English Channel and Øresund; North Pacific. Amongst algae, seagrasses, bryozoans, or hydroids, and also in sandy bottoms. On shallow waters, between 0-150 meters.

## ***Proceraea madeirensis*** Nygren 2004

*Proceraea madeirensis* NYGREN, 2004: 56-57, fig. 15.
**TYPE LOCALITY:** Madeira Island, in intertidal rocks, amongst algae.
**SELECTED REFERENCES:** *Proceraea fasciata* [not *Nereis fasciata* Bosc 1802] — LANGERHANS, 1879: 581, pl. 33 fig. 33*A-C*. *Proceraea madeirensis* — NYGREN *et al.*, 2010: 45-47, figs. 3*B*, *D*, 5*C-E*.
**DISTRIBUTION:** Madeira Island. Intertidal to 15 meters, amongst algae, balanids with hydroids, on rocks with *Lithothamnion* and epifauna.
**REMARKS:** NYGREN (2004) introduced the new name *madeirensis* for the species described by LANGERHANS (1879), which was a junior homonym of *Proceraea fasciata* (Bosc 1802) since its description.

## ***Proceraea paraurantiaca*** Nygren 2004

*Proceraea paraurantiaca* NYGREN, 2004: 66-67, fig. 22.
**TYPE LOCALITY:** Spain: El Caboda, Trafalgar, 36º11'N, 6º01'W, at 5 meters, amongst *Corallina* sp., *Codium* sp., sponges, hydroids.
**SELECTED REFERENCES:** *Proceraea aurantiaca* [not Claparède 1868] — NYGREN & GIDHOLM, 2001: fig. 3*D*.
**DISTRIBUTION:** West Mediterranean Sea (Spain; France). On hydroids, bryozoans, and algae. Between 5-30 meters.
**REMARKS:** As noted above, *P. paraurantiaca* has been confused with *P. aurantiaca*, being the most distinctive character between the two species the additional ciliated ridge on the palps of *P. paraurantiaca*, in addition to a pharynx not as convoluted, and a proventricle generally paller than in *P. aurantiaca* (NYGREN, 2004).

## ***Proceraea picta*** Ehlers 1864

*Proceraea picta* EHLERS, 1864: 256-263, pl. 11 figs. 8-17, pl. 12 figs. 1-2.
**TYPE LOCALITY:** Among algae, at the littoral of Martinšćica (= Martinsica), Cres Island, Kvarner (= Quarnero) Gulf, Croatia, Adriatic Sea.
**SELECTED REFERENCES:** *Proceraea picta* — HAMOND, 1967: 3, fig. 1; CANTONE, 1971: 924-926, figs. 2-3; HARTMANN-SCHRÖDER, 1996: 189-190; PARAPAR *et al.*, 1996: 144-146, fig. 1*G-H*; SAN MARTÍN, 2003: 469-473, figs. 256-258; NYGREN, 2004: 68-70, fig. 24. *Autolytus (Proceræa) pictus* — SAINT-JOSEPH, 1887: 222-226, pl. 11 figs. 100-105. *Autolytus pictus* — FAUVEL, 1923*c*: 315-316, fig. 121*a-f*; COGNETTI, 1957: 67, table 1*b*.
**DISTRIBUTION:** North East Atlantic, as far north as the British Isles; Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Southwestern Australia. On coralligenous bottoms, amongst algae, sponges, hydroids, or bryozoans. Intertidal to 40 meters.

## ***Proceraea pleijeli*** Nygren 2004

*Proceraea pleijeli* NYGREN, 2004: 70-71, fig. 25.

**TYPE LOCALITY:** Spain, Sancti Petri, Chiclana (Gulf of Cádiz, Spain), 36º23'N, 6º13'W, floating docks, 1 meter depth, amongst sponges, tunicates, and hydroids.
**DISTRIBUTION:** Known from the type locality.

### ***Proceraea prismatica*** (O.F. Müller 1776)

*Nereis prismatica* O.F. MÜLLER, 1776: 218.
**TYPE LOCALITY:** Greenland.
**SYNONYMS:** [?] *Nereis bifrons* O.F. Müller 1776; *Polybostrichus longosetosus* Ørsted 1843; *Autolytus incertus* Malmgren 1867; *Proceraea gracilis* Verrill 1874; *Autolytus trilineatus* Berkeley & Berkeley 1945.
**SELECTED REFERENCES:** *Autolytus prismaticus* — WESENBERG-LUND, 1947: 24-31, figs. 10-12; PETTIBONE, 1954: 249-252, fig. 29*A-B*; IMAJIMA, 1963: 352, pl. 12 fig. 12; PETTIBONE, 1963*a*: 139-141, fig. 37*d*; IMAJIMA & HARTMAN, 1964: 99-100, pl. 21 fig. 21*a-g*. *Proceraea prismatica* — HAMOND, 1967: 4, fig. 3; KIRKEGAARD, 1992: 257-259, fig. 127; HARTMANN-SCHRÖDER, 1996: 190-191, fig. 82; NYGREN, 2004: 71-74, fig. 26. *Autolytus incertus* — MALMGREN, 1867*a*: 35-36, pl. 6 fig. 40. *Proceraea gracilis* — VERRILL, 1874*b*: 361, pl. 3 fig. 2. *Autolytus trilineatus* — BERKELEY & BERKELEY, 1945: 318-320, fig. 1; BERKELEY & BERKELEY, 1948: 69-70, fig. 100.
**DISTRIBUTION:** North Atlantic (Greenland; Spitsbergen; Iceland; Faroes; from Labrador to Massachusetts); North Pacific (British Columbia; Alaska; Japan); Arctic Ocean. On hydroids, mud, and gravel. From the sublittoral to about 500 meters.

### ***Proceraea scapularis*** (Claparède 1864)

*Autolytus (Stephanosyllis) scapularis* CLAPARÈDE, 1864: 567-569, pl 7 fig. 5.
**TYPE LOCALITY:** Port-Vendres (France, Mediterranean Sea).
**SYNONYMS:** *Autolytus megodon* Saint-Joseph 1887.
**SELECTED REFERENCES:** *Proceraea scapularis* — NYGREN, 2004: 75-76, fig. 28; ÇINAR & GAMBI, 2005: 742-745, fig. 9. *Autolytus megodon* — SAINT-JOSEPH, 1887: 240-241, pl. 11 figs. 111-113; FAUVEL, 1923*c*: 317, fig. 122*b-d*.
**DISTRIBUTION:** English Channel (Dinard); Mediterranean Sea (France; Naples). Amongst sponges, hydroids, tunicates, and algae. Between 10-62 meters.

## GENUS ***Procerastea*** Langerhans 1884

*Procerastea* LANGERHANS, 1884: 249-250.
**TYPE SPECIES:** *Procerastea nematodes* Langerhans 1884.
**REMARKS:** The genus definition was emended by HARTMANN-SCHRÖDER (1992*a*).

**KEY TO SPECIES:**
(adapted from NYGREN, 2004)

**1a.** Uni- and bidentate simple "fused" chaetae in chaetiger 1-4; trepan with 16-20 teeth.....***P. hallenziana***
**1b.** Bidentate simple "fused" chaetae in chaetiger 1-4; trepan with 6-10 teeth.....***P. nematodes***

### ***Procerastea halleziana*** Malaquin 1893

*Procerastea Halleziana* MALAQUIN, 1893: 81, pl. 8 fig. 26, pl. 11 figs. 1-14.
**TYPE LOCALITY:** English Channel, on the coasts of the Boulonnais (Pas-de-Calais, France), around the Laboratoire Maritime du Portel, inside the the tunique of Ascidia (*Ciona* sp.), and above Hydraria and Bryozoa, both at the coast and at shallow waters.
**SELECTED REFERENCES:** *Procerastea Halleziana* — FAUVEL, 1923*c*: 325-327, fig. 126*d-h*. *Procerastea halleziana* — ALLEN, 1923: 131-176, pls. 11-16; LANGHAMMER, 1928: 1-44, pls. 1-3; GIDHOLM, 1967: 208-209, fig. 29*A-F*; ALÓS, 1989: 330-333, figs. 2-3; KIRKEGAARD, 1992: 260-262, fig. 128; HARTMANN-SCHRÖDER, 1996: 191-193, fig. 83; GENZANO & SAN MARTÍN, 2002: 166-168, figs. 1-3; SAN MARTÍN, 2003: 453-456, figs. 248-249; NYGREN, 2004: 94-95. *Procerastea Perrieri* [not Gravier 1900] — FAUVEL, 1916*b*: 439-440.

**DISTRIBUTION:** Atlantic coast of Europe, from Gulf of Biscay to Skagerrak; Cap de Creus, Western Mediterranean; Adriatic Sea; Atlantic coast of Argentina. Amongst algae, hydroids, bryozoans, stones, shells and gravel. Between 1-150 meters.
**REMARKS:** The Argentinian population of *Procerastea halleziana* is described by GENZANO & SAN MARTÍN (2002) as having fewer chaetae per parapodium and shorter blades on the compound chaetae than the specimens from Northern Europe, described by GIDHOLM (1967).

## ***Procerastea nematodes*** Langerhans 1884

*Procerastea nematodes* LANGERHANS, 1884: 249-250, pl. 15 fig. 5.
**TYPE LOCALITY:** Madeira Island, in fish baskets.
**SYNONYMS:** *Procerastea perrieri* Gravier 1900.
**SELECTED REFERENCES:** *Procerastea nematodes* — GIDHOLM, 1967: 210, figs. 7*I*, 29*G-J*, 30-31; KIRKEGAARD, 1992: 262-264, fig. 129; HARTMANN-SCHRÖDER, 1996: 193; SAN MARTÍN, 2003: 456-458, fig. 250; NYGREN, 2004: 96-97, fig. 41*A-E*. *Procerastea Perrieri* — GRAVIER, 1900*a*: 35-42, pl. 1 figs. 1-17; FAUVEL, 1923*c*: 327, fig. 126*a-c*. *Procerastea perrieri* — [?] DAY, 1967: 280-281, fig. 12.12.*a-f*; [?] HARRIS, 1971: 697-699, fig. 6.
**DISTRIBUTION:** Northeastern Atlantic, from Scandinavia to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Irish Sea; Madeira Island; California; [?] South Africa; [?] Falkland Islands. On shells, stones, and detritic bottoms. Between 0-50 meters.

## *GENUS ***Prosphaerosyllis*** San Martín 1984

*Prosphaerosyllis* SAN MARTÍN, 1984*a*: 384.
**TYPE SPECIES:** *Sphaerosyllis xarifae* Hartmann-Schröder 1960.

### KEY TO SPECIES:

**1a.** Middorsal pharyngeal tooth distal, located near the pharyngeal oppening.....***P. tetralix***
**1b.** Middorsal pharyngeal tooth located near the median region of the pharynx or in the anterior half, but not near the oppening of the pharynx.....**2**

**2a (1b).** Antennae minute, inconspicuous, oval to papilliform; tentacular and dorsal cirri minute and papilliform, similar to the antennae; dorsal cirri present in all chaetigers, occasionally with the base very slightly inflated.....***P. giandoi***
**2b (1b).** Antennae not minute or papilliform, normally onion-shaped or truncate.....**3**

**3a (2b).** Middorsal pharyngeal tooth clearly located in the middle of the first half or in the first third of the pharynx; antennae and dorsal cirri very small; aciculae with blunt or pointed tips.....**4**
**3b (2b).** Middorsal pharyngeal tooth located at the midline of the pharynx, or slightly before or after it; antennae and dorsal cirri not very small; aciculae thin, with pointed tips.....**6**

**4a (3a).** Dorsal cirri absent in chaetiger 2; aciculae thick and straight, with blunt tip, slightly oblique and with a subdistal thickening.....***Prosphaerosyllis* sp. nov.***
**4b (3a).** Dorsal cirri present at chaetiger 2; aciculae described as being distally lancet-like or neddle-shaped.....**5**

**5a (4b).** Dorsal cirri with a lateral papilla, shorter than the tip of the cirrus.....***P. brevicirra***
**5b (4b).** Dorsal cirri without lateral papillae.....***P. brandhorsti***

**6a (3b).** Dorsal cirri truncate at the tip; body surface with small papillae dorsally, and long digitiform papillae ventrally; subdistal swelling of the aciculae with a crown of very small spines.....***P. adelae***
**6b (3b).** Dorsal cirri of the median region of the body ending in more or less retractile bud-like tips.....**7**

**7a (6b).** Dorsal papillae big; blades of dorsalmost compound chaetae with long spines at the margin, while the ventralmost are smooth.....**8**
**7b (6b).** Dorsal papillae small; blades of compound chaetae with marked dorsoventral gradation; blades of compound chaetae with short spines at the margin.....***P. xarifae***

**8a (7a).** Blades of compound chaetae with dorsoventral gradation; dorsal papillae on each segment from chaetiger 4, as 2 long digitiform papillae in a row located on mid-region, 2 small digitiform papillae on posterior region, and 2 cylindrical papillae on anterolateral regions.....***P.* cf. *longipapillata***
**8b (7a).** Blades of compound chaetae without dorsoventral gradation; dorsal papillae not distributed as above.....***P. campoyi***

## ***Prosphaerosyllis adelae*** (San Martín 1984)

*Sphaerosyllis (Prosphaerosyllis) adelae* SAN MARTÍN, 1984*a*: 377-383, figs. 1-4.
**TYPE LOCALITY:** Santa Ponsa Bay, Mallorca Island (Balearic Islands, Mediterranean Sea), at 5 meters, in coarse sand, between *Posidonia oceanica*.
**SELECTED REFERENCES:** *Prosphaerosyllis adelae* — SAN MARTÍN, 2003: 220-222, fig. 116.
**DISTRIBUTION:** Known from the type locality, and also from the Italian coasts (SAN MARTÍN, 2003). In coarse sand, between *Posidonia oceanica*. At 5-7 meters.

## ***Prosphaerosyllis brandhorsti*** (Hartmann-Schröder 1965)

*Sphaerosyllis brandhorsti* HARTMANN-SCHRÖDER, 1965*b*: 124-126, figs. 88-91.
**TYPE LOCALITY:** Isla Mocha, Chile (73º33'W, 38º15.9'S), black fine sand with few detritus, at 26 meters.
**SELECTED REFERENCES:** *Sphaerosyllis brandhorsti* — BANSE, 1972*b*: 209.
**DISTRIBUTION:** Eastern Pacific: Chile, from Isla Mocha in the north to Chiloé Island in the south; Orcas Island, Washington; [?] Western Mediterranean Sea. In sandy and muddy bottoms. Between 26-260 meters.
**REMARKS:** This species has been recorded to be present in the Mediterranean Sea in monitoring and ecological studies, but its presence in this region is here considered to be doubtful.

## ***Prosphaerosyllis brevicirra*** (Hartmann-Schröder 1960)

*Sphaerosyllis brevicirra* HARTMANN-SCHRÖDER, 1960*b*: 105, pl. 14 fig. 128, pl. 15 figs. 129-130.
**TYPE LOCALITY:** Ghardaqa (Egypt, Red Sea), in fine sand, at low tide, still under one foot of water.
**SELECTED REFERENCES:** *Sphaerosyllis brevicirra* — AMOUREUX, 1973*c*: 665-666; BEN-ELIAHU, 1977*b*: 81-82, fig. 9, table 3.
**DISTRIBUTION:** Red Sea (Ghardaqa and Gulf of Elat); [?] Western Mediterranean Sea. In fine sand and vermetid reefs of *Dendropoma* sp.. Intertidal to shallow water.

## ***Prosphaerosyllis campoyi*** (San Martín, Acero, Contonente & Gómez 1982)

*Sphaerosyllis campoyi* SAN MARTÍN *et al.*, 1982: 175-177, fig. 2.
**TYPE LOCALITY:** Playa de Calaburra, Fuengirola (Málaga, Mediterranrean coast of Spain), intertidal, among *Cystoseira* sp..
**SELECTED REFERENCES:** *Sphaerosyllis campoyi* — SAN MARTÍN, GONZÁLEZ & LÓPEZ-JAMAR, 1985: 30-31, fig. 3*C-D*. *Sphaerosyllis (Prosphaerosyllis) campoyi* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 51. *Prosphaerosyllis campoyi* — SAN MARTÍN, 2003: 222-225, figs. 117-118. [?] *Sphaerosyllis* sp. — SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 74-76, fig. 15.
**DISTRIBUTION:** Northeastern Atlantic, from Galicia (intertidal, on sand) to the Canary Islands: Fuerteventura, Lanzarote (0 meters, on algae); Mediterranean Sea. In coarse sand, calcareous bottoms, meadows of *Posidonia* and *Cymodocea*, and among hydroids and algae.

## ***Prosphaerosyllis giandoi*** (Somaschini & San Martín 1994) **comb. nov.**

*Sphaerosyllis giandoi* SOMASCHINI & SAN MARTÍN, 1994: 363-366, figs. 4-5.
**TYPE LOCALITY:** Sconcillo, Palmarola Island (Pontine Islands, Latium, Central Tyrrhenian Sea), at 30 meters, in sand.
**DISTRIBUTION:** Pontine Islands, Tyrrhenian Sea (Mediterranean Sea), between 10-30 meters, in fine and coarse sand.

## ***Prosphaerosyllis* cf. *longipapillata*** (Hartmann-Schröder 1979)

*Sphaerosyllis longipapillata* HARTMANN-SCHRÖDER, 1979*b*: 106, figs. 148-150.
**TYPE LOCALITY:** Gantheaume Point (Broome, Western Australia), cliff with rock terraces near the lighthouse, in sand between the algae on the rocks.

**SELECTED REFERENCES:** *Sphaerosyllis (Prosphaerosyllis) longipapillata* — HARTMANN-SCHRÖDER, 1987: 41. *Sphaerosyllis longipapillata* — ÇINAR, ERGEN & BENLI, 2003: 757-759, fig. 5. *Prosphaerosyllis longipapillata* — SAN MARTÍN, 2005: 61-64, figs. 17-18.

**DISTRIBUTION:** Australia (all states), on all kinds of substrates, from coral to mud, intertidal to 466 meters; Northern Cyprus (Eastern Mediterranean), in hard substrata with *Sargassum vulgare*, at 92 meters.

**REMARKS:** ÇINAR, ERGEN & BENLI (2003) recorded *Prosphaerosyllis longipapillata* from Northern Cyprus. However, this record is here considered as belonging probably to a different species, as according to the description of the species given by SAN MARTÍN (2005), the compound chaetae present all blades short and similar in size, while the same blades in the Eastern Mediterranean specimens present a clear dorso-ventral gradation.

## ***Prosphaerosyllis tetralix*** (Eliason 1920)

*Sphaerosyllis tetralix* ELIASON, 1920: 13, fig. 4*a-b*.

**TYPE LOCALITY:** Øresund and Gullmarfjord (west coast of Sweden).

**SELECTED REFERENCES:** *Sphaerosyllis tetralix* — GIDHOLM, 1962: 258; CAMPOY, 1982: 277-279; SAN MARTÍN, GONZÁLEZ & LÓPEZ-JAMAR, 1985: 30, fig. 3*A-B*; KIRKEGAARD, 1992: 269-271, fig. 133. *Sphaerosyllis (Prosphaerosyllis) tetralix* — HARTMANN-SCHRÖDER, 1996: 177-178, fig. 77. *Prosphaerosyllis tetralix* — SAN MARTÍN, 2003: 217-218, fig. 114.

**DISTRIBUTION:** Northeastern Atlantic, from Scandinavia to the Gulf of Vizcaya, and Mediterranean and Adriatic seas (where it is considered to be rare or dubious; SAN MARTÍN, 2003). On muddy, detritic bottoms, and *Amphioxus*-sand. Intertidal to 345 meters.

## ***Prosphaerosyllis xarifae*** (Hartmann-Schröder 1960)

*Sphaerosyllis xarifae* HARTMANN-SCHRÖDER, 1960*b*: 103-104, pl. 14 figs. 121-122, pl. 15. figs. 123-124.

**TYPE LOCALITY:** Sarso (= Saso) Island (Saudi Arabia, Red Sea), in *Seriatopora* coral, 2-3 meters.

**SELECTED REFERENCES:** *Sphaerosyllis xarifae* — HARTMANN-SCHRÖDER, 1979*b*: 103-104, figs. 139-140; SAN MARTÍN, 1984*b*: 236-238, pl. 54. *Sphaerosyllis (Sphaerosyllis) xarifae* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 51. *Prosphaerosyllis xarifae* — SAN MARTÍN, 2003: 225-227, figs. 119-120; SAN MARTÍN, 2005: 60-61, figs. 15-16. *Sphaerosyllis tetralix* [not Eliason 1920] — BEN-ELIAHU, 1977*b*: 72-73, fig. 5, table 3. *Sphaerosyllis* cf. *xarifae* — CAMPOY, 1982: 279-281. *Sphaerosyllis* sp. — SAN MARTÍN & ALVARADO, 1981: 224-225, fig. 3. [?] *Sphaerosyllis erinacea* [not Claparède 1863] — LANGERHANS, 1881: 106, pl. 4 fig. 12*a-b*.

**REFERENCES FOR PORTUGAL:** [?] DEXTER, 1992 (as *Sphaerosyllis* cf. *xaribae*; previous records: Ria de Alvor).

**DISTRIBUTION:** Red Sea; Northeastern Atlantic, from the Bay of Biscay to the Canary Islands; Mediterranean Sea; Australia (Queensland, Western Australia, South Australia). On algae, corals, vermetids, leafs and rhizomes of *Posidonia*, hydrozoans, and calcareous bottoms. Between 0-115 meters.

## ****Prosphaerosyllis* sp. nov.**

**SELECTED REFERENCES:** *Prosphaerosyllis* sp. — SAN MARTÍN, 2003: 218-220, fig. 115. *Sphaerosyllis (Prosphaerosyllis) brevicirra* [not Hartmann-Schröder 1960] — ALÓS, 1989: 333-335, fig. 5.

**MATERIAL: FAUNA 1 — St. 51*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 27-28 m, rock and mud: 1 specimen; pharynx and proventriculus very big; proventriculus through 4 chaetigers, with about 20 muscular rows; dorsal cirri on chaetiger 2 absent; blades of compound chaetae very short, about 8 µm long, and without gradation; each segment with about 4 transversal well marked sulci. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 2 specimens; (1) very damaged due to its mounting on gelatinized glycerine; some antennae and cirri lost, including the tentacular cirri; second chaetiger without cirri; specimen incomplete, with 7 chaetigers; simple chaetae from chaetiger 1; (2) median antenna missing; pharyngeal tooth located anteriorly.

**DISTRIBUTION:** Facies of *Halopteris scoparia* on rhizomes of *Posidonia oceanica*, with *Dictyota dichotoma* and *Laurencia oceanica*, at 3 meters, and on rhizomes of *Posidonia oceanica*, both at the northern littoral of the Cape of Creus (NE of the Spanish Mediterranean coast); Alborán Sea. From shallow water to about 80 meters.

**REMARKS:** PARAPAR *et al.* (1994*b*: 97-98, fig. 3) identified as *Sphaerosyllis (Prosphaerosyllis) brevicirria* an anterior fragment with natatorial chaetae, collected in infralittoral gravel at Ría de Ferrol (Galicia, Northwest Spain). The identification was made by comparison with the description given in ALÓS (1989), with which the specimen is said to resemble, with the exception of the dorsal cirri, which

were longer at the Galician specimen. However, according to the description given in ALÓS (1989), dorsal cirri are present in chaetiger 2, which is not true, according to personal observations made on the pictured specimen. Alós' description represents a new species, which description is under preparation. On the other hand, the Galician specimen do present dorsal cirri on chaetiger 2. The status of this specimen remains for the moment uncertain, as it is not *Sphaerosyllis brevicirra*, a species known from the Persian Gulf and Red Sea, neither the new species represented by the description given in ALÓS (1989). Besides it can not be *P. adelae*, *P. campoy*, or *P. xarifae* as, besides other morphological differences, these species have thin aciculae, while the Galician specimen has strong aciculae with blunt tips.

## *GENUS ***Salvatoria*** McIntosh 1885

*Salvatoria* MCINTOSH, 1885*a*: 188.
**TYPE SPECIES:** *Salvatoria kerguelensis* McIntosh 1885.
**SYNONYMS:** *Grubea* Quatrefages 1866 [preoccupied by Diesing 1858 (Trematoda)]; [?] *Protogrubea* Czerniavsky 1881; *Grubeosyllis* Verrill 1900; *Pseudobrania* San Martín 1984.

**KEY TO SPECIES:**
(adapted from SAN MARTÍN, 2003)

**1a.** Dorsal cirri short, absent in chaetiger 2.....***S. swedmarki***
**1b.** Dorsal cirri long, present in all chaetigers.....**2**

**2a (1b).** Dorsal cirri cylindrical to club-shaped, with the bases slender and the distal end usually thicker.....***S. celiae***
**2b (1b).** Dorsal cirri fusiform, with the bases thicker than the tips, ending in an elongate, acute tip.....**3**

**3a (2b).** Blades unidentate or with a small subdistal spine; blades of compound chaetae usually with smooth or nearly smooth edges.....**4**
**3b (2b).** Blades bidentate; blades of compound chaetae generally with spines (smooth in *S. balani*).....**5**

**4a (3a).** All dorsal cirri of similar size; pharyngeal tooth located near the anterior rim; each parapodium with 1-2 compound chaetae with blades much longer than the rest, with base with long spines directed upwards.....***S. limbata****
**4b (3a).** Dorsal cirri of the first chaetiger longer than the following ones; pharyngeal tooth located near the middle of the pharynx; chaetae much longer than the rest absent [?].....***S. tenuicirrata***

**5a (3b).** Compound chaetae with blades of similar length and shape in each parapodium, almost without dorsoventral gradation.....**6**
**5b (3b).** Length of blades of compound chaetae with a clear dorsoventral gradation.....**7**

**6a (5a).** Dorsal cirri very thick and bulbous at base; blades of compound chaetae with smooth edges; blades bidentate, with both teeth similar, with round space between them.....***S. balani***
**6b (5a).** Dorsal cirri slightly thick at base; blades of compound chaetae with spiny edges, with spines from short to moderate; bidentate blades, with subdistal tooth smaller than distal one, with angular or sharp space between them.....***S. yraidae***

**7a (5b).** Compound chaetae with strongly bidentate blades, with teeth of similar size, and space between them round.....***S. euritmica***
**7b (5b).** Blades of compound chaetae with subdistal tooth smaller than the distal one, and angular or sharp space between them.....**8**

**8a (7b).** Each parapodium with 1-2 compound chaetae with long blades, provided with long spines at the base, and teeth very close together.....***S. alvaradoi***
**8b (7b).** Without such chaetae.....**9**

**9a (8b).** Spines at the edge of the blades straight, of similar length, moderate to short sized.....***S. clavata****

**9b (8b).** Some compound chaetae with blades provided with long spines, directed upwards.....**10**

**10a (9b).** Aciculae with blunt, rounded tips; blades long, with long spines, reducing progressively its size dorso-ventrally.....***S. neapolitana***
**10b (9b).** Aciculae acuminate, ending in a fine tip; blades of two clearly distinct types, with most dorsal provided with long spines the base, and median and ventral chaetae with short and straigt spines.....***S. vieitezi****

## ***Salvatoria alvaradoi*** (San Martín 1984)

*Pseudobrania alvaradoi* SAN MARTÍN, 1984*b*: 152-156, pls. 28-29.
**TYPE LOCALITY:** The species was described with base on 32 specimens collected on 3 stations. A holotype was chosen, but SAN MARTÍN (1984*b*) didn't refer from which of the three stations. The stations are: Formentera Island, La Sabina Harbour, at 2 meters, on muddy sand; Formentera Island, Sa Cova, among rhizomes of *Posidonia*, at 2 meters; Ibiza Island, near San Antonio Abad, on rhizomes of *Posidonia oceanica*, at 5 meters.
**SELECTED REFERENCES:** *Salvatoria alvaradoi* — SAN MARTÍN, 2003: 173-176, figs. 87-88.
**DISTRIBUTION:** Western Mediterranean Sea: Balearic Islands (Formentera, Ibiza), and Cape de Creus (Catalonia). In sandy bottoms, with a great amount of organic matter, and also among algae and rhizomes of *Posidonia*.

## ***Salvatoria balani*** (Hartmann-Schröder 1960)

*Grubea balani* HARTMANN-SCHRÖDER, 1960*b*: 102, pl. 13 figs. 116-117, pl. 14 fig. 115.
**TYPE LOCALITY:** Ghardaqa (Egypt, Red Sea), among *Balanus* encrustated on piers of bridges.
**SELECTED REFERENCES:** *Pseudobrania balani* — ALÓS, SAN MARTÍN & SARDÁ, 1983: 292-293, fig. 4. *Salvatoria balani* — SAN MARTÍN, 2003: 162-163, fig. 79.
**DISTRIBUTION:** Red Sea; Gulf of Cádiz; Strait of Gibraltar. On shallow water, on algae and on *Corallina officinalis*, *Mesophyllum lichenoides*, and precoralligenous of sciaphile algae.

## ***Salvatoria celiae*** (Parapar & San Martín 1992)

*Grubeosyllis celiae* PARAPAR & SAN MARTÍN, 1992: 112-114, fig. 1.
**TYPE LOCALITY:** Playa Benitez, Ceuta (African coast of Western Mediterranean), 36º54'15"N, 5º19'54"W, at 23 meters, in sand.
**SELECTED REFERENCES:** *Salvatoria celiae* — SAN MARTÍN, 2003: 160-161, fig. 78.
**DISTRIBUTION:** Ceuta (western Mediterranean Sea). In sand. Between 11-23 meters.

## ****Salvatoria clavata*** (Claparède 1863)

*Syllis clavata* CLAPARÈDE, 1863: 41-42, pl. 13 figs. 28-29.
**TYPE LOCALITY:** Near St. Vaaste la Hougue (Normandie, Northern France), among algae (fucaceans and corallineans) in rocky pools.
**SYNONYMS:** [?] *Grubea dolichopoda* Marenzeller 1874; [?] *Grubeosyllis Jonssonii* Sædmundsson 1918.
**SELECTED REFERENCES:** *Grubea clavata* — LANGERHANS, 1879: 564-565, fig. 21; SAINT-JOSEPH, 1887: 200-202, pl. 10 figs. 75-76; FAUVEL, 1923*c*: 296-298, fig. 114*a-e*; RIOJA, 1925*b*: 28-30, figs. 13-14; COGNETTI, 1957: 49-50, fig. 9*a*, pl. 1 fig. 9, pl. 2 fig. 10, tables 1*b*, 2. *Brania clavata* — RIOJA, 1943: 215-217, figs. 7-11; PETTIBONE, 1963*a*: 133-134, fig. 35*b*; IMAJIMA, 1966*a*: 393-395, fig. 1; HARTMANN-SCHRÖDER, 1974*a*: 131, pl. 11 fig. 103-105, pl. 12 fig. 106; GARDINER, 1976: 130, fig. 10*l-n*; BEN-ELIAHU, 1977*b*: 65-66, 79, fig. 1; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 70-71, fig. 12; CAMPOY, 1982: 253-255, pl. 14 figs. *h-k*; UEBELACKER, 1984*f*: 30.16-30.16, figs. 30.9-30.10. *Pseudobrania clavata* — SAN MARTÍN, 1984*b*: 167-171, pl. 34-35; LICHER, 1999: 286-287. *Grubeosyllis clavata* — SAN MARTÍN, 1991: 718, fig. 2*a-b*. *Salvatoria clavata* — SAN MARTÍN, 2003: 176-181, figs. 89-93. *Brania* sp. — BEN-ELIAHU, 1972*b*: 214-215, fig. 12. [?] *Grubea dolichopoda* — MARENZELLER, 1874: 432, pl. 4 fig. 1. [?] *Grubea* cf. *dolichopoda* — ÇINAR, ERGEN & BENLI, 2003: 752-754, fig. 4. [?] *Grubeosyllis Jonssonii* — SÆMUNDSSON, 1918: 202, pl. 2 fig. 1*a-d*. Not *Brania clavata* — HARTMANN-SCHRÖDER, 1979*b*: 100-101, figs. 129-133 [= *Salvatoria koorineclavata* San Martín 2005].
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Grubea clavata*; continental shelf of Algarve); DEXTER, 1992 (as *Grubea clavata*; previous records: continental shelf of Algarve).
**MATERIAL: FAUNA 1 — St. 60*A***, Gibraltar Strait, Tarifa, 12-16 m, sand, stones, photophile algae: 1 specimen; blades of compound chaetae can be from 32 µm long (dorsal) to 15 µm (ventral)

**DISTRIBUTION:** Northeast Atlantic Ocean, from Ireland to Madeira and Canary Islands; African coast; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Suez Canal; Red Sea; Indian Ocean; Northwest Atlantic, from the Gulf of St. Lawrence to the Caribbean Sea; Pacific Ocean (Japan, Mexico). Cosmopolitan, in template and tropical waters. In all kind of hard bottoms, sandy and muddy bottoms, among algae, bryozoans, sponges, corals, ascidians, and rhizomes of *Posidonia*. Intertidal to 40 meters.

## ***Salvatoria euritmica*** (Sardá 1984)

*Pseudobrania euritmica* SARDÁ, 1984*b*: 10-12, fig. 1.

**TYPE LOCALITY:** Gibraltar Strait, between Cabo Trafalgar (Cádiz) and Estepona (Málaga).

**SELECTED REFERENCES:** *Grubeosyllis euritmica* — SAN MARTÍN, 1991: 718-719, fig. 2*c-d*; NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 45. *Salvatoria euritmica* — SAN MARTÍN, 2003: 169-173, figs. 84-86.

**DISTRIBUTION:** Mediterranean Sea; Canary Islands: Tenerife (4 meters, on algae); Cuba; Australia. In hard bottoms, among algae, rhizomes of *Posidonia*, calcareous bottoms, coralligenous. From shallow water to 45 meters.

## ****Salvatoria limbata*** (Claparède 1868)

*Grubea limbata* CLAPARÈDE, 1868: 518, pl. 13 fig. 4.

**TYPE LOCALITY:** Gulf of Naples.

**SELECTED REFERENCES:** *Grubea limbata* — SOULIER, 1904: 338-342, fig. 5; FAUVEL, 1923*c*: 298, fig. 114*g-i*; COGNETTI, 1957: 50-51, fig. 9*b*, tables 1*b*, 2; HARTMANN-SCHRÖDER, 1960*b*: 100, pl. 13 fig. 108. *Brania limbata* — HARTMANN-SCHRÖDER, 1977*b*: 56-57, figs. 17-18; CAMPOY, 1982: 255-256, pl. 15 figs. *g-l*; HARTMANN-SCHRÖDER, 1996: 169. *Pseudobrania limbata* — SAN MARTÍN, 1984*b*: 164-167, pl. 33; KIRKEGAARD, 1992: 264-265, fig. 130; LICHER, 1999: 287. *Salvatoria limbata* — SAN MARTÍN, 2003: 166-169, figs. 82-83.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Brania limbata*; coast of Arrábida); CAMPOY, 1982 (as *Brania limbata*; previous records: Arrábida); BOAVENTURA *et al.*, 2006 (as *Pseudobrania limbata*; Ancão, Algarve).

**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 7 specimens; simple chaetae in the first chaetigers not observed; pharynx shorter than proventriculus, which has 18 muscular rows; anterior pharyngeal tooth clearly visible; first dorsal cirri clearly longer than dorsal cirri of second chaetiger; some antennae and tentacular cirri missing. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 1 juvenile specimen. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 3 specimens, one of which has natatorial chaetae from chaetiger 8. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 specimen; one tentacular cirrus lost in each of the sides, as well as the 3 antennae; natatorial chaetae from chaetiger 8. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 3 specimens plus one posterior fragment; the pharyngeal tooth not located at the anterior border, but at 40 µm of it; natatorial chaetae from chaetiger 8; first dorsal simple chaeta observed at chaetiger 3.

**DISTRIBUTION:** Northeastern Atlantic, from the English Channel and Kattegat to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Canary Islands; Red Sea; Cuba; Western Pacific Ocean. Among algae, corals, sandy and hard bottoms. Intertidal to 144 meters.

## ***Salvatoria neapolitana*** (Goodrich 1930)

*Pionosyllis neapolitana* GOODRICH, 1930: 651-666, figs. 1-12.

**TYPE LOCALITY:** Western shore of the Bay of Naples, in sandy bottom.

**SYNONYMS:** *Pionosyllis subterranea* Hartmann-Schröder 1956.

**SELECTED REFERENCES:** *Grubeosyllis neapolitana* — JIMÉNEZ, SAN MARTÍN & LÓPEZ, 1994: 52-53, figs. 1-2. *Salvatoria neapolitana* — SAN MARTÍN, 2003: 182-184, fig. 94. *Pionosyllis subterranea* — HARTMANN-SCHRÖDER, 1956: 89-91, figs. 6-9; TENERELLI, 1964: 234-236, fig. 4, pl. 1 figs. 5-7. *Brania subterranea* — WESTHEIDE, 1974*a*: 10-14, fig. 6; WESTHEIDE, 1974*b*: 87-89, figs. 40, 42*D-F*; CAMPOY, 1982: 256-259, pl. 15. *Grubeosyllis subterranea* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 45.

**DISTRIBUTION:** Banyuls-sur-Mer (Southern France), on coastal interstitial water (type locality of *Pionosyllis subterranea* Hartmann-Schröder 1956). Western Mediterranean Sea (coastal interstitial water of Italy, France, and Spain); Canary Islands (4 meters, on muddy sand); Indian Ocean; Galapagos Islands; Brazil. Interstitial in sandy bottoms, at the intertidal and first meters of the infralittoral.

## ***Salvatoria swedmarki*** (Gidholm 1962)

*Brania swedmarki* GIDHOLM, 1962: 256-258, fig. 3.

**TYPE LOCALITY:** Bloscon (near Roscoff, Bretagne), in *Amphioxus*-sand, at about 20 meters.

**SELECTED REFERENCES:** *Brania swedmarki* — CAMPOY, 1982: 251-252; PARAPAR *et al.*, 1993*a*: 374-375, fig. 6. *Salvatoria swedmarki* — SAN MARTÍN, 2003: 158-160, fig. 77.

**DISTRIBUTION:** Northeastern Atlantic, from Roscoff to Guipúzcoa; Northern Sea; Ceuta, Western Mediterranean Sea. On sandy bottoms, and *Amphioxus*-sand. Between 20-43 meters.

## ***Salvatoria tenuicirrata*** (Claparède 1864)

*Sphærosyllis tenuicirrata* CLAPARÈDE, 1864: 547-548, pl. 6 fig. 2.

**TYPE LOCALITY:** Port-Vendres, Mediterranean coast of France.

**SELECTED REFERENCES:** *Grubea tenuicirrata* — FAUVEL, 1923*c*: 298-299, fig. 114*f*; COGNETTI, 1957: 51-52, table 1*b*; CAMPOY, 1982: 259.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Brania tenuicirrata*; coast of Arrábida); CAMPOY, 1982 (as *Brania tenuicirrata*; previous records: Arrábida).

**DISTRIBUTION:** Portugal; Madeira Island; Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea. In *Lithothamnium*, coralligenous bottoms, *Posidonia*, and mud. Infralittoral.

**REMARKS:** FAUVEL (1923*c*) states that this species is quite close to *Salvatoria clavata* (Claparède 1863), from which it would be separated with base on irrelevant and variable features. COGNETTI (1957) found some specimens at the Gulf of Naples that showed the characters described by CLAPARÈDE (1864), but not as accentuated as in the drawing given by the same author. COGNETTI (1957) identified those specimens as *S. tenuicirrata*, stating however that a judgement on the validity of the species was not possible, due to the reduced number specimens available to him.

## ****Salvatoria vieitezi*** (San Martín 1984)

*Pseudobrania vieitezi* SAN MARTÍN, 1984*b*: 160-164, pls. 31-32.

**TYPE LOCALITY:** The species was described with base on 15 specimens collected on 3 stations. A holotype was chosen, but SAN MARTÍN (1984*b*) did not refer from which of the three stations. The stations are: Formentera Island, Sa Cova, among rhizomes of *Posidonia*, at 2 meters; Ibiza Island, near San Antonio Abad, on rhizomes of *Posidonia oceanica*, at 5 meters; Mallorca Island, Santa Ponsa, on rhizomes of *Posidonia oceanica*, at 5 meters.

**SELECTED REFERENCES:** *Grubeosyllis vieitezi* — SAN MARTÍN, 1991: 718, fig. 2*e-f*; NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 45. *Salvatoria vieitezi* — SAN MARTÍN, 2003: 184-187, figs. 95-96.

**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 12 specimens plus one posterior fragment; simple chaetae on the anterior chaetigers not observed; some antennae missing; first chaetigers with one single acicula; chaetae bidentate; proventriculus with about 20-25 muscular rows. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 2 specimens, one of which with natatorial chaetae from chaetiger 9.

**DISTRIBUTION:** Mediterranean Sea; Norteastern Atlantic from the Iberian Peninsula to the Canary Islands: El Hierro, La Gomera, Tenerife (0-12 meters, on algae, sponges and corals); Cuba. In rhizomes of *Posidonia*, calcareous bottoms, among algae, inside sponges. From shallow water to about 30 meters.

## ***Salvatoria yraidae*** (San Martín 1984)

*Pseudobrania yraidae* SAN MARTÍN, 1984*b*: 156-159, pl. 30.

**TYPE LOCALITY:** The species was described with base on 211 specimens collected on 8 stations. A holotype was chosen, but SAN MARTÍN (1984*b*) did not refer from which of the eight stations. The stations are: Mallorca Island, beach of Porto Cristo, among algae in rocky pools with sand, at a few cm; Mallorca Island, Santa Ponsa, in sand near *Posidonia oceanica* meadows, at 7 meters; Formentera Island, La Sabina Harbour, at 2 meters, on muddy sand; Formentera Island, Estanq del Peix, in black mud, at 2 meters; Formentera Island, Cala Saona, in fine sand, at 3 meters; Formentera Island, west of Punta del Pas (= Punta de Trucadors), in medium sand, at 5 meters; Ibiza Island, near San Antonio Abad, on coarse sand, at 4 meters; and same place, on rhizomes of *Posidonia oceanica*, at 5 meters.

**SELECTED REFERENCES:** *Salvatoria yraidae* — SAN MARTÍN, 2003: 163-166, figs. 80-81.

**DISTRIBUTION:** Mediterranean Sea; Bay of Biscay. Interstitial in sandy bottoms, and also among algae. From shallow water to 46 meters.

## *GENUS ***Sphaerosyllis*** Claparède 1863

*Sphaerosyllis* CLAPARÈDE, 1863: 45.
**TYPE SPECIES:** *Sphaerosyllis hystrix* Claparède 1863.

**KEY TO SPECIES:**

**NOT INCLUDED IN THE KEY:** *Sphaerosyllis claparedii* Ehlers 1864.

**1a.** Dorsal cirri present on chaetiger 2.....***S. ovigera***
**1b.** Dorsal cirri absent on chaetiger 2.....**2**

**2a (1b).** Dorsal cirri with a long digitiform papilla, shorter than the tip, giving a bifid appearance; posterior aciculae thicker, subdistally curved, ending in an acute tip, and protruding from the parapodial lobes.....***S. gravinae***
**2b (1b).** Dorsal cirri without papillae, or with very short papillae; aciculae otherwise.....**3**

**3a (2b).** Aciculae straight, with a big subterminal swelling.....***S. bulbosa***
**3b (2b).** Posterior aciculae with the tip more or less curved at a right angle.....**4**

**4a (3b).** Parapodial glands present, usually from the fourth chaetiger.....**5**
**4b (3b).** Parapodial glands absent or indistinct.....**13**

**5a (4a).** Parapodial glands with fibrillar material.....**6**
**5b (4a).** Parapodial glands with granular material.....**11**

**6a (5a).** Dorsal cirri very small, shorter than the parapodial lobes.....**7**
**6b (5a).** Dorsal cirri as long as or longer than the parapodial lobes.....**8**

**7a (6a).** Composed chaetae with shafts distally spinous, and blades very short, all of similar length (7 µm to 8 µm), some with large spines in the margin.....***S. thomasi****
**7b (6a).** Composed chaetae with smooth shafts, and blades longer, with a slight dorsoventral gradation (13 µm to 17 µm), smooth or with short spines.....***S. parabulbosa***

**8a (6b).** Median antenna inserted at the same level than the lateral antennae, in the anterior margin of the prostomium.....***S. capensis***
**8b (6b).** Median antenna inserted clearly behind the lateral antennae.....**9**

**9a (8b).** Blade lengths of compound chaetae with a small dorsoventral gradation throughout the body, being all short, but differing in shape, with dorsalmost blades with long spines.....***S. taylori****
**9b (8b).** Blade lengths of the anterior compound chaetae with a strong dorsoventral gradation.....**10**

**10a (9b).** Strong dorsoventral gradation in length of blades of compound chaetae throught the body; blades of both superior and inferior compound chaetae with a discernible subdistal spine; blades of posterior chaetae with spines on cutting edge, being shorter and weaker than those on anterior parapodia; blades of superior falcigers on anterior and middle parapodia being 46 to 62.5 µm long; palps with papillae.....***S. boeri***
**10b (9b).** Strong dorsoventral gradation in length of blades of compound chaetae only in the anterior region of body, becoming small in the posterior region; subdistal spines in blades of compound chaetae not evident, and could be seen only on blades of superior falcigers on anterior parapodia; blades of posterior chaetae smooth; blades of superior falcigers on anterior and middle parapodia being 25 to 33 µm long; palps without papillae.....***S. hystrix****

**11a (5b).** Median antenna inserted at the same level than the lateral antennae, in the anterior margin of the prostomium; blades of the upper compound chaetae of anterior segments about 40 µm long (25 µm in the Canary population); middorsal pharyngeal tooth massive.....***S. magnidentata***

**11b (5b).** Median antenna inserted clearly behind the lateral antennae, near the posterior margin of the prostomium; blades of the upper compound chaetae of anterior segments about 12 µm long; middorsal pharyngeal tooth can be large, but not massive.....**12**

**12a (11b).** Worms with 22-38 chaetigers (n = 6; mean = 31.67); anterior chaetigers with 4-5 compound chaetae; middle chaetigers with 3-4 compound chaetae; posterior chaetigers with 3 compound chaetae; proventriculus with 12-13 muscular rows.....***S. glandulata***
**12b (11b).** Worms with 13-29 chaetigers (n = 22; mean = 23.54); anterior chaetigers with 6-8 compound chaetae; middle chaetigers with 5-7 compound chaetae; posterior chaetigers with 5-6 compound chaetae; proventriculus with 13-15 muscular rows.....***Sphaerosyllis* sp. nov.***

**13a (4b).** Median antenna inserted at the same level than the lateral antennae; proventriculus short, slightly longer than larger, through 2 chaetigers.....***S. austriaca***
**13b (4b).** Median antenna inserted clearly behind the lateral antennae, near the posterior margin of the prostomium, or slightly behind the lateral antennae, in the middle of the prostomium.....**14**

**14a (13b).** Eyes absent; median antenna inserted slightly behind the lateral antennae, in the middle of the prostomium; body surface with scattered minute papillae; uppermost compound chaetae with relatively elongated, unidentate blade and well developed marginal serrations; sexual dimorphism present, with males with ventral cirri characteristically slender and longer than parapodia from chaetiger 13, whereas females have ventral cirri similar in both form and size along the body.....***S. iliffei***
**14b (13b).** Eyes present; median antenna inserted clearly behind the lateral antennae, near the posterior margin of the prostomium; body surface with numerous conspicuous papillae; uppermost chaetae longer than following ones, but of similar shape; sexual dimorphism absent.....**15**

**15a (14b).** Proventriculus throught 3 chaetigers, clearly longer than wider; body covered with numerous big papillae; about 6-8 chaetae per parapodium; upper blades in anterior parapodia 23-35 µm long.....***S. pirifera****
**15b (14b).** Proventriculus short, through 2 chaetigers, slightly longer than larger; body covered with numerous, but small papillae; about 3-5 chaetae per parapodium; upper blades in anterior parapodia about 17 µm long.....***S. piriferopsis***

## ***Sphaerosyllis austriaca*** Banse 1959

*Sphaerosyllis austriaca* BANSE, 1959*c*: 434-435, fig. 6.

**TYPE LOCALITY:** Tyrrhenian Sea, northern coast of the Sorrento Peninsula (Gulf of Naples), in the rocky littoral and at the entry of a marine cave, at 3 meters.

**SELECTED REFERENCES:** *Sphaerosyllis austriaca* — SAN MARTÍN, 1984*b*: 238-241, pl. 55; SAN MARTÍN, 2003: 208-212, figs. 109-110. *Sphaerosyllis* cf. *austriaca* — SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 73-74, figs. 13*B-C*, 14*H-I*, table 1.

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Canary Islands. In hard bottoms, among algae, sponges, hydroids, corals, mussels, rhizomes and leafs of *Posidonia oceanica*, *Sabellaria* reefs, and in calcareous bottoms. Between 0-12 meters.

## ***Sphaerosyllis boeroi*** Musco, Çinar & Giangrande 2005

*Sphaerosyllis boeroi* MUSCO, ÇINAR & GIANGRANDE, 2005: 162-165, figs. 1-2.

**TYPE LOCALITY:** Porto Cesareo (Italy, Ionian Sea; 40º14.9'N, 7º53.4'E), at 5 meters, on hard substrate (small cave).

**DISTRIBUTION:** Mediterranean Sea: Italy (Porto Cesareo; Marina Serra, Tricase; Galatone), between 5-25 meters, on hard bottoms; Northern Cyprus, between 27-150 meters, on muddy sand and hard bottoms.

## ***Sphaerosyllis bulbosa*** Southern 1914

*Sphaerosyllis bulbosa* SOUTHERN, 1914: 20-22, pl. 1 fig. 2*A-D*, pl. 2 fig. 2*E-G*.

**TYPE LOCALITY:** Clew Bay, west Ireland, between 24-27 fathoms (43.9-49.3 meters), in sand.

**SELECTED REFERENCES:** *Sphaerosyllis bulbosa* — FAUVEL, 1923*c*: 304, fig. 116*h-r*; CAMPOY, 1982: 276-277; SAN MARTÍN, 2003: 191-193, figs. 98-99. *Sphaerosyllis (Sphaerosyllis) bulbosa* — PARAPAR *et al.*, 1994*b*: 98-99, fig. 4; HARTMANN-SCHRÖDER, 1996: 175.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Sines; Sado Estuary); RAVARA, 1997 (off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: Sines; Sado Estuary).
**DISTRIBUTION:** Northeastern Atlantic, Norwegian Sea, and from the English Channel to the Mediterranean Sea; Aegean Sea; Black Sea. In sandy bottoms, especially *Amphioxus*-sand, but also in coarse sand, gravel with some mud, and *maërl*. Intertidal to 70 meters.

## ***Sphaerosyllis capensis*** Day 1953

*Sphaerosyllis hystrix* var. *capensis* DAY, 1953: 420, fig. 4*g-l*.
**TYPE LOCALITY:** Cape Agulhas, South Africa, intertidal.
**SYNONYMS:** *Sphaerosyllis capensis serrata* Hartmann-Schröder 1960.
**SELECTED REFERENCES:** *Sphaerosyllis capensis* — DAY, 1967: 276, fig. 12.11.*g-j*; HARTMANN-SCHRÖDER, 1974*a*: 133, pl. 12 figs. 111-115; BEN-ELIAHU, 1977*b*: 79-80, fig. 8, table 2. *Sphaerosyllis capensis serrata* — HARTMANN-SCHRÖDER, 1960*b*: 103, pl. 13 fig. 119, pl. 14 figs. 118, 120.
**DISTRIBUTION:** Angola; Mozambique; Red Sea; Gulf of Elat; Aegean Sea. Mainly in sandy bottoms, sometimes with mud, stones, seagrasses and among vermetid reefs. At shallow water.

## ***Sphaerosyllis claparedii*** Ehlers 1864

*Sphaerosyllis Claparèdii* EHLERS, 1864: 252-255, pl. 9 figs. 10-13.
**TYPE LOCALITY:** "Porto di Lazaretto" (probably the harbour near Lazaretto building), Rijeka (= Fiume), Croatia, Adriatic Sea, under green algae.
**SELECTED REFERENCES:** *Sphaerosyllis Claparedii* — FAUVEL, 1923*c*: 304, fig. 116*e-g*. *Sphaerosyllis claparedii* — COGNETTI, 1957: 55-56, table 1*b*.
**DISTRIBUTION:** Adriatic Sea; Gulf of Naples. Among algae, and *Posidonia*, and in coralligenous bottoms. Intertidal to 40 meters, but more common between 10-40 meters.
**REMARKS:** In spite of having been recorded in several parts of the Mediterranean Basin, this species is poorly known. It was described with base on a single specimen, collected at the harbour of Rijeka, in Croatia, by EHLERS (1864). Later FAUVEL (1923*c*) included the species in his publication, and explicitly stated that dorsal cirri were present at the second chaetiger, probably based in the drawing of the species given by EHLERS (1864), as this character is not referred in the original description of the species. Dorsal cirri were by then generally pictured at the second chaetiger of species of *Sphaerosyllis*, in spite of the fact that they could be absent [see for instance the drawings of *S. hystrix* and *S. pirifera* in CLAPARÈDE (1864, and 1868, respectively), and later repeated in FAUVEL (1923*c*)]. For this reason, the presence of dorsal cirri in the second chaetiger of *S. claparedii* should be considered for the moment as doubtful.

Other important features referred in the original description of the species that can be important in order to determine its validity and identity are the presence of chaetae with 0.11 mm long blades, the apparent absence of papillae in the body surface, and the presence of glands crossed with "thin lines" at the base of the dorsal cirri. These last structures were pictured by EHLERS (1864: pl. 9 fig. 12), and later repeated by FAUVEL (1923*c*: fig. 116*f*) who, in spite of drawing them, stated "*Pas de capsules à bâtonnets (?)*". The composed chaetae of the parapodia were also pictured as being of about the same length (EHLERS, 1864: pl. 9 fig. 12; repeated in FAUVEL, 1923*c*: fig. 116*f*).

The differences between this species and *S. hystrix* (a *Sphaerosyllis* species with parapodial glands with rods or fibrillar material described shortly before), were stated by EHLERS (1864) to rely mainly on the palps, which would be larger and merging one with another in the midline in *S. hystrix* instead of being completely separated, and also on the absence of papillae on the surface of the body in *S. claparedii*. If the first of these differences could be consequence of the state of contraction of the specimens, the second one seems to be more reliable. Besides, *S. hystrix* is normally described as having longer chaetae than the ones described for *S. claparedii*.

*S. claparedii* has been recorded from several regions of the Mediterranean Sea, namely from the coasts of north west Italy, eastern Sicily, north Adriatic, Greek Aegean Sea, and Israel (MUSCO & GIANGRANDE, 2005, Online Appendix), but it was recorded only once from south Spain. This was done, with some reservations, by AMOUREUX (1976*b*), from the region of the Gibraltar Strait. This author considered as possible specimens of *S. claparedii* 20 specimens, 8 of which "*on certainement des cirres dorsaux au 2ème sétigère*", while the other 12 "*en semblent dépourvus*".

Taking into account the commented above concerning the external morphology of *S. claparedii*, a Mediterranean species with parapodial glands with rods, and compound chaetae with 0.11 mm long blades, I think that there is a good possibility that *S. claparedii* is the same species than *S. taylori* sensu San Martín 1984, or especially *S. thomasi* San Martín 1984. *S. taylori* was described by PERKINS (1981)

with base on material from Florida, Connecticut, and Maryland, in East USA, and the same name was used by SAN MARTÍN (1984*b*) for Mediterranean specimens that were similar to *S. hystrix* but showed compound chaetae with short blades of similar length, almost without gradation between them. However *S. taylori* sensu San Martín 1984 presents the body surface with papillae. On the other hand, *S. thomasi*, described by SAN MARTÍN (1984*b*) with base on specimens collected at the Balearic Islands, also shows parapodial glands with rods and compound chaetae with short blades, and besides its body surface is described as having only disperse small papillae. Both species, but particularly the second, could be the original *S. claparedii*. The fact that this species was described by FAUVEL (1923*c*) as having dorsal cirri in the second chaetiger, and that parapodial glands with fibrillar material were apparently absent, statements later followed by other authors (*e.g.* SAN MARTÍN, 1984*b*), was probably the cause of the fact that the species was seldom recorded.

As is other similar cases, it would be necessary to study the type material of *S. claparedii*, is existent, or to study more material from or near the type locality, in the Croatian coast, in order to solve this taxonomic problem. It would be also interesting to make a comparison between specimens from the Mediterranean and North Atlantic American populations of *S. taylori*.

Because of the problem explained above, and the poor knowledge of the species, *S. claparedii* is not included in the key of *Sphaerosyllis*.

## ***Sphaerosyllis glandulata*** Perkins 1981

*Sphaerosyllis glandulata* PERKINS, 1981: 1123-1127, figs. 18-19.

**TYPE LOCALITY:** Hutchinson Island (Atlantic coast of Florida, 27º20.7'N, 80º12.8'W), at 11 meters, in coarse calcareous sand.

**SELECTED REFERENCES:** *Sphaerosyllis glandulata* — UEBELACKER, 1984*f*: 30.33-30.34, figs. 30.25-30.26; MEN *et al.*, 1993: 31-32, fig. 8; SOMASCHINI & SAN MARTÍN, 1994: 361-363, fig. 3; SAN MARTÍN, 2003: 193-195, fig. 100.

**DISTRIBUTION:** Florida (Atlantic and Gulf of Mexico coasts); North Carolina; Cuba; Tyrrhenian Sea (Pontine Islands); Ligurian Sea; Bay of Biscay (Asturias); Huanghai Sea (Yellow Sea, China). In coarse and mixed sand, between 9-45 meters. Also off Asturias, in coralligenous bottoms with *Dendrophyllia ramea*, between 116-120 meters.

## ***Sphaerosyllis gravinae*** Somaschini & San Martín 1994

*Sphaerosyllis gravinae* SOMASCHINI & SAN MARTÍN, 1994: 358-361, figs. 1-2.

**TYPE LOCALITY:** Faro, Zannone Island (Pontine Islands, Latium, Central Tyrrhenian Sea), in coarse sand, at 10 meters.

**SELECTED REFERENCES:** *Sphaerosyllis gravinae* — SAN MARTÍN, 2003: 188-191, fig. 97.

**DISTRIBUTION:** Pontine Islands, Tyrrhenian Sea, in coarse sand; Dragonera Island (Mallorca, Balearic Islands), in a rocky wall with algae, and precoralligenous community. Between 10-30 meters.

## ****Sphaerosyllis hystrix*** Claparède 1863

*Sphærosyllis hystrix* CLAPARÈDE, 1863: 45, pl. 13 figs. 36-37.

**TYPE LOCALITY:** Near St. Vaaste la Hougue (Normandie, Northern France).

**SELECTED REFERENCES:** *Sphaerosyllis hystrix* — CLAPARÈDE, 1864: 546-547, pl. 6 fig. 1; SAINT-JOSEPH, 1887: 204-207, pl. 10 figs. 79-80; PIERANTONI, 1903*a*: 233-235, pl. 10 figs. 4, 6-14, pl. 11 figs. 15-19, 28-30; FAUVEL, 1923*c*: 301, fig. 115*g-k*; COGNETTI, 1957: 53-55, tables 1*b*, 2; PETTIBONE, 1963*a*: 136-137, fig. 35*g*; BEN-ELIAHU, 1977*b*: 69-72, fig. 4, table 2 [in part; not *S. pirifera* in the synonymy list]; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 71, figs. 13*A*, 14*E-G*, table 1; CAMPOY, 1982: 281-284, pl. 19 figs. *e-g* [in part; (?) in part = *Sphaerosyllis taylori* Perkins 1981]; SAN MARTÍN, 1984*b*: 245-247, pl. 57; KIRKEGAARD, 1992: 268-269, fig. 132; SAN MARTÍN, 2003: 203-206, figs. 106-107. *Sphoerosyllis hystrix* — SOULIER, 1904: 325-332, figs. 2-3. *Sphaerosyllis (Sphaerosyllis) hystrix* — HARTMANN-SCHRÖDER, 1996: 176-177, fig. 76. Not *Sphaerosyllis hystrix* — WESTHEIDE, 1974*b*: 97-101, figs. 44, 46*A-C*.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (western continental shelf of Algarve); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (as *Sphaerosyllis histrix*; previous records: continental shelf of Algarve); SALDANHA, 1995 (Portugal); RAVARA, 1997 (as *Sphaerosyllis hystryx*; off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous

records: continental shelf of Algarve; Arrábida; Lagoon of Santo André; Sado Estuary; Peniche; Ria de Aveiro); BOAVENTURA *et al.*, 2006 (Ancão, Algarve).

**MATERIAL: FAUNA 1 — St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 52 specimens, plus 2 fragments; second chaetiger without dorsal cirri; parapodial glands normally from chaetiger 4, but also from chaetiger 5 or missing in some chaetigers; some with natatorial chaetae from chaetiger 11/13; dorsal simple chaetae from chaetiger 1; blades of anterior compound chaetae: dorsal ones up to 50 µm long, ventral ones up to 18-20 µm long; blades of posterior chaetae with a maximum of 25 µm long; 2 specimens with eggs, one of which with the eggs on the dorsal region of some segments; one specimen with only 8 chaetigers, and another with 16 chaetigers. **St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 96 specimens, plus 3 middle fragments and 6 posterior fragments; one specimen very damaged due to its mounting on gelatinized glycerine; simple chaetae from the first chaetiger; anterior chaetae with superior blade reaching 45 µm long; eggs attached to the adults ventrally; one specimen with parapodial glands from chaetiger 5; one specimen without proventriculus; one specimen with natatorial chaetae from chaetiger 12; one specimen with anterior region looking like having been regenerated. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 5 specimens (4 of which juveniles), plus 1 middle fragment with 6 chaetigers and one posterior fragment with 8 chaetigers and pygidium; parapodial capsules with fibrilar material only in some parapodia. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 12 specimens, plus one middle fragment and one posterior fragment with pygidium; blades of chaetae slightly smaller than in SAN MARTÍN (1984*b*), being up to 25 µm long; one of the specimens broken in 2 pieces; one specimen found among rhizomes of laminarians; one acicula in the anterior parapodia, curved at a right angle. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 13 specimens. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 incomplete specimen with 21 chaetigers; blades of dorsal chaetae about 40 µm long, of ventral chaetae about 16 µm long. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 3 specimens plus one posterior fragment; one of the specimens is a stolon regenerating the anterior region. **Unknown station**, leftovers of 1st plastic drum ("*Sobras Bidón 1º*"): 2 specimens.

**DISTRIBUTION:** North Atlantic, from the British Isles to the Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; North and West Africa; Northern Pacific, from Vancouver Island to Mexico. Among photophile algae, hydroids, gorgonians, mussels, among leafs and rhizomes of seagrasses, *Sabellaria* reefs, and in muddy and calcareous bottoms, and *Amphioxus*-sands. Between 0-800 meters.

## ***Sphaerosyllis iliffei*** Núñez, Martínez & Brito 2009

*Sphaerosyllis iliffei* NÚÑEZ, MARTÍNEZ & BRITO, 2009: 210-213, figs. 1-3.

**TYPE LOCALITY:** Montaña de Arena, Túnel de la Atlántida, Corona lava tube, Lanzarote (Canary Islands), coarse sand with 0.53-0.55% organic matter, and 86.3-93.1% carbonates. The depth is not stated, but it is probably of about 40 meters (see data on the same locality at WORSAAE, MARTÍNEZ & NÚÑEZ, 2009).

**DISTRIBUTION:** Known from the type locality.

## ***Sphaerosyllis magnidentata*** Perkins 1981

*Sphaerosyllis magnidentata* PERKINS, 1981: 1130-1133, fig. 22.

**TYPE LOCALITY:** South Creek Channel, John Pennekamp State Park, Monroe County, southern Florida, at 3.8 meters, in sand, shell, and coral rubble with *Thalassia*, *Penicillus* and *Halimeda* cover.

**SELECTED REFERENCES:** *Sphaerosyllis magnidentata* — RUSSELL, 1991: 64-66, fig. 6. *Sphaerosyllis (Sphaerosyllis) magnidentata* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*b*: 50-51, fig. 5.

**DISTRIBUTION:** Southern Florida, 3.8 meters, on coral rubble; Belize, shallow water; Cuba, 1 meter, on coral rubble; Canary Islands: Tenerife, 0 meters, in calcareous algae.

**REMARKS:** NÚÑEZ, SAN MARTÍN & BRITO (1992*b*) recorded this species from Canary Islands. However, the dorsal parapodial glands with granular material, described by PERKINS (1981), are not referred or pictured. The dorso-ventral gradation in the length of the blades is also stated to be less marked than in the original description, with the upper blades being 25 µm long, against about 40 µm long in the original description.

## ****Sphaerosyllis ovigera*** Langerhans 1879

*Sphaerosyllis ovigera* LANGERHANS, 1879: 567-568, pl. 32 fig. 23.

**TYPE LOCALITY:** Madeira Island, among algae at the littoral rocks.

**SELECTED REFERENCES:** *Sphaerosyllis ovigera* — FAUVEL, 1923*c*: 302-304, fig. 116*a-d*; CAMPOY, 1982: 275-276.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Sado Estuary).
**MATERIAL: FAUNA 1 — St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: [?] 1 specimen; central antenna lost; one dorsal cirrus in the left side of the second chaetiger; rest of the specimen fits the description of *Sphaerosyllis hystrix*, being probably an aberrant specimen of this species. **St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: [?] 1 specimen, fitting the description of the species, but being probably an aberrant specimen of *Sphaerosyllis hystrix*.
**DISTRIBUTION:** Northeastern Atlantic, from the British Isles to Senegal; Madeira and Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea. Sandy bottoms. Between 30-60 meters.
**REMARKS:** In the original description LANGERHANS (1879) describes this species as being common in the habitat where it was found. Besides, the same author states that the species is very close to *Syllis pirifera* and to *S. hystrix*, being provisionally separated from them by its very developed palps and the situation of the median antenna, located in line with the lateral ones. The species is pictured as having dorsal cirri in chaetiger 2, but no reference to these cirri in the second segment is made in the description. It is not clear if these cirri were in reallity observed by Langerhans or if they were pictured by error. This error had also been previously done by Claparède in some of his drawings, like in *S. hystrix* (CLAPARÈDE, 1864: plate 6 fig. 1), or *S. pirifera* (CLAPARÈDE, 1868: plate 14 fig. 2), where dorsal cirri are pictured in chaetiger 2, a segment that doesn't have such structures in these species.

In my opinion, *S. ovigera* is more close to *S. pirifera* and *S. austriaca* than to *S. hystrix*, as the glands with fibrilar material don't seem to have been observed in the specimens, while they were so in other specimens from the same region, identified as *S. hystrix* by LANGERHANS (1879). Besides, the antennae in line seem to indicate that it was similar to *S. austriaca*, while the numerous papillae in the body and palps seem to indicate that it could be similar to both *S. austriaca* and *S. pirifera*. The statement that the appearence of the dorsal simple chaetae is highly variable, appearing either at chaetiger 2 or at chaetigers 10-11 suggests the mixture of two species, maybe *S. pirifera* and *S. austriaca*.

CAMPOY (1982), by his side, considered this poorly defined species quite close to *Sphaerosyllis hystrix*, but with dorsal cirri in chaetiger 2.

The specimens referred above to this species are so only tentatively, as they seem to be abnormal specimens of *S. hystrix* that show dorsal cirri in chaetiger 2. In my opinion, the referred distribution of the species is probably the result of misidentifications or possible anomalous specimens like the ones observed in this work.

As in other cases, the solution of this problem requires collecting new material at the same locality and habitat where Langerhans collected his, and checking the occurrence of specimens similar to *S. hystrix* or *S. pirifera* with dorsal cirri at chaetiger 2. For the moment being, the species is keyed above as described in FAUVEL (1923*c*).

## ***Sphaerosyllis parabulbosa*** San Martín & López 2002

*Sphaerosyllis parabulbosa* SAN MARTÍN & LÓPEZ, 2002: 141-142, fig. 4.
**TYPE LOCALITY:** Off Sisargas Islands, A Coruña (NW Spain, 43º43.71'N 5º56.21'W), in black mud, at 157-159 meters.
**SELECTED REFERENCES:** *Sphaerosyllis parabulbosa* — SAN MARTÍN, 2003: 202-203, fig. 105.
**DISTRIBUTION:** Known from the type locality.

## ****Sphaerosyllis pirifera*** Claparède 1868

*Sphaerosyllis pirifera* CLAPARÈDE, 1868: 515-516, pl. 14 fig. 2.
**TYPE LOCALITY:** Gulf of Naples.
**SYNONYMS:** [?] *Sphaerosyllis papillifera* Naville 1933.
**SELECTED REFERENCES:** *Sphaerosyllis pirifera* — FAUVEL, 1923*c*: 301-302, fig. 115*l-p*; GARDINER, 1976: 131, fig. 10*p-r*; HARTMANN-SCHRÖDER, 1980*a*: 395, figs. 21-25; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 72-73, fig. 14*A-D*, table 1; CAMPOY, 1982: 284-285, pl. 19 figs. *a-d*; SAN MARTÍN, 1984: 241-244, pl. 56; SAN MARTÍN, 2003: 212-216, figs. 111-113. [?] *Sphaerosyllis papillifera* — NAVILLE, 1933: 185, figs. 9-12.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Ria Formosa).
**MATERIAL: FAUNA 1 — St. 0*A***, Galicia, off Cies Islands, Ria de Vigo, 82-96 m, unknowm substrate: 1 specimen. **St. 17*A***, Alborán Sea, Alborán Island, 70-74 m, stones: 1 complete specimen with 19 chaetigers; dorsal simple chaetae from chaetiger 1; blades of dorsal chaetae of the first chaetigers up to 27

µm long. **St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 11 specimens, two very damaged due to their mounting on gelatinized glycerine; very big papillae; one female with a juvenile attached; eggs attached ventrally to the body of the adult; longest blades of compound chaetae about 30 µm long; up to 9 compound chaetae per parapodium in the anterior segments; dorsal simple chaeta from the first chaetiger. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 6 specimens, one adult and 5 juveniles, plus one fragment with 7 chaetigers; some with few chaetigers (5 or 6), adult specimen incomplete, with 17 chaetigers and pygidium, prostomium missing. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 incomplete specimen with 17 chaetigers, plus one posterior fragment with 18 chaetigers and pygidium; longest blades 25 µm long. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 2 complete specimens, with 37 and 38 chaetigers; blades of anterior dorsal chaetae up to 25-27 µm long. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 1 complete specimen with 38 chaetigers; natatorial chaetae from chaetiger 12. **St. 60*A***, Gibraltar Strait, Tarifa, 12-16 m, sand, stones, photophile algae: 1 incomplete specimen with 16 chaetigers; dorsal simple chaetae apparently from chaetiger 1; maximum length of blades of about 23 µm; anterior parapodia with 2 aciculae; one of the dorsal cirrus bifid. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 1 specimen. **Unknown station**, leftovers of 1st plastic drum ("*Sobras Bidón 1º*"): 2 specimens.

**DISTRIBUTION:** From Galicia to the Mediterranean Sea; Adriatic Sea; British Columbia to California; North Carolina; Caribbean Sea. In all kind of bottoms and among algae, rhizomes of *Posidonia oceanica*, mussels, or sponges. Intertidal to 400 meters.

## ***Sphaerosyllis piriferopsis*** Perkins 1981

*Sphaerosyllis piriferopsis* PERKINS, 1981: 1133-1136, figs. 23-24.

**TYPE LOCALITY:** Hutchinson Island, (Atlantic coast of Florida, 27º21.6'N, 80º13.2'W), at about 11 meters, in coarse calcareous sand.

**SELECTED REFERENCES:** *Sphaerosyllis piriferopsis* — RUSSELL, 1991: 66-69, fig. 7.

**DISTRIBUTION:** Florida, Bahamas, and Belize, between 0-11 meters. The species has also been recorded in the Mediterranean Sea, but these records are here considered as doubtful.

## ****Sphaerosyllis taylori*** Perkins 1981

*Sphaerosyllis taylori* PERKINS, 1981: 1140-1143, fig. 26.

**TYPE LOCALITY:** Hutchinson Island (Atlantic coast of Florida, 27º22.9'N, 80º13.9'W), at about 11 meters, in coarse calcareous sand.

**SELECTED REFERENCES:** *Sphaerosyllis taylori* — SAN MARTÍN, 1984*b*: 247-250, pl. 58; SAN MARTÍN, 2003: 206-208, fig. 108. *Sphaerosyllis (Sphaerosyllis) taylori* — PARAPAR *et al.*, 1994*b*: 99-100. *Sphaerosyllis hystrix* sensu Westheide 1974 [not Claparède 1863] — BEN-ELIAHU, 1977*b*: 68, 70, fig. 3, table 2.

**REFERENCES FOR PORTUGAL:** RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: Sado Estuary); BOAVENTURA *et al.*, 2006 (Ancão, Algarve).

**MATERIAL: FAUNA 1 — St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 3 incomplete specimens; (1) with 15 chaetigers, blades shorter than 15 µm, gradation between chaetae not marked; anterior parapodia with 2 aciculae, one straight and the other curved at a right angle; (2) with 23 chaetigers, anterior dorsal chaetae with spines in the blades, 2 aciculae in the anterior parapodia; (3) with 9 chaetigers, seems to have a single acicula in the anterior parapodia. **St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 40 specimens; blades of anterior compound chaetae up to 15 µm long; pharynx with 10 papillae in the anterior region; one specimen with natatorial chaetae from chaetiger 10; one specimen in poor condition. **St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 1 juvenile specimen; all blades of compound chaetae of about the same length. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 12 specimens, plus one posterior fragment with pygidium; blades of compound chaetae up to 20 µm long in the first chaetigers; in the middle parapodia they are about 12 µm long; 2 aciculae in the anterior parapodia; one specimen broken in 2 pieces; in some specimens it is possible to observe 2 lobes in the digestive tract, posterior to the proventriculus; one specimen with natatorial chaetae from chaetiger 15; one specimen seems to have an internal parasite, like a Nematoda. **St. 42*A***, Alborán Sea, NE La Linea de la Concepción, 86-87 m, coastal detritic: 1 specimen; 2 aciculae in the anterior parapodia; dorsal simple chaetae with spinulation from the anterior region. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 specimen; blades of anterior compound chaetae about 16 µm long; anterior parapodia with 2 aciculae; small papillae scattered all over the body; about all cirri and antennae missing. **St. 57*A***, Gulf

of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 1 specimen, anterior parapodia with 2 aciculae. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 1 specimen. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 3 specimens; longer blades normally up to 15-20 µm, maximum; 2 aciculae in the anterior parapodia. **Alborán Island**, 4 m, rest of data unknown: 7 specimens, in poor condition; sample badly fixed, specimens get ruined when manipulated. **Unknown station**, leftovers of 1st plastic drum ("*Sobras Bidón 1º*"): 1 juvenile specimen, in poor condition.

**DISTRIBUTION:** Florida (Atlantic and Gulf of Mexico coasts); Atlantic coast of USA; Cuba; Norwegian Sea; from Galicia to the Canary Islands; Mediterranean Sea; Aegean Sea. In coarse sand, *Amphioxus*-sand, muddy sand and sandy mud with shell fragments, and among algae, hydroids, and rhizomes and leafs of *Posidonia oceanica*. Intertidal to 156 meters.

## **Sphaerosyllis thomasi* San Martín 1984

*Sphaerosyllis thomasi* SAN MARTÍN, 1984*b*: 250-253, pl. 59.

**TYPE LOCALITY:** The species was described with base on 63 specimens collected on 3 stations. A holotype was chosen, but SAN MARTÍN (1984*b*) did not refer from which of the three stations. The stations are: Formentera Island, La Sabina Harbour, at 2 meters, on muddy sand; Ibiza Island, near San Antonio Abad, on coarse sand, at 4 meters; and same place, on rhizomes of *Posidonia oceanica*, at 5 meters.

**SELECTED REFERENCES:** *Sphaerosyllis thomasi* — SAN MARTÍN, 2003: 199-200, figs. 103-104.

**MATERIAL: FAUNA 1 — St. 60*A***, Gibraltar Strait, Tarifa, 12-16 m, sand, stones, photophile algae: 2 specimens; (1) specimen in poor condition, antennae and tentacular cirri lost, dorsal cirri shorter than the normal in the genus, ventral cirri well developed, sometimes surpassing the parapodia; (2) incomplete, with 17 chaetigers, body more robust than in *Sphaerosyllis taylori*, dorsal cirri very short, equal size through the whole body.

**DISTRIBUTION:** Mediterranean Sea: Ibiza and Formentera (Balearic Islands); Tyrrhenian Sea; Adriatic Sea; Aegean Sea. On coarse and muddy sands, and on rhizomes of *Posidonia*. Between 2-5 meters.

## **Sphaerosyllis* sp. nov.

**SELECTED REFERENCES:** *Sphaerosyllis* sp. — SAN MARTÍN, 2003: 195-197, figs. 101-102. *Sphaerosyllis* sp.1 — ÇINAR, ERGEN & BENLI, 2003: 760-762, fig. 7.

**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 95 specimens, three very damaged due to their mounting on gelatinized glycerine; 2 pairs of eyes in the prostomium, and what seems to be a series of ocular spots; parapodial glands with granular material from the first chaetiger; anterior parapodia with 2 aciculae, one straight, surpassing slightly the parapodium, and the other curved at a right angle; gradation of chaetae not very marked, being the blades normally shorter than 10 µm; proventriculus of one of the specimens, in spite of lengthened, covering only 2 chaetigers. **St. 52*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 22-24 m, rock: 1 complete specimen; like specimens from St. 22*A*; blades of compound chaetae with a little less than 10 µm; proventriculus with about 12 muscular rows, being 3 chaetigers long; anal cirri about the same length than the dorsal cirri. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 2 specimens; proventriculus through 3 chaetigers. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 1 specimen. **Unknown station**, leftovers of 1st plastic drum ("*Sobras Bidón 1º*"): 1 specimen; body robust, with some papillae; dorsum with some transversal stripes of fine detritus; without dorsal cirri in chaetiger 2; pharyngeal tooth located in an anterior position; proventriculus through 3 chaetigers; parapodial glands with granular material; acicula curved at a right angle; blades of chaetae without gradation, about 8 µm long.

**DISTRIBUTION:** Southern coasts of Spain: Gulf of Cádiz; Alborán Sea; Salobreña (Granada); Catalan coast (Arenys de Mar); Cyprus. In muddy coralligenous, and detritic bottoms, gravel, rocks, and stones. Between 22-118 meters; 250-300 meters.

**REMARKS:** *Sphaerosyllis* sp. nov. is very close to *Spherosyllis glandulata* Perkins 1981, from Florida, from which it can be separated with base on small details, revealed by a morphometric analysis of specimens from the two populations. The results of these analysis will be published elsewhere, with the description of the new species. The two species can be separated following the above key.

## GENUS *Streptodonta* San Martín & Hutchings 2006

*Streptodonta* SAN MARTÍN & HUTCHINGS, 2006: 353.

**TYPE SPECIES:** *Opisthodonta pterochaeta* Southern 1914.

**KEY TO SPECIES:**

**1a.** Pseudospinigers present; morphology of falcigers different between anterior and posterior chaetigers; four aciculae in the anterior chaetigers; pharyngeal tooth located medially, close to anterior rim of pharynx.....***S. exsulis***
**1b.** Pseudospinigers absent; morphology of falcigers similar in anterior and posterior chaetigers; two aciculae in the anterior chaetigers; pharyngeal tooth located laterally in the posterior half of pharynx, far from anterior rim of pharynx.....***S. pterochaeta***

## ***Streptodonta exsulis*** Ramos, San Martín & Sikorski 2010

*Streptodonta exsulis* RAMOS, SAN MARTÍN & SIKORSKI, 2010: 1043-1045, figs. 1-4.
**TYPE LOCALITY:** Norwegian Sea, 61º12'03.18"N, 02º11'30.43"E, 141 meters, in fine sediment.
**DISTRIBUTION:** Norwegian Sea. In fine sediment. Between 133-141 meters.

## ***Streptodonta pterochaeta*** (Southern 1914)

*Opisthodonta pterochaeta* SOUTHERN, 1914: 30-32, pl. 4 fig. 6*A*-*G*.
**TYPE LOCALITY:** About 1 mile N.N.E. of Cleggan Head, Connemara, Galway (west Ireland), in mid-water at 9 fathoms (16.5 meters), in soundings of 18 fathoms (32.9 meters).
**SELECTED REFERENCES:** *Opisthodonta pterochaeta* — FAUVEL, 1923*c*: 274, fig. 102*d*-*l*; HARTMANN-SCHRÖDER, 1971*c*: 104-105, figs. 4-6; CAMPOY, 1982: 304-307, pl. 24; BACHELET, 1990: 173-176, fig. 1; PARAPAR, BESTEIRO & URGORRI, 1992*b*: 115, fig. 2*D*; PARAPAR *et al.*, 1993*a*: 370-372, fig. 4; HARTMANN-SCHRÖDER, 1996: 160-161; SAN MARTÍN, 2003: 51-54, figs. 13-14; RAVARA, SAN MARTÍN & MOREIRA, 2004: 8; PALMERO *et al.*, 2005: 289-291, figs. 1, 3*A* [figure captions of figures 1 and 2 are interchanged]. *Streptodonta pterochaeta* — SAN MARTÍN & HUTCHINGS, 2006: 353-354, fig. 81.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (as *Opisthodonta pterochaeta*; off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (as *Opisthodonta pterochaeta*; off Aveiro).
**DISTRIBUTION:** Northeastern Atlantic, from North Sea to Gibraltar Strait; Ceuta, Mediterranean Sea; Australia (New South Wales). On *Amphioxus*-sand and coarse sand. Recorded as being pelagic (?), but normally present between 6-50 meters.

# GENUS ***Streptosyllis*** Webster & Benedict 1884

*Streptosyllis* WEBSTER & BENEDICT, 1884: 711.
**TYPE SPECIES:** *Streptosyllis arenae* Webster & Benedict 1884.
**REMARKS:** The genus definition was emended by SOUTHERN (1914). FAULWETTER *et al.* (2008) presented a synoptic table and a key for all the previously described species.

**KEY TO SPECIES:**
(adapted from FAULWETTER *et al.*, 2008)

**1a.** Blades of compound chaetae with hyaline hood; blades of compound chaetae unidentate.....**2**
**1b.** Blades of compound chaetae without hyaline hood; blades of compound chaetae bidentate.....**4**

**2a (1a).** Distal ends of shafts of compound chaetae covered by hyaline hood; aciculae not distinctly enlarged, but normally with tips more inflated in chaetigers 3-5 and less so in chaetigers 2 and 6 (not in all specimens.....***S. nunezi***
**2b (1a).** Distal ends of shafts of compound chaetae not covered by hyaline hood; chaetigers 2-5 or 2-6 with tip distinctly enlarged.....**3**

**3a (2b).** Spiniger-like compound chaetae present; enlarged aciculae on chaetigers 2-6.....***S. templadoi***
**3b (2b).** Siniger-like compound chaetae absent; enlarged aciculae on chaetigers 2-5.....***S. arenae***

**4a (1b).** Enlarged aciculae present on chaetigers 2-5.....**5**

**4b (1b).** Enlarged aciculae present on chaetigers 2-6; blades of compound chaetae distinctly bidentate.....***S. campoyi***

**5a (4a).** Blades of compound chaetae distinctly bidentate; aciculae of chaetigers 6 and 7 more slender than on chaetigers 2-5, but larger than those of following chaetigers.....***S. bidentata***
**5b (4a).** Blades of compound chaetae indistinctly bidentate; aciculae of chaetiger 6 much more slender than those of chaetigers 2-5, similar to those of the following chaetigers.....***S. websteri***

## ***Streptosyllis arenae*** Webster & Benedict 1884

*Streptosyllis arenæ* WEBSTER & BENEDICT, 1884: 711-713, pl. 2 .
**TYPE LOCALITY:** Provincetown, Massachusetts (Atlantic coast of USA), at low water, in sand.
**SELECTED REFERENCES:** *Streptosyllis arenae* — PETTIBONE, 1963*a*: 127, fig. 31*l-m*; [?] GARDINER, 1976: 133-135, 11*u-z*; HARTMANN-SCHRÖDER, 1996: 163; PALMERO *et al.*, 2005: 291-293, fig. 2*F-H* [figure captions of figures 1 and 2 are interchanged].
; FAULWETTER *et al.*, 2008: 3-5, figs. 1-3, table 2.
**DISTRIBUTION:** Massachusetts to North Carolina, Atlantic coast of USA; southern North Sea. In fine to medium sand. Intertidal to 10 meters.
**REMARKS:** *Streptosyllis arenae* was recorded from the Southern Bight of the Northern Sea by GOVAERE *et al.* (1980). However, HARTMANN-SCHRÖDER (1996) considered this record as doubtful, as *S. arenae* was a poorly known species, and stated that the record refers probably to *S. websteri*.

## ***Streptosyllis bidentata*** Southern 1914

*Streptosyllis bidentata* SOUTHERN, 1914: 28-29, pl. 3 fig. 4*A-F*.
**TYPE LOCALITY:** Clew Bay, west Ireland, at 24 fathoms (43.9 meters), in a bottom of sand and shells.
**SELECTED REFERENCES:** *Streptosyllis bidentata* — FAUVEL, 1923*c*: 282-283, fig. 106*h-r*; BRITO, NÚÑEZ & SAN MARTÍN, 2000*a*: 604-607, fig. 2; SAN MARTÍN, 2003: 127-128, figs. 61-62; FAULWETTER *et al.*, 2008: table 2. *Streptosyllis websteri* [not Southern 1914] — SAN MARTÍN, 1984*b*: 122-125, pl. 21. Not *Streptosyllis bidentata* — CAMPOY, 1982: 314-316, pl. 25.
**DISTRIBUTION:** Northeastern Atlantic, from the Irish Sea to the Gulf of Vizcaya; Canary Islands; Mediterranean Sea (Balearic Islands). On sandy bottoms. Between 3-44 meters.

## ***Streptosyllis campoyi*** Brito, Núñez & San Martín 2000

*Streptosyllis campoyi* BRITO, NÚÑEZ & SAN MARTÍN, 2000*a*: 611-613, fig. 5.
**TYPE LOCALITY:** Ensenada de los Abades (Tenerife, Canary Islands) in fine sand with *Cymodocea nodosa*, depth not mentioned, probably between 5-24 meters, $Q_{50}$ = 0.22 mm, $S_0$ [coefficient sorting of Trask] = 1.66, Carbonates = 7.50%, Organic matter = 0.49%, Nitrogen = 0.032%.
**SELECTED REFERENCES:** *Streptosyllis campoyi* — SAN MARTÍN, 2003: 131-132, figs. 63-64; FAULWETTER *et al.*, 2008: table 2. *Streptosyllis bidentata* [not Southern 1914] — CAMPOY, 1982: 314-316, pl. 25.
**DISTRIBUTION:** Canary Islands (Tenerife, Lanzarote, La Gomera); Cantabric Sea (Guipúzcoa). In sand, and sand with *Cymodocea nodosa*. At about 5-45 meters.

## ***Streptosyllis nunezi*** Faulwetter, Vasileiadou, Papageorgiou & Arvanitidis 2008

*Streptosyllis nunezi* FAULWETTER *et al.*, 2008: 5-10, figs. 4-6, table 2.
**TYPE LOCALITY:** Pahia Ammos Beach, Crete, Greece, in sand, at 1-5 meters.
**SELECTED REFERENCES:** *Streptosyllis arenae* — CASTELLI & LARDICCI, 1986: 146-148, fig. 1. *Streptosyllis aff. arenae* — PALMERO *et al.*, 2005: 291-293, figs. 2*I-O*, 3*B* [figure captions of figures 1 and 2 are interchanged].
**DISTRIBUTION:** Mediterranean Sea: Crete and Toscan coast of Italy; Northeastern Atlantic Ocean: Canary Islands. In fine to coarse sandy substrates. Shallow waters, between 1-20 meters.

## ***Streptosyllis templadoi*** San Martín 1984

*Streptosyllis templadoi* SAN MARTÍN, 1984*b*: 120-122, pl. 20.
**TYPE LOCALITY:** This species was described with base in two specimens, collected in two different but near stations. SAN MARTÍN (1984*b*) didn't state from which station is the holotype. Both stations are loccated at Santa Ponsa (western coast of Mallorca, Balearic Islands), in sand near meadows of *Posidonia oceanica*, one at 5 meters and the other at 7 meters of depth.

**SELECTED REFERENCES:** *Streptosyllis templadoi* — BRITO, NÚÑEZ & SAN MARTÍN, 2000*a*: 609-611, fig. 4; SAN MARTÍN, 2003: 121-124, figs. 56-58; FAULWETTER *et al.*, 2008: table 2.
**DISTRIBUTION:** Western Mediterranean Sea (Balearic Islands and Italy); Canary Islands (Tenerife). In sand, near meadows of seagrasses. Shallow water to about 10 meters.

### ***Streptosyllis websteri*** Southern 1914

*Streptosyllis Websteri* SOUTHERN, 1914: 26-28, pl. 2 fig. 3*A-F*.
**TYPE LOCALITY:** West Ireland: Ballynakill Harbour (Connemara, Galway), in 2-6 fathoms (3.6-11 meters), and Bofin Harbour (Inishbofin Island), in 1-4 fathoms (1.8-7.3 meters).
**SYNONYMS:** *Streptosyllis cryptopalpa* Hartmann-Schröder 1960; *Streptosyllis pettiboneae* Perkins 1981.
**SELECTED REFERENCES:** *Streptosyllis Websteri* — FAUVEL, 1923*c*: 282, fig. 107; FRIEDRICH, 1939*b*: 371-373, figs. 10-11. *Streptosyllis websteri* — HARRIS, 1971: 699-700, fig. 8; HARTMANN-SCHRÖDER, 1974*a*: 129, pl. 11 fig. 102; HARTMANN-SCHRÖDER, 1974*b*: 45-46, figs. 16-20; CAMPOY, 1982: 312-314; KIRKEGAARD, 1992: 271-273, fig. 134; PARAPAR *et al.*, 1994*b*: 94-95, fig. 1*F-G*; HARTMANN-SCHRÖDER, 1996: 163-164, fig. 69; BRITO, NÚÑEZ & SAN MARTÍN, 2000*a*: 607-609, fig. 3; SAN MARTÍN, 2003: 125-127, figs. 59-60; FAULWETTER *et al.*, 2008: table 2. *Streptosyllis cryptopalpa* — HARTMANN-SCHRÖDER, 1960*b*: 95-96, pl. 10 figs. 90-92, pl. 11 fig. 89. *Streptosyllis pettiboneae* — PERKINS, 1981: 1143-1147, figs. 27-28. [?] *Streptosyllis varians* [not Wesbter & Benedict 1887] — SAINT-JOSEPH, 1895: 192-194, pl. 11 figs. 8-11; FAUVEL, 1923*c*: 281-282 (not fig. 106*a-g* = *Streptosyllis varians* Webster & Benedict 1887) [according to SOUTHERN (1914), Saint-Joseph's specimen could be identical to *Streptosyllis websteri* Southern 1914]. Not *Streptosyllis websteri* — SAN MARTÍN, 1984*b*: 122-125, pl. 21 [= *Streptosyllis bidentata* Southern 1914].
**DISTRIBUTION:** Northeastern Atlantic, from Ireland to the Mediterranean Sea; Western Baltic Sea; Canary Islands; Aegean Sea; Black Sea; Florida; Southwest Indian Ocean (Mozambique, Natal, Tanzania). In coarse to fine sandy bottoms. Between 0-80 meters.

## *GENUS ***Syllides*** Ørsted 1845

*Syllides* ØRSTED, 1845*b*: 408.
**TYPE SPECIES:** *Syllides longocirrata* Ørsted 1845.
**SYNONYMS:** *Anoplosyllis* Claparède 1868.

**KEY TO SPECIES:**
(adapted from: BANSE, 1971; SAN MARTÍN, 2003)

**1a.** Shaft endings of compound chaetae on anterior segments very different from those on median and posterior segments; upper simple chaetae conspicuously thick and bent on first 5 chaetigers, long and drawn out posteriorly.....***S. longocirratus***
**1b.** Shaft endings of all compound chaetae similar.....**2**

**2a (1b).** Shaft endings of compound chaetae with large subapical spines opposite sockets of blades; upper simple chaetae with split tips.....***S. convolutus***
**2b (1b).** Shaft endings of compound chaetae smooth or slightly serrated.....**3**

**3a (2b).** Some blades of compound chaetae on median parapodia with basal spurs or large spines.....**4**
**3b (2b).** Blades of median parapodia smooth or with hairs on cutting edges.....**7**

**4a (3a).** Medium-long blades with basal spurs.....**5**
**4b (3a).** Long and/or medium-long blades each with several long basal spines.....**6**

**5a (4a).** Upper simple chaetae with subterminal, irregular spines, rounded tip; medium-long and some long blades with a basal spur.....***S. benedicti***
**5b (4a).** Upper simple chaetae with blunt tip, covered by a distal hyaline hood; only medium-long blades with a basal spur.....***S. bansei***

**6a (4b).** Long and medium-long blades each with several long basal spines.....***S. japonicus***

**6b (4b).** Only medium-long blades have several long basal spines, rest of the blades have short basal spines.....***S. edentatus***

**7a (3b).** Upper simple chaetae with rounded tips.....***S. fulvus****
**7b (3b).** Upper simple chaetae drawn-out and pointed; proventricle through 6-10 chaetigers; upper compound chaetae with very long blades, anteriorly >0.2 mm.....***S. articulosus***

## ***Syllides articulosus*** Ehlers 1897

*Syllides articulosus* EHLERS, 1897: 42-45, pl. 2 figs. 48-52.

**TYPE LOCALITY:** The species was described by EHLERS (1897) with base on specimens collected on three different stations, at Southern South America. Apparently, a holotype or a type locality were not designated, but the data of the three stations is as follows: (1) Punta Arenas, Magellan Strait, at the beach; (2) Punta Arenas, Magellan Strait, among *Sargassum* roots found at the beach after a storm; (3) Uschuaia, South Tierra del Fuego, littoral, at low tide

**SELECTED REFERENCES:** *Syllides articulosus* — HARTMAN, 1964: 89-91, pl. 28 figs. 6-7; HARTMANN-SCHRÖDER, 1965*b*: 111-114, figs. 71-73; SOMASCHINI & SAN MARTÍN, 1997: 267-271, figs. 2-3, plate 1. *Syllides articulosus* — BANSE, 1971: 1475.

**DISTRIBUTION:** Southern South America: Strait of Magellan, Tierra del Fuego, between 12-84 meters, in mud with fine sand; Subantarctic Islands; Antarctica. Central Tyrrhenian Sea (Mediterranean Sea), at 30 meters, in fine sand.

**REMARKS:** According to SOMASCHINI & SAN MARTÍN (1997), the studied 14 Mediterranean specimens of *S. articulosus* were immature, being smaller than those described from the antarctic and subantarctic seas, agreeing however in the shape of the body and the chaetae. EHLERS (1897) described the species as being about 10 mm long, with 63-70 chaetigers, and a proventriculus through about 10 segments, while SOMASCHINI & SAN MARTÍN (1997) studied specimens from off Livingston Island (South Shetlands, Antarctica), which were about 3.2 mm long, with 34 chaetigers, and the proventriculus extending through 6 segments. The Mediterranean specimens were 1.65 mm long, for 22 chaetigers, and the proventriculus extended through 5 segments. The differences found between the antarctic and Mediterranean specimens in relation to the length of the proventriculus were justified by SOMASCHINI & SAN MARTÍN (1997) as being probably related to the size of the specimens, being this way considered as without taxonomic significance. However, both populations should be compared with base on more accurated biometric measurements, in the case that no other morphologic differences are found.

## ***Syllides bansei*** Perkins 1981

*Syllides bansei* PERKINS, 1981: 1147-1150, figs. 29-30.

**TYPE LOCALITY:** Hutchinson Island (Atlantic coast of Florida, 27º20.7'N, 80º12.8'W), at about 11 meters, in coarse calcareous sand.

**SELECTED REFERENCES:** *Syllides bansei* — ALÓS, 1989: 335-337, fig. 6; SAN MARTÍN, 2003: 145-147, fig. 71; NÚÑEZ *et al.*, 1995: 3-4, fig. 2.

**DISTRIBUTION:** Florida (Atlantic and Gulf of Mexico coasts), between 0.5-11 meters, in sandy bottoms; Madeira Island; Mediterranean Sea; Aegean Sea. Interstitial in coarse sand, may be present also among rhizomes of *Posidonia oceanica*.

## ***Syllides benedicti*** Banse 1971

*Syllides benedicti* BANSE, 1971: 1478-1479, fig. 6.

**TYPE LOCALITY:** Eastport, Maine (Atlantic coast of USA), in intertidal sand.

**SELECTED REFERENCES:** *Syllides benedicti* — SAN MARTÍN, GONZÁLEZ & LÓPEZ-JAMAR, 1985: 31-32, figs. 4-5; HARTMANN-SCHRÖDER, 1996: 166; SAN MARTÍN, 2003: 147-148, fig. 72.

**DISTRIBUTION:** Eastport, Maine, intertidal, in sand; Skagerrak (Bohuslän, West Sweden), 9.5 meters, in shell sand of *Zostera* meadows; Galicia, intertidal, in coarse sand.

## ***Syllides convolutus*** Webster & Benedict 1884

*Syllides convoluta* WEBSTER & BENEDICT, 1884: 709-711, pl. 2 figs. 12-16.

**TYPE LOCALITY:** Race Run, near Provincetown, Massachusetts (Atlantic coast of USA), in intertidal sand.

**SELECTED REFERENCES:** *Syllides convoluta* — BANSE, 1971: 1474-1475, fig. 3; CAMPOY, 1982: 322-323. *Syllides convolutus* — SAN MARTÍN, 1984*b*: 131-134, pl. 23, photos. 11-12; PARAPAR *et al.*, 1994*b*:

95; SAN MARTÍN, 2003: 137-139, fig. 66. Not *Syllides convoluta* — WEBSTER & BENEDICT, 1887: 717 [= *Syllides benedicti* Banse 1971].
**DISTRIBUTION:** Massachusetts, Atlantic coast of USA; Galicia and Gulf of Vizcaya, northern coast of Spain; Balearic Islands, Western Mediterranean. On sandy bottoms and among algae, in sandy areas. Intertidal to 30 meters.

## ***Syllides edentatus*** Westheide 1974

*Syllides japonica edentata* WESTHEIDE, 1974*b*: 81-83, figs. 36*E*, 37.
**TYPE LOCALITY:** Academy Bay, Santa Cruz Island (Galapagos Islands), in the northern zone.
**SELECTED REFERENCES:** *Syllides japonica edentata* — CAMPOY, 1982: 320-322. *Syllides edentatus* — SAN MARTÍN, 1984*b*: 143-146, pl. 27; SAN MARTÍN, 2003: 143-145, fig. 70.
**DISTRIBUTION:** Galapagos Islands; Gulf of Vizcaya and Galicia, northern Spain; Mediterranean Sea; Cape Verde Islands. Mainly in sandy bottoms, but also in intertidal rocky pools with algae, meadows of *Caulerpa prolifera* and *Cymodocea nodosa*, bottoms with vermetids, mud, and muddy gravel with *Zostera*. Intertidal to infralittoral.

## ****Syllides fulvus*** (Marion & Bobretzky 1875)

*Anoplosyllis fulva* MARION & BOBRETZKY, 1875: 28-31, pl. 2 figs. 8*B-F*, pl. 3 fig. 8*A*.
**TYPE LOCALITY:** Île de Ratonneau, Frioul Archipelago, Gulf of Marseille (Southern France), in coralligenous bottoms and among algae.
**SYNONYMS:** *Syllis ochracea* Marenzeller 1875; [?] *Syllides papillosa* Hartmann-Schröder 1960; [?] *Syllides reishi* Dorsey 1978.
**SELECTED REFERENCES:** *Syllides fulvus* — SAN MARTÍN, 1984*b*: 134-139, pls. 24-25; SAN MARTÍN, 2003: 139-142, figs. 67-68. *Syllides fulva* — BANSE, 1971: 1472-1473, fig. 2; AMOUREUX, RULLIER & FISHELSON, 1978: 114; CAMPOY, 1982: 317-318. *Syllides longocirrata* [not Ørsted 1845] — SAINT-JOSEPH, 1887: 165-167; FAUVEL, 1923*c*: 284, fig. 108*a-g*; COGNETTI, 1957: 35-37, pl. 1 fig. 7, tables 1*a*, 2; BANSE, 1959*c*: 430. *Syllis ochracea* — MARENZELLER, 1875: 155-158, pl. 3 fig. 1. [?] *Syllides papillosa* — HARTMANN-SCHRÖDER, 1960*b*: 96-97, pl. 10 figs. 94-96, pl. 11 fig. 93; BEN-ELIAHU, 1977*a*: 49; AMOUREUX, RULLIER & FISHELSON, 1978: 114. [?] *Syllides reishi* — DORSEY, 1978: 24-26, figs. 1*d*, 2; KUDENOV & HARRIS, 1995: 59, fig. 1.21. [?] *Syllides longocirrata* [not Ørsted 1845] — LANGERHANS, 1879: 548-549; COGNETTI, 1961*b*: 298; HARRIS, 1971: 700-701, fig. 9.
**MATERIAL: FAUNA 1 — St. 22*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30 m, coralligenous: 1 specimen, in poor condition, many cirri missing; belongs to *Forma B*, following SAN MARTÍN (1984*b*), due to its golden spots in the integument; with natatorial chaetae.
**DISTRIBUTION:** Northeastern Atlantic, from the English Sea and Gulf of Vizcaya to the Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; Red Sea; [?] California. Among algae and on hard bottoms of all kinds. Intertidal to 30 meters, sometimes deeper.

## ***Syllides japonicus*** Imajima 1966

*Syllides japonicus* IMAJIMA, 1966*c*: 112-114, fig. 36.
**TYPE LOCALITY:** Japanese coast of Sea of Japan: Funadomari, in Rebun Island, and Kutsugata, in Rishiri Island, both off NW Hokkaido Island; Irika, Hokkaido Island; Noto-ogi, Honshu Island, from a sandy beach.
**SELECTED REFERENCES:** *Syllides japonica* — BANSE, 1971: 1477-1478, fig. 5. *Syllides* cf. *japonicus* — SAN MARTÍN, 1984*b*: 139-143, pl. 26, table 5. *Syllides japonicus* — SAN MARTÍN, 2003: 142-143, fig. 69; SAN MARTÍN & HUTCHINGS, 2006: 360-361, figs. 86*C-F*, 87. [?] *Syllides* sp. — SAN MARTÍN, GONZÁLEZ & LÓPEZ-JAMAR, 1985: 32-33, fig. 6.
**DISTRIBUTION:** Japan; Cape Cod Bay, Massachusetts, 25 meters; Lopez Island, Washington, 27 meters, in mud; Western Mediterranean Sea; Balearic Islands; [?] Galicia, intertidal; Australia (New South Wales, Tasmania, Western Australia). On sandy mud, sand, rocky pools with algae and sand, and among rhizomes of *Posidonia*. Intertidal to about 30 meters.

## ***Syllides longocirratus*** Ørsted 1845

*Syllis (Syllides) longocirrata* ØRSTED, 1845*b*: 408-409, pl. 5 fig. 2*a-b*.
**TYPE LOCALITY:** Oslo Fjord (Norway).
**SELECTED REFERENCES:** *Syllides longocirrata* — WEBSTER & BENEDICT, 1887: 717-718; ELIASON, 1962*b*: 241-243, fig. 10; BANSE, 1971: 1470-1472, fig. 1; BICK & GOSSELCK, 1985: 222, pl. 21 fig. 2; KIRKEGAARD, 1992: 277, fig. 136; HARTMANN-SCHRÖDER, 1996: 166-168, fig. 71; LICHER, 1999: 288.

Not *Syllides longocirrata* — LANGERHANS, 1879: 548-549; SAINT-JOSEPH, 1887: 165-167; FAUVEL, 1923*c*: 284, fig. 108*a-g*; COGNETTI, 1957: 35-37, pl. 1 fig. 7, tables 1*a*, 2; BANSE, 1959*c*: 430; COGNETTI, 1961*b*: 298 [all = *Syllides fulvus* (Marion & Bobretzky 1875)]. Not *Syllides longocirrata* — PETTIBONE, 1963*a*: 124-126, fig. 36*b* [= *Syllides japonicus* Imajima 1966]. Not *Syllides longocirrata* — AUGENER, 1913*b*: 229-230; HASWELL, 1920: 102; MARINOV, 1959*a*: 84-85, fig. 1; DAY, 1967: 259, fig. 12.7.*a-d* [= *Syllides* sp. (see BANSE, 1971: 1472)].

**DISTRIBUTION:** North Atlantic: Eastport, Maine; Norway; Barents Sea; Skagerrak; west Baltic Sea; from the North Sea to the Mediterranean Sea; Adriatic Sea; Black Sea; Orcas Island, Washington (Pacific coast of USA); South Africa; Australia; New Zealand; Chile. In muddy and sandy bottoms. Eulittoral to about 200 meters. Many of the previous records refer to other species, described or not.

## *GENUS ***Syllis*** Savigny *in* Lamarck 1818

*Syllis* SAVIGNY *in* LAMARCK, 1818: 317-318.

**TYPE SPECIES:** *Syllis monilaris* Savigny *in* Lamarck 1818.

**SYNONYMS:** *Ioida* Johnston 1840; *Gnathosyllis* Schmarda 1861; *Trichosyllis* Schmarda 1861; *Pagenstecheria* Quatrefages 1866; *Aporosyllis* Quatrefages 1866; *Chaetosyllis* Malmgren 1867; *Typosyllis* Langerhans 1879; *Langerhansia* Czerniavsky 1882.

**REMARKS:** *Syllis nidrosiensis* Bidenkap 1907 has been considered to belong to the genus *Syllis* almost since its description (BIDENKAP, 1907: 21-22; HARTMAN, 1959*a*: 228; HOLTHE, 1977*a*: 19; LICHER, 1999: 292). However, the only available description of the species is still the original one (BIDENKAP, 1907), and the type material was not found (LICHER, 1999). From the drawings by BIDENKAP (1907: text-fig. 7, and plate 3 figs. 19-20), it is possible to see that the species doesn't belong to *Syllis*, due to its smooth antennae and cirri. It belongs to the subfamily Eusyllinae, probably to *Pionosyllis* or *Eusyllis*. In HANSSON (1998), the species is tentatively placed under the genus *Pionosyllis*, and *Hesiosyllis enigmatica* Wesenberg-Lund 1950 considered to be a junior synonym. However, it is remarked that the species could belong to *Eusyllis*.

Due to the difficulty in identifying the species of *Syllis*, besides of the following main key, adapted from LICHER (1999) and including almost all the European species, is also given a translation of the key presented by SAN MARTÍN (2003).

### KEY TO SPECIES:

(adapted from LICHER, 1999)

**NOT INCLUDED IN THE KEY:** *Chætosyllis Oerstedi* Malmgren 1867; *Syllis abyssicola* Ehlers 1874; *Syllis brevicirrata* McIntosh 1908; *Ehlersia nepiotoca* Caullery & Mesnil 1916.

**1a.** Midbody segments showing simple chaetae as the result of the fusion between blades and shafts.....**2**
**1b.** Midbody segments normally with composite chaetae, if showing simple chaetae they are the result of the loss of the blades.....**3**

**2a (1a).** Bifurcated simple chaetae in midbody region with one tooth very short; transversal dorsal dark bands absent.....***S. monilaris***
**2b (1a).** Bifurcated simple chaetae in midbody region with teeth of about the same length; transversal dorsal dark bands present.....***S. gracilis****

**3a (1b).** Dorsal and ventral compound chaetae within a bundle with long, slender falcigerous blades (gradation = ratio of dorsal and ventral blades' lengths = 2 to 3 in proventricle region); teeth along blades very small and numerous; blades bidentate, with subdistal tooth smaller than distal one, in all regions; anterior slender aciculae, 3-5 simple to acuminate; long dorsal cirri in median region with 24-48 articles; prostomium with 4 eyes.....***S. nigricirris***
**3b (1b).** Chaetae or aciculae otherwise.....**4**

**4a (3b).** Compound chaetae as pseudospinigers and falcigers.....**5**
**4b (3b).** Compound chaetae only as falcigers.....**14**

**5a (4a).** Anterior parapodia with 20-28 compound chaetae; long dorsal cirri in median segments with about 16-19 articles.....***S. heterochaeta***
**5b (4a).** anterior parapodia with less than 20 compound chaetae per bundle, but all of them with more than 3 chaetae.....**6**

**6a (5a).** Prostomium with 4 eyes; ocular spots may be present.....**7**
**6b (5a).** Prostomium without eyes.....**13**

**7a (6a).** Long dorsal cirri in median segments with about 40 articles.....***S. magna***
**7b (6a).** Long dorsal cirri in median segments with about 9-30 articles.....**8**

**8a (7b).** Parapodia (preferably in median segments) with needle-like acicula besides common aciculae...**9**
**8b (7b).** No needle-like aciculae present.....**10**

**9a (8a).** Blades of falcigers with spines of short or moderate size; spinigerous chaetae clearly bidentate; proventricle and pharyngeal tube of about the same length, being the proventricle a little smaller than the pharyngeal tube; pharyngeal tube over 10 segments; proventricle over 6 segments.....***S. beneliahuae***
**9b (8a).** Blades of falcigers with long spines along the margin, especially in the distal region, where they can surpasse the proximal tooth; spinigerous chaetae apparently unidentate, in spite of having a very small proximal tooth; proventricle and pharyngeal tube of about the same length, being the proventricle a little smaller than the pharyngeal tube; pharyngeal tube over 6-9 segments; proventricle over 5-6 segments.....***S. garciai****

**10a (8b).** All parapodia with a single acicula; aciculae foot-like, distally bent; long dorsal cirri in median segments with about 17-20 articles; proventricle with about 24-27 muscle cell rows.....***S. rosea***
**10b (8b).** At least anterior parapodia with more than 1 acicula; aciculae not foot-like.....**11**

**11a (10b).** Dorsal cirri in median segments all short, with about 9-10 articles, showing strong difference in width between basal an terminal articles; posterior aciculae with conical and oblique tip and a small subdistal knob; proventricle with about 38-43 muscle cell rows.....***S. parapari****
**11b (10b).** Long dorsal cirri in median segments with about 24-27 articles; posterior aciculae pointed...**12**

**12a (11b).** Posterior parapodia with aciculae slender than anterior, when more than one is present, they have about the same thickness; teeth along blades small and fine, all nearly of the same length along edge.....***S. alternata***
**12b (11b).** Posterior parapodia with 2 unequal aciculae, being one bigger and much stronger; teeth along edge become smaller distally.....***S. cornuta***

**13a (6b).** Segments with a midventral strong pigmented pattern, consisting in a median irregular spot bordered by 2 smaller specks, plus dorsal and ventral cirri strongly pigmented; long dorsal cirri in the median segments with about 17-19 articles; median antenna with about 18 articles.....***S. mauretanica***
**13b (6b).** No such pattern of pigment; long dorsal cirri in the median segments with about 11 articles; median antenna with about 32 articles.....***S. caeca***

**14a (4b).** Anterior parapodia with 20-25 compound chaetae; blades unidentate (sometimes, bidentate blades can be found, mainly in the anterior parapodia).....**15**
**14b (4b).** At most 16-17 compound chaetae per parapodia.....**16**

**15a (14a).** Posterior parapodia with a large straight acicula, distinctly protuding out of the parapodial lobes.....***S. licheri***
**15b (14a).** Posterior parapodia with aciculae with obliquous tips, not protuding out of the parapodial lobes.....***S. vittata***

**16a (14b).** In median region, a few dorsal chaetae without blades; present blades moderately long or sickle-like, subbidentate to bidentate.....**17**
**16b (14b).** All chaetae usually with blades.....**18**

**17a (16a).** Gradation of anterior dorsal and ventral blades' lengths of about 2.5; falcigers all bidentate; anterior segments pigmented on dorsum, forming a "lying eight"; proventricle of about the same length than the pharyngeal tube, or slightly shorter, with 36-38 muscular cell rows.....***S. ferrani***
**17b (16a).** Gradation of anterior dorsal and ventral blades' lengths of about 1.5; falcigers subbidentate or bidentate; segments without pigmentation; proventricle twice as long as pharyngeal tube, with 38-42 muscular cell rows.....***S. amica***

**18a (16b).** Prostomium, peristomium or some anterior segments pigmented over large areas; blades bidentate; anterior parapodia with maximum 3 aciculae.....**19**
**18b (16b).** No pigmentation in anterior segments over large areas; blades unidentate or bidentate; anterior parapodia can have more than 3 aciculae.....**20**

**19a (18a).** Peristomium (sometimes also posterior half of prostomium) densely pigmented, 1st chaetiger and following without such pigmentation; proventricle with ca. 24-25 muscle cell rows; long dorsal cirri in median segments with 24-25 articles; no thicker chaetae present.....***S. schulzi***
**19b (18a).** Peristomium and 1st chaetiger (sometimes also prostomium in part) densely pigmented, 2nd chaetiger and following without such pigmentation; proventricle with ca. 33-38 muscle cell rows; long dorsal cirri in median segments with 12-13 articles; "normal" and thicker chaetae present.....***S. torquata***

**20a (18b).** Dorsal cirri in anterior segments distally widened, club-like; ventral shafts in posterior region hatchet-like.....***S. krohni****
**20b (18b).** All dorsal cirri distally tapering or of subequal width.....**21**

**21a (20b).** Pharyngeal tooth inserted at one fourth to one third of the pharyngeal tube's length from the opening; blades sickle-like, unidentate to subbidentate; anterior parapodia with 4-5 aciculae; pharyngeal tube extending over 8-12 segments.....***S. pectinans***
**21b (20b).** Pharyngeal tooth inserted near the opening.....**22**

**22a (21b).** Anterior parapodia with max. 10 compound chaetae and dorsal cirri in median segments with max. 6 articles.....**23**
**22b (21b).** Anterior parapodia with more than 10 chaetae, or dorsal cirri in median segments with more than 6 articles.....**25**

**23a (22a).** Blades unidentate; prostomial eyes lacking.....***S. anoculata***
**23b (22a).** Blades bidentate; 4 prostomial eyes present.....**24**

**24a (23b).** Dorsal cirri of 2nd to 4th chaetiger with 6-8 articles, in median segments with 5-7 articles.....***S. gerundensis****
**24b (23b).** All dorsal cirri each with 3-4 articles (only 1st dorsal cirrus longer).....***S. curticirris***

**25a (22b).** Blades exclusively unidentate, with short, fine teeth along edge; shafts distally at most with short, fine spines; proventricle with 37-39 muscle cell rows.....***S. fasciata***
**25b (22b).** Blades subbidentate (with the secondary tooth very small) and bidentate.....**26**
**25c (22b).** Blades exclusively bidentate.....**27**

**26a (25b).** Long dorsal cirri in median segments fusiform, with 8-10 articles; in anterior segments, gradation of dorsal and ventral blades of about 2.5-3.0; in median segments, gradation of dorsal and ventral blades of 1-1.5; anterior parapodia with about 4 aciculae, in median region with 2-3 aciculae; pharynx over 8-9 segments; proventricle with 37-40 muscle cell rows.....***S. armillaris****
**26b (25b).** Long dorsal cirri in median segments not fusiform, with 15-20 articles; in anterior segments, gradation of dorsal and ventral blades of about 1.7; in median segments, gradation of dorsal and ventral blades of about 2-2.5; anterior parapodia with 2-3 aciculae, in median region with 2 aciculae; pharynx over 6 segments; proventricle with about 30-35 muscle cells rows.....***S. pulvinata***

**27a (25c).** Subdistal tooth in ventral chaetae in median segments backwards at least twice as big as distal tooth; all chaetae of about the same thickness.....**28**
**27b (25c).** Subdistal tooth in all chaetae at most as big as distal tooth or only slightly bigger.....**30**

**28a (27a).** Blades with very short teeth along edge; long dorsal cirri in median segments with 16-18 articles; proventricle with 30-33 muscle cell rows.....***S. cruzi***
**28b (27a).** Blades with long, rough teeth along edge.....**29**

**29a (28b).** Subdistal teeth along the edge of blades longer than the rest, directed upwards, reaching or even surpassing the distal tooth; long dorsal cirri in median segments with 20-32 articles; proventricle long, with about 30 muscle cell rows.....***S. jorgei***
**29b (28b).** Subdistal teeth along the edge of blades slightly longer than the rest, but not reaching the distal tooth; long dorsal cirri in median segments with 35-40 articles; proventricle long, with 36-38 muscle cell rows.....***S. lutea***

**30a (27b).** Dorsal posterior region of prostomium with big nuchal lappets, covering main parts of peristomium; proventricle over about 4 segments, not much longer than pharyngeal tube.....***S. nuchalis***
**30b (27b).** No such nuchal lappets, nuchal organs as dorsolaterally paired depressions, between prostomium and peristomium.....**31**

**31a (30b).** Dorsal cirri in median region with about 6-12 articles (12-17 in *S. golfonovensis*).....**32**
**31b (30b).** Long dorsal cirri in median region with about 13-36 articles.....**34**
**31c (30b).** Long dorsal cirri in median region with about 44-50 articles; anterior parapodia with about 10 falcigers, and in median segments with 6; proventricle as long as pharyngeal tube, over 14-16 segments and with 35-40 muscle cell rows; anterior segments pigmented on dorsum, forming a "lying eight".....***S. corallicola* [Caribbean population]**

**32a (31a).** Dorsal cirri distally tapering; gradation of dorsal and ventral anterior blades of about 2, backwards of about 1.2; proventricle with 26-30 muscle cell rows.....***S. hyalina****
**32b (31a).** Dorsal cirri not or insignificantly tapering; anterior gradation of 1.5, at most, backwards of about 1.2.....**33**

**33a (32b).** Proventricle with 33-38 muscle cell rows; anterior parapodia with 2/3 aciculae, one with a swelled sharp tip, the other(s) finishing in an oblique tip; midboby parapodia with a single acicula, with an oblique to flamelike tip, or with two aciculae, one with an oblique tip and the other with a sharp tip, reducing posteriorly to a single acicula, with the oblique tip.....***S. golfonovensis***
**33b (32b).** Proventricle with 38-45 muscle cell rows; anterior parapodia with 4 aciculae, 3 straight, stout, with truncate tip, the other thinner, with curved tip at right angle; midbody parapodia with 2 aciculae, one straight, the other with somewhat oblique tip, reducing later to a single acicula, very stout, tip with a concave edge, and at the opposite side, a convex one.....***S. pontxioi***

**34a (31b).** Anterior and median parapodia with about 6 falcigers; long dorsal cirri in median region with 13-16 articles; proventricle with 21-22 muscle cell rows.....***S. tyrrhena***
**34b (31b).** Anterior and median parapodia with more chaetae.....**35**

**35a (34b).** Anterior segments pigmented on dorsum, forming a "lying eight" (can be bleached out in fixed material); long dorsal cirri in median region with 17-30 articles; anterior parapodia with 3-4 aciculae; proventricle with 30-36 muscle cell rows.....**36**
**35b (34b).** No such pigmentation or long dorsal cirri in median segments with more articles; anterior parapodia with 2-4 aciculae; proventricle with 21-38 muscle cell rows.....**37**

**36a (35a).** Anterior parapodia with 6-8 falcigers; gradation of dorsal and ventral blades in median segments of about 2; long dorsal cirri in median region with 17-22 articles; pharynx over 8 segments.....***S. variegata****
**36b (35a).** Anterior parapodia with 10-11 falcigers; in median segments with 1 needle-like acicula; gradation of dorsal and ventral blades in median segments of about 1.5; long dorsal cirri in median region with 24-30 articles; pharynx over 5-6 segments.....***S. westheidei***
**36c (35a).** Anterior parapodia with about 10 falcigers; no needle acicula in median segments; gradation of dorsal and ventral blades in median segments of about 2; long dorsal cirri in median region with 25-30 articles; pharynx over 8 segments.....***S. corallicola* [Mediterranean population]***

**37a (35b).** Anterior parapodia with 2-3 aciculae.....**38**
**37b (35b).** Anterior parapodia with 3-4 aciculae.....**41**

**38a (37a).** Pharyngeal tube transparent, at most pale pink, over 6 segments; long dorsal cirri in median segments with 32-36 articles; proventricle with about 35 muscle cell rows; anterior parapodia with 2-3 aciculae; blades with fine, pointed teeth along edge; reproduction by viviparity.....***S. vivipara***
**38b (37a).** Pharyngeal tube brownish, over 4-5 segments; anterior parapodia with 2-3 aciculae.....**39**

**39a (38b).** Dorsal cirri of 1st chaetiger with 40-43 articles; long dorsal cirri in median segments with 32-36 articles; proventricle with 24 muscle cell rows.....***S. prolifera***
**39b (38b).** Dorsal cirri of 1st chaetiger with 18-24 articles; long dorsal cirri in median segments with 14-19 articles; proventricle with 33-35 muscle cell rows; aciculae pistil-like.....**40**

**40a (39b).** All eyes subequal in size; long dorsal cirri in median segments with 14-16 articles; pharynx over 5-6 segments.....***S. gerlachi****
**40b (39b).** Anterior eyes twice as big as posterior ones; long dorsal cirri in median segments with 18-19 articles; pharynx over 7 segments.....***S. kabilica***

**41a (37b).** Pharyngeal tube brownish, over 8 segments; long dorsal cirri in median segments with 20-28 articles; proventricle with about 37 muscle cell rows; anterior parapodia with 3-4 aciculae.....***S. compacta***
**41b (37b).** Colour of pharyngeal tube unknown, over 10 segments (Lebanon); long dorsal cirri in median segments with 30-32 articles (California) or 40 articles (Lebanon); proventricle unknown (California) or with 37 muscle cell rows (Lebanon); anterior parapodia with 4 aciculae.....***S. bella***

**KEY TO SPECIES:**
(translated from SAN MARTÍN, 2003)

**NOT INCLUDED IN THE KEY:** *Syllis monilaris* Savigny *in* Lamarck 1818; *Syllis cornuta* Rathke 1843; *Syllis nigricirris* Grube 1863; *Chætosyllis Oerstedi* Malmgren 1867; *Syllis fasciata* Malmgren 1867; *Syllis abyssicola* Ehlers 1874; *Syllis brevicirrata* McIntosh 1908; *Ehlersia nepiotoca* Caullery & Mesnil 1916; *Typosyllis lutea* Hartmann-Schröder 1960; *Typosyllis nuchalis* Hartmann-Schröder 1960; *Typosyllis anoculata* Hartmann-Schröder 1962; *Typosyllis golfonovensis* Hartmann-Schröder 1962; *Langerhansia caeca* Katzman 1973; *Ehlersia rosea magna* Westheide 1974; *Typosyllis (Typosyllis) curticirris* Hartmann-Schröder 1981; *Syllis onkylochaeta* Hartmann-Schröder 1991; *Typosyllis mauretanica* Licher 1999.

**1a.** Aciculae of posterior parapodia with round and hollow tips, drumstick-shaped; middorsal pharyngeal tooth clearly located away from the pharyngeal oppening.....**2**
**1b.** Aciculae otherwise; middorsal pharyngeal tooth located near the pharyngeal oppening, or only slightly away from it (except in *S. pectinans*).....**3**

**2a (1a).** Compound chaetae clearly bidentate, with both teeth similar.....***S. prolifera***
**2b (1a).** Compound chaetae with unidentate blades, or provided with a very small subdistal tooth, like a spine.....***S. vivipara***

**3a (1b).** Aciculae of the posterior parapodia thick, straight, with sharp point, clearly protruding from the parapodial lobes.....**4**
**3b (1b).** Aciculae otherwise (in some cases can protrude from the parapodial lobes, but they are not straight and sharp pointed).....**6**

**4a (3a).** Blades of compound chaetae unidentate.....***S. licheri***
**4b (3a).** Blades of compound chaetae bidentate.....**5**

**5a (4b).** Dorsal coloration on anterior segments forming a "lying eight"; middle body longest dorsal cirri with a similar length to the width of the corresponding segment; posterior aciculae generally dark.....***S. variegata****
**5b (4b).** Without coloration; dorsal cirri very long, whip-shaped, with a clear alternation in their length.....***S. alternata***

**6a (3b).** Aciculae of the posterior parapodia with blunt tips, one side more developed than the other, giving the appearance of forming a right angle; dorsal simple chaetae truncated.....**7**

**6b (3b).** Aciculae finishing in a pointed tip, generally oblique; dorsal simple chaetae not truncated.....**14**

**7a (6a).** Each parapodia at the middle of the body provided with 1 (sometimes 2-3) compound chaetae with pseudospiniger blades, with unidentate and rounded tips.....***S. rosea***
**7b (6a).** Without pseudospiniger chaetal blades.....**8**

**8a (7b).** Pharyngeal middorsal tooth clearly located away from the pharyngeal oppening; dorsal side of anterior segments provided with a very thin transversal dark band; compound chaetae with unidentate blades, provided with long spines at the cutting margin.....***S. pectinans***
**8b (7b).** Middorsal pharyngeal tooth located near the pharyngeal oppening; coloration absent or otherwise.....**9**

**9a (8b).** Tentacular segment and first chaetiger with a dorsal reddish stain, following segments with a more or less oval dorsal band of the same colour; posterior compound chaetae unidentate or with a tiny subdistal tooth, and with the shafts very thickened at the tips.....***S. schulzi***
**9b (8b).** Without coloration; compound chaetae otherwise.....**10**

**10a (9b).** Compound chaetae of median parapodia with short and triangular blades, bidentate, with both teeth relatively close, the subdistal one much smaller than the distal one, and spines at the cutting margin relatively long.....**11**
**10b (9b).** Compound chaetae with marked dorso-ventral gradation in the size of the blades.....**12**

**11a (10a).** Parapodia at the middle of the body with a simple chaeta, thicker than the other ones, formed by the fall of the blade and the thickenning of the shaft.....***S. amica***
**11b (10a).** Without such simple chaetae.....***S. kabilica***

**12a (10b).** Each middle body parapodia with 2 (sometimes 1-3) compound chaetae with blades longer than the rest, with the two teeth very close, and the spines at the cutting margin wide and truncated at their tip.....***S. pulvinata***
**12b (10b).** Without such chaetae.....**13**

**13a (12b).** Segments wider than longer; proventricle throughout 3 or more segments.....***S. gerlachi****
**13b (12b).** Segments as wide as long; proventricle short, throughout 2 segments.....***S. tyrrhena***

**14a (6b).** Blades of compound chaetae provided with large spines directed upwards in the cutting margin, with the larger spines reaching and surpassing the level of the distal tooth.....***S. jorgei***
**14b (6b).** Compound chaetae otherwise.....**15**

**15a (14b).** Longer dorsal cirri of the anterior region of the body strongly thickened in relation to other dorsal cirri; posterior compound chaetae with shaft very thickened and short, hooked, blades, unidentate or with subdistal small tooth; 1 or 2 reddish transversal bands in each of the anterior segments.....***S. krohnii****
**15b (14b).** Dorsal cirri of similar thickness along the whole body.....**16**

**16a (15b).** Coloration of the "*variegata* type" (forming a dorsal "lying eight" in anterior segments); middle body with several strongly thickened chaetae, due to the fall of blade and thickening of the shaft.....***S. ferrani***
**16b (15b).** Without such chaetae.....**17**

**17a (16b).** Compound chaetae in middle and posterior regions of body with blades with subdistal tooth bigger than distal one.....**18**
**17b (16b).** Without such chaetae.....**19**

**18a (17a).** Difference between teeth very big at the posterior parapodia, the distal tooth can even disappear, and shafts are very thickened; dorsal cirri short; coloration formed by a big dark red coloured stain in the prostomium, tentacular segment and first chaetiger, sometimes with a dorsal transversal band at the first chaetigers.....***S. torquata***
**18b (17a).** Difference between teeth of the blades not so strong; dorsal cirri of moderate size; without coloration.....***S. cruzi***

**19a (17b).** With chaetae with pseudospiniger blades.....**20**
**19b (17b).** Without such chaetae.....**22**

**20a (19a).** Blades provided with large spines in the cutting margin, especially at the distal region, where in some falcigers they can surpass the level of the subdistal tooth.....***S. garciai****
**20b (19a).** Blades with spines of short or moderate size.....**21**

**21a (20b).** Dorsal cirri relatively long, with a similar shape throughout the whole body; pseudospinigers relatively short and clearly bidentate.....***S. beneliahuae***
**21b (20b).** Dorsal cirri at the middle of the body short and thick, fusiform; pseudospinigers relatively long, apparently unidentate, but with a very small subdistal tooth.....***S. parapari****

**22a (19b).** Middle body dorsal cirri short, with length equal or smaller than the width of the corresponding segments.....**23**
**22b (19b).** Middle body dorsal cirri long.....**27**

**23a (22a).** Middle body chaetae very thick, simple by the fusion of the shaft with the blade.....***S. gracilis****
**23b (22a).** Without such simple chaetae.....**24**

**24a (23b).** Dorsal cirri very thin and fragile.....**25**
**24b (23b).** Dorsal cirri thick and fusiform.....**26**

**25a (24a).** Aciculae of posterior parapodia very thick, ending in an oblique tip that clearly protrudes from the parapodial lobes.....***S. pontxioi***
**25b (24a).** Posterior aciculae not so thickened, with an oblique tip that protrudes slightly from the parapodial lobes.....***S. gerundensis****

**26a (24b).** Middle body compound chaetae with blades provided with a very small subdistal tooth; aciculae acuminate, not protruding from the parapodial lobe.....***S. armillaris****
**26b (24b).** Middle body compound chaetae clearly bidentate; posterior aciculae with blunt tip, slightly protruding from the parapodial lobe.....***S. hyalina****

**27a (22b).** Compound chaetae undidentate and hooked; anterior segments strongly pigmented, forming a transversal band on each segment.....***S. vittata***
**27b (22b).** Compound chaetae bidentate.....**28**

**28a (27b).** Without coloration, opaque body; blades of compound chaetae with scarce dorsoventral gradation, triangular, with subdistal tooth much smaller than distal one.....***S. compacta***
**28b (27b).** With very variable coloration, from specimens devoid of, to specimens with transversal bands, or coloration of "*variegata* type"; compound chaetae with both teeth well marked and with a dorsoventral gradation in the size of the blades throughout the biggest part of the body.....**29**

**29a (28b).** Subdistal tooth of compound chaetae smaller than distal one throughout the whole body.....***S. westheidei***
**29b (28b).** Subdistal tooth very strong and separated from distal one.....**30**

**30a (29b).** Length of posterior compound chaetae with dorsoventral gradation, not very different from the ones from the middle of the body.....***S. corallicola****
**30b (29b).** Posterior compound chaetae with blades of similar length, very wide, with both teeth very big and strong.....***S. columbretensis*** **[= *Syllis variegata* Grube 1860, according to LICHER (1999)]**

## ***Syllis abyssicola*** Ehlers 1874

*Syllis abyssicola* EHLERS, 1874: 295.
**TYPE LOCALITY:** North Atlantic, 59º34'N, 7º18'W, at 2523.7 meters (1380 fathoms), on dark mud.
**SELECTED REFERENCES:** *Syllis abyssicola* — EHLERS, 1875: 45-46, pl. 2 figs. 18-20; LICHER, 1999: 304.
**DISTRIBUTION:** Known from the type locality.

**REMARKS:** This species was considered as a *nomen dubium* by LICHER (1999), who wasn't able to locate the type material. Previously, AUGENER (1928*a*) suggested that it could be a junior synonym of *Syllis cornuta*. Several differences between the descriptions of both species do however exist, which points to the possibility of being two different and valid species. For instance, *S. abyssicola* is blind, and presents dorsal cirri with 9-11 articles, while *S. cornuta* presents two pairs of eyes, and dorsal cirri in the median region of the body with 24-28 articles (long cirri), or 16-20 (short cirri).

## ***Syllis alternata*** Moore 1908

*Syllis alternata* MOORE, 1908: 323-325, text-figs. *a-f*.

**TYPE LOCALITY:** Behm Canal (southeastern Alaska), at the vicinity of Naha Bay, 41-134 fathoms (75-245 meters), in gravel and sponges.

**SELECTED REFERENCES:** *Syllis alternata* — BERKELEY & BERKELEY, 1938: 37-38, fig. 3; BERKELEY & BERKELEY, 1948: 77-78, fig. 115; BANSE & HOBSON, 1974: 64, fig. 16*a*; SAN MARTÍN & VIÉITEZ, 1984: 153-155, figs. 1-2; SAN MARTÍN, 2003: 354-358, figs. 192-193. *Syllis (Typosyllis) alternata* — USCHAKOV, 1955*a*: 180, fig. 50*G-K*; GARDINER, 1976: 141, fig. 13*b-c*. *Typosyllis alternata* — IMAJIMA, 1966*e*: 273-275, fig. 58; HARTMAN, 1968: 479-480, figs. 1-5; LICHER, 1999: 253-255, figs. 17*P*, 106; KUDENOV & HARRIS, 1995: 83-85, fig. 1.32.

**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (as *Typosyllis alternata*; previous records: Ria Formosa).

**DISTRIBUTION:** NE Pacific Ocean, from Alaska to Panama; Chukchi Sea; Northern Sea of Japan; Caribbean Sea; NW Atlantic Ocean; Portugal; Mediterranean Sea. In mixed sediments, gravel, and rocky substrata. Intertidal to 350 meters, but recorded to be present down to 2560 meters.

## ***Syllis amica*** Quatrefages 1866

*Syllis amica* QUATREFAGES, 1866*b*: 20-21.

**TYPE LOCALITY:** France.

**SYNONYMS:** *Ehlersia (Syllis) simplex* Langerhans 1879; *Syllis æsthetica* Saint-Joseph 1887; *Syllis Cunninghami* McIntosh 1908.

**SELECTED REFERENCES:** *Syllis amica* — FAUVEL, 1923*c*: 258-259, fig. 95*e-n*; COGNETTI, 1957: 14-15, table 1*a*; IMAJIMA, 1966*d*: 246-248, fig. 48; IMAJIMA, 1968: 26, fig. 10*a-b*; HARTMANN-SCHRÖDER, 1974*a*: 113-114, pl. 6 figs. 58-59; CAMPOY, 1982: 371-374, pl. 32; IMAJIMA, 1983: 218, fig. 34*a-i*; SAN MARTÍN, 1984*b*: 344-349, pls. 84-85; ESTAPÉ & SAN MARTÍN, 1991: 50, fig. 5, table 1; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 116, fig. 3*H-I*; SAN MARTÍN, 2003: 366-370, figs. 199-200. *Syllis (Syllis) amica* — DAY, 1967: 243, fig. 12.2.*a-e*. *Syllis (Typosyllis) amica* — UEBELACKER, 1984*f*: 30.127-30.129, figs. 30.119-30.120. *Typosyllis amica* — LICHER, 1999: 217-219, table 18. *Ehlersia (Syllis) simplex* — LANGERHANS, 1879: 538-539, pl. 31 fig. 6. *Syllis (Ehlersia) simplex* — SOUTHERN, 1914: 37-38. *Syllis (Ehlersia) æsthetica* — SAINT-JOSEPH, 1887: 156-157, pl. 7 figs. 20-23. *Syllis Cunninghami* — MCINTOSH, 1908*c*: 195-196, pl. 70 figs. 19-19*a*, pl. 84 fig. 6.

**REFERENCES FOR PORTUGAL:** [?] SALDANHA, 1974 (as *Syllis* cf. *amica*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); CASTRO & VIEGAS, 1981 (Tagus Estuary); CAMPOY, 1982 (previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Sines; Sado Estuary); RAVARA, 1997 (off Aveiro).

**DISTRIBUTION:** Cosmopolitan, in template and tropical seas. From the English Channel and British Isles to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Madeira and Canary Islands; West and East Africa; Japan. On algae, *Posidonia oceanica*, mussels, vermetid reefs, sandy, rocky and coralligenous bottoms. Intertidal to 115 meters.

## ***Syllis anoculata*** (Hartmann-Schröder 1962) **nov. comb.**

*Typosyllis anoculata* HARTMANN-SCHRÖDER, 1962*b*: 93, figs. 69-71.

**TYPE LOCALITY:** 24 km south of Tocopilla (Chile), in a straight bay with rocky boulders, in coarse sand with stones and many detritus, at 1 meter.

**SELECTED REFERENCES:** *Typosyllis anoculata* — TENERELLI, 1966: 231, tabs. 1-2; LICHER, 1999: 255-257, tables 13-14, fig. 107.

**DISTRIBUTION:** Chile; [?] Mediterranean Sea. In interstitial coastal ground water, in coarse or fine sand.

**REMARKS:** This species was recorded in Italy, by TENERELLI (1966). However, this record needs further confirmation.

## **Syllis armillaris* (O.F. Müller 1776)

*Nereis armillaris* O.F. MÜLLER, 1776: 217.

**TYPE LOCALITY:** Greenland.

**SYNONYMS:** *Ioida macrophthalma* Johnston 1840; *Syllis tigrina* Rathke 1843; *Syllis brachychaeta* Schmarda 1861; *Syllis closterobranchia* Schmarda 1861; *Syllis crassicornis* Schmarda 1861; *Syllis lineata* Schmarda 1861; *Trichosyllis sylliformis* Schmarda 1861; *Syllis danica* Quatrefages 1866; *Syllis capensis* McIntosh 1885; *Syllis alternosetosa* Saint-Joseph 1887; *Syllis (Typosyllis) augeneri* Haswell 1920; *Syllis (Typosyllis) tortugaënsis* Augener 1924; *Syllis (Typosyllis) bilineata* Zachs 1933; *Typosyllis striata* Hartmann-Schröder 1960.

**SELECTED REFERENCES:** *Syllis armillaris* — JOHNSTON, 1865: 190-192, pl. 15*a* figs. 1-2; MALMGREN, 1867*a*: 42, pl. 7 fig. 46; BENHAM, 1896: 307-308, fig. 160; WESENBERG-LUND, 1947: 5-6, fig. 2*c*; BERKELEY & BERKELEY, 1948: 72, fig. 104; COGNETTI, 1957: 24-25, pl. 1 fig. 3, table 1*a*; BANSE & HOBSON, 1974: 62, fig. 16*b-c*; SAN MARTÍN, 1984*b*: 381-387, pls. 99-100, photo 9; ESTAPÉ & SAN MARTÍN, 1991: 55-58, fig. 9, table 1; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 118, fig. 4*C*; SAN MARTÍN, 2003: 423-426, figs. 232-233. *Typosyllis armillaris* — HARTMAN, 1968: 481-482, figs. 1-5; AMOUREUX, RULLIER & FISHELSON, 1978: 99-102, fig. 5; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 79, fig. 20; CAMPOY, 1982: 436-441, pls. 55-57; KIRKEGAARD, 1992: 280-282, fig. 138; LICHER, 1999: 189-196, figs. 3*B*, 84. *Syllis (Typosyllis) armillaris* — FAUVEL, 1923*c*: 264-265, fig. 99*a-f*; USCHAKOV, 1955*a*: 180, fig. 51*C-G*; DAY, 1967: 249, fig. 12.4.*a-d*; UEBELACKER, 1982: 585-587, fig. 2; UEBELACKER, 1984*f*: 30.129-30.131, figs. 30.121-30.122. *Typosyllis (Typosyllis) armillaris* — HARTMANN-SCHRÖDER, 1996: 152-153, fig. 66. *Ioida macrophthalma* — JOHNSTON, 1840*a*: 231-232, pl. 7 fig. 5. *Syllis tigrina* — RATHKE, 1843: 165-166, pl. 7 figs. 9-11. *Syllis brachychaeta* — SCHMARDA, 1861: 70, text-figs. *a-b*. *Syllis (Typosyllis) brachychaeta* — AUGENER, 1918: 247-257, text-fig. 20, pl. 4 figs. 83-85, pl. 5 fig. 98. *Typosyllis brachychaeta* — HARTMAN, 1964: 93-95, pl. 29 figs. 3-4. *Syllis lineata* — SCHMARDA, 1861: 71, 1 text-fig.. *Syllis crassicornis* — SCHMARDA, 1861: 72, 3 text-figs.. *Syllis closterobranchia* — SCHMARDA, 1861: 72, 3 text-figs.. *Trichosyllis sylliformis* — SCHMARDA, 1861: 73-74, text-figs. *a-c*. *Syllis danica* — QUATREFAGES, 1866*b*: 21-22. *Syllis closterobranchia* — EHLERS, 1913: 476-477, pl. 31 figs. 1-3; BENHAM, 1921: 20-22, pl. 5 figs. 1-2. *Syllis (Typosyllis) closterobranchia* — AUGENER, 1913*b*: 200-203, text-fig. 23. *Syllis capensis* — MCINTOSH, 1885*a*: 193, pl. 33 figs. 8-9, pl. 15*A* fig. 21. *Syllis alternosetosa* — SAINT-JOSEPH, 1887: 150-156, pl. 7 figs. 14-19. *Syllis (Typosyllis) alternosetosa* — SAINT-JOSEPH, 1895: 187-188, pl. 11 fig. 1. *Syllis (Typosyllis) augeneri* — HASWELL, 1920: 98, pl. 11 figs. 19-20; KNOX, 1960*b*: 101, figs. 93-96. *Syllis (Typosyllis) tortugaënsis* — AUGENER, 1924*a*: 43. *Syllis (Typosyllis) bilineata* — ZACHS, 1933: 128. *Typosyllis striata* — HARTMANN-SCHRÖDER, 1960*b*: 78-79, pl. 2 figs. 28-29.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (as *Typosyllis armillaris*; Peniche); CAMPOY, 1982 (as *Typosyllis armillaris*; previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (as *Typosyllis armillaris*; Ponta do Baleal; Ponta do Surdão); MONTEIRO-MARQUES, 1987 (as *Syllis (Typosyllis) armillaris*; continental shelf of Algarve); DEXTER, 1992 (as *Syllis (Typosyllis) armillaris*; previous records: Ria de Alvor; continental shelf of Algarve; Sines; Figueira da Foz); SALDANHA, 1995 (Portugal); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 66**, off Praia do Amado, 60 m, rock: 1 specimen; dorsal cirri clearly fusiform; pharynx of about the same length than the proventriculus. **SEPLAT 7 (2nd part) — St. 220 (A.3895)**, off NW Porto Covo, 28 m, rock: 1 complete specimen, anal cirri lost. **FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 27 specimens plus 5 fragments and 1 pygidium; two very damaged due to their mounting on gelatinized glycerine; 2 specimens among rhizomes of laminarians; one specimen with the anterior region regenerated, lacking proventriculus; one specimen with one stolon in the posterior region. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 1 specimen. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 3 specimens plus one fragment. **St. 58*A***, Gulf of Cádiz, 33-34 m, detritic with rocks: 1 specimen. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 4 specimens, plus 2 posterior fragments.

**DISTRIBUTION:** Cosmopolitan. Arctic; Greenland; Bering Sea; Sea of Japan; Western Canada; Spitsbergen; Iceland; Faroes; from Norwegian Sea to the Mediterranena Sea; Adriatic Sea; Aegean Sea; Canary Islands; Red Sea; West and South Africa; Mozambique; Florida; Australia; Antarctic and sub-Antarctic. On sponges, algae, corals, mussels, vermetid tubes, *Posidonia* beds, rocks, detritic, sandy and muddy bottoms. Intertidal to 400 meters. Probably its distribution is the result of the presence of a species-complex (SAN MARTÍN, 2003).

## ***Syllis bella*** (Chamberlin 1919)

*Typosyllis bella* CHAMBERLIN, 1919*b*: 7.

**TYPE LOCALITY:** Laguna Beach, California.

**SELECTED REFERENCES:** *Typosyllis bella* — LICHER, 1999: 94-96, fig. 45. *Syllis bella* — CAPA, SAN MARTÍN & LÓPEZ, 2001: 107; AGUADO & SAN MARTÍN, 2007: 211-215, figs. 1-3.

**DISTRIBUTION:** Central American Pacific: California, USA; Panama. Between 2-12 meters, on dead coral and among algae. Beirut (Lebanon, Eastern Mediterranean), among *Caulerpa scalpelliformis*, barnacles and on rocks, between 1-9 meters.

**REMARKS:** AGUADO & SAN MARTÍN (2007) reported *Syllis bella* from Lebanon (Eastern Mediterranean Sea). According to these authors, the morphological characters of the Mediterranean population agreed with the holotype from California redescribed by LICHER (1999), except in some small variations: specimens from California showed dorsal cirri with 16-32 articles alternatively, while in specimens from Lebanon dorsal cirri had 36-40 articles; and specimens from California had 9-10 compound chaetae per parapodium, while specimens from Lebanon showed 11-15. These differences were attributed to the different sizes of the studied groups of specimens, with the specimen from California having 145 segments, and the one from Lebanon 56.

## ***Syllis beneliahuae*** (Campoy 1982)

*Langerhansia beneliahui* CAMPOY, 1982: 389-394, pls. 39-40.

**TYPE LOCALITY:** Playa del Arroz, 4 Km north of Aguilas (Murcia, Spain, Mediterranean Sea), in *Dendropoma petraeum*, at the mesolittoral.

**SELECTED REFERENCES:** *Langerhansia beneliahui* — CAMPOY & ALQUÉZAR, 1982: 124-125, fig. 3. *Syllis beneliahuae* — SAN MARTÍN, 1984*b*: 360-364, pls. 90-91; SAN MARTÍN, 2003: 405-408, figs. 222-223. *Syllis beneliahui* — SAN MARTÍN, 1992: 183, fig. 1*K-M*; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 121, fig. 5*H-I*. *Typosyllis beneliahuae* — LICHER, 1999: 47, figs. 17*B*, 22, table 6.

**DISTRIBUTION:** Mediterranean Sea; Tyrrhenian Sea; Aegean Sea; Canary Islands; Caribbean Sea; Pacific coast of Panama. Among algae, vermetid tubes, rhizomes of *Posidonia*, rocks, and in coralligenous bottoms. Between 0-25 meters.

**REMARKS:** The description of this species was published twice, as a new species, in the same year: by CAMPOY (1982) and CAMPOY & ALQUÉZAR (1982). The date of publication of CAMPOY (1982) is January, while the date of CAMPOY & ALQUÉZAR (1982) is April. So, the authorship of the species should be considered as Campoy 1982, insted of Campoy & Alquézar 1982, as it has been used.

## ***Syllis brevicirrata*** McIntosh 1908

*Syllis brevicirrata* MCINTOSH, 1908*c*: 196-197, pl. 70 fig. 20, pl. 79 figs. 14-14*a*.

**TYPE LOCALITY:** Great Britain.

**SELECTED REFERENCES:** *Syllis brevicirrata* — LICHER, 1999: 288.

**DISTRIBUTION:** Great Britain.

**REMARKS:** FAUVEL (1923*c*) and HARTMAN (1959*a*) considered this species as a possible synonymy of *Syllis gracilis*. However, LICHER (1999) regarded it as a valid species.

## ***Syllis caeca*** (Katzmann 1973)

*Langerhansia caeca* KATZMANN, 1973*e*: 439-442, fig. 3*a-f*.

**TYPE LOCALITY:** Median Adriatic Sea, between 42º26.5'N to 42º35'N, and 15º20'E to 15º52.7'E, 128-150 meters, in soft bottom.

**SELECTED REFERENCES:** *Typosyllis caeca* — LICHER, 1999: 64-66, fig. 29, table 7. *Syllis caeca* — ÇINAR & ERGEN, 2003: 779-780. Not *Langerhansia* cf. *caeca* — CAMPOY, 1982: 375-376, pl. 33.

**DISTRIBUTION:** Adriatic Sea (100-180 m; soft bottoms); Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Cyprus (600 meters, in mud); [?] British Columbia (52 m; on sand).

## ***Syllis compacta*** Gravier 1900

*Syllis (Typosyllis) compacta* GRAVIER, 1900*b*: 165-168, figs. 35-38, pl. 9 fig. 11.

**TYPE LOCALITY:** Djibouti, Gulf of Tadjourah (Gulf of Aden).

**SELECTED REFERENCES:** *Syllis compacta* — LÓPEZ, SAN MARTÍN & JIMÉNEZ, 1996: 110-111, fig. 3; SAN MARTÍN, 2003: 433-436, figs. 238-239.

**DISTRIBUTION:** Red Sea; Mediterranean Sea. On hard bottoms, among algae, vermetid reefs, or Anthozoa. Between 0-25 meters.

**REMARKS:** The synonymy of *Syllis compacta* Gravier 1900 with *S. variegata* Grube 1860 was first established by AUGENER (1913*b*), and followed by different authors (see LICHER, 1999: 106). LICHER (1999) revised the holotype of *S. compacta* and confirmed this synonymy, through the comparison with the holotype of *S. variegata*.

On the other hand, LÓPEZ, SAN MARTÍN & JIMÉNEZ (1996) also studied the holotype of *S. compacta*, and ressurrected the species. They considered as *S. compacta* several specimens collected at Chafarinas Islands, and also attributed to this species the specimens from the Balearic Islands previously identified by SAN MARTÍN (1984*b*) as *S. golfonovensis*. Furthermore, and with base on the descriptions, they synonymised *S. golfonovensis* (Hartmann-Schröder 1962) with *S. compacta*.

I follow here LICHER (1999), in that *S. golfonovensis* is a valid species, with the Balearic specimens from SAN MARTÍN (1984*b*) being a close form (however, a definitive statement concerning the presence of *S. golfonovensis* in the Mediterranean Sea should be taken with caution).

In what concerns the synonymy of *S. compacta* with *S. variegata*, I found differences between the descriptions given by GRAVIER (1900*b*) for *S. compacta* and by LICHER (1999) for *S. variegata*. All the antennae and cirri seem to be longer in *S. compacta*, as well as the pharynx. Besides, the colour patterns show some differences too, with brown bars across the dorsum in the anterior chaetigers of *S. compacta*, and lying eights in *S. variegata*. The specimens described by LÓPEZ, SAN MARTÍN & JIMÉNEZ (1996) seem to be closer to the species described by GRAVIER (1900*b*), as both populations show a double crown of papillae on the tip of the pharynx, as well as posterior aciculae with subdistally knobed tips (LÓPEZ, SAN MARTÍN & JIMÉNEZ, 1996), while *S. variegata* has a single row of papillae on the pharynx and posterior aciculae with rough pointed tips. However, the Mediterranean specimens are reported as lacking body markings.

For the moment being, the ressurrection of *S. compacta* proposed by LÓPEZ, SAN MARTÍN & JIMÉNEZ (1996) is accepted here.

## ****Syllis corallicola*** Verrill 1900

*Syllis (Typosyllis) corallicola* VERRILL, 1900: 603.

**TYPE LOCALITY:** Bermuda Islands.

**SYNONYMS:** *Syllis (Typosyllis) corallicola* Var. *lineolata* Verrill 1900; *Syllis (Typosyllis) catenula* Verrill 1900; *Syllis (Typosyllis) cincinnata* Verrill 1900; *Typanosyllis* [sic] *fertilis* Verrill 1900; *Syllis (Typosyllis) corallicoloides* Augener 1924; *Syllis (Typosyllis) tigrinoides* Augener 1924; *Eusyllis antillensis* Augener 1924.

**SELECTED REFERENCES:** *Typosyllis corallicola* — HARTMAN, 1942*a*: 47-48, figs. 68-75; JONES, 1962: 180-183, figs. 28-40; LICHER, 1999: 116-119, fig. 54. *Syllis corallicola* — MONRO, 1933*b*: 249-250, fig. 3; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 120, figs. 4*Q*, 5*D-E*; SAN MARTÍN, 1992: 185-186, fig. 1*A-D*; PARAPAR *et al.*, 1996*a*: 58-59, fig. 3; SAN MARTÍN, 2003: 439-443, figs. 242-243. *Syllis (Typosyllis) corallicola* Var. *lineolata* — VERRILL, 1900: 604. *Syllis (Typosyllis) catenula* — VERRILL, 1900: 604-606. *Syllis (Typosyllis) cincinnata* — VERRILL, 1900: 609-611. *Syllis cincinnata* — SAN MARTÍN, 1992: 191, fig. 10*A-F*. *Typanosyllis* [sic] *fertilis* — VERRILL, 1900: 616-617. *Syllis (Typosyllis) corallicoloides* — AUGENER, 1924*a*: 42-43. *Syllis (Typosyllis) tigrinoides* — AUGENER, 1924*a*: 43. *Eusyllis antillensis* — AUGENER, 1924*a*: 44.

*Syllis (Typosyllis) corallicoloides* — UEBELACKER, 1982: 587-589, fig. 3; UEBELACKER, 1984*f*: 30.143-30.145, figs. 30.137-30.138. *Syllis (Typosyllis) corallicoides* — DUEÑAS, 1981: 91-92, pl. 14. *Syllis corallicoloides* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 121, fig. 5*A-C*. *Syllis tigrinoides* — MONRO, 1933*b*: 247-249, fig. 2. *Syllis (Typosyllis) tigrinoides* — UEBELACKER, 1982: 589-592, fig. 4. *Syllis columbretensis* [not *Typosyllis columbretensis* Campoy 1982] — SAN MARTÍN, 1984*b*: 399-403, pls. 106-107.

**MATERIAL: FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 specimen; no coloration pattern present; female with eggs. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 2 incomplete specimens.

**DISTRIBUTION:** Bermuda Islands; Caribbean Sea; Antillean Islands; Cuba; Gulf of Mexico; Mexico; Colombia; Brazil; Western Indies; Canary Islands; Mediterranean Sea; Indian Ocean. On coralligenous sand, rocky bottoms, sponges, corals, hydroids, and algae. Intertidal to 75 meters.

## ***Syllis cornuta*** Rathke 1843

*Syllis cornuta* RATHKE, 1843: 164-165, pl. 7 fig. 12.

**TYPE LOCALITY:** Kristiansund, Norway.

**SYNONYMS:** *Syllis Fabricii* Malmgren 1867; *Syllis cornuta* var. *hystricis* McIntosh 1902; [?] *Syllis quaternaria* Moore 1906; *Syllis cornuta Collingsii* McIntosh 1908; *Syllis harti* Berkeley & Berkeley 1938.

**SELECTED REFERENCES:** *Syllis cornuta* — MALMGREN, 1867*a*: 43, pl. 7 fig. 45; MCINTOSH, 1869: 415-416, pl. 16 fig. 15; SOULIER, 1904: 357-361, fig. 9; AUGENER, 1913*a*: 169-171; WESENBERG-LUND, 1947: 6-9, figs. 1, 2*b*; [?] COGNETTI, 1957: 25-26, table 1*a*; PETTIBONE, 1963*a*: 118, fig. 31*i-j*; DUEÑAS, 1981: 90-91, pl. 12. *Ehlersia cornuta* — KIRKEGAARD, 1992: 238-239, fig. 117. *Syllis (Ehlersia) cornuta* — SOUTHERN, 1914: 37; FAUVEL, 1923*c*: 267-268, fig. 100*g-i*; [?] RIOJA, 1925*b*: 24, fig. 10; FAUVEL, 1953*c*: 153, fig. 79*g-i*; UEBELACKER, 1984*f*: 30.120-30.122, figs. 30.113-30.114. *Langerhansia cornuta* — IMAJIMA, 1966*e*: 256-259, fig. 51; IMAJIMA, 1968: 26, fig. 10*c-d*. *Syllis (Langerhansia) cornuta* — DAY, 1967: 244, fig. 12.2.*s-u*; GARDINER, 1976: 140, fig. 12*o-s*. *Typosyllis cornuta* — LICHER, 1999: 57-64, figs. 27-28. *Typosyllis (Ehlersia) cornuta* — HARTMANN-SCHRÖDER, 1996: 155. *Syllis Fabricii* — MALMGREN, 1867*a*: 44. *Syllis cornuta* var. *hystricis* — MCINTOSH, 1902*a*: 297. [?] *Syllis quaternaria* — MOORE, 1906*c*: 352-354, figs. *a-d*; *Syllis cornuta Collingsii* — MCINTOSH, 1908*c*: 202-203. *Syllis harti* — BERKELEY & BERKELEY, 1938: 35, fig. 2; BERKELEY & BERKELEY, 1948: 77, fig. 114; BANSE & HOBSON, 1974: 65, fig. 16*i-j*. *Syllis (Typosyllis) harti* — BANSE & HOBSON, 1968: 17, fig. 4*h-i*. Not *Langerhansia cornuta* — SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 76, fig. 16; CAMPOY, 1982: 378-386, pls. 34-35 [= *Syllis parapari* San Martín & López 2000]. Not *Syllis cornuta* — PARAPAR *et al.*, 1996*a*: 59 [= *Syllis parapari* San Martín & López 2000].

**REFERENCES FOR PORTUGAL:** [?] AMOUREUX, 1974*b* (as *Syllis (Ehlersia)* sp? *cornuta*; off Porto); SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1977*a* (as *Typosyllis (Langerhansia) cornuta*; Bay of Setúbal); AMOUREUX & CALVÁRIO, 1981 (as *Ehlersia cornuta*; Peniche); CASTRO & VIEGAS, 1981 (Tagus Estuary); CAMPOY, 1982 (as *Langerhansia cornuta*; previous records: Arrábida; Porto); MONTEIRO-MARQUES *et al.*, 1982 (as *Ehlersia cornuta*; Ponta do Baleal; Ponta do Surdão); [?] AMOUREUX, 1987 (as *Ehlersia* cf *cornuta*; off Aveiro; off Porto); MONTEIRO-MARQUES, 1987 (as *Syllis (Ehlersia) cornuta*; continental shelf of Algarve); DEXTER, 1992 (as *Syllis (Ehlersia) cornuta*; previous records: continental shelf of Algarve; Sines; Sado Estuary); SALDANHA, 1995 (as *Ehlersia cornuta*; Portugal); RAVARA, 1997 (as *Langerhansia cornuta*; off Aveiro).

**DISTRIBUTION:** Arctic; Northeast and Northwest Atlantic, from Iceland to Madeira, and from Gulf of St. Lawrence to Georgia; Greenland; Davis Strait; Bering Sea; NE Pacific; from Iceland and the Norwegian Sea to the Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Red Sea; [?] South Africa; [?] Indian Ocean; [?] Guam (intertidal; on reef limestone); [?] Yellow Sea; [?] Japan; [?] Australia. On algae, muddy and sandy bottoms. Recorded intertidally to 2560 meters.

**REMARKS:** Different authors have stated that under the name *Syllis cornuta* Rathke 1843 several different species have being recorded worldwide (CAMPOY, 1982; SAN MARTÍN, 1992; LICHER, 1999; SAN MARTÍN & LÓPEZ, 2000). The redescription of the species with base on material from the type locality (LICHER, 1999) made possible the confirmation of that opinion, with the description of similar new species (LICHER, 1999; SAN MARTÍN & LÓPEZ, 2000). However, the description and figure given by SOULIER (1904) seems to refer to *Syllis cornuta*, instead of *S. parapari*, which would confirm that *S. cornuta* occurs also in Southern Europe.

## ***Syllis cruzi*** Núñez & San Martín 1991

*Syllis cruzi* NÚÑEZ & SAN MARTÍN, 1991: 238-240, fig. 2.

**TYPE LOCALITY:** Agua Dulce (Tenerife, Canary Islands), in the sponge *Corticium candelabrum*, at 5 meters.

**SELECTED REFERENCES:** *Syllis cruzi* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 118, fig. 1*E*, 4*G-I*; ÇINAR & ERGEN, 2003: 780-782, fig. 2; SAN MARTÍN, 2003: 397-400, figs. 217-218. *Typosyllis cruzi* — LICHER, 1999: 169-171, fig. 75, table 16.

**DISTRIBUTION:** Tenerife (Canary Islands), at 5 meters, in the sponge *Corticium candelabrum*, and at 113-115 meters, on the Anthozoa *Dendrophyllia ramea*; Western Mediterranean (Columbretes Islands, Mallorca Island, Alboran Island); Aegean Sea (Turkey); Cyprus (250-300 meters, in mud).

## ***Syllis curticirris*** (Hartmann-Schröder 1981) **comb. nov.**

*Typosyllis (Typosyllis) curticirris* HARTMANN-SCHRÖDER, 1981: 28-29, figs. 5-8.

**TYPE LOCALITY:** Great Meteor Bank, 29º58.6'N, 28º25.1'W (South Azores Archipelago), at 300-330 meters.

**SELECTED REFERENCES:** *Typosyllis curticirris* — LICHER & KUPER, 1998: table 1; LICHER, 1999: 171, figs. 17*V*, 76, tables 8, 14.

**DISTRIBUTION:** Known from the type locality.
**REMARKS:** In this new combination, *Syllis curticirris* (Hartmann-Schröder 1981) becomes a secondary homonym of *Syllis curticirris* Monro 1937, described from Zanzibar. This way, the species described by HARTMANN-SCHRÖDER (1981) needs a new name.

## ***Syllis fasciata*** Malmgren 1867

*Syllis fasciata* MALMGREN, 1867*a*: 43-44, pl. 7 fig. 47, pl. 8 fig. 52.
**TYPE LOCALITY:** Spitsbergen, 35 fathoms (58.5 meters). The depth is not given at the original description, but LICHER (1999) reports it from the study of six syntypes.
**SELECTED REFERENCES:** *Syllis fasciata* — WESENBERG-LUND, 1947: 10-11, fig. 2*a*; BANSE & HOBSON, 1974: 64, fig. 16*g*. *Typosyllis fasciata* — HARTMAN, 1968: 485-486, figs. 1-3; LICHER, 1999: 241-244, figs. 17*E*, 102, table 20. *Syllis (Typosyllis) fasciata* — BANSE, 1972*b*: 211-212, fig. 8*H-J*. Not *Syllis fasciata* — BERKELEY & BERKELEY, 1948: 74-75, figs. 109-110 [= *Syllis pigmentata* (Chamberlin 1919)]. Not *Typosyllis fasciata* — IMAJIMA & HARTMAN, 1964: 135-136, pl. 33 figs. *j-o* [= *Syllis pigmentata* (Chamberlin 1919)]. Not *Syllis (Typosyllis) fasciata* — PETTIBONE, 1954: 254-255, fig. 28*C-E*; USCHAKOV, 1955*a*: 180, figs. 46*B*, 51*A-B* [= *Syllis pigmentata* (Chamberlin 1919)].
**DISTRIBUTION:** Arctic Ocean; Bering Sea; Eastern North America; Greenland; Iceland; Spitsbergen; Barents Sea; Kara Sea; Novaya Zemlya; North Sea; Norway; Madeira Island. In sediments with pebbles and stones. Between 9-680 meters.

## ***Syllis ferrani*** Alós & San Martín 1987

*Syllis ferrani* ALÓS & SAN MARTÍN, 1987: 35-42, figs. 2-5.
**TYPE LOCALITY:** Cap de Creus (Girona, Spain), Mediterranean Sea, on coralligenous and precoralligenous facies, at 8-33 meters, and on rhizomes of *Posidonia oceanica*, at 8 meters. Specimens were originally collected at 15 different stations on the northern side of the Cape of Creus. However, the description did not mention in which of these stations was collected the type material.
**SELECTED REFERENCES:** *Syllis ferrani* — SAN MARTÍN, 2003: 390-394, figs. 213-214. *Typosyllis ferrani* — LICHER, 1999: 221-223, fig. 93, tables 9, 18.
**DISTRIBUTION:** Mediterranean Sea (Cap de Creus, Chafarinas Islands, Balearic Islands); Cyprus; Aegean Sea. In precoralligenous and coralligenous facies, in sponges, and among rhizomes of *Posidonia oceanica*. Between 8-35 meters.

## ****Syllis garciai*** (Campoy 1982)

*Langerhansia garciai* CAMPOY, 1982: 386-389, pls. 36-38.
**TYPE LOCALITY:** Cala Cerrada, Aguilas (Murcia, South Spain, Mediterranean Sea), on a tube of Sabellidae, at 1 meter, among rocks.
**SELECTED REFERENCES:** *Syllis garciai* — SAN MARTÍN, 1984*b*: 364-367, pl. 92; SAN MARTÍN, 1992: 180-181, fig. 5*A-D*; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 121, figs. 3*J*, 5*F*; SAN MARTÍN, 2003: 400-405, figs. 219-221. *Typosyllis garciai* — LICHER, 1999: 74-75, table 6.
**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: Sado Estuary; continental shelf off Lisbon); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 6 — St. 22**, off Praia de Castelejo, 52 m, rock: 1 specimen, complete and in good condition. **SEPLAT 7 (2nd part) — St. 179 (A.3932)**, off Sines, 120 m, rock: 1 specimen in poor condition. **FAUNA 1 — St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 8 specimens. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 3 specimens; blades of compound chaetae with spinulation surpassing the distal secondary tooth. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 1 middle fragment. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 4 specimens, plus 2 middle fragments.
**DISTRIBUTION:** Northeastern Atlantic, from Galicia to the Mediterranean Sea; Aegean Sea; Cape Verde Archipelago; Cuba, Caribbean Sea. On algae, rhizomes of *Posidonia*, tubes of Sabellidae and vermetids, and sandy and muddy bottoms. Intertidal to 113 meters.
**REMARKS:** Similar to *Syllis parapari* San Martín & López 2000, also present in Portuguese waters, from which it can be distinguished by the pectination on the cutting margin of the falciger chaetae, which reaches the level of the proximal tooth.

## **Syllis gerlachi* (Hartmann-Schröder 1960)

*Typosyllis gerlachi* HARTMANN-SCHRÖDER, 1960: 81-82, pl. 6 figs. 43-44, pl. 7 fig. 42.

**TYPE LOCALITY:** Sarso (= Saso) Island (Saudi Arabia, Red Sea), in *Seriatopora* coral, at 2 meters.

**SYNONYMS:** *Syllis (Typosyllis) truncata cryptica* Ben-Eliahu 1977; *Syllis luquei* San Martín 1984.

**SELECTED REFERENCES:** *Typosyllis gerlachi* — CAMPOY, 1982: 410-411, pl. 45; LICHER, 1999: 127-129, fig. 57, table 12. *Syllis (Typosyllis) gerlachi* — BEN-ELIAHU, 1977*a*: 19-21, fig. 5; UEBELACKER, 1984*f*: 30.145-30.148, figs. 30.141-30.142. *Syllis gerlachi* — SAN MARTÍN, 2003: 376-379, figs. 205-206. [?] *Syllis* cf. *gerlachi* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 119-120, fig. 4*ñ*. *Syllis (Typosyllis) truncata cryptica* — BEN-ELIAHU, 1977*a*: 41-43, fig. 16*a-e*. *Typosyllis truncata cryptica* — CAMPOY, 1982: 418-423, pls. 48-49; CAMPOY & ALQUÉZAR, 1982: 129-130, fig. 5. *Syllis truncata cryptica* — SAN MARTÍN, 1984*b*: 352-354, pl. 87; ESTAPÉ & SAN MARTÍN, 1991: 54, fig. 8, table 1; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 119, fig. 4*M-N*. *Syllis luquei* — SAN MARTÍN, 1984*b*: 349-352, pl. 86. Not *Syllis gerlachi* — PARAPAR *et al.*, 1996*a*: 59 [= *Syllis pontxioi* San Martín & López 2000].

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (as *Syllis truncata criptica*; southwestern continental shelf); SAN MARTÍN, 2003 (previous records: Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 52 (A.2545)**, off Praia do Amado, 58 m, sand and rock: 1 incomplete specimen with 68 chaetigers; pharynx about twice the length of proventricle; chaetae as described; almost breaking in 2 pieces. **St. 54 (A.2547)**, off Praia do Amado, 58 m, sand and rock: 1 specimen. **FAUNA 1 — St. 3*A***, Gulf of Cádiz, off Cádiz, 114-116 m, detritic: 1 specimen, associated with *Filograna* sp.; proventriculus of about the same size than the pharynx. **St. 17*A***, Alborán Sea, Alborán Island, 70-74 m, stones: 1 specimen, with the anterior region apparently regenerated, being narrower than the posterior region, and the proventricle is not present; chaetae as described for the species; bright granules present throughout the body.

**DISTRIBUTION:** Red Sea; Northeastern Atlantic, from the Cantabric Sea to the Mediterranean Sea; Aegean Sea; Canary Islands; Cape Verde; Gulf of Mexico; Cuba. Among algae, on rhizomes of *Posidonia*, sponges, rocks, vermetid reefs, coralligenous and sandy bottoms. Intertidal to 115 meters.

**REMARKS:** Species characterized by having aciculae with recurved tips, chaetae formed only by bidentate falcigers with marked dorsoventral gradation, and by slender proboscis, twice as long as the proventriculus.

The only specimen studied by NÚÑEZ, SAN MARTÍN & BRITO (1992) had the dorsal simple chaetae developed and as thick as the ventral one, while *Syllis gerlachi* sensu stricto has the dorsal simple chaetae thinner and less developed in relation with the ventral one.

## **Syllis gerundensis* (Alós & Campoy 1981)

*Typosyllis gerundensis* ALÓS & CAMPOY, 1981: 21-26, figs. 1-3.

**TYPE LOCALITY:** Tossa de Mar (Girona), Mediterranean Sea, in the interior of a sponge *Petrosia ficiformis*, at 17 meters.

**SELECTED REFERENCES:** *Typosyllis gerundensis* — CAMPOY, 1982: 446-449, pls. 60-61; LICHER, 1999: 171-175, fig. 77, table 14. *Syllis gerundensis* — ÇINAR & ERGEN, 2003: 783-784; SAN MARTÍN, 2003: 419-423, figs. 230-231.

**MATERIAL: FAUNA 1 — St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 1 specimen; proventriculus through 6 chaetigers; dorsal simple chaetae from chaetiger 12. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 1 incomplete specimen; proventriculus of about the same size than the pharynx, with about 30 muscular rows; short cirri (with about 10 articles in the anterior region).

**DISTRIBUTION:** Mediterranean coast of Spain: Catalonian coast, at 17 meters, as endofauna of sponges; Islas Columbretes, at 49 meters, on a bottom of maërl; Balearic Islands (Menorca and Mallorca), in sand and gravel, between meadows of *Posidonia oceanica*; Cyprus, 27-45 meters, between meadows of *Posidonia oceanica*, and at 35 meters, in *Amphioxus*-sand with *Posidonia oceanica*.

## *Syllis golfonovensis* (Hartmann-Schröder 1962)

*Typosyllis golfonovensis* HARTMANN-SCHRÖDER, 1962*b*: 87-89, figs. 60-62.

**TYPE LOCALITY:** Northern coast of Golfo Nuevo, near Puerto Madryn (Argentina), on pools with sand, gravel and algae, during low tide, about 1.5 meters below high water level.

**SELECTED REFERENCES:** *Typosyllis golfonovensis* — LICHER, 1999: 86-88, fig. 40. *Syllis golfonovensis* — SAN MARTÍN, 1984*b*: 395-399, plates 104-105.

**DISTRIBUTION:** SE Patagonia (intertidal; on rocks, sand, gravel, and algae); Mediterranean Sea: Balearic Islands (on vermetid tubes, rhizomes of *Posidonia*, and among mussels; 0-5 meters); Aegean Sea.

## **Syllis gracilis* Grube 1840

*Syllis gracilis* GRUBE, 1840: 77-78.

**TYPE LOCALITY:** Gulf of Naples. The type locality of the species is normally referred as being Adriatic Sea, while LICHER (1999) indicates the Mediterranean Sea as the type locality. However, GRUBE (1840: 2) says that unless stated, all the material of his 1840 work comes from the Gulf of Naples.

**SYNONYMS:** *Syllis brachycirris* Grube 1857; *Syllis vancaurica* Grube 1867; *Syllis mixtosetosa* Bobretzky 1870; *Syllis Buchholziana* Grube 1878; *Syllis navicellidens* Czerniavsky 1881; *Syllis nigro-vittata* Czerniavsky 1881; *Syllis quadridentata* Czerniavsky 1881; *Syllis (Syllis) longissima* Gravier 1900; *Syllis gracilis australiensis* Hartmann-Schröder 1979.

**SELECTED REFERENCES:** *Syllis gracilis* — CLAPARÈDE, 1864: 535-537 pl. 5 fig. 3; LANGERHANS, 1879: 540-541, pl. 31 fig. 8; SOULIER, 1904: 349-357, fig. 8; MCINTOSH, 1908*c*: 203-206, pl. 51 fig. 3, pl. 70 figs. 25-25*a*, pl. 79 figs. 17-17*c*; FAUVEL, 1923*c*: 259, fig. 96*f-i*; OKADA, 1929: 542-599, figs. 16-17; LA GRECA, 1949*b*: 37-44, figs. 1-2; COGNETTI, 1957: 15-16, tables 1*a*, 2; HARTMANN-SCHRÖDER, 1962*a*: 124-125, pl. 9 fig. 52; PETTIBONE, 1963*a*: 116-118, fig. 32; IMAJIMA, 1966*d*: 248-250, fig. 49*a-k*; HARTMAN, 1968: 463-464, figs. 1-4; BANSE & HOBSON, 1974: 61, fig. 16*h*; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 78, fig. 19; CAMPOY, 1982: 368-371, pl. 31 figs. *a-l*; IMAJIMA, 1983: 218, fig. 34*j-r*; SAN MARTÍN, 1984*b*: 376-381, pls. 97-98, photo 10; ESTAPÉ & SAN MARTÍN, 1991: 58, fig. 10, table 1; KIRKEGAARD, 1992: 279-280, fig. 137; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 116, fig. 3*G*; HARTMANN-SCHRÖDER, 1996: 150-151, fig. 65; LICHER, 1999: 289-291, figs. 10*A*, 11; SAN MARTÍN, 2003: 413-415, figs. 226-227. *Syllis (Syllis) gracilis* — SAINT-JOSEPH, 1895: 190-191, pl. 11 figs. 4-7; GRAVIER, 1900*b*: 150-154, text-figs. 8-16, pl. 9 figs. 4-6; FAUVEL, 1953*c*: 147-148, fig. 73*f-i*; DAY, 1967: 241, fig. 12.1.*m-p*; GARDINER, 1976: 139, fig. 12*l-n*; UEBELACKER, 1984*f*: 30.116-30.118, figs. 30.111-30.112. *Syllis (Typosyllis) gracilis* — HASWELL, 1920: 97, pl. 10 fig. 15. *Syllis brachycirris* — GRUBE, 1857: 179. *Syllis vancaurica* — GRUBE, 1867: 25-27, pl. 3 fig. 2. *Syllis mixtosetosa* — BOBRETZKY, 1870: 227-229, figs. 49-50. *Syllis Buchholziana* — GRUBE, 1878*d*: 526-527. *Syllis navicellidens* — CZERNIAVSKY, 1881*b*: 397. *Syllis nigro-vittata* — CZERNIAVSKY, 1881*b*: 397. *Syllis quadridentata* — CZERNIAVSKY, 1881*b*: 397. *Syllis (Syllis) longissima* — GRAVIER, 1900*b*: 154-158, text-figs. 17-23, pl. 9 fig. 7; DAY, 1967: 243, fig. 12.2.*f-i*. *Syllis gracilis australiensis* — HARTMANN-SCHRÖDER, 1979*b*: 87, figs. 46-48. *Syllis armillaris* type (3) [not Malmgren 1867] — BEN-ELIAHU, 1977*a*: 8-9, fig. 1.

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); PINTO, 1984 (as *Syllis agilis*; Sado Estuary); DEXTER, 1992 (previous records: Mira Estuary; Sines); SALDANHA, 1995 (Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (1st part) — St. 152**, exact location unknown, off Praia de Almograve, 55 m, rock with sponges: 2 specimens. **SEPLAT 7 (2nd part) — St. 313 (A.3841)**, near Arrifana, 29 m, sand: 1 specimen. **FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 6 specimens, plus 2 middle fragments and 2 posterior fragments with pygidia. **St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 6 specimens, one of which has the posterior region regenerated. **St. 56*A***, Gulf of Cádiz, off Cape Trafalgar, 24 m, rock and gravel: 7 specimens plus 6 fragments; 2 specimens with dark transversal stripes in the segments of the anterior region of the body. **St. 60*A***, Gibraltar Strait, Tarifa, 12-16 m, sand, stones, photophile algae: 1 specimen, very damaged due to its mounting on gelatinized glycerine.

**DISTRIBUTION:** Cosmopolitan, in template and tropical seas. From the British Isles to the Mediterranean Sea, and from Massachusetts to Florida; Gulf of Mexico; Madeira and Canary Islands; West Indies; Adriatic Sea; Aegean Sea; Black Sea; Red Sea; Persian Gulf; Indian Ocean; West and South Africa; Mozambique; Australia; Pacific Ocean, from Southern California to Peru. On algae, *Posidonia* beds, vermetid tubes, sponges, intertidal pools, coralligenous, rocky and sandy bottoms. Intertidal to 400 meters.

**REMARKS:** BEN-ELIAHU (1977*a*) described several phenotypes of *Syllis armillaris*, one of which (type 3) was considered as belonging to a species close to *Syllis gracilis* by CAMPOY (1982). Later, SAN MARTÍN (1984*b*) sustained that those specimens were juveniles of *Syllis gracilis*, which falciger chaetae weren't completly fused, yet.

The wide distribution of the species seems to indicate the presence of a species complex.

## *Syllis heterochaeta* Moore 1909

*Syllis heterochaeta* MOORE, 1909*b*: 322-325, pl. 15 figs. 1-4.

**TYPE LOCALITY:** Off San Nicolas Island (South California), in grey sand, black pebbles and shells, at 339 fathoms (620 meters).

**SELECTED REFERENCES:** *Syllis (Ehlersia) heterochaeta* — ANNENKOVA, 1937: 160-161, pl. 4 figs. 37-38; RIOJA, 1941*b*: 694-695, pl. 4 figs. 7-10; BERKELEY & BERKELEY, 1948: 76, fig. 113; USCHAKOV, 1955*a*: 182, fig. 50*B-C*. *Langerhansia heterochaeta* — HARTMAN, 1968: 435-436, text-fig. 1-7; *Syllis heterochaeta* — BANSE & HOBSON, 1974: 62, fig. 16*k-l*; ÇINAR & ERGEN, 2002: 173, 177, table 1; RAMOS, SAN MARTÍN & SIKORSKI, 2009: 1046. *Ehlersia heterochaeta* — KUDENOV & HARRIS, 1995: 64-66 [not fig. 1.23 (from DORSEY & PHILLIPS, 1987)]. *Typosyllis heterochaeta* — LICHER, 1999: 262-264, fig. 109, table 22. Not *Syllis (Ehlersia) heterochaeta* — DORSEY & PHILLIPS, 1987: 153-156, fig. 1, table 1 [see LICHER, 1999: 262, 264].

**DISTRIBUTION:** North Pacific, from British Columbia to South California and Mexico; Sea of Japan; Norway; Eastern Mediterranean Sea (Aegean Sea). In sand, mud, mixed sediments, among mussels, and algae. Intertidal to about 620 meters.

## ****Syllis hyalina*** Grube 1863

*Syllis hyalina* GRUBE, 1863: 45-46, pl. 4 fig. 8.

**TYPE LOCALITY:** Veli Lošinj (= Lussin Grande), Nerezine (= Neresine), Uvala Krivica (= Crivizza), Lošinj Island, Croatia (Adriatic Sea).

**SYNONYMS:** *Syllis simillima* Claparède 1864; *Syllis pellucida* Ehlers 1864; *Syllis borealis* Malmgren 1867; *Syllis velox* Bobretzky 1870; *Syllis macrocola* Marenzeller 1874; *Syllis (Typosyllis) melanopharyngea* Augener 1918; *Typosyllis hyalina* var. *juanensis* Augener 1922; *Typosyllis tristanensis* Day 1954; *Typosyllis taltalensis* Hartmann-Schröder 1962; *Typosyllis aciculata orientalis* Imajima & Hartman 1964.

**SELECTED REFERENCES:** *Typosyllis (Syllis) hyalina* — LANGERHANS, 1879: 535-536, pl. 31 fig. 4. *Syllis (Typosyllis) hyalina* — AUGENER, 1918: 242-247, pl. 4 figs. 95-96; FAUVEL, 1923*c*: 262-263, fig. 98*a-c*; DAY, 1967: 246, fig. 12.2.*v-x*; GARDINER, 1976: 140, fig. 12*v-w*. *Syllis hyalina* — BERKELEY & BERKELEY, 1948: 74, figs. 107-108; COGNETTI, 1957: 21-23, fig. 3*c-d*, tables 1*a*, 2; BANSE & HOBSON, 1974: 62, fig. 16*m*; SAN MARTÍN, 1984*b*: 387-390, pl. 101; ESTAPÉ & SAN MARTÍN, 1991: 58, fig. 11, table 1; SAN MARTÍN, 1992: 177-178, fig. 1*N-O*; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 120, fig. 4*J, O*; ÇINAR & ERGEN, 2003: 784-785; SAN MARTÍN, 2003: 426-429, figs. 234-235. *Typosyllis hyalina* — HARTMAN, 1964: 95, pl. 29 fig. 5; IMAJIMA, 1966*e*: 271-273, fig. 57; HARTMAN, 1968: 487-488, figs. 1-3; IMAJIMA & GAMÔ, 1970: 8, figs. 31-33; WESTHEIDE, 1974*b*: 47-51, fig. 20; CAMPOY, 1982: 459-463, pl. 66; KIRKEGAARD, 1992: 282-284, fig. 139; LICHER, 1999: 199-205, figs. 5*D*, 17*O*, 86, table 17; KUDENOV & HARRIS, 1995: 87-89, fig. 1.34. *Typosyllis (Typosyllis) hyalina* — HARTMANN-SCHRÖDER, 1979*b*: 89, figs. 57-61; HARTMANN-SCHRÖDER, 1996: 153-154, fig. 67. *Syllis simillima* — CLAPARÈDE, 1864: 537-538, pl. 5 fig. 4; CLAPARÈDE, 1868: 507-508, pl. 12 fig. 5. *Syllis pellucida* — EHLERS, 1864: 233, 239-241, pl. 10 figs. 6, 9-11. *Syllis borealis* — MALMGREN, 1867*a*: 42, pl. 6 fig. 42. *Syllis velox* — BOBRETZKY, 1870: 225-227, figs. 46-48. *Syllis macrocola* — MARENZELLER, 1874: 443-446, pl. 3 fig. 3. *Syllis (Typosyllis) melanopharyngea* — AUGENER, 1918: 257-258, text-fig. 22*a-b*, pl. 4 figs. 81-82. *Typosyllis hyalina* var. *juanensis* — AUGENER, 1922*c*: 187-188, text-fig. 6. *Typosyllis tristanensis* — DAY, 1954: 9-10, fig. 1*f-j*. *Typosyllis taltalensis* — HARTMANN-SCHRÖDER, 1962*b*: 89-90, figs. 63-65. *Typosyllis aciculata orientalis* — IMAJIMA & HARTMAN, 1964: 130-132, pl. 31 figs. *e-f*, pl. 32; IMAJIMA, 1966*e*: 275-276; IMAJIMA, 1968: 28, fig. 11*b-c*. *Typosyllis orientalis* — BUZHINSKAJA, 1980: 48-52, figs. 4-5. Not *Pionosyllis (Syllis) hyalina* — MCINTOSH, 1908*c*: 166-169, text-fig. 54, pl. 51 fig. 2, pl. 70 fig. 24, pl. 78 figs. 9-9*a* [= *Syllis prolifera* (Krøhn 1852)].

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (as *Syllis (Typosyllis) hyalina*; Sines); AMOUREUX, 1974*b* (as *Syllis (Typosyllis) hyalina*; off Aveiro; off Porto); SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (as *Typosyllis hyalina*; western continental shelf of Algarve); AMOUREUX & CALVÁRIO, 1981 (as *Typosyllis hyalina*; Peniche); CASTRO & VIEGAS, 1981 (Tagus Estuary); CAMPOY, 1982 (as *Typosyllis hyalina*; previous records: Sines; Arrábida; Portuguese coast); MONTEIRO-MARQUES *et al.*, 1982 (as *Typosyllis hyalina*; Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); AMOUREUX, 1987 (as *Typosyllis hyalina*; off Porto); MONTEIRO-MARQUES, 1987 (as *Syllis (Typosyllis) hyalina*; continental shelf of Algarve); DEXTER, 1992 (as *Syllis (Typosyllis) hyalina*; previous records: continental shelf of Algarve; Sines); CANCELA DA FONSECA *et al.*, 2006 (Aljezur); BOAVENTURA *et al.*, 2006 (as *Typosyllis hyalina*; Ancão, Algarve); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 223 (A.3894)**, off Porto Covo, 38 m, schists: 1 incomplete specimen, in poor condition; lateral antennae with 8 articles, median antenna with 10; dorsal cirri with 6-8 articles, with the typical shape of the species; pharynx and proventriculus of about the same length, occupying 8 and 7 chaetigers. **St. 313 (A.3841)**, near Arrifana, 29 m, sand: 1 specimen. **FAUNA 1 — St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 1 specimen. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118

m, detritic: 2 specimens; dorsal cirri not so short and thick as in *Syllis armillaris*; proximal tooth well marked.

**DISTRIBUTION:** Cosmopolitan. From Northern Europe to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Red Sea; Gulf of Aqaba; Madeira and Canary Islands; West and South Africa; Mozambique; Tristan da Cunha Island; Japan; Galapagos Islands; from western Canada to California; Chile; North Carolina; Australia; Antarctica. Among algae, vermetid tubes, rhizomes of *Posidonia*, sponges and in sandy bottoms. Intertidal to about 1400 meters.

**REMARKS:** ÇINAR & ERGEN (2003) reported some differences in the structure of the acicula between specimens of *Syllis hyalina* collected in shallow-water habitats (0-25 meters) and relatively deep-water (27-145 meters) at the coasts of Cyprus. This way, in deep-water specimens the acicula was more straight and thick. The same authors pointed out that the found differences suggested that *S. hyalina* was in fact a complex of species, which would also explain the supposed cosmopolitan distribution of the species.

## ***Syllis jorgei*** San Martín & López 2000

*Syllis jorgei* SAN MARTÍN & LÓPEZ, 2000: 430-432, figs. 4-6.

**TYPE LOCALITY:** Columbretes Islands (Spanish Mediterranean coast), 39º53.58'N, 0º41.05'E, on a rocky bottom with shells, at 44 meters.

**SELECTED REFERENCES:** *Syllis jorgei* — ÇINAR & ERGEN, 2003: 785; SAN MARTÍN, 2003: 382-386, figs. 208-210. *Typosyllis lutea* [not Hartmann-Schröder 1960] — CAMPOY, 1982: 428-430, pl. 52. *Syllis lutea* [not *Typosyllis lutea* Hartmann-Schröder 1960] — SAN MARTÍN, 1984*b*: 370-372, pls. 94-95; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 118, fig. 4*D-F*.

**DISTRIBUTION:** Western Mediterranean Sea (2-44 meters); Eastern Mediterranean Sea (Cyprus, 0-145 meters; Aegean Sea; Lebanon, 5-8 meters); Canary Islands. On calcareous concretions of algal and animal origin, *Posidonia oceanica* rhizomes, algae, seagrasses, *Amphioxus*-sand, hard bottoms, and under stones.

## ***Syllis kabilica*** Ben-Eliahu 1977

*Syllis (Typosyllis) alternata kabilica* BEN-ELIAHU, 1977*a*: 38-39, fig. 14.

**TYPE LOCALITY:** Wadi Kabila (Gulf of Elat, Red Sea), on intertidal vermetid reefs of *Dendropoma* sp., exposed to waves.

**SELECTED REFERENCES:** *Typosyllis alternata kabilica* — CAMPOY, 1982: 411-412. *Syllis kabilica* — PARAPAR *et al.*, 1996*a*: 60, fig. 4; SAN MARTÍN, 2003: 370-372, fig. 201. *Typosyllis kabilica* — LICHER, 1999: 152-154, fig. 67, table 12.

**DISTRIBUTION:** Red Sea; Western Mediterranean Sea; Galicia. On vermetid reefs, algae, and on subtidal soft bottoms. Intertidal to mesolittoral.

## ****Syllis krohni*** Ehlers 1864

*Syllis Krohnii* EHLERS, 1864: 234-239, pl. 10 figs. 1-4.

**TYPE LOCALITY:** Among algae in the littoral, at Žurkova (= Zurkowa) Bay, south Rijeka (= Fiume), Kvarner (= Quarnero) Gulf, Croatia, Adriatic Sea.

**SELECTED REFERENCES:** *Syllis krohnii* — MCINTOSH, 1869: 415, pl. 16 fig. 14; SAN MARTÍN, 2003: 386-390, figs. 211-212. *Syllis Krohnii* — MCINTOSH, 1908*c*: 192-194, pl. 49 fig. 6, pl. 79 fig. 12; FAUVEL, 1947: 35, fig. 32*a-e*; COGNETTI, 1957: 16-17, pl. 1 fig. 1, table 1*a*. *Syllis krohni* — ESTAPÉ & SAN MARTÍN, 1991: 47, fig. 2, table 1; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 117, fig. 4*A-B*. *Typosyllis (Syllis) Krohnii* — LANGERHANS, 1879: 529-530, pl. 31 fig. 2. *Typosyllis krohnii* — CAMPOY, 1982: 430-435, pls. 53-54. *Syllis (Typosyllis) Krohnii* — FAUVEL, 1923*c*: 259-260, fig. 96*a-e*. *Syllis (Typosyllis) krohnii* — FAUVEL, 1953*c*: 150, fig. 73*a-e*. *Syllis krohni* — SAN MARTÍN, 1984*b*: 367-370, pl. 93. *Typosyllis krohni* — LICHER, 1999: 205-207, fig. 87. *Typosyllis* sp. — SAN MARTÍN & ALVARADO, 1981: 228-229, fig. 6. Not *Syllis Khronii* — MARION & BOBRETZKY, 1875: 18-20, pl. 1 fig. 4 [= *Trypanosyllis zebra* (Grube 1860)]. Not *Syllis (Typosyllis) Krohnii* — SAINT-JOSEPH, 1887: 180-184, pl. 9 figs. 51-56; SAINT-JOSEPH, 1895: 188-189, pl. 11 figs. 2-3 [= *Trypanosyllis zebra* (Grube 1860)].

**REFERENCES FOR PORTUGAL:** SALDANHA, 1974 (as *Syllis krohnii*; coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (as *Typosyllis krohnii*; Peniche); MONTEIRO-MARQUES *et al.*, 1982 (as *Typosyllis krohnii*; Cape Carvoeiro); SALDANHA, 1995 (Portugal).

**MATERIAL: FAUNA 1 — St. 52*A***, Gulf of Cádiz, Placer de los Mártires, off Chiclana de la Frontera, 22-24 m, rock: 1 incomplete specimen, plus one middle fragment and one posterior fragment with pygidium; probably all belonging to the same specimen.

**DISTRIBUTION:** Northeastern Atlantic, from the North Sea to Madeira and Canary Islands; Cape Verde; Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] South Africa; [?] Indian Ocean; [?] New Caledonia; [?] Southern China Sea. On algae, seagrasses beds, sand, rocks, hard substrates and coralligenous bottoms. Intertidal to 200 meters.

## ***Syllis licheri*** Ravara, San Martín & Moreira *in* San Martín 2003

*Syllis licheri* RAVARA, SAN MARTÍN & MOREIRA *in* SAN MARTÍN, 2003: 349-351, fig. 189.

**TYPE LOCALITY:** Continental shelf off Aveiro (Portugal), 40º48.030'N to 40º48.192'N, 8º54.461'W to 8º54.538'W, at 46.1 meters, on coarse sand.

**SELECTED REFERENCES:** *Syllis licheri* — RAVARA, SAN MARTÍN & MOREIRA, 2004: 3-5, fig. 2.

**REFERENCES FOR PORTUGAL:** SAN MARTÍN, 2003 (continental shelf off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro).

**DISTRIBUTION:** Continental shelf off Aveiro (Portugal), at 46.1-100.5 meters, on sandy bottoms, mainly medium sand and gravel, with 0.3-1.4% of organic content.

## ***Syllis lutea*** (Hartmann-Schröder 1960)

*Typosyllis lutea* HARTMANN-SCHRÖDER, 1960*b*: 81, pl. 2 fig. 38, pl. 5. figs. 39-41.

**TYPE LOCALITY:** Sarso (= Saso) Island (Saudi Arabia, Red Sea), in *Seriatopora* coral, at 2 meters.

**SYNONYMS:** *Typosyllis regulata* Imajima 1966; *Syllis (Typosyllis) lunaroides* Ben-Eliahu 1977; *Syllis (Typosyllis) safrieli* Ben-Eliahu 1977.

**SELECTED REFERENCES:** *Typosyllis (Typosyllis) lutea* — HARTMANN-SCHRÖDER, 1965*a*: 95-96, figs. 16-17. *Syllis lutea* — SAN MARTÍN, 1992: 186, fig. 5*I-J*. *Typosyllis lutea* — LICHER, 1999: 177-178, figs. 17*H*, 79, table 16. *Typosyllis regulata* — IMAJIMA, 1966*e*: 289-292, fig. 64. *Syllis (Typosyllis) lunaroides* — BEN-ELIAHU, 1977*a*: 25-26, fig. 8. *Syllis (Typosyllis) safrieli* — BEN-ELIAHU, 1977*a*: 36-37, fig. 13. Not *Typosyllis lutea* — CAMPOY, 1982: 428-430, pl. 52 [= *Syllis jorgei* San Martín & López 2000]. Not *Syllis lutea* — SAN MARTÍN, 1984*b*: 370-372, pls. 94-95; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 118, fig. 4*D-F* [= *Syllis jorgei* San Martín & López 2000]. Not *Syllis (Typosyllis)* cf. *lutea* — UEBELACKER, 1984*f*: 30.136-30.139, fig. 30.130 [= *Syllis alosae* San Martín 1992].

**DISTRIBUTION:** Red Sea and Suez Canal; East and West Africa; Gulf of Mexico; Japan; Pacific Ocean. On vermetid reefs, algae, sponges, ascidians, and corals, rocks, and sand. Between 0-5 meters.

## ***Syllis magna*** (Westheide 1974) comb. nov.

*Ehlersia rosea magna* WESTHEIDE, 1974*b*: 41-45, figs. 17-18.

**TYPE LOCALITY:** South margin of Bahía Academy, Santa Cruz (Galapagos Islands), on shallow sandbank of coarse sand, rich in detritus.

**SELECTED REFERENCES:** *Typosyllis magna* — LICHER, 1999: 49, figs. 17*X*, 23, table 6. *Langerhansia rosea* cf. *magna* — BEN-ELIAHU, 1977*a*: 16, fig. 4, table 1.

**DISTRIBUTION:** Galapagos Islands, on shallow coarse sand; [?] Western Mediterranean Sea; [?] Gulf of Elat, coast of Israel, in a exposed shore opposite Wadi Kabila, on *Dendropoma* reefs, at the intertidal zone.

## ***Syllis mauretanica*** (Licher 1999) **comb. nov.**

*Typosyllis mauretanica* LICHER, 1999: 78-81, figs. 17*U*, 35-36, table 7.

**TYPE LOCALITY:** Mauritania, Banc d'Arguin, about 100 Km south of Nouadhibou, eulittoral, on seagrasses.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** There is an error with figure 36 in LICHER (1999), as it refers to *Syllis cerina* Grube 1878, and not to *Syllis mauretanica* (Licher 1999). In fact, it is the repetition of figure 33 of the same publication. The right figure of *Syllis mauretanica* can be found at the following website (consulted the 10th April 2011): http:// www.frank-licher.de (click on "*Dissertation*", then on "*Bestimmungsschlüssel*", and finally on "*T. mauretanica*", or go to the "*Index*", and click on "*T. mauretanica*").

## ***Syllis monilaris*** Savigny *in* Lamarck 1818

*Syllis monilaris* SAVIGNY *in* LAMARCK, 1818: 318.

**TYPE LOCALITY:** Red Sea.

**SELECTED REFERENCES:** *Syllis monilaris* — BLAINVILLE, 1828: 473, pl. 17 fig. 2; LICHER, 1999: 292. Not *Syllis monilaris* — AUDOUIN & MILNE-EDWARDS, 1834: 205-206, pl. 4*B* figs. 1-5 [= *Syllis amica* Quatrefages 1866].
**DISTRIBUTION:** Red Sea; East Coast of Africa; Black Sea; La Rochelle, France.
**REMARKS:** LANGERHANS (1879) did not find the species at Madeira Island, as stated by NÚÑEZ & TALAVERA (1995: 518). He based his observations on a personal communication made by Professor Peters, who studied a specimen from the Island of Mozambique, referred in a previous paper (PETERS, 1855). LICHER (1999) refers the presence of this species in La Rochelle (France).

## ***Syllis nepiotoca*** (Caullery & Mesnil 1916)

*Ehlersia nepiotoca* CAULLERY & MESNIL, 1916*b*: 577-578.
**TYPE LOCALITY:** Anse de St. Martin (La Hague), west of Cherbourg (Northern France), in intertidal *Lithothamnion*.
**SELECTED REFERENCES:** *Syllis (Ehlersia) nepiotoca* — FAUVEL, 1923*c*: 269. *Ehlersia nepiotoca* — LICHER, 1999: 300.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** This species was briefly described by CAULLERY & MESNIL (1916*b*), without any illustration, referring to a future and more detailed description which, apparently, was never done. The species is described as being viviparous. It is small (5-6 mm long for 0.5 mm wide after fixation), with 35-47 segments, has antennae and cirri with few articulations (medium number of 10 articles, being a little more in the median antenna and first and sometimes fourth cirri), and presents falcigers and very long and thin spinigers from the first chaetiger. In the coelom of some specimens were found juveniles, in different stages of development, having the more aged 13 chaetigers.

FAUVEL (1923*c*) considered this species as being probably a cyclic parthenogenic form of *Syllis cornuta* Rathke 1843, while according to LICHER (1999), this species is a *nomen dubium*.

## ***Syllis nigricirris*** Grube 1863

*Syllis nigricirris* GRUBE, 1863: 47-48, pl. 4 fig. 10.
**TYPE LOCALITY:** Baldarke (= Val d'Arche), Nerezine, Croatia (Adriatic Sea), at 20 to 35 fathoms (33.4-58.5 meters).
**SELECTED REFERENCES:** *Syllis nigricirris* — AMOUREUX & KATZMANN, 1971: 117-118*r*, figs. 1-5. *Syllis (Typosyllis) nigricirris* — FAUVEL, 1923*c*: 265-266, fig. 99*l-m*. *Typosyllis nigricirris* — LICHER, 1999: 37-39, figs. 17*M*, 18, table 20.
**DISTRIBUTION:** Adriatic Sea (6-58.5 meters); Aegean Sea; Mediterranean Sea; Madeira Island.

## ***Syllis nuchalis*** (Hartmann-Schröder 1960)

*Typosyllis nuchalis* HARTMANN-SCHRÖDER, 1960*b*: 83-84, pl. 6 figs. 48-49, pl. 7 fig. 47.
**TYPE LOCALITY:** Ghardaqa (Egypt, Red Sea), in fine detritus deposited among algae branches.
**SELECTED REFERENCES:** *Typosyllis nuchalis* — LICHER & KUPER, 1998: table 1; LICHER, 1999: 154-156, fig. 68, table 8. *Syllis nuchalis* — SAN MARTÍN, 1984*b*: 339-342, pl. 82.
**DISTRIBUTION:** Red Sea; Indian Ocean; Mediterranean Sea: Mallorca Island. On algae. At shallow water.

## ***Syllis onkylochaeta*** Hartmann-Schröder 1991

*Syllis onkylochaeta* HARTMANN-SCHRÖDER, 1991*a*: 59-62, fig. 1.
**TYPE LOCALITY:** Coral aquarium at the Löbbecke-Museums, in Düsseldorf (Germany), on a colony of corals of the genus *Xenia* sp. (Xeniidae, Alcyonaria), probably original from Bali (Indonesia).
**SELECTED REFERENCES:** *Syllis onkylochaeta* — LICHER, 1999: 292.
**DISTRIBUTION:** Known from the type locality. Original habitat unknown, probably Bali (Indonesia), in corals.

## ***Syllis oerstedi*** (Malmgren 1867)

*Chætosyllis Oerstedi* MALMGREN, 1867*a*: 45-46, pl. 8 fig. 51.
**TYPE LOCALITY:** Spitsbergen, in open sea.
**SELECTED REFERENCES:** *Syllis (Ehlersia) oerstedi* — USCHAKOV, 1955*a*: 182, fig. 50*D*. *Syllis Oerstedi* — THÉEL, 1879: 40-41. *Syllis oerstedi* — RAMOS, SAN MARTÍN & SIKORSKI, 2010: 1046-1047. *Typosyllis oerstedi* [also as *örstedi*] — MARENZELLER, 1892*b*: 401, 407-411, pl. 19 fig. 1; AVERINCEV, 1989: 36, pl. 8 figs. 5-9.

**DISTRIBUTION:** Spitsbergen; Greenland; Franz-Joseph Land; Kara Sea; Northern Norway; Okhotsk Sea; South Sakhalin; Kamchatka; Sea of Japan. Between 19-240 meters.
**REMARKS:** The species was described by MALMGREN (1867*a*) with base on epitokous specimens collected at open sea, off Spitsbergen, and considered to be a *nomen dubium* by LICHER (1999: 300). RAMOS, SAN MARTÍN & SIKORSKI (2010) studied specimens collected in northern Norway, and found them to agree with the drawings of the species given by USCHAKOV (1955*a*; only two composed chaetae pictured), considering that the species may be valid, but that a final decision requires a further detailed examination.

## **Syllis parapari* San Martín & López 2000

*Syllis parapari* SAN MARTÍN & LÓPEZ, 2000: 426-429, figs. 1-2.
**TYPE LOCALITY:** Ría de El Ferrol, 43º27'11"N, 8º19'16"W (Galicia, NW Spain), sublittoral, on gravel.
**SELECTED REFERENCES:** *Syllis parapari* — ÇINAR & ERGEN, 2003: 786; SAN MARTÍN, 2003: 409-413, figs. 224-225; RAVARA, SAN MARTÍN & MOREIRA, 2004: 2-3. *Langerhansia cornuta* [not Rathke 1843] — SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 76, fig. 16; CAMPOY, 1982: 378-386, pls. 34-35. *Syllis cornuta* [not Rathke 1843] — PARAPAR *et al.*, 1996*a*: 59.
**REFERENCES FOR PORTUGAL:** SAN MARTÍN, 2003 (Portugal); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 21 (A.4081)**, north Sines, 116 m, sand with shells: 1 specimen; proventricle of the same length than pharynx, with 30 rows of muscular cells; posterior falcigers with secondary tooth thicker than median falcigers. **St. 22 (A.4082)**, north Sines, 122 m, sand: 1 specimen; anterior parapodia with up to 5 aciculae. **St. 40 (A.4067)**, exact location unknown, north Sines, 92 m, sand: 1 specimen, found inside an empty tube of *Ditrupa arietina*. **FAUNA 1 — St. 38*A***, Alborán Sea, off Punta de la Chullera, 60-62 m, mud: 7 specimens.
**DISTRIBUTION:** Western Europe, from the Basque Country to Portugal (11-159 meters); Western Mediterranean Sea (Spain; France); Eastern Mediterranean Sea (Cyprus, 69 meters). On gravel, sandy and muddy bottoms, and biocenosis of *Dendrophyllia ramea*. Can occur as commensal with sipunculans, in *Turritella* sp. shells.

## *Syllis pectinans* Haswell 1920

*Syllis (Typosyllis) pectinans* HASWELL, 1920: 93-94, pl. 10 figs. 3-6.
**TYPE LOCALITY:** Port Jackson, New South Wales (Australia), 33º50'S, 151º16'E, at about low-water mark.
**SYNONYMS:** *Typosyllis (Typosyllis) lincolnensis* Hartmann-Schröder 1985.
**SELECTED REFERENCES:** *Typosyllis pectinans* — HARTMANN-SCHRÖDER, 1962*b*: 82-83, figs. 47-51 [due to a lapsus, under the name *Typosyllis magdalena* (Wesenberg-Lund 1961)]; SAN MARTÍN, GONZÁLEZ & LÓPEZ-JAMAR, 1985: 33-35, figs. 7-8. *Syllis pectinans* — LÓPEZ, SAN MARTÍN & JIMÉNEZ, 1996: 113-114, fig. 4; SAN MARTÍN, 2003: 362-364, figs. 196-197. *Typosyllis pectinans* — LICHER, 1999: 229-233, fig. 97, tables 15, 19. *Typosyllis (Typosyllis) lincolnensis* — HARTMANN-SCHRÖDER, 1985*c*: 67, figs. 7-10. *Opisthosyllis* sp. — CAMPOY & ALQUÉZAR, 1982: 127.
**DISTRIBUTION:** Australia (New South Wales; South Australia; eulittoral; on algae and calcareous rocks); Tasmania; [?] Japan; Murcia, Mediterranean Sea; Galicia (intertidal, on sand); SE Pacific Ocean (Chile to Panamá).
**REMARKS:** LÓPEZ, SAN MARTÍN & JIMÉNEZ (1996) compared the specimens from Chafarinas Islands with the type series of *Syllis pectinans* Haswell 1920, from Australia, and found some small differences. This way, the Australian material shows longer dorsal cirri, stronger serration in the blades of the chaetae, and thicker simple chaetae, with a more acute tip. These differences were attributed to the fact that all the specimens from Chafarinas were juveniles.

## *Syllis pontxioi* San Martín & López 2000

*Syllis pontxioi* SAN MARTÍN & LÓPEZ, 2000: 429-430, fig. 3.
**TYPE LOCALITY:** Zumaya (Guipúzcoa, North Spain), in *Amphioxus* coarse sand, at 50 meters.
**SELECTED REFERENCES:** *Syllis pontxioi* — ÇINAR & ERGEN, 2003: 786; SAN MARTÍN, 2003: 417-419, figs. 228-229; RAVARA, SAN MARTÍN & MOREIRA, 2004: 3. *Typosyllis gerlachi* [not *Syllis gerlachi* (Hartmann-Schröder 1960)] — CAMPOY, 1982: 410-411, pl. 45. *Syllis gerlachi* [not *Syllis gerlachi* (Hartmann-Schröder 1960)] — PARAPAR, BESTEIRO & URGORRI, 1992*b*: 116-117, fig. 4; PARAPAR *et al.*, 1996*a*: 59.
**REFERENCES FOR PORTUGAL:** RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro).

**DISTRIBUTION:** Northern Spain (50-200 meters); Mediterranean Sea (27-47 meters). On sand, muddy sand and muddy gravel. Also in hard bottoms, among algae, and in rhizomes of *Posidonia oceanica*.

## ***Syllis prolifera*** Krohn 1852

*Syllis prolifera* KROHN, 1852*a*: 66-75, pl. 3 fig. 1.

**TYPE LOCALITY:** Villefranche, near Nice (France, Mediterranean Sea).

**SYNONYMS:** *Syllis lussinensis* Grube 1863; *Syllis Armandi* Claparède 1864; *Syllis fiumensis* Ehlers 1864; *Syllis nigrans* Bobretzky 1870; [?] *Gnathosyllis zonata* Haswell 1886; [?] *Syllis (Typosyllis) Bouvieri* Gravier 1900; [?] *Syllis atlantica* Cognetti 1960.

**SELECTED REFERENCES:** *Syllis prolifera* — JOHNSTON, 1865: 192-194, pl. 15*a* figs. 3-4; OKADA, 1929: 542-599, figs. 6-12, 14, 27*a*, 28*a*; COGNETTI, 1957: 17-19, fig. 3*a-b*, pl. 1 fig. 2, tables 1*a*, 2; SAN MARTÍN, 1984*b*: 331-335, pls. 78-79, photos 3-4; SAN MARTÍN, 1992: 171-173, fig. 1*E-H*; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 119, fig. 4*K-L*; SAN MARTÍN, 2003: 344-347, figs. 186-187. *Typosyllis (Syllis) prolifera* — LANGERHANS, 1879: 530-531, pl. 31 fig. 3. *Typosyllis prolifera* — SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 80, fig. 22; CAMPOY, 1982: 441-446, pls. 58-59; LICHER, 1999: 135-140, figs. 3*C*, 4, 5*B*, 17*S*, 61, table 17. *Syllis (Typosyllis) prolifera* — SAINT-JOSEPH, 1887: 147-150, pl. 7 figs. 9-13; FAUVEL, 1923*c*: 261-262, fig. 97*a-g*; GRAVIER & DANTAN, 1928: 61-66, figs. 27-30; LA GRECA, 1949*a*: 163, fig. 11; FAUVEL, 1953*c*: 149-150, fig. 74*a-g*; [?] DAY, 1967: 248, 12.3.*g-i*; UEBELACKER, 1984*f*: 30.150-30.151, fig. 30.145-30.146. *Pionosyllis prolifera* — MCINTOSH, 1908*c*: 161-164, text-fig. 53, pl. 46 fig. 1, pl. 49 fig. 10, pl. 70 figs. 4-6, pl. 78 figs. 14-14*c*, 15-16. *Syllis lussinensis* — GRUBE, 1863: 46-47, pl. 4 fig. 9; MARENZELLER, 1874: 436-441, pl. 3 fig. 1. *Syllis Armandi* — CLAPARÈDE, 1864: 530-533, pl. 5 fig. 1. *Syllis fiumensis* — EHLERS, 1864: 225-234, pl. 9 figs. 1-9. *Syllis nigrans* — BOBRETZKY, 1870: 215-225, figs. 39-45. [?] *Gnathosyllis zonata* — HASWELL, 1886: 746-747, pl. 52 figs. 4-6. [?] *Syllis (Typosyllis) zonata* — AUGENER, 1913*b*: 195-197, text-fig. 21, pl. 3 fig. 22; AUGENER, 1918: 236-242, text-fig. 19, pl. 4 fig. 86, pl. 5 fig. 107; SAN MARTÍN, 1984*b*: 390-395, pls. 102-103. [?] *Syllis (Typosyllis) Bouvieri* — GRAVIER, 1900*b*: 163-165, text-figs. 31-34, pl. 9 fig. 10. [?] *Syllis (Typosyllis) Bouvieri* — DAY, 1967: 246-248, fig. 12.3.*c-f*. [?] *Syllis bouvieri* — SAN MARTÍN, 1984*b*: 374-376, pl. 96. [?] *Typosyllis (Typosyllis) bouvieri* — HARTMANN-SCHRÖDER, 1974*a*: 115-116, pl. 6 fig. 60. *Syllis bouvieri* sensu San Martín, 1984 — ÇINAR & ERGEN, 2003: 779. *Typosyllis hyalina-Typosyllis prolifera-Typosyllis variegata-Typosyllis bouvieri* — AMOUREUX, RULLIER & FISHELSON, 1978: 102-106, figs. 6-7, table 1 [in part; in part = *Syllis variegata* Grube 1860]. Not *Typosyllis prolifera* — IMAJIMA, 1966*e*: 292-294, fig. 65*a-n*; IMAJIMA, 1968: 27, fig. 10*f* [see SAN MARTÍN, 1992: 172]. [?] *Syllis atlantica* — COGNETTI, 1960: 115-116, fig. 1; COGNETTI, 1961*b*: 295; LICHER, 1999: 310.

**REFERENCES FOR PORTUGAL:** AUGENER, 1918 (as *Syllis lussinensis*; Portugal); SALDANHA, 1974 (coast of Arrábida); CASTRO & VIEGAS, 1981 (Tagus Estuary); CAMPOY, 1982 (as *Typosyllis prolifera*; previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (Ponta do Surdão); DEXTER, 1992 (previous records: Sines; Sado Estuary); SALDANHA, 1995 (Portugal).

**DISTRIBUTION:** Northeastern Atlantic, from the English Channel to West Africa (French Guinea; Gold Coast; São Tomé; Namibia); South Africa; Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Red Sea and Gulf of Aden; Indian Ocean: Madagascar, Mauritius, Mozambique; Indo-West Pacific; Australia; [?] Japan; Gulf of Mexico; North Carolina. On algae, *Posidonia* beds, mussels, vermetid tubes, corals, muddy sand, rocky and detritic bottoms, and intertidal pools. Intertidal to 65 meters; continental slope (?).

**REMARKS:** The synonymy of *Syllis bouvieri* Gravier 1900 with *S. prolifera* (Krøhn 1852) seems to be doubtful. *S. bouvieri* is described as having falcigers with strong and well separated teeth, which is not particularly evident in *S. prolifera*. Besides, the aciculae of *S. bouvieri* are described by GRAVIER (1900*b*) as being truncated obliquely, with the tip slightly deflected, while in *S. prolifera* the tips of the aciculae are normally swollen, like the tip of a match.

The specimen described by SAN MARTÍN (1984*b*) as *S. bouvieri* shows some differences in relation to the specimens from the Red Sea and East and West Africa. It is an adult specimen (it shows sperm cells inside its body), but its median long dorsal cirri has 14 articles, while the specimens described by GRAVIER (1900*b*) and HARTMANN-SCHRÖDER (1974*a*) show 30-35 articles. This difference must, however, be supported by further studies between the populations.

For the moment, the proposed synonymy of *S. bouvieri* with *S. prolifera* by LICHER (1999) is maintained here.

The synonymy between *S. prolifera* and *S. zonata* (Haswell 1886) is also considered here as being doubtful. In the redescription of the species, AUGENER (1913*b*) clearly states that *S. zonata* has aciculae with oblique tips, which is not true for *S. prolifera*. In another record of the species, AUGENER (1918) refers the aciculae to be needlelike. The colour pattern of *S. prolifera* is not referred in SAN

MARTÍN (1984*b*), and is stated to be absent in LICHER (1999), while FAUVEL (1923*c*) states the presence of continuous or discontinuous transversal orange or pink bands across the dorsum. In *S. zonata* the anterior segments present transversal dark lines across the dorsum. This synonymy was first established by DAY (1967), and later followed by HUTCHINGS & MURRAY (1984) and LICHER (1999). It seems, however, that specimens from the two populations (*S. prolifera* from the Mediterranean Sea, and *S. zonata* from Australia) were never directly compared, and that the synonymy was based on the bibliography. Probably the worldwide records of *S. zonata* cover the presence of several different species of *Syllis*.

## ***Syllis pulvinata*** (Langerhans 1881)

*Typosyllis pulvinata* LANGERHANS, 1881: 104, pl. 4 fig. 9.

**TYPE LOCALITY:** Puerto de la Orotava, northern coast of Tenerife, Canary Islands, in littoral rocks.

**SYNONYMS:** *Syllis (Typosyllis) truncata mediterranea* Ben-Eliahu 1977.

**SELECTED REFERENCES:** *Typosyllis pulvinata* — LICHER, 1999: 158-160, figs. 5C, 70. *Syllis pulvinata* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 117, fig. 3*M-N*; ÇINAR & ERGEN, 2003: 787; SAN MARTÍN, 2003: 372-374, figs. 202-204. *Syllis (Typosyllis) truncata mediterranea* — BEN-ELIAHU, 1977*a*: 10-13, fig. 2. *Syllis mediterranea* — SAN MARTÍN, 1984*b*: 342-344, pl. 83, photos 5-6, 20; ESTAPÉ & SAN MARTÍN, 1991: 50-54, fig. 6, table 1. *Syllis* cf. *bouvieri* [not Gravier 1900] — BEN-ELIAHU, 1972*b*: 209-210, fig. 8.

**DISTRIBUTION:** Eastern Atlantic, from the Cantabric Sea to the Canary Islands; Mediterranean Sea; Suez Canal and Red Sea. On algae, vermetid reefs, and sponges. Intertidal to about 1 meter.

## ***Syllis rosea*** Langerhans 1879

*Ehlersia (Syllis) rosea* LANGERHANS, 1879: 538, fig. 5.

**TYPE LOCALITY:** Madeira Island, in littoral rocks.

**SYNONYMS:** *Langerhansia rosea curticirris* Ben-Eliahu 1977.

**SELECTED REFERENCES:** *Langerhansia rosea* — IMAJIMA, 1966*e*: 259-261, fig. 52; SAN MARTÍN, VIÉITEZ & CAMPOY, 1981: 77-78, fig. 18; CAMPOY, 1982: 395-400, pls. 41-43; CAMPOY & ALQUÉZAR, 1982: 127-128, fig. 4. *Langerhansia rosea curticirris* — BEN-ELIAHU, 1977*a*: 44-47, fig. 18*a-h*. *Syllis rosea* — SAN MARTÍN, 1984*b*: 335-339, pls. 80-81, photos 7-8; ESTAPÉ & SAN MARTÍN, 1991: 54 fig. 7, table 1; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 121-122, fig. 5*J-K*; SAN MARTÍN, 2003: 358-360, figs. 194-195. *Typosyllis rosea* — LICHER, 1999: 44-45, fig. 21.

**DISTRIBUTION:** Northeastern Atlantic, from Galicia to Madeira and Canary Islands; Gibraltar; Mediterranean Sea; Aegean Sea; Red Sea; Japan; China; Korea; Solomon Islands. On algae, sponges, corals, rhizomes of *Posidonia oceanica*, vermetid reefs, and rocky bottoms. Intertidal to at least 2 meters.

## ***Syllis schulzi*** (Hartmann-Schröder 1960)

*Typosyllis schulzi* HARTMANN-SCHRÖDER, 1960*b*: 80, pl. 2 fig. 34, pl. 5 figs. 35-37.

**TYPE LOCALITY:** Ghardaqa (Egypt, Red Sea), in fine detritus deposited among algae branches.

**SELECTED REFERENCES:** *Syllis (Typosyllis) schulzi* — BEN-ELIAHU, 1977*a*: 21-23, fig. 6*a-i*. *Syllis schulzi* — PARAPAR *et al.*, 1996*a*: 61-62, fig. 5; SAN MARTÍN, 2003: 364-366, fig. 198. *Typosyllis schulzi* — LICHER, 1999: 140, table 21. *Syllis torquata* [not Marion & Bobretzky 1875] — ACERO & SAN MARTÍN, 1986: 12-14, figs. 6-7.

**DISTRIBUTION:** Suez Canal; Red Sea; Indian Ocean (Mozambique); Western Mediterranean Sea; Galicia. Among algae and vermetid reefs, in sponges and rhizomes of *Posidonia oceanica*. Intertidal to shallow water.

## ***Syllis torquata*** Marion & Bobretzky *in* Marion 1874

*Syllis torquata* MARION & BOBRETZKY *in* MARION, 1874: 399.

**TYPE LOCALITY:** Gulf of Marseille, probably the same location as the stated by MARION & BOBRETZKY (1875): Calanque de Malmousque, among *Ulva* sp., only a few decimeters deep, Marseille, France (Mediterranean Sea).

**SELECTED REFERENCES:** *Syllis torquata* — MARION & BOBRETZKY, 1875: 20-22, pl. 1 fig. 5*A*, pl. 2 fig. 5*B-D*; COGNETTI, 1965: 66, fig. 1; MARTIN & SAN MARTÍN, 1988: 31-34, figs. 1-2; SAN MARTÍN, 2003: 394-397, figs. 215-216. *Syllis (Typosyllis) torquata* — FAUVEL, 1923*c*: 264, fig. 98*d-h*; PÉRÈS, 1954: 104-105, fig. 1; TENERELLI, 1961*b*: 241-242, figs. 1-4. *Typosyllis torquata* — LICHER, 1999: 180-183, fig. 80, table 21.

**REFERENCES FOR PORTUGAL:** [?] AMOUREUX & CALVÁRIO, 1981 (as *Typosyllis* cf *torquata*; Peniche); MONTEIRO-MARQUES *et al.*, 1982 (as *Typosyllis torquata*; Cape Carvoeiro).
**DISTRIBUTION:** Mediterranean Sea, Aegean Sea, and nearby North Atlantic; [?] Japan. On sand and *Posidonia oceanica*. Intertidal to 15 meters.
**REMARKS:** The authorship of this species is here attributed to Marion & Bobretzky *in* Marion 1874, as these authors (MARION & BOBRETZKY *in* MARION, 1874: 399) refer that "*Le* Syllis torquata *(nov.sp.) porte dans la région antérieure une grande bande transverse noirâtre qui n'est figurée chez aucune Annélide du même groupe.*" This black band is quite typical of the species, and enables the identification of the species, at least at the region of the Gulf of Marseille, its type locality.

## ***Syllis tyrrhena*** (Licher & Kuper 1998)

*Typosyllis tyrrhena* LICHER & KUPER, 1998: 228-232, figs. 1-4, table 1.
**TYPE LOCALITY:** Punta di Fetovaia, 42º44'35" N, 10º07'09" E, SW coast of Elba Island, Tyrrhenian Sea, at 6-13.5 meters, on the wreck "Elviscott", in front of the village Pomonte, in mixed coarse sand of different grain size.
**SELECTED REFERENCES:** *Typosyllis tyrrhena* — LICHER, 1999: 140-142, figs. 2, 12, 14-16, 62-63, table 8. *Syllis tyrrhena* — SAN MARTÍN, 2003: 379-382, fig. 207.
**DISTRIBUTION:** Mediterranean Sea: Elba Island, Tyrrhenian Sea; Alborán Island, Alborán Sea. In coarse sand and calcareous bottoms. Between 6-49 meters.

## ****Syllis variegata*** Grube 1860

*Syllis variegata* GRUBE, 1860: 85-86, pl. 3 fig. 6.
**TYPE LOCALITY:** Nerezine (= Neresine) and Čikat (= Cigale), in the Lošinj (= Lussin) Island, and Cres (= Cherso) Island, Croatia, Adriatic Sea.
**SYNONYMS:** *Syllis oblonga* Keferstein 1862; *Syllis armoricana* Claparède 1863; *Syllis hexagonifera* Claparède 1864; *Thoe fusiformis* Kinberg 1866; *Syllis aurantiaca* Claparède 1868; [?] *Syllis bacilligera* Claparède 1868; *Syllis nigropunctata* Haswell 1886; *Syllis schmardiana* Haswell 1886; *Syllis variegata profunda* Cognetti 1955; [?] *Syllis atlantica lineata* Cognetti 1960; *Typosyllis cirromaculata* Hartmann-Schröder 1960; *Typosyllis columbretensis* Campoy 1982; *Syllis sardai* San Martín 1992.
**SELECTED REFERENCES:** *Syllis variegata* — MARENZELLER, 1875: 147-150, pl. 2 fig. 2; FAUVEL, 1947: 36, fig. 31*h-n*; CAZAUX, 1984: 125-135, figs. 1-13; SAN MARTÍN, 1984*b*: 354-360, pls. 88-89; ESTAPÉ & SAN MARTÍN, 1991: 47-50, fig. 3, table 1; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 120, fig. 4*P*; SAN MARTÍN, 2003: 351-354, figs. 190-191. *Typosyllis (Syllis) variegata* — LANGERHANS, 1879: 532; *Typosyllis variegata* — HARTMAN, 1964: 96, pl. 29 figs. 8-9; IMAJIMA & HARTMAN, 1964: 137-138, pl. 34 figs. *a-i*; HARTMAN, 1968: 495-496, figs. 1-5; CAMPOY, 1982: 455-459, pl. 65; KIRKEGAARD, 1992: 284-285, fig. 140; LICHER, 1999: 101-108, figs. 10*B*, 17*D*, 49, tables 9, 17. *Syllis (Typosyllis) variegata* — GRAVIER, 1900*b*: 158-160, figs. 24-27, pl. 9 fig. 8; SOUTHERN, 1914: 36; HASWELL, 1920: 91-92, pl. 10 figs. 1-2; FAUVEL, 1923*c*: 262, fig. 97*h-n*; OKUDA, 1939*a*: 183-184, fig. 1; FAUVEL, 1953*c*: 148-149, fig. 74*h-n*; USCHAKOV, 1955*a*: 180, fig. 50*F*; DAY, 1967: 248, fig. 12.3.*j-l*; BEN-ELIAHU, 1977*a*: 32-34, fig. 11. *Syllis variegata variegata* — COGNETTI, 1955: 3, fig. 2*a*; COGNETTI, 1957: 19-20, fig. 4*a*, tables 1*a*, 2. *Typosyllis (Typosyllis) variegata* — HARTMANN-SCHRÖDER, 1996: 154-155. *Syllis variegata profunda* — COGNETTI, 1955: 3, fig. 2*b*; COGNETTI, 1957: 20-21, fig. 4*b*, table 1*a*. *Syllis (Typosyllis)* groupe *prolifera-variegata-hyalina* — AMOUREUX, 1974*c*: 110-112, figs. 3-4. *Typosyllis hyalina-Typosyllis prolifera-Typosyllis variegata-Typosyllis bouvieri* — AMOUREUX, RULLIER & FISHELSON, 1978: 102-106, figs. 6-7, table 1 [in part; in part = *Syllis prolifera* Krøhn 1852]. *Syllis oblonga* — KEFERSTEIN, 1862: 109-111, pl. 9 figs. 37-44. *Syllis armoricana* — CLAPARÈDE, 1863: 39-40, pl. 13 figs. 21-23, 25-27. *Syllis hexagonifera* — CLAPARÈDE, 1864: 533-535, pl. 5 fig. 2. *Thoe fusiformis* — KINBERG, 1866*b*: 249; KINBERG, 1910: 61, pl. 24 fig. 3. [?] *Syllis bacilligera* — CLAPARÈDE, 1868: 508, pl. 14 fig. 4. *Syllis aurantiaca* — CLAPARÈDE, 1868: 510-511, pl. 13 fig. 5, pl. 14 fig. 3. *Syllis nigropunctata* — HASWELL, 1886: 744-746, pl. 52 figs. 1-3. *Syllis schmardiana* — HASWELL, 1886: 742-744, pl. 51 figs. 4-8. [?] *Syllis atlantica lineata* — COGNETTI, 1960: 115-119, fig. 1; COGNETTI, 1961*b*: 295-296; LICHER, 1999: 310. *Typosyllis cirromaculata* — HARTMANN-SCHRÖDER, 1960*b*: 82-83, pl. 6 figs. 45-46. *Typosyllis columbretensis* — CAMPOY, 1982: 413-418, pls. 46-47; SARDÁ, 1987: 98-100, fig. 2*c-h*. *Syllis columbretensis* — ESTAPÉ & SAN MARTÍN, 1991: 44-47, fig. 1, tab. 1; PARAPAR *et al.*, 1996*a*: 57, fig. 2; SAN MARTÍN, 2003: 443-447, figs. 244-245. *Syllis sardai* — SAN MARTÍN, 1992: 176-177, fig. 3. Not *Typosyllis variegata* — WESTHEIDE, 1974*b*: 51-54, figs. 21-22 [= *Syllis westheidei* San Martín 1984]. Not *Syllis (Typosyllis)* cf. *variegata* sensu Westheide non Day — BEN-ELIAHU, 1977*a*: 29-32, fig.

10 [= *Syllis westheidei* San Martín 1984]. Not *Syllis columbretensis* — SAN MARTÍN, 1984*b*: 399-403, pls. 106-107 [= *Syllis corallicola* Verrill 1900 (see SAN MARTÍN, 1992)].

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (as *Syllis (Typosyllis) variegata*; off Porto); SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (as *Typosyllis variegata*; western continental shelf of Algarve); AMOUREUX & CALVÁRIO, 1981 (as *Typosyllis variegata*; Peniche); CAMPOY, 1982 (as *Typosyllis variegata*; previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (as *Typosyllis variegata*; Cape Carvoeiro; Cape Papoa; Ponta do Baleal; Ponta do Surdão); DEXTER, 1992 (as *Syllis (Typosyllis) variegata*; previous records: Sines; Sado Estuary); SALDANHA, 1995 (as *Typosyllis variegata*; Portugal); [?] BOAVENTURA *et al.*, 2006 (as *Typosyllis* cf. *variegata*; Ancão, Algarve); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 66**, off Praia do Amado, 60 m, rock: 1 posterior fragment with about 50 chaetigers; first segments with some color patterns, as a continuous line in the posterior region; chaetae and aciculae as described for the species. **St. 258 (A.2723)**, NW Praia da Amoreira, 68 m, rock: 1 specimen.

**DISTRIBUTION:** Considered to be cosmopolitan in template and warm seas. Northeastern Atlantic, from the North Sea to the Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Madeira and Canary Islands; Atlantic and Indian coast of Africa; Cuba; Red Sea; Sri Lanka; California; New Caledonia; Sea of Japan; Australia; New Zealand; Sub-Antarctic On algae, *Posidonia*, sponges, maërl, coralligenous bottoms, and rocks. Intertidal to 100 meters, but recorded to be present at 1500 meters. The wide distribution of this species can be the result of misidentifications in the regions outside the Atlantic-Mediterranean region (SAN MARTÍN, 2003).

**REMARKS:** *Syllis bacilligera* Claparède 1868, described from the Gulf of Naples, was synonymized with *Syllis variegata* by LANGERHANS (1879, as *Typosyllis*), and this decision was followed by the biggest part of the posterior authors. LICHER (1999) considered Claparède's species as being a *nomen dubium*.

## ***Syllis vittata*** Grube 1840

*Syllis vittata* GRUBE, 1840: 77.

**TYPE LOCALITY:** According to GRUBE (1840), near Palermo, Sicily. Nevertheless, LICHER (1999) states that the lectotype is from the Island of Cres (= Cherso), and the paralectotypes from Palermo, Nice, Trieste, and Cres.

**SYNONYMS:** *Syllis aurita* Claparède 1864; *Syllis Buskii* McIntosh 1908; *Syllis nigropharyngea* Day 1951.

**SELECTED REFERENCES:** *Syllis vittata* — MARENZELLER, 1874: 441-443, pl. 3 fig. 2; COGNETTI, 1957: 23-24, tables 1*a*, 2; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 117, fig. 3*K-L*; SAN MARTÍN, 2003: 430-432, figs. 236-237. *Syllis (Typosyllis) vittata* — SOUTHERN, 1914: 35-36; FAUVEL, 1923*c*: 263-264, fig. 98*c-l*; GRAVIER & DANTAN, 1928: 59-61, figs. 24-26; [?] DAY, 1967: 252, fig. 12.4.*m-o*; AMOUREUX, 1974*a*: 438-439, fig. 3. *Typosyllis vittata* — CAMPOY, 1982: 451-455, pls. 62-64; LICHER, 1999: 250-253, figs. 3*A*, 105, tables 20, 22. *Syllis aurita* — CLAPARÈDE, 1864: 539-540, pl. 5 fig. 5; CLAPARÈDE, 1868: 509-510, pl. 14 fig. 5; MARION & BOBRETZKY, 1875: 17-18, pl. 1 fig. 3. *Syllis Buskii* — MCINTOSH, 1908*c*: 206-207, pl. 70 fig. 23, pl. 79 figs. 18-18*a*. *Syllis nigropharyngea* — DAY, 1951: 23-24, text-fig. 4*a-d*. *Syllis (Typosyllis) nigropharyngea* — DAY, 1967: 249, fig. 12.3.*m-o*.

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (as *Syllis (Typosyllis) vittata*; Sines); SALDANHA, 1974 (coast of Arrábida); AMOUREUX & CALVÁRIO, 1981 (as *Typosyllis vittata*; Peniche); CAMPOY, 1982 (as *Typosyllis vittata*; previous records: Arrábida); MONTEIRO-MARQUES *et al.*, 1982 (as *Typosyllis vittata*; Cape Carvoeiro; Cape Papoa); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); SALDANHA, 1995 (Portugal); SAN MARTÍN, 2003 (previous records: Arrábida).

**DISTRIBUTION:** Northeastern Atlantic, from the British Isles to Morocco; Madeira and Canary Islands; Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] South Africa; Madagascar; [?] Antarctic; South China Sea. Among algae, *Posidonia*, intertidal mussels, rocky bottoms. Between 0-80 meters.

## ***Syllis vivipara*** Krohn 1869

*Syllis vivipara* KROHN 1869: 197-199.

**TYPE LOCALITY:**: Quay of Nice, Mediterranean Sea.

**SELECTED REFERENCES:** *Syllis vivipara* — GOODRICH, 1900: 105-108, pl. 13; SAN MARTÍN, 2003: 347-349, fig. 188. *Syllis (Typosyllis) vivipara* — FAUVEL, 1923*c*: 267, fig. 100*e-f*. *Typosyllis vivipara* — CAMPOY, 1982: 407-410; LICHER, 1999: 142-145, figs. 17*R*, 64.

**REFERENCES FOR PORTUGAL:** [?] SALDANHA, 1974 (as *Syllis cf. vivipara*; coast of Arrábida); CAMPOY, 1982 (as *Typosyllis vivipara*; previous records: Arrábida); SAN MARTÍN, 2003 (previous records: Arrábida).
**DISTRIBUTION:** Mediterranean Sea; European Atlantic Ocean; Caribbean Sea. Among algae and in corals. At shallow water.

### ***Syllis westheidei*** San Martín 1984

*Syllis westheidei* SAN MARTÍN, 1984*b*: 403-407, pls. 108-109.
**TYPE LOCALITY:** Es Caló des Moro, Ibiza (Balearic Islands), on rhizomes of *Posidonia*, at 5 meters.
**SELECTED REFERENCES:** *Syllis westheidei* — ESTAPÉ & SAN MARTÍN, 1991: 50, fig. 4, table 1; SAN MARTÍN, 2003: 436-439, figs. 240-241. *Typosyllis westheidei* — LICHER, 1999: 111-112, fig. 51, table 9. *Typosyllis variegata* [not *Syllis variegata* Grube 1860] — WESTHEIDE, 1974*b*: 51-54, figs. 21-22. *Typosyllis* sp.2 — CAMPOY, 1982: 425-428, pl. 51. [?] *Syllis* cf. *variegata sensu* Westheide, *non* Day — BEN-ELIAHU, 1977*a*: 29-32, fig. 10.
**DISTRIBUTION:** Mediterranean Sea; Gulf of Aqaba; Galapagos Islands. On algae, rhizomes of *Posidonia*, rock pools and rocky bottoms. Intertidal to 5 meters.

## GENUS ***Synmerosyllis*** San Martín, López & Aguado 2009

*Synmerosyllis* SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1491.
**TYPE SPECIES:** *Pionosyllis lamelligera* Saint-Joseph 1886.

### ***Synmerosyllis lamelligera*** (Saint-Joseph 1887)

*Pionosyllis lamelligera* SAINT-JOSEPH, 1887: 163-165, pl. 8 figs. 30-38.
**TYPE LOCALITY:** Coast of Dinard (English Channel, Northern France), common at the dredgings, and also at low tide at Roches-Bonnes.
**SELECTED REFERENCES:** *Pionosyllis lamelligera* — FAUVEL, 1923*c*: 288-289, fig. 110*a-g*; COGNETTI, 1957: 41-42, fig. 7, tables 1*a*, 2; CAMPOY, 1982: 340-342; SAN MARTÍN 1984*b*: 105-109, pls. 16-17; HARTMANN-SCHRÖDER, 1996: 161-162; NÚÑEZ & SAN MARTÍN, 1996: 210, fig. 4*K-M*; SAN MARTÍN, 2003: 79-82, figs. 30-31. *Synmerosyllis lamelligera* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1491. [?] *Pionosyllis ehlersiaformis* — AUGENER, 1913*b*: 225-227, text-fig. 31, pl. 3 fig. 32.
**DISTRIBUTION:** Arctic and sub-Arctic; Northeastern Atlantic, from the English Channel and Ireland to the Mediterranean Sea; Aegean Sea; Canary Islands; Cape Verde Archipelago; Cuba. On algae, kelps, *Posidonia* and rocky bottoms, and among bryozoans, gorgonians, ascideans, or corals. Between 0-276 meters.
**REMARKS:** The species shows a black transversal stripe in each of the anterior chaetigers. They were observed in chaetigers 2-17 (posterior region after chaetiger 17 missing; specimen from Western Mediterranean), being absent in the first chaetiger. This specimen also showed a small lappet on the peristomium, covering a small portion of the posterior region of prostomium.

## *GENUS ***Trypanosyllis*** Claparède 1864

*Trypanosyllis* CLAPARÈDE, 1864: 558.
**TYPE SPECIES:** *Syllis zebra* Grube 1860.
**SYNONYMS:** *Pseudosyllis* Grube 1863; *Tetraglene* Grube 1863; *Tetraglena* Quatrefages 1866.
**REMARKS:** For further information on the synonymies of *Pseudosyllis* and *Tetraglene* with *Trypanosyllis*, see the *REMARKS* section under *Trypanosyllis coeliaca*.

**KEY TO SPECIES:**

**1a.** Falcigers unidentate.....***T. gigantea***
**1b.** Falcigers bidentate; may be strongly or weakly bidentate.....**2**

**2a (1b).** Body covered with scattered minute papillae; papillae densely present on antennae, dorsal cirri, parapodia and dorsum, where they can be disposed in two rows on each segment.....***T. troll***

**2b(1b).** Body not densely covered by minute papillae; papillae can be present, but at low densities.....**3**

**3a (2b).** Transversal pigmented bars present on dorsum of anterior segments.....**4**
**3b (2b).** Transversal pigmented bars absent on dorsum of anterior segments.....**5**

**4a (3a).** Falcigers strongly bidentate, with both teeth of about the same size.....***T. zebra****
**4b (3a).** Falcigers weakly bidentate, with proximal tooth thin and small, much smaller than the distal one.....***T. aeolis****

**5a (3b).** Dorsal cirri uniformly short (less than body width); dorsal cirri without dense pigmentation; pharynx with a mid-dorsal tooth; proventricle through about 4 segments.....***T. coeliaca****
**5b (3b).** Dorsal cirri alternating beyween long and short, with the longest ones as long as, or slightly longer than body width; dorsal cirri densely pigmented; pharynx without a mid-dorsal tooth; proventricle through about 9 segments.....***T. sanmartini***

## ******Trypanosyllis aeolis* Langerhans 1879

*Trypanosyllis aeolis* LANGERHANS, 1879: 558, pl. 32 fig. 18.
**TYPE LOCALITY:** Madeira Island, deep water ("*grösserer Tiefe*"), in corals.
**SYNONYMS:** *Trypanosyllis gemmipara* Johnson 1901; *Trypanosyllis misakiensis* Izuka 1906; *Trypanosyllis gemmulifera* Augener 1918.
**SELECTED REFERENCES:** *Trypanosyllis aeolis* — NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 114-115, fig. 2*D*, *F*; SAN MARTÍN, 2003: 315-319, figs. 174-176. *Trypanosyllis gemmipara* — JOHNSON, 1901: 405-406, pl. 7 figs. 72-76; DAY, 1967: 256, fig. 12.6.*c*; SAN MARTÍN, 1984*b*: 282, pl. 66. *Trypanosyllis (Trypanedenta) gemmipara* — IMAJIMA & HARTMAN, 1964: 126, pl. 30 figs. *f-g*; IMAJIMA, 1966*d*: 237-239, fig. 44; SAN MARTÍN & ALVARADO, 1981: 226-228, fig. 5. *Trypanosyllis gemmipara?* — CAMPOY, 1982: 362, pl. 30. *Trypanosyllis misakiensis* — IZUKA, 1906: 283, text-figs. 1-4; IZUKA, 1912: 185-187, pl. 20 figs. 2-6; USCHAKOV, 1955*a*: 183, fig. 52*A-E*. *Trypanosyllis gemmulifera* — AUGENER, 1918: 278-281, text-fig. 27, pl. 5 figs. 99-101.
**MATERIAL: FAUNA 1 — St. 43*A***, Gulf of Cádiz, near Rota, 20-24 m, rocks with white coral: 1 specimen; trepanus not observed; young specimen.
**DISTRIBUTION:** Indian Ocean; Northern Pacific, from Alaska to southwestern Mexico; Sea of Japan; Eastern and Western tropical Africa; South Africa; Mediterranean Sea; Aegean Sea; Madeira and Canary Islands. On rocks, and among laminarian holdfasts. Intertidal to 120 meters.

## ******Trypanosyllis coeliaca* Claparède 1868

*Trypanosyllis coeliaca* CLAPARÈDE, 1868: 513-514, pl. 13 fig. 3.
**TYPE LOCALITY:** Gulf of Naples.
**SYNONYMS:** *Tetraglene rosea* Grube 1863; *Pseudosyllis brevipennis* Grube 1863.
**SELECTED REFERENCES:** *Trypanosyllis coeliaca* — LANGERHANS, 1879: 557-558; FAUVEL, 1923*c*: 270, fig. 101*f-h*; COGNETTI, 1957: 27-29, fig. 5*a*, pl. 1 fig. 5, tables 1*a*, 2; LAUBIER, 1966*a*: 250-251; LAUBIER, 1968*a*: 93, fig. 10*B*; HARTMANN-SCHRÖDER, 1977*a*: 85, figs. 23-24; PERKINS, 1981: 1155-1158, figs. 33-34; CAMPOY, 1982: 354-356, pl. 28; SAN MARTÍN, 1984*b*: 274-277, pl. 63; UEBELACKER, 1984*f*: 30.93-30.94, figs. 30.87-30.88; BARATECH & SAN MARTÍN, 1987: 45, fig. 7; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 114, fig. 2*B*; SAN MARTÍN, 2003: 308-311, figs. 169-170. *Trypanosyllis cæliaca* — SAINT-JOSEPH, 1887: 184-187, pl. 9 figs. 57-63. *Tetraglene rosea* — GRUBE, 1863: 42-43, pl. 4 fig. 6. *Trypanosyllis* cf. *rosea* — CAMPOY, 1982: 356-358. *Pseudosyllis brevipennis* — GRUBE, 1863: 43-44, pl. 4 fig. 5; SAN MARTÍN, 1984*b*: 270-273, pl. 62; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 113-114, fig. 1*D*, *G*; LICHER, 1999: 287-288. *Syllis (Typosyllis) brevipennis* — FAUVEL, 1923*c*: 265, fig. 99*g-k*; RIOJA, 1925*b*: 22-24, figs. 8-9. *Typosyllis brevipennis* — SAN MARTÍN VIÉITEZ & CAMPOY, 1981: 79-80, fig. 21; CAMPOY, 1982: 449-450. *"Pseudosyllis brevipennis"* — ÇINAR & ERGEN, 2003: 777. Not *Trypanosyllis rosea* — HARTMANN-SCHRÖDER, 1979*a*: 78, figs. 37-41 [= *Trypanosyllis troll* Ramos, San Martín & Sikorski 2010].
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); SOUSA-REIS *et al.*, 1982 (Peniche region); DEXTER, 1992 (previous records: Peniche); RAVARA, 1997 (off Aveiro); RAVARA, SAN MARTÍN & MOREIRA, 2004 (off Aveiro; previous records: coast from Cape Carvoeiro to Ponta do Surdão).
**MATERIAL: FAUNA 1 — St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 4 specimens, two of them very damaged due to their mounting on gelatinized glycerine; (1) incomplete, with 21 chaetigers,

chaetae a little longer than in SAN MARTÍN (1984*b*), last chaetigers with a single acicula, aciculae surpassing slightly the parapodia; (2) complete, with 63 chaetigers, a female with eggs, palps like in the anterior specimen, well separated; (3) incomplete, with 16 chaetigers, proventricle through 4 chaetigers, aciculae well prominent, anterior region of pharynx not visible; (4) incomplete, with 21 chaetigers, rest like previous specimens.

**DISTRIBUTION:** Northeastern Atlantic, from Ireland to Azores; Josephine and Meteor Banks; Madeira and Canary Islands; Mediterranean Sea, to the Marmara Sea; Adriatic Sea; Aegean Sea; West African coast, from Morocco to Guinea; Florida; Gulf of Mexico; [?] Solomon Islands. Among algae, vermetids, hydrozoans, sponges, corals, rhizomes of *Posidonia oceanica*, and on rocky bottoms, coralligenous bottoms, and sand. Infralittoral to 760 meters.

**REMARKS:** SAN MARTÍN (2003) considered *Pseudosyllis brevipennis* Grube 1863 as a possible synonymy of *Trypanosyllis coeliaca* Claparède 1868, with base on specimens identified as *P. brevipennis*. These specimens would be similar to the ones normally identified as *T. coeliaca*, both in size, shape of the body, and chaetae, differing only in the absence of a pharyngeal trepan, in the first case, in spite of the fact that the median tooth was present in both cases. The absence of the trepan, in the opinion of SAN MARTÍN (2003), could be due to several possible factors, like the accidental lost (partially or totally) or, especially, to the difficulty in observing it without a previous dissection of the worm. Besides, the description of *Pseudosyllis brevipennis* by GRUBE (1863), was done together with the description of *Tetraglene rosea*. According to SAN MARTÍN (2003), both descriptions are confuse and not adequate, and for these reasons, and to maintain the taxonomic stabilitly of the group, were considered to be *nomina dubia*. This way, the generic name *Trypanosyllis* Claparède 1864 would be maintained, in spite of the fact that both *Tetraglene* Grube 1863 and *Pseudosyllis* Grube 1863 (in this order of priority due to the pagination number where they were originally published), are older names.

From the description by GRUBE (1863), it is apparent that *Tetraglene rosea* is a formed stolon still attached to its parent, a specimen of *Pseudosyllis brevipennis*, as already stated by previous authors (*e.g.* FAUVEL, 1923*c*). This way, and due to the priority of the pagination number, and according to the ICZN, the name *Tetraglene rosea* has priority over *Pseudosyllis brevipennis*. Besides, the type material of *Tetraglene rosea* is still existing and was studied by LICHER (1999), while the type material of *Pseudosyllis brevipennis* was not found by the same author.

## ***Trypanosyllis gigantea*** (McIntosh 1885)

*Syllis gigantea* MCINTOSH, 1885*a*: 193-195, pl. 30 figs. 1-3, pl. 33 fig. 4, pl. 15*A* fig. 14, pl. 34*A*, fig. 7.

**TYPE LOCALITY:** Off Kerguelen Island, between 10-100 fathoms (18.3-182.9 meters).

**SELECTED REFERENCES:** *Trypanosyllis gigantea* — GRAVIER, 1911: 10, 52-54, pl. 1 figs. 7-8; BENHAM, 1927: 56-58, pl. 1 fig. 1; MONRO, 1936: 126-127, fig. 18; MONRO, 1939*d*: 112, fig. 7; HARTMAN, 1964: 93, pl. 29 figs. 1-2; LICHER, 1999: 294.

**DISTRIBUTION:** Antarctic and Subantarctic regions; Mauritius; Southern South America; Patagonian Shelf; Galapagos; New Zealand; [?] Mediterranean, Adriatic, and Aegean Seas. Between 1.8-731.5 meters.

**REMARKS:** This species was recorded to be present in the Mediterranean, Adriatic and Aegean Seas (COGNETTI, 1958; HAMILTON, 1970; LICHER, 1999). However, its presence in European waters is considered as doubtful, and probably it is the result of incorrect identifications. It is possible that at least the record from the Aegean Sea refers to *Trypanosyllis sanmartini* Çinar 2007.

## ***Trypanosyllis sanmartini*** Çinar 2007

*Trypanosyllis sanmartini* ÇINAR, 2007*a*: 453-457, figs. 2-4, table 1.

**TYPE LOCALITY:** Mersin Bay (Levantine coast of Turkey), 36º42'15"N, 34º28'00"E, 0.2-3 meters, on rocks.

**DISTRIBUTION:** Known from the type locality.

## ***Trypanosyllis troll*** Ramos, San Martín & Sikorski 2010

*Trypanosyllis troll* RAMOS, SAN MARTÍN & SIKORSKI, 2010: 1047-1049, figs. 5-8.

**TYPE LOCALITY:** Norwegian Sea, 61º05'54.13"N, 02º11'18.30"E, 134 meters, in fine sediment.

**SELECTED REFERENCES:** *Trypanosyllis rosea* [not Grube 1863] — HARTMANN-SCHRÖDER, 1979*a*: 78, figs. 37-41.

**DISTRIBUTION:** Northeast Atlantic Ocean: Norwegian Sea, in fine sediment, between 134-139 meters; Great Meteor Bank, 296-321 meters.

### **Trypanosyllis zebra* (Grube 1860)

*Syllis zebra* GRUBE, 1860: 86-87, pl. 3 fig. 7.
**TYPE LOCALITY:** French Mediterranean Sea.
**SYNONYMS:** *Syllis rubra* Grube 1857; *Trypanosyllis Krohnii* Claparède 1864; [?] *Trypanosyllis Richardi* Gravier 1900.
**SELECTED REFERENCES:** *Syllis zebra* — GRUBE, 1861: 143-144, pl. 3 fig. 7; LANGERHANS, 1879: 556-557, pl. 32 fig. 17. *Trypanosyllis zebra* — MARENZELLER, 1874: 446-447, pl. 5 fig. 1; MCINTOSH, 1908*c*: 169-173, pl. 50 figs. 9-10, pl. 51 fig. 1, pl. 70 fig. 8, pl. 78 fig. 18; FAUVEL, 1923*c*: 269-270, fig. 101*a-e*; GRAVIER & DANTAN, 1928: 50-54, figs. 11-17; OKADA, 1929: 542-599, figs. 13, 27*b*, 28*b*; OKUDA, 1937*a*: 272-273, figs. 13-14; FAUVEL, 1953*c*: 157, fig. 79*a-d*; COGNETTI, 1957: 26-27, pl. 1 fig. 4, tables 1*a*, 2; LAUBIER, 1966*a*: 251; DAY, 1967: 256, fig. 12.6.*a-b*; GARDINER, 1976: 138, fig. 12*f-h*; CAMPOY, 1982: 358-362, pl. 29; SAN MARTÍN, 1984*b*: 277-281, pls. 64-65; NÚÑEZ, SAN MARTÍN & BRITO, 1992*a*: 114, fig. 2*A*, *C*, *E*; LICHER, 1999: 295-296, fig. 5*A* [figure as *Trypanosyllis krohni*]; SAN MARTÍN, 2003: 311-315, figs. 171-173. *Syllis rubra* — GRUBE, 1857: 180-181. *Trypanosyllis Krohnii* — CLAPARÈDE, 1864: 558-559, pl. 7 fig. 2.[?] *Trypanosyllis Richardi* — GRAVIER, 1900*b*: 168-170, text-figs. 39-41, pl. 9 figs. 12-13. *Trypanosyllis (Trypanedenta) taeniaformis* [not *Trypanosyllis taeniaeformis* (Haswell 1886)] — IMAJIMA, 1966*d*: 239-241 fig. 45. *Trypanosyllis taeniaformis* [not *Trypanosyllis taeniaeformis* (Haswell 1886)] — WESTHEIDE, 1974*b*: 39-41, fig. 16.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Sines); SALDANHA, 1974 (coast of Arrábida); HARTMANN-SCHRÖDER, 1979*a* (western continental shelf of Algarve); AMOUREUX & CALVÁRIO, 1981 (Peniche); CAMPOY, 1982 (previous records: Sines; Arrábida); SALDANHA, 1995 (Portugal).
**MATERIAL: FAUNA 1 — St. 23*A***, Alborán Sea, Placer de las Bóvedas, off San Pedro de Alcántara, 30-32 m, coralligenous: 1 incomplete specimen with about 37 chaetigers; proventricle through 8 chaetigers. **St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 6 specimens, plus one fragment, with the typical coloration; biggest specimen with 4 aciculae in the anterior parapodia, being 3 very thick and pointed, and one thinner and with blunt tip; 2 specimens in poor condition; one specimen found among rhizomes of laminarians. **St. 57*A***, Gulf of Cádiz, off Cape Trafalgar, 76-80 m, gravel and stones: 1 specimen; anterior parapodia with 3 aciculae. **St. 60*A***, Gibraltar Strait, Tarifa, 12-16 m, sand, stones, photophile algae: 1 specimen. **St. 61*A***, Gibraltar Strait, Tarifa, 39-44 m, rock: 3 specimens, plus one fragment.
**DISTRIBUTION:** Cosmopolitan in template and tropical seas. From the English Channel to South Africa; Azores; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; from North Carolina to West Indies; Red Sea; Indian Ocean; China Sea; Japan; Palau Islands; Southeastern Australia; New Zealand. On sponges, laminarian holdfasts, algae, *Posidonia*, sand and coralligenous bottoms. Intertidal to 120 meters.

## GENUS *Virchowia* Langerhans 1879

*Virchowia* LANGERHANS, 1879: 582.
**TYPE SPECIES:** *Virchowia clavata* Langerhans 1879.
**SYNONYMS:** *Autosyllis* Imajima & Hartman 1964.

### *Virchowia clavata* Langerhans 1879

*Virchowia clavata* LANGERHANS, 1879: 582-583, pl. 33 fig. 31.
**TYPE LOCALITY:** Madeira Island, in a fish basket.
**SELECTED REFERENCES:** *Virchowia clavata* — VIGUIER, 1886: 426, pl. 26 figs. 1-10; FAUVEL, 1923*c*: 324-325, fig. 125; COGNETTI, 1957: 75, tables 1*b*, 2; SAN MARTÍN, 2003: 463-466, figs. 253-254; NYGREN, 2004: 81-83, fig. 32; ÇINAR & GAMBI, 2005: 745-746, fig. 10.
**DISTRIBUTION:** Madeira Island; Western Mediterranean Sea (Banyuls-sur-Mer; Alger; Gulf of Naples); Adriatic Sea. Amongst sponges and hydroids. Shallow water to 10 meters.

## *GENUS *Xenosyllis* Marion & Bobretzky 1875

*Xenosyllis* MARION & BOBRETZKY, 1875: 26.
**TYPE SPECIES:** *Syllis scabra* Ehlers 1864.

### **Xenosyllis scabra* (Ehlers 1864)

*Syllis scabra* EHLERS, 1864: 244-248, pl. 11 figs. 1-3.

**TYPE LOCALITY:** Žurkova (= Zurkowa) Bay, (south Rijeka = Fiume), Kvarner (=Quarnero) Gulf, Adriatic Sea.

**SELECTED REFERENCES:** *Xenosyllis scabra* — LANGERHANS, 1884: 248, pl. 15 fig. 1; FAUVEL, 1923*c*: 272-273, 102*a-e*; [?] PÉRÈS, 1954: 106-107, fig. 2; COGNETTI, 1957: 30-31, fig. 5*b*, tables 1*a*, 2; LAUBIER, 1966*a*: 250; LAUBIER, 1968*a*: 88-93, figs. 4-6; HARTMANN-SCHRÖDER, 1977*a*: 85, figs. 25-26; SAN MARTÍN, 1984*b*: 267-270, pl. 61; NÚÑEZ, SAN MARTÍN & VIÉITEZ, 1992*a*: 113, fig. 1*C*, *F*; SAN MARTÍN, 2003: 303-307, figs. 167-168.

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); SAN MARTÍN, 2003 (previous records: Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 182 (A.3929)**, near Sines, 61 m, gravelly sand: 2 specimens, one in very poor condition, due to its mounting on gelatinized glycerine; this specimen is a female with eggs; chaetae unidentate. **FAUNA 1 — St. 33*A***, Alborán Sea, Alborán Island, 34-44 m, laminarians on rocks: 1 specimen.

**DISTRIBUTION:** Northeastern Atlantic, from the English Channel to the Mediterranean Sea (East and West); Adriatic Sea; Aegean Sea; Gorringe Bank; Madeira and Canary Islands; Gulf of Mexico. On rocks, gravel, sand, mud, and coralligenous bottoms, and also among algae and rhizomes of marine phanerogams. Between 12-115 meters.

**REMARKS:** This species can be easily recognised by its flat body, tegument covered by numerous small papillae, unarmed pharynx and an anterior occipital flat covering partially the prostomium. The compound chaetae of the studied specimens were mainly unidentate.

The specimens described by PÉRÈS (1954) as *Xenosyllis scabra* seems to belong to a different species. These specimens are described as lacking the pharyngean tooth, and as having two kinds of composed chaetae, one with long and bidentate blades, and the other with shorter and curved unidentate blades. However, the given figure for the species doesn't show the typical small papillae that covers the whole body of specimens of *Xenosyllis scabra*.

## *INCERTAE SEDIS*

### *Autolytus antondohrni* Çinar & Gambi 2005

*Autolytus antondohrni* ÇINAR & GAMBI, 2005: 727-730, fig. 2.

**TYPE LOCALITY:** Mergellina (Gulf of Naples), on algae, at 0-2 meters.

**DISTRIBUTION:** Known from the type locality.

**REMARKS:** *Autolytus antondohrni* was described with base on a single specimen. It was not possible to determine if the species was valid or not, with base on its description and its comparison with the descriptions on the monography by NYGREN (2004). For this reason the species is here considered as *incertae sedis*.

### *Autolytus neapolitanus* Cognetti 1953

*Autolytus neapolitanus* COGNETTI, 1953*c*: 90-92, fig. 2.

**TYPE LOCALITY:** Vico Equense, Gulf of Naples (Mediterranean Sea), at 25 meters, in coralligenous bottom.

**SELECTED REFERENCES:** *Autolytus neapolitanus* — COGNETTI, 1957: 74-75, fig. 17, table 1*b*; NYGREN, 2004: 186-187; ÇINAR & GAMBI, 2005: 736-738, fig. 6.

**DISTRIBUTION:** Gulf of Naples, Mediterranean Sea. Among algae. Between 11-30 meters.

**REMARKS:** This species was considered as *incertae sedis* by NYGREN (2004).

### *Autolytus rubrovittatus* Claparède 1864

*Autolytus rubrovittatus* CLAPARÈDE, 1864: 563-565, pl. 7 fig. 3.

**TYPE LOCALITY:** Port-Vendres (French Mediterranean coast).

**SELECTED REFERENCES:** *Autolytus rubrovittatus* — LANGERHANS, 1879: 576; FAUVEL, 1923*c*: 320-321, fig. 123*a-d*; [?] HARTMANN-SCHRÖDER, 1979*a*: 83, figs. 57-58; NYGREN, 2004: 161.

**DISTRIBUTION:** Mediterranean Sea.

**REMARKS:** *Autolytus rubrovittatus* was considered as *Myrianida incerta sedis* by NYGREN (2004).

## ***Paratyposyllis peresi*** Laubier 1968

*Paratyposyllis (?) peresi* LAUBIER, 1968*a*: 96-99, fig. 9**.**

**TYPE LOCALITY:** Cape Abeille (Western Mediterranean Sea), from 32 meters, among the endogenous microfaune from a coralligenous rock.

**SELECTED REFERENCES:** *Paratyposyllis (?) peresi* **—** LAUBIER, 1966*a*: 251-252.

**DISTRIBUTION:** Cape Abeille (Western Mediterranean Sea). Coralligenous rocks. At 32 meters.

**REMARKS:** LAUBIER (1966*a*, 1968*a*) included his single specimen, with some doubts, in the genus *Paratyposyllis*. The genus *Paratyposyllis* was created by HARTMANN-SCHRÖDER (1962*b*) with base on three specimens, belonging to the subfamily Syllinae, which presented one single pair of tentacular cirri, and lacked the dorsal cirri in the second chaetiger. The single specimen of *P. peresi* found and described by LAUBIER (1966*a*, 1968*a*) had also a single pair of tentacular cirri, but showed a pair of dorsal cirri in the second chaetiger. On the other hand, the specimen described by LAUBIER (1968*a*) seems to be close to the genus *Trypanosyllis*, except for the presence of an unarmed eversible pharynx and of a single pair of tentacular cirri. The species is here considered as *incertae sedis*.

LAUBIER (1966*a*) stated that the detailed description of this species would appeared in another publication (which was in press in 1966), and also that the name of this new species should be considered as a *nomen nudum* in his 1966's publication The detailed account of the new species, including illustrations, was published only in 1968 (LAUBIER, 1968*a*), and this should be considered as the publication year of *Paratyposyllis peresi*.

## ****Pionosyllis dionisi*** Núñez & San Martín 1991

*Pionosyllis dionisi* NÚÑEZ & SAN MARTÍN, 1991: 236-238, fig. 1.

**TYPE LOCALITY:** Candelaria (Tenerife, Canary Islands), in *Dendrophyllia ramea*, 115 meters.

**SYNONYMS:** *Pionosyllis elephantensis* Hartmann-Schröder & Rosenfeldt 1992.

**SELECTED REFERENCES:** *Pionosyllis dionisi* — PARAPAR *et al.*, 1993*a*: 372-374, fig. 5; NÚÑEZ & SAN MARTÍN, 1996: 208, fig. 3*J-N*; SIMBOURA & NICOLAIDOU, 1997: 623; GIL & SARDÁ, 1999: 292-293; SAN MARTÍN, 2003: 67-70, figs. 22-23. *Paraehlersia* (?) *dionisi* — SAN MARTÍN, LÓPEZ & AGUADO, 2009: 1477-1478, 1478. *Pionosyllis elephantensis* — HARTMANN-SCHRÖDER & ROSENFELDT, 1992: 98-99, figs. 28-33.

**REFERENCES FOR PORTUGAL:** GIL & SARDÁ, 1999 (southwestern continental shelf); SAN MARTÍN, 2003 (previous records: Portugal); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 7 (2nd part) — St. 195 (A.3917)**, south Sines, 102 m, rock, schist: 1 incomplete specimen, about 2.1 mm long and 0.15 mm wide; chaetae of about the same size than the described; simple dorsal chaetae as described; ventral simple chaetae not observed; proventricle with about 30 rows of muscular cells, being slightly longer than the pharynx; pharynx with an anterior tooth and 9/10 papillae surrounding the mouth; posterior parapodia with 2 aciculae. **St. 225 (A.3892)**, off Porto Covo, 40 m, rock: 1 incomplete specimen, with about 51 chaetigers; 9/10 papillae surrounding the anterior region of the pharynx which, in spite of being everted, does not enable the observation of the tooth; proventriculus with about 29 muscular rows; falciger chaetae of median parapodia shorter than the described (30 µm the more dorsal, 15 µm the more ventral); simple chaetae not observed.

**DISTRIBUTION:** Tenerife (Canary Islands); Portugal; Ceuta; Aegean Sea; Elephant Island (Antarctica). Between 0-120 m, but recorded to be present at 466 meters (Elephant Island, Antarctica).

**REMARKS:** The SEPLAT specimen was the first record of the species in the Iberian Peninsula, extending its geographic distribution up to the north.

This species was placed in the genus *Pionosyllis* according to the diagnosis of the genus given by SAN MARTÍN (1984*b*), which included several species with the antennae and the anterior cirri weakly articulated. However, *Pionosyllis* was a large, heterogeneous and polyphyletic genus, needing to be revised, and there was a general belief that it would be splited into several new or already known genera (SAN MARTÍN, 1984*b*, 1990; NÚÑEZ & SAN MARTÍN, 1991; JIMÉNEZ, SAN MARTÍN & LÓPEZ, 1994). Some of the species had been transferred to the genera *Grubeosyllis* (JIMÉNEZ, SAN MARTÍN & LÓPEZ, 1994) and *Eusyllis* (JIMÉNEZ, SAN MARTÍN & LÓPEZ, 1995), but a wider revision of the genus was performed by SAN MARTÍN, LÓPEZ & AGUADO (2009), with the creation of five new genera (*Basidiosyllis*, *Brevicirrosyllis*, *Perkinsyllis*, *Synmerosyllis*, and *Westheidesyllis*), and also the inclusion of species in other already known genera (*Nudisyllis* Knox & Cameron 1970, *Opisthodonta* Langerhans 1879, and *Paraehlersia* San Martín 2003).

*Pionosyllis dionisi* is closely related to *Ehlersia ferrugina* Langerhans 1881 (PARAPAR *et al.*, 1993*a*), differing mainly in the compound medial and posterior chaetae and the absence of retractable

appendices below the dorsal cirri. *Pionosyllis* and *Ehlersia* have been placed traditionally into different Syllidae subfamilies, Eusyllinae and Syllinae respectively, which are distinguished mainly by the type of reproduction and the form of the appendages: Eusyllinae with reproduction by epigamy and smooth or irregularly articulated appendages, and Syllinae with reproduction by schizogamy and generally articulated appendages, although some can be smooth (SAN MARTÍN, 1984*b*; GARWOOD, 1991).

Owing to the morphology of its body, it has been suggested that *E. ferrugina* should be included in the Eusyllinae, (SAN MARTÍN, 1984*b*; NÚÑEZ & SAN MARTÍN, 1996), and that it would be close to the genus *Pionosyllis* (IMAJIMA, 1966*e*, as *Langerhansia* sp.; SAN MARTÍN, 1984*b*). On the other hand, while GARWOOD (1991) reported schizogamy as the reproduction type of the genus *Ehlersia* (nowadays *Paraehlersia*, as the name *Ehlersia* was preoccupied), NÚÑEZ & SAN MARTÍN (1996) found one epigamous specimen, collected at the Canary Islands, transferring the genus to the subfamily Eusyllinae. An opposite case is the one of *Pionosyllis procera* Hartman 1965, redescribed by SAN MARTÍN & ESTAPÉ (1993) as having schizogamic reproduction and morphological characters of both subfamilies.

SAN MARTÍN, LÓPEZ & AGUADO (2009) included *Pionosyllis dionisi* under the genus *Paraehlersia*, as a new combination, but considered this placement as doubtful. The genus *Paraehlersia* was defined by SAN MARTÍN, LÓPEZ & AGUADO (2009) with base on a very clear apomorphy, the presence of a subcirral papillae, together with the dorsal surface of segments being ciliated, articulated antennae and tentacular cirri, dorsal cirri articulated in the anterior segments and smooth in the posterior ones, and the presence of spiniger-like chaetae. However, *Pionosyllis dionisi* does not show neither subcirral papillae nor ciliary bands, even when observed under SEM (SAN MARTÍN, LÓPEZ & AGUADO, 2009). For this reason I think that the placement of *Pionosyllis dionisi* was probably precipitated, creating a new combination that might become unnecessary. For this reason the species will be considered here as *incertae sedis*, and will be keyed above, at the key of genera, as "*Pionosyllis dionisi*".

### ***Syllides articulocirratus*** Gillandt 1979

*Syllides articulocirratus* GILLANDT, 1979: 33-36, figs. 8-9.

**TYPE LOCALITY:** Felswatt, NE Helgoland Island (North Sea), between stones and algae, in the low eulittoral.

**SELECTED REFERENCES:** *Syllides articulocirrata* — HARTMANN-SCHRÖDER, 1996: 165-166, fig. 70. *Syllides articulocirratus* — KIRKEGAARD, 1992: 273-275, fig. 135.

**REFERENCES FOR PORTUGAL:** BOAVENTURA *et al.*, 2006 (Ancão, Algarve). [Probably this record refers to *Eusyllis blomstrandi* Marenzeller 1867].

**DISTRIBUTION:** NE Helgoland Island (North Sea), between stones and algae, in the low eulittoral; Algarve, Portugal, in an artificial reef system at about 20 meters deep.

**REMARKS:** GILLANDT (1979) described his three specimens collected at Felswatt (Helgoland) as a new species of *Syllides*, *S. articulocirratus*. This decision was partially based on the fact that he was not able to see teeth or a trepan in any of the specimens. However, many of the other characters of the species do not agree with the definition of *Syllides*, and for this reason the species is not considered here under this genus. With the exception of the structure of the pharynx, the species seems to be close to the genus *Eusyllis*, and especially to the species *Eusyllis blomstrandi* Marenzeller 1867.

## INVALID OR INDETERMINABLE SPECIES

### ***Autolytus roseus*** Claparède 1864

*Autolytus roseus* CLAPARÈDE, 1864: 566-567, pl. 7 fig. 4.

**TYPE LOCALITY:** Port-Vendres, French Mediterranean coast.

**SELECTED REFERENCES:** *Autolytus roseus* — LANGERHANS, 1879: 577; FAUVEL, 1923*c*: 322, fig. 123*e-g*; NYGREN, 2004: 192.

**DISTRIBUTION:** Western Mediterranean Sea.

**REMARKS:** This species was considered as a *nomen dubium* by NYGREN (2004). The same author stated that it is possible that the species represents a female stolon of *Proceraea madeirensis* Nygren 2004, in which case Claparède's name would have priority.

### ***Autolytus smittiae*** Malaquin 1893

*Autolytus Smittiæ* MALAQUIN, 1893: 81, pl. 11 figs. 15-16.

**TYPE LOCALITY:** English Channel, around the Laboratoire Maritime du Portel, on the coast of Boulonnais (Pas-de-Calais, France), in the bryozoan *Smittia landsborowii*, at shallow waters.
**SELECTED REFERENCES:** *Autolytus Smittiae* — FAUVEL, 1923*c*: 321, fig. 123*l*; RIOJA, 1925*b*: 33. *Autolytus smittae* — CAMPOY, 1982: 234-235; HARTMANN-SCHRÖDER, 1996: 187; NYGREN, 2004: 192-193.
**DISTRIBUTION:** Northeastern Atlantic, from Pas-de-Calais (France) to San Vicente de la Barquera (Spain), on bryozoans and among algae, at shallow water.
**REMARKS:** This species was considered as dubious by NYGREN (2004), as the characters given in its description are too general in order to separate it from other taxa.

## ***Autolytus syllisetosus*** Langerhans 1884

*Autolytus syllisetosus* LANGERHANS, 1884: 249, pl. 15 fig. 4.
**TYPE LOCALITY:** Madeira Island, in a basket with fish.
**SELECTED REFERENCES:** *Autolytus syllisetosus* — NYGREN, 2004: 193.
**DISTRIBUTION:** Madeira Island.
**REMARKS:** This species was considered as dubious by NYGREN (2004).

# *FAMILY **TEREBELLIDAE** Grube 1850

**AS:** *TEREBELLACEA* GRUBE 1850: 325-328.

**SYNONYMS:** *AMPHITRITÆ* Savigny 1822; *ARTACAMACEA* Malmgren 1866; *POLYCIRRIDEA* Malmgren 1866.

**REMARKS:** The family Terebellidae Grube 1851 has been normally divided into 4 subfamilies: Artacaminae Malmgren 1866, Amphitritinae Malmgren 1866, Polycirrinae Malmgren 1866, and Thelepodinae Hessle 1917. HESSLE (1917), and later DAY (1967), argued that the Artacaminae were specialized members of the Amphitritinae, with the peristomium developed into a proboscis-like structure, instead of being a real eversible pharynx. In a revision of the Amphitritinae, MCHUGH (1995), transferred *Artacama*, the single genus of the Artacaminae, to the Amphitritinae, giving this way support to the earlier studies by HESSLE (1917). This opinion was followed by HILBIG (2000*b*), and will be followed here.

Important taxonomic works on Terebellidae are numerous, and will not be discussed here in detail. The most relevant publications for the present study are cited in the following pages. Tables listing the major characters used to distinguish genera within the Thelepodinae and Amphitritinae are given in HUTCHINGS (1997).

There are about 61 genera and 452 described species considered to be valid (HUTCHINGS *et al.*, 2000), but this number hasn't stopped to increase since then (*e.g.*: LONDOÑO-MESA, 2009; SANTOS *et al.*, 2010). On the other hand, many of the older taxa and synonymies need to be revised, which will probably imply some changes in the current taxonomy of some species or groups of species.

At present, 25 genera with 69 valid species are known to be present in the European and nearby waters. However, as stated above, this number will quite probably change with the revision of many of the older species, especially of species that have been considered as synonymies of other taxa.

Eleven species belonging to 8 genera were identified in the present study.

**KEY TO SUBFAMILIES AND GENERA:**
(adapted from HOLTHE, 1986*b*)

**1a.** Uncini in double rows on the thoracic region posterior to the sixth chaetigerous segment (the two rows may be fused, but this condition can be recognized by the alternate orientation of the uncini).....**Subfamily AMPHITRITINAE**.....**3**
**1b.** Uncini in straight or curved but always single rows.....**2**

**2a (1b).** Cirriform branchiae present.....**Subfamily THELEPODINAE**.....**18**
**2b (1b).** No branchiae.....**Subfamily POLYCIRRINAE**.....**19**

**3a (1a).** Peristomiun ventrally forming a big, protusive proboscis.....***Artacama***
**3b (1a).** No proboscis as such.....**4**

**4a (3b).** Notochaetae on more than 25 segments, extending more or less throughout the body; no discernible thorax.....**5**
**4b (3b).** Notochaetae on 25 or fewer segments; thorax discernible.....**6**

**5a (4a).** Branchiae present; notochaetae subdistally denticulate.....***Terebella***
**5b (4a).** No branchiae; notochaetae very finelly denticulate.....***Baffinia***

**6a (4b).** No branchiae.....**7**
**6b (4b).** Branchiae present.....**10**

**7a (6a).** Uncini from the 2nd chaetigerous segment.....**8**
**7b (6a).** Uncini from the 3rd chaetigerous segment.....***Proclea***
**7c (6a).** Uncini from the 7th chaetigerous segment.....***Laphania***

**8a (7a).** Notochaetae of two types in all notopodia.....***Phisidia***
**8b (7a).** Notochaetae of one type only.....**9**

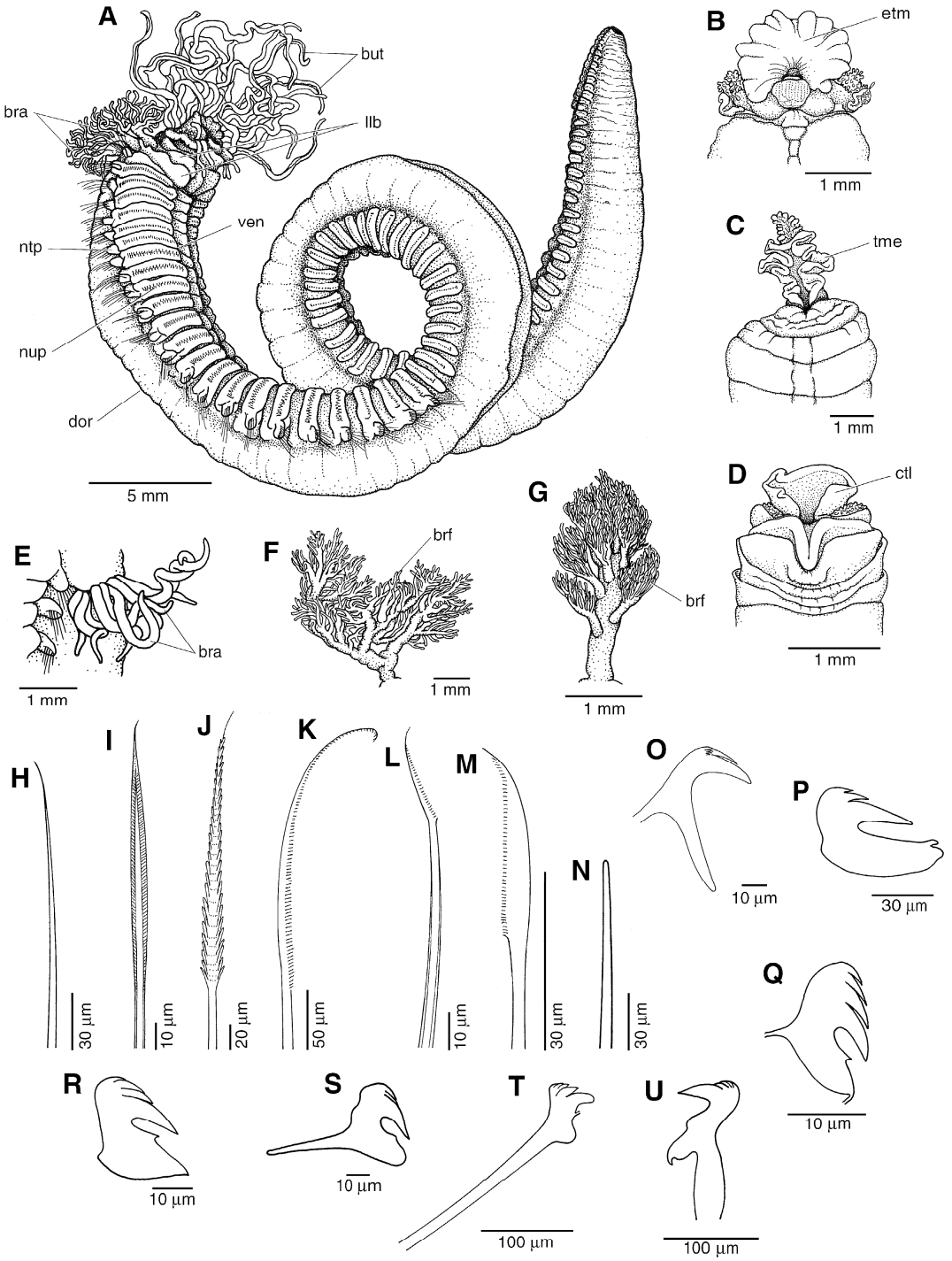


**Figure legend:** Family Terebellidae. **A**, *Longicarpus* specimen (Amphitritinae), entire animal, ventro-lateral view. **B**-**D**, tentacular membranes, ventral view: **B**, *Amaeana* specimen (Polycirrinae); **C**, *Rhinothelepus* specimen (Thelepodinae); **D**, *Pista* specimen (Amphitritinae). **E**-**G**, branchiae: **E**, *Thelepus* specimen (Thelepodinae); **F**, *Nicolea* specimen (Amphitritinae); **G**, *Pista* specimen (Amphitritinae). **H**-**M**, notochaetae: **H**, *Amaeana* specimen (Polycirrinae); **I**, *Lysilla* specimen (Polycirrinae); **J**, *Lysilla* specimen (Polycirrinae); **K**, *Euthelepus* specimen (Thelepodinae); **L**, *Terebella* specimen (Amphitritinae); **M**, *Lanassa* specimen (Amphitritinae). **N**-**U**, neurochaetae: **N**, *Amaeana* specimen (Polycirrinae); **O**, *Polycirrus* specimen (Polycirrinae); **P**, *Euthelepus* specimen (Thelepodinae); **Q**, *Loimia* specimen (Amphitritinae); **R**, *Terebella* specimen (Amphitritinae); **S**, *Pista* specimen (Amphitritinae); **T**, *Lanicides* specimen (Amphitritinae); **U**, *Longicarpus* specimen (Amphitritinae). **bra**, branchiae; **brf**, branchial filaments branching from axis; **but**, non-retractile buccal tentacles; **ctl**, compact tentacular lobe; **dor**, dorsum; **etm**, expanded tentacular membrane; **llb**, lateral lobes; **ntp**, notopodium; **nup**, neuropodium; **tme**, tentacular membrane forming an elongate lobe; **ven**, ventral surface. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

**9a (8b).** Notochaetae on 10-17 segments, smooth.....***Leaena***
**9b (8b).** Notochaetae on 11-15 segments, subdistally finely denticulate.....***Lanassa***

**10a (6b).** Notochaetae subdistally denticulate.....**11**
**10b (6b).** Notochaetae smooth.....**14**

**11a (10a).** Lateral lobes present; 2-3 pairs of branchiae.....**12**
**11b (10a).** No lateral lobes; two pairs of branchiae.....***Amphitritides***

**12a (11a).** Two pairs of branchiae; branchiae dichotomous.....***Paramphitrite***
**12b (11a).** Three pairs of branchiae.....**13**

**13a (12b).** Branchiae dichotomous with long tips (sometimes with only a few dichotomies, and very short
stalks).....***Neoamphitrite****
**13b (12b).** Branchiae as simple filaments arising from a wartlike stem.....***Amphitrite****

**14a (10b).** Lateral lobes present; 1-3 pairs of dichotomous or arborescent branchiae.....**15**
**14b (10b).** No lateral lobes; two pairs of dichotomous branchiae.....***Nicolea****

**15a (14a).** Uncini pectiform, with teeth in a single vertical row; 3 pairs of dichotomous branchiae; uncini in double rows standing back to back.....***Loimia****
**15b (14a).** Uncini avicular, with teeth in two or more rows above the main fang.....**16**

**16a (15b).** Uncini of the double rows standing back to back; lateral lobes large and very prominent on segments I and II; branchiae arborescent; tube opening with fan-shaped frills.....***Lanice****
**16b (15b).** Uncini of the double rows standing face to face; tube opening unadorned.....**17**

**17a (16b).** Lateral lobes on segments II, III and often IV, small; buccal segment with ventro-lateral lobe normally not developed; 3 pairs of branchiae, dichotomous with short tips, never pompom-like or as cleaning rods; first rows of neuropodial uncini never with posteriorly elongated handles.....***Eupolymnia****
**17b (16b).** Lateral lobes on segments II, III and often IV, usually with at least lobe on segment III well developed; buccal segment with ventro-lateral lobe normally well developed; 1-3 pairs of branchiae, usually as elongated cleaning rods, pompom-like, or dichotomous, normally with a long naked stalk; first rows of neuropodial uncini normally (not always) with posteriorly elongated handles.....***Pista* sensu lato***

**18a (2a).** Uncinigerous tori from the third chaetigerous segment.....***Thelepus****
**18b (2a).** Uncinigerous tori from the fourth chaetigerous segment.....***Streblosoma***
**18c (2a).** Uncinigerous tori from the ninth chaetigerous segment.....***Parathelepus***

**19a (2b).** Chaetae present.....**20**
**19b (2b).** No chaetae.....***Hauchiella***

**20a (19a).** Ventral chaetae present; lower lip not protruding but cushionlike or inconspicuous.....**21**
**20b (19a).** No ventral chaetae present; lower lip protruding, gutterlike.....***Lysilla***

**21a (20a).** Ventral chaetae long; upper lip proeminent, free.....***Amaena***
**21b (20a).** Ventral chaetae short, avicular or pectinate, upper lip fused to tentacular ridge.....***Polycirrus***

## GENUS *Amaeana* Hartman 1959

*Amaeana* HARTMAN, 1959*a*: 495.
**TYPE SPECIES:** *Polycirrus trilobatus* M. Sars 1863.
**SYNONYMS:** *Amaea* Malmgren 1866 [not Adams 1853 (Mollusca)].

**KEY TO SPECIES:**

**1a.** Lower lip prominent, cushion like; the two lateral lobes of the tentacular ridge connected by a simple transverse segment behind them; ventral longitudinal furrow with unpaired ventral shields.....***A. trilobata***
**1b.** Lower lip reduced; the two lateral lobes are connected dorsally by a thick curved ridge opposite the lobes, and a thick angular ridge some segments behind (may be the result of an injury in the type material); ventral longitudinal furrow without ventral shields.....***A. colei***

## ***Amaeana colei*** (McIntosh 1926)

*Amaea colei* MCINTOSH, 1926: 421-422, pl. 16 figs. 1-2.
**TYPE LOCALITY:** Near Port Erin, Isle of Man.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** This species was created by MCINTOSH (1926) from a single specimen, consisting in an anterior fragment with 5 or 6 segments, softened and in poor condition. It is possible that the differences found between this species and *A. trilobata* are the consequence of the poor condition of the specimen, and that both species are synonyms.

## ***Amaeana trilobata*** (M. Sars 1863)

*Polycirrus trilobatus* M. SARS, 1863: 305-310.
**TYPE LOCALITY:** Christiansund (Oslosund), at 50 fathoms (91.4 meters), and Slåttholmen, Lofoten Isles, at 90 fathoms (164.6 meters), Norway.
**SELECTED REFERENCES:** *Amæa trilobata* — MALMGREN, 1866: 392, pl. 25 fig. 70; MCINTOSH, 1915*a*: 54-55; HESSLE, 1917: 229-230; FAUVEL, 1927*a*: 285-286, fig. 99*a-e*. *Amaea trilobata* — WOLLEBÆK, 1912: 76-77, pl. 17 figs. 1-5. *Amaeana trilobata* — HOLTHE, 1986*b*: 159-160, fig. 74, map 73; HUTCHINGS & GLASBY, 1986*b*: 321-323, figs. 1*f-i*, 12*A*; HARTMANN-SCHRÖDER, 1996: 523; KIRKEGAARD, 1996: 320-321, fig. 180.
**DISTRIBUTION:** Iceland; Faroes; Lofoten; Norway; North Sea; Swedish west coast; Skagerrak; Kattegat; British Isles; Mediterranean Sea; Adriatic Sea; Aegean Sea; New England continental slope; North Carolina; North Pacific; Japan; Solomon Islands; South Africa; Tasmania; Australia. On mud mixed with sand or sandy bottoms. Intertidal to 2891 meters.

## *GENUS ***Amphitrite*** O.F. Müller 1771 *sensu* Hessle 1917

*Amphitrite* O.F. MÜLLER, 1771: 8.
**TYPE SPECIES:** *Amphitrite cirrata* O.F.Müller 1771.
**SYNONYMS:** *Dendrobranchus* Wagner 1885.
**REMARKS:** The genus *Neoamphitrite* Hessle 1917 was first synonymised with *Amphitrite* by FAUVEL (1927*a*). This synonymy was supported by HUTCHINGS & GLASBY (1988). The two genera would be separated, according to HESSLE (1917), by the form of the nephridia and the shape of the branchiae, which would be richly branched with a distinct stalk in *Neoamphitrite*, and filiform with a very reduced stalk in *Amphitrite*. HUTCHINGS & GLASBY (1988) stated that these two types of branchiae were not sufficiently different in order to constitut a good generic character, as the length of the branchial stem can be quite variable within and between specimens of the same species, with larger specimens having often a better developed stem. Besides, species like *Amphitrite robusta* Johnson 1901, the type species of *Neoamphitrite*, or *Amphitrite affinis* Malmgren 1866, have branchiae which are intermediate between the two genera. Also according to HUTCHINGS & GLASBY (1988), the other character used by HESSLE (1917) in order to separate the two genera, the form of the nephridia, is quite problematical, as the dissection and the segmental affinities of the nephridia are difficult to discern in small or poorly preserved specimens. Besides, the majority of the workers since HESSLE (1917) have ignored this character, and most generic diagnoses of terebellids lack details on these structures (HUTCHINGS & GLASBY, 1988). However, the importance of the segmental affinities of the nephridia should be reassessed in the context of a comprehensive revision of the family, according to HUTCHINGS & GLASBY (1988), as it is possible that the internal morphology is more conservative than external soft structures, as branchiae, and the arrangement of the nephridia could prove to be an important generic character. Another character that could prove its importance is the precise arrangement of the uncini in the posterior thorax (HUTCHINGS & GLASBY, 1988).

This synonymy was considered as valid by some posterior authors (*e.g.* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001), while others considered the genus *Neoamphitrite* as a valid genus separated from *Amphitrite* (*e.g.* HILBIG, 2000*b*). In any case, the two genera are closely related, as revealed by the phylogenetic analysis performed by MCHUGH (1995). In spite of the exposed above the genus *Neoamphitrite* is here also considered as valid, as it is considered that at least in the European waters the character "branchiae dichotomous with long tips" *versus* "branchiae as simple filaments arising from a wartlike stem" can work as a good taxonomic character, probably with the exception of some specimens of *Neoamphitrite affinis*.

**KEY TO SPECIES:**

**2a.** Eyes present; lateral lobes on segments II-IV, with lateral lobe on segment IV poorly developed (being segment IV the first chaetiger); uncini in double rows in chaetigers 5-14 (segments VIII-XVII); nephridial papillae in segments III and VI to VIII.....***A. oculata***
**2a.** Eyes absent (?); lateral lobes on segments II-IV, all well developed (being segment 4 the first chaetiger); uncini in double rows in chaetigers 8-17 (segments XI-XVII); nephridial papillae in segments III and VI to XI.....***A. cirrata****

## **Amphitrite cirrata* O.F. Müller 1771

*Amphitrite cirrata* O.F. MÜLLER 1771: 188-193, pl. 15 figs. 1-2.
**TYPE LOCALITY:** Iceland.
**SYNONYMS:** [?] *Terebella Montagui* Quatrefages 1866; [?] *Amphitrite cirrata* var. *profunda* Fauvel 1914.
**SELECTED REFERENCES:** *Amphitrite cirrata* — MALMGREN, 1866: 375, pl. 21 fig. 53; WOLLEBÆK, 1912: 100-101, text-fig. 15, pl. 31 figs. 1-5, pl. 32 figs. 1-3, pl. 33 figs. 1-2; MCINTOSH, 1915*a*: 4-6; HESSLE, 1917: 185-186; MCINTOSH, 1922*b*: 106-111, pl. 125 fig. 5; FAUVEL, 1927*a*: 251-252, fig. 86*i-o*; HOLTHE, 1986*b*: 96-98, fig. 40, map 39; HARTMANN-SCHRÖDER, 1996: 506-507, fig. 245; KIRKEGAARD, 1996: 322-323, fig. 181. *Terebella cirrhata* — MONTAGU, 1818: 342, pl. 12 fig. 1. [?] *Terebella Montagui* — QUATREFAGES, 1866*b*: 361. [?] *Amphitrite cirrata* var. *profunda* — FAUVEL, 1914*f*: 293, 294-295, pl. 27 figs. 26-32; HESSLE, 1917: 187.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Espichel); [?] AMOUREUX, 1974*b* (as *?Amphitrite cirrata*; off Aveiro; off Porto); HARTMANN-SCHRÖDER, 1977*a* (as *Amphitrite (Amphitrite) cirrata*; off Cape Sardão); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).
**MATERIAL: FAUNA 1 — St. 27*A***, Alborán Sea, Djibouti Bank, off Nerja, 288-297 m, sand with mud: 1 incomplete specimen in good condition, with 32 chaetigers, about 45 mm long, 3 mm wide; 17 thoracic segments; female with eggs; tentacles numerous and long; upper lip low, covering mouth dorsally and laterally; 3 pairs of branchiae, on segments II-IV, each consisting of numerous free filaments arising from a short, wartlike stem; filaments contract spirally; distinct lateral lobes on segments II-IV; notochaetae from segment IV, subdistally denticulated; uncinigerous tori prominent from segment V, long on thorax, short on abdomen; uncini in double rows on segments XI-XX; prominent nephridial papillae on segment III, below the branchiae, smaller ones between noto- and neuropodia on segments VI-XI, but observed in this specimen up to segment IX; uncini with numerous rows of small teeth above rostrum; in the double rows they are standing face to face.
**DISTRIBUTION:** Eastern North Atlantic to the Azores; Svalbard; Barents Sea; Iceland; Faroes; Shetland; Norway; North Sea; Skagerrak; Kattegat; Øresund; western Baltic; British Isles; Mediterranean Sea; Adriatic Sea; Aegean Sea; North American Atlantic; Greenland; Canadian, Alaskan and Siberian Arctic; Bering Sea; Sea of Okhotsk; Japan Sea; North American Pacific; West and South Africa. On mud, clay, sand, mixed bottoms, coralline bottoms, *Sabellaria* reefs, and among ascidians. From lower eulittoral to below 2700 meters.
**REMARKS:** The variety *Amphitrite cirrata* var. *profunda* was described with base on specimens collected at four stations at the Azores Archipelago, all at big depths. FAUVEL (1914*f*) didn't designate a type locality, but the data of the four stations is as follows: St. 112, between Pico and São Jorge, Azores, 38º34'30"N, 28º06'15"W, in coarse sand and mud, 1287 meters; St. 190, near the west point of São Jorge, Azores, 38º46'30"N, 28º20'43"W, 696 meters, in muddy sand; St. 602, Azores, 38º37'30"N, 28º09'45"W, 1230 meters, in rock; St. 612, near Faial, Azores, 38º26'40"N, 28º40'05"W, 778 meters, in muddy sand. The main characters of this new variety are its smaller size in relation to the stem form, and especially its reduced number of branchial filaments (2 filaments in the first pair, 1-2 filaments in the second pair, and 1 filament in the third pair, sometimes joined by a second rudimentary filament), filaments that are also thicker than in *A. cirrata*. Moreover, the number of thoracic chaetigers is stated to

vary between 15-17, being 16 the more frequent. However, as stated by FAUVEL himself (1914*f*: 295), when the specimens of *A. cirrata profunda* are compared with juveniles of *A. cirrata*, the differences found are very slight, which made him to say "*je ne vois aucune raison sérieuse de créer une espéce pour cette forme à branchies subulées, tout au plus pourrait-on la désigner sous le nom d'*Amphitrite cirrata *variété* profunda". As the known distribution of *A. cirrata* includes depths to below 2700 meters, *A. cirrata profunda* is here considered as a possible junior synonym of the stem species *A. cirrata*.

### ***Amphitrite oculata*** Hessle 1917

*Amphitrite oculata* HESSLE, 1917: 186.
**TYPE LOCALITY:** Sagami, Misaki (Pacific coast of Japan) and "*Fujitas Kolonie 1-2 m.*"
**SELECTED REFERENCES:** *Amphitrite oculata* — FAUVEL, 1936*d*: 80-81; OKUDA & YAMADA, 1954: 193-194, fig. 8; IMAJIMA & HARTMAN, 1964: 336; HUTCHINGS & GLASBY, 1988: 4, fig. 1*a-d*.
**DISTRIBUTION:** Japan (Sagami, Mori, Matsushima Bay); Australia (One Tree Island); Tyrrhenian Sea, Mediterranean Sea. In a few meters deep.
**REMARKS:** This species, originally described from the Pacific coast of Japan, was recorded to be present in the Tyrrhenian Sea by CASTELLI *et al.* (1995). These records, according to the online data of the Italian Checklist of Marine Fauna (http://www.sibm.it/CHECKLIST/principalechecklistfauna.htm) correspond to the regions of the Ligurian Sea and the High Tyrrhenian Sea, including the Sardinian and Corsican coasts. The presence of this species in the Italian coasts can be the result of a misidentification.

## GENUS ***Amphitritides*** Augener 1924

*Amphitritides* AUGENER, 1924*a*: 47.
**TYPE SPECIES:** *Terebella gracilis* Grube 1860.

**KEY TO SPECIES:**
(data from ARVANITIDIS & KOUKOURAS, 1995)

**1a.** Notochaetae on 17-10 segments; 8 segments with nephridial papillae; segment XVI-XX is the first without gap between uncinigerous tori and ventral shield; branchiae with smooth tips.....***A. gracilis***
**1b.** Notochaetae on 24 segments; 11-13 segments with nephridial papillae; segment X-XII is the first without gap between uncinigerous tori and ventral shield; branchiae with rugose tips.....***A. kuehlmanni***

### ***Amphitritides gracilis*** (Grube 1860)

*Terebella gracilis* GRUBE, 1860: 99-100.
**TYPE LOCALITY:** Scilly Islands, off southwest England.
**SYNONYMS:** *Terebella gelatinosa* Keferstein 1862; *Physelia Scylla* Quatrefages 1866; *Terebella lævirostris* Claparède 1869.
**SELECTED REFERENCES:** *Amphitrite gracilis* — SAINT-JOSEPH, 1894: 198-201, pl. 8 fig. 224; MCINTOSH, 1915*a*: 9-11; HESSLE, 1917: 190-191; FAUVEL, 1927*a*: 252, fig. 87*a-e*. *Amphitrites gracilis* — HOLTHE, 1986*b*: 104-106, fig. 45, map 44; HARTMANN-SCHRÖDER, 1996: 507, fig. 246; KIRKEGAARD, 1996: 323-324, fig. 182. *Terebella gelatinosa* — KEFERSTEIN, 1862: 126-128, pl. 11 figs. 19-22. *Terebella lævirostris* — CLAPARÈDE, 1869: 139-140, pl. 11 fig. 5. *Physelia Scylla* [not *Terebella Scylla* Savigny 1822] — QUATREFAGES, 1866*b*: 369-370. *Amphitrite scylla* [not *Terebella Scylla* Savigny 1822] — MCINTOSH, 1922*b*: 122-125, pl. 113 fig. 2, pl. 125*A* fig. 2.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (as *Amphitrite gracilis*; Sines); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES *et al.*, 1982 (Ponta do Baleal).
**DISTRIBUTION:** Eastern North Atlantic; from Scotland to the Ivory Coast; North Sea; Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea. On soft muddy bottoms and on sand-mixed mud, under stones and among *Posidonia*, *Zostera*, and algae. Eulittoral to about 80 meters.

### ***Amphitritides kuehlmanni*** Arvanitidis & Koukouras 1995

*Amphitrides kuehlmanni* ARVANITIDIS & KOUKOURAS, 1995: 220-224, fig. 1, table 1.
**TYPE LOCALITY:** Coast of Loukissia (38º28'55"N, 23º29'10"E), west coast of N. Evoikos Gulf (Aegean Sea), at 5 meters, on rocks covered with *Cystoseira* sp.
**DISTRIBUTION:** North Aegean Sea, at 2-5 meters, on sandy bottoms, and rocks with *Cystoseira* sp.

## GENUS *Artacama* Malmgren 1866

*Artacama* MALMGREN, 1866: 394.
**TYPE SPECIES:** *Artacama proboscidea* Malmgren 1866.

### *Artacama proboscidea* Malmgren 1866

*Artacama proboscidea* MALMGREN, 1866: 394-395, pl. 23 fig. 60.
**TYPE LOCALITY:** Spitsbergen, at Wydebay, Kingsbay, Shoalpoint, Safebay, and Whalerspoint, in argillaceous bottoms, between 30-50 fathoms (54.9-91.4 meters).
**SELECTED REFERENCES:** *Artacama proboscidea* — WOLLEBÆK, 1912: 93, pl. 26 figs. 1-5, pl. 38 fig. 4; HESSLE, 1917: 194-195, pl. 2 fig. 13; HOLTHE, 1986*b*: 90-92, fig. 38, map 37; HARTMANN-SCHRÖDER, 1996: 521-522, fig. 254; KIRKEGAARD, 1996: 324-326, fig. 183.
**DISTRIBUTION:** East Greenland; Svalbard; Iceland; Norway; Swedish west coast; Skagerrak; Kattegat; Øresund; western Baltic; North Sea; northwest Atlantic; Canadian and Siberian Arctic; Bering Sea; Sea of Okhotsk; Japan Sea; South Africa; Subantarctic Islands; Antarctic. Mainly on soft bottoms, in pure or sand-mixed silt. From sublittoral to 3330 meters.

## GENUS *Baffinia* Wesenberg-Lund 1950

*Baffinia* WESENBERG-LUND, 1950*a*: 53-54.
**TYPE SPECIES:** *Baffinia multisetosa* Wesenberg-Lund 1950.

### *Baffinia hesslei* (Annenkova 1924)

*Terebella hesslei* ANNENKOVA, 1924: 125-128, fig. 1*a-j*.
**TYPE LOCALITY:** White Sea.
**SYNONYMS:** *Baffinia multisetosa* Wesenberg-Lund 1950.
**SELECTED REFERENCES:** *Terebella hesslei* — ANNENKOVA, 1926: 131-136, figs. 1-11; USCHAKOV, 1955*a*: 394, fig. 148*A-D*; HOLTHE, 1986*b*: 94-95, fig. 39, fig. 38. *Baffinia hesslei* — FOURNIER & BARRIE, 1984: 1397-1400, figs. 1-2; JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 512-513, figs. 1-4 in page 512. *Baffinia multisetosa* — WESENBERG-LUND, 1950*a*: 53-54, pl. 10 fig. 46.
**DISTRIBUTION:** Circumpolar: Jan Mayen; Northern Norway; Kola Peninsula; White Sea; Bering Sea; Kuril Islands; Labrador; Nova Scotia; West Greenland. In sand and on *Lithothamnion*. From 3 to 740 meters.

## *GENUS *Eupolymnia* Verrill 1900

*Eupolymnia* VERRILL, 1900: 660.
**TYPE SPECIES:** *Amphitrite nesidensis* Delle Chiaje 1822.
**SYNONYMS:** *Polymnia* Malmgren 1867 [not Mulsant & Verreaux 1866 (Aves)]; *Amphitritoides* A. Costa 1862; A. *Pallonia* Costa 1862.

**KEY TO SPECIES:**
(from HOLTHE, 1986*b*):

**1a.** Peristomium forming ventrally a narrow brim; all branchiae with short stems; thoracic uncini with one large and three small teeth above rostrum.....***E. nesidensis****
**1b.** Buccal segment forming ventrally a broad cushionlike lip; anterior branchiae with long stems; thoracic uncini with two large parallel and 1-5 small teeth above rostrum.....***E. nebulosa****

### **Eupolymnia nebulosa* (Montagu 1818)

*Terebella nebulosa* MONTAGU, 1818: 343, pl. 12 fig. 2.

**TYPE LOCALITY:** Southern coast of Devon (England), being taken by deep dredging.
**SYNONYMS:** [?] *Amphitrite Meckelii* Delle Chiaje 1822; *Terebella tuberculata* Dalyell 1853; *Amphitritoides rapax* A. Costa 1862; *Pallonia rapax* A. Costa 1862; *Terebella debilis* Malmgren 1866; *Pista cristata occidentalis* Bidenkap *in* Nordgaard 1907.
**SELECTED REFERENCES:** *Polymnia nebulosa* — SAINT-JOSEPH, 1894: 219-225, pl. 9 figs. 246-255; MCINTOSH, 1915*a*: 12-15; HESSLE, 1917: 174-175; MCINTOSH, 1922*b*: 129-136, text-figs. 146-147, pl. 114 fig. 6, pl. 125*A* fig. 3; FAUVEL, 1927*a*: 257-258, fig. 89*a-g*. *Eupolymnia nebulosa* — HOLTHE, 1986*b*: 109, fig. 47, map 46; HARTMANN-SCHRÖDER, 1996: 509-511, fig. 248; KIRKEGAARD, 1996: 328-329, fig. 185. [?] *Amphitrite Meckelii* — DELLE CHIAJE, 1822: pl. 45 figs. 10-11; DELLE CHIAJE, 1828: 169, 180. *Terebella tuberculata* — DALYELL, 1853: 197-199, pl. 26 fig. 8, pl. 29 figs. 1-2. *Amphitritoides rapax* — A. COSTA, 1862*a*: 32 [*nomen nudum*]. *Pallonia rapax* — A. COSTA, 1862*b*: 89-90. *Terebella debilis* — MALMGREN, 1866: 378-379, pl. 22 fig. 57; WOLLEBÆK, 1912: 96-97, text-figs. 11*a-b*, 12*d-e*, pl. 28 figs. 1-6. *Pista cristata occidentalis* — BIDENKAP *in* NORDGAARD, 1907: 24.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (as *Polymnia nebulosa*; Sines); [?] AMOUREUX, 1974*b* (as *Polymnia? nebulosa*; off Porto); HARTMANN-SCHRÖDER, 1979*a* (western continental shelf of Algarve); SALDANHA, 1995 (Portugal); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 192 (A.3920)**, south Sines, 48 m, schist: 1 incomplete specimen, with 25 chaetigers; one middle fragment with 21 chaetigers; one posterior fragment with 49 chaetigers; pygidium fringed; branchiae loose; uncini with 2 large parallel teeth above rostrum. **St. 231**, off Praia do Malhão, 32 m, rock: 1 specimen, broken in 3 pieces, with about 90 chaetigers; 17 thoracic segments; no eyespots visible; 3 pairs of dichotomous branchiae (on segments II-IV), with short tips; anterior branchiae with long stems, middle one smaller with shorter stems, posterior one even smaller than the middle ones; lateral lobes on segments II-IV; about 17 thoracic ventral shields; notochaetae from segment IV; uncinigerous tori from segment V; uncini in double rows from segment XI-XX, being disposed face-to-face; nephridial papillae not seen; pygidium with finely papillose edge; notochaetae smooth; uncini avicular, with two large parallel and 1-5 small teeth above rostrum; colour pale-yellow, with white spots.
**DISTRIBUTION:** Northeastern Atlantic; Norway; Swedish west coast; Kattegat; Shetland; Scottish east coast; Portugal; Mediterranean Sea; Adriatic Sea; Aegean Sea; West and South Africa; Red Sea; Persian Gulf; Indian Ocean; Australia; Kerguelen; Japan; South America. On clay, silt, fine and coarse sand, and also some types of hard bottoms, to which it fixes its tube. Eulittoral to about 1400 meters.

## ****Eupolymnia nesidensis*** (Delle Chiaje 1822)

*Amphitrite nesidensis* DELLE CHIAJE, 1822: pl. 43 figs. 2-3.
**TYPE LOCALITY:** Gulf of Naples.
**SYNONYMS:** *Terebella lutea* Grube 1855; *Terebella abbreviata* Quatrefages 1866; *Terebella Danielsseni* Malmgren 1866; *Terebella flavescens* Claparède 1869; *Polymnia viridis* Malm 1874.
**SELECTED REFERENCES:** *Amphitrite nesidensis* — DELLE CHIAJE, 1828: 169, 179. *Polymnia nesidensis* — SAINT-JOSEPH, 1894: 225-229, pl. 10 figs. 256-258; MCINTOSH, 1915*a*: 11-12; HESSLE, 1917: 175-176; MCINTOSH, 1922*b*: 126-129, pl. 114 fig. 6, pl. 125*A* fig. 5; FAUVEL, 1927*a*: 258-259, fig. 89*h-l*. *Eupolymnia nesidensis* — HOLTHE, 1986*b*: 111-112, fig. 48, map 47; HARTMANN-SCHRÖDER, 1996: 511-512, fig. 249; KIRKEGAARD, 1996: 329-330, fig. 186. *Terebella lutea* [not Risso 1826] — GRUBE, 1855: 116-117. *Terebella abbreviata* — QUATREFAGES, 1866*b*: 363-364. *Terebella Danielsseni* — MALMGREN, 1866: 379, pl. 21 fig. 54; WOLLEBÆK, 1912: 97-99, text-figs. 13-14, pl. 29 figs. 1-6. *Terebella flavescens* — CLAPARÈDE, 1869: 136, pl. 23 fig. 6. *Polymnia viridis* — MALM, 1874: 97.
**REFERENCES FOR PORTUGAL:** Present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 195 (A.3917)**, south Sines, 102 m, rock, schist: 1 specimen, in poor condition, broken in 2 fragments; anterior fragment with about 25 chaetigers; middle fragment with about 10 chaetigers; only one branchia left (3rd of the left side); branchia dichotomous with short stems and very short tips, more or less flattened; upper lip low, covering mouth dorsally and laterally; buccal segment ventrally forming a narrow brim; eyespots not seen; lateral lobes on segments II-IV (on segments II and III difficult to distinguish); ventral thoracic shields on about 13 thoracic segments; uncinigerous tori from segment V; not annoted in which segments the uncini are in double rows, but they stand face-to-face; nephridial papillae not seen; notochaetae smooth; uncini avicular, thoracic ones with one large and a few small teeth above rostrum; some uncini have 2 large teeth above rostrum. **FAUNA 1 — St. 13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 1 incomplete specimen with 25 chaetigers; nephridial papillae not seen; some branchiae missing; eyespots visible; uncini with one single big tooth above the rostrum; ventral shield (glandular) on about 14 chaetigers; lateral lobes can be clearly seen.

**DISTRIBUTION:** Jan Mayen; Iceland; Eastern North Atlantic; Skagerrak; Kattegat; Øresund; from Norway to Senegal; Mediterranean Sea; Adriatic Sea; Aegean Sea; Canadian Atlantic, California; Japan. On silt, sand, mixed bottoms, and among *Laminaria* rhizoids. Between 5-300 meters.

## GENUS ***Euthelepus*** McIntosh 1885

*Euthelepus* MCINTOSH, 1885*a*: 465-467.
**TYPE SPECIES:** *Euthelepus setubalensis* McIntosh 1885.
**REMARKS:** The genus *Euthelepus* was revised by HUTCHINGS & GLASBY (1986*a*).

### ***Euthelepus setubalensis*** McIntosh 1885

*Euthelepus setubalensis* MCINTOSH, 1885*a*: 465-467, pl. 50 fig. 4, pl. 28*A* fig. 13.
**TYPE LOCALITY:** Off Setúbal (Portugal), 38º10'N 9º14'W, at 470 fathoms (785 meters), on green mud.
**SELECTED REFERENCES:** *Euthelepus setubalensis* — HESSLE, 1917: 218; FAUVEL, 1927*a*: 275-276, fig. 96*o*; DAY, 1963*a*: 370; AMOUREUX, 1974*b*: 146-148, fig. 6*E*; HUTCHINGS & GLASBY, 1986*a*: 109-110, figs. 1*e-h*, 4*c*.
**REFERENCES FOR PORTUGAL:** MCINTOSH, 1885*a* (off Setúbal); RIOJA, 1917*c* (previous records: Setúbal); AMOUREUX, 1974*b* (off Aveiro; off Porto); HUTCHINGS & GLASBY, 1986*a* (off Setúbal); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).
**DISTRIBUTION:** Atlantic Ocean, off Portugal. On mud and calcareous sediments. Between 360-900 meters.

## GENUS ***Hauchiella*** Levinsen 1893

*Hauchiella* LEVINSEN, 1893: 351.
**TYPE SPECIES:** *Polycirrus tribullata* McIntosh 1869.

### ***Hauchiella tribullata*** (McIntosh 1869)

*Polycirrus tribullata* MCINTOSH, 1869: 424.
**TYPE LOCALITY:** Off St. Magnus Bay, Shetland Islands, at 90 fathoms (164.6 meters), in muddy sand.
**SYNONYMS:** *Hauchiella Peterseni* Levinsen 1893; *Lysilla inermis* Ehlers 1913.
**SELECTED REFERENCES:** *Polycirrus tribullata* — MCINTOSH, 1915*a*: 38-39. *Hauchiella tribullata* — HESSLE, 1917: 233-234; MCINTOSH, 1922*b*: 201-202, pl. 138 fig. 13; HARTMAN, 1966*b*: 103-105, pl. 35 fig. 1; HARTMAN, 1978: 199; HOLTHE, 1986*b*: 162, fig. 76, map 75; HUTCHINGS & GLASBY, 1986*b*: 325, figs. 2*c*, 12*B*; HARTMANN-SCHRÖDER, 1996: 523; KIRKEGAARD, 1996: 330-331, fig. 187. *Hauchiella Peterseni* — LEVINSEN, 1893: 351; WOLLEBÆK, 1912: 74-75, pl. 15 figs. 1-5, pl. 16 fig. 5. *Lysilla inermis* — EHLERS, 1913: 567-568, pl. 44 figs. 14-16.
**DISTRIBUTION:** Northwest Europe (Shetland, Norway, Kattegat); North Sea; South Africa; Antarctic; Subantarctic Islands; Bass Strait. On mud, more or less mixed with sand, shells, or stones. Between 20-380 meters.

## GENUS ***Lanassa*** Malmgren 1866

*Lanassa* MALMGREN, 1866: 385-386.
**TYPE SPECIES:** *Lanassa nordenskioeldi* Malmgren 1866.
**SYNONYMS:** *Laphaniella* Malm 1874; *Pherea* Saint-Joseph 1894.

**KEY TO SPECIES:**
(from HOLTHE, 1986*b*):

**NOT INCLUDED IN THE KEY:** *Lanassa proecox* (Saint-Joseph 1899).

**1a.** Notochaetae on 11 segments.....***L. venusta***
**1b.** Notochaetae on 15 segments.....***L. nordenskioeldi***

## ***Lanassa nordenskioeldi*** Malmgren 1866

*Lanassa Nordenskiöldi* MALMGREN, 1866: 386.
**TYPE LOCALITY:** Safebay (Safehavn), Spitsbergen, in an argillaceous bottom, at 30-40 fathoms (54.9-73.2 meters).
**SELECTED REFERENCES:** *Lanassa Nordenskiöldi* — MALMGREN, 1867*a*: 110, fig. 67; WOLLEBÆK, 1912: 92, pl. 29 figs. 7-8. *Lanassa nordenskiöldi* — MCINTOSH, 1915*a*: 51-52, pl. 2 figs. 8-9; HESSLE, 1917: 205; HOLTHE, 1986*b*: 127, fig. 56, map 55.
**DISTRIBUTION:** Eastern Greenland; Spitsbergen; Iceland; Norway; Nova Scotia; Saint Lawrence Bay; Franz Josef's Land; Novaya Zemlya; Bering Sea; Sea of Okhotsk. On mixed bottoms, mud or clay with sand. Between 15-100 meters.

## ***Lanassa proecox*** (Saint-Joseph 1899)

*Amphitrite prœcox* SAINT-JOSEPH, 1899*b*: 185-188, pl. 6 figs. 20-24.
**TYPE LOCALITY:** Near Cormorandière, Brest harbour (Atlantic coast of France), between 17-20 meters.
**SELECTED REFERENCES:** *Amphitrite praecox* — FAUVEL, 1927*a*: 253, fig. 86*d-h*.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** As stated by SAINT-JOSEPH (1899*b*) when describing *Lanassa proecox* (as *Amphitrite*) from one single specimen, the species could represent a postlarval stage of another species, in spite of of the presence of eggs. The same author refers the presence of long chaetae, probably natatorial, in some of the anterior chaetigers, which could be related with epitoky. Finally the author also refers the absence of branchiae, the reduced number of tentacles (5 on each side), and the small number of chaetigers, in order to justify the juvenile stage of the species. FAUVEL (1927*a*) followed the same opinion, asserting that it could be a postlarval stage belonging to an already known species.

As the species presents notochaetae on 11 segments, as *L. venusta*, which occurs in the same area from where *L. proecox* was described, it is suggested here the possibility that *L. proecox* represents a juvenile stage of *L. venusta*. However, the matter requires further investigation.

## ***Lanassa venusta*** (Malm 1874)

*Laphaniella venusta* MALM, 1874: 98, pl. 1 fig. 8.
**TYPE LOCALITY:** Flatholmøerne, Bohuslän (Swedish west coast), at 45 fathoms (82.3 meters).
**SYNONYMS:** *Lanassa venusta pacifica* Annenkova 1938.
**SELECTED REFERENCES:** *Laphaniella (?Leaena) vebusta* — WOLLEBÆK, 1912: 92. *Lanassa venusta* — HESSLE, 1917: 205-206; HOLTHE, 1986*b*: 128-129, fig. 57, map 56; HARTMANN-SCHRÖDER, 1996: 512; KIRKEGAARD, 1996: 331-333, fig. 188. *Lanassa venusta venusta* — HILBIG, 2000*b*: 252-254, fig. 9.8. *Lanassa venusta pacifica* — ANNENKOVA, 1938: 209.
**DISTRIBUTION:** East Greenland; Barents Sea; Norway; Swedish west coast; Kattegat; Øresund; Bretagne (Brest); Canadian, Alaskan and Siberian Arctic; Bering Sea; Sea of Okhotsk; North Pacific to California; Sea of Japan (as *Lanassa venusta pacifica* Annenkova 1938). On mixed bottoms of mud or clay with sand. Between 30-200 meters.

# *GENUS ***Lanice*** Malmgren 1866

*Lanice* MALMGREN, 1866: 379-380.
**TYPE SPECIES:** *Nereis conchilega* Pallas 1766.
**SYNONYMS:** *Venusia* Johnston 1865; *Wartelia* Giard 1878.

## ****Lanice conchilega*** (Pallas 1766)

*Nereis conchilega* PALLAS, 1766: 131-138, pl. 9 [not plate 8, as stated in the text] figs. 14-22.
**TYPE LOCALITY:** Holland, found in the shores after storms.
**SYNONYMS:** [?] *Terebella gigantea* Montagu 1818; *Amphitrite flexuosa* Delle Chiaje 1828; *Terebella littoralis* seu *arenaria* Dalyell 1853; *Terebella artifex* M. Sars 1863; *Terebella pectoralis* Quatrefages 1866; *Terebella prudens* Quatrefages 1866; *Wartelia gonotheca* Giard 1878.

**SELECTED REFERENCES:** *Lanice conchylega* — WOLLEBÆK, 1912: 105-107, pl. 37 figs. 1-8. *Lanice conchilega* — SAINT-JOSEPH, 1894: 211-218, pl. 9 figs. 241-245; MCINTOSH, 1915*a*: 15-17; HESSLE, 1917: 168-169, pl. 2 figs. 6-7; MCINTOSH, 1922*b*: 137-146, pl. 113*A* fig. 2, pl. 119 fig. 8, pl. 125*A* fig. 4; FAUVEL, 1927*a*: 255-257, fig. 88; DAY, 1967: 743-744, fig. 36.8.*n-r*; HOLTHE, 1986*b*: 120-122, fig. 53, map 52; HARTMANN-SCHRÖDER, 1996: 512-514, fig. 250; KIRKEGAARD, 1996: 333-334, fig. 189; HILBIG, 2000*b*: 254-256, fig. 9.9; HUTCHINGS, 2007: table 1. *Terebella littoralis* seu *arenaria* — DALYELL, 1853: 183-191, pl. 26 figs. 1-7. *Terebella artifex* — M. SARS, 1863: 310-318. [?] *Terebella gigantea* — MONTAGU, 1818: 341-342, pl. 1. *Amphitrite flexuosa* — DELLE CHIAJE, 1828: 169, 180. *Terebella pectoralis* — QUATREFAGES, 1866*b*: 358-359. *Terebella prudens* — QUATREFAGES, 1866*b*: 357-358. *Wartelia gonotheca* — GIARD, 1878: 1147-1149.

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Sines); BELLAN, 1960*a* (Cape Espichel; Setúbal Canyon; Cape São Vicente); AMOUREUX & CALVÁRIO, 1981 (Peniche); COSTA, GAMITO & OLIVEIRA, 1984 (Sado Estuary); MONTEIRO-MARQUES, 1984 (as *?Lanice conchilega*; Praia da Falésia); MONTEIRO-MARQUES, 1987 (as *Lanice conchylega*; continental shelf of Algarve); CANCELA DA FONSECA, COSTA & BERNARDO, 1989 (Lagoon of Santo André); DEXTER, 1992 (previous records: Ria Formosa; Ria de Alvor; continental shelf of Algarve; Mira Estuary; Sado Estuary; Figueira da Foz); SALDANHA, 1995 (Portugal); RAVARA, 1997 (off Aveiro); MUCHA & COSTA, 1999 (as *Lanice conquilga*; Ria de Aveiro and/or Sado Estuary); present work (southwestern continental shelf).

**MATERIAL: SEPLAT 6 — St. 169 (A.2642)**, off Arrifana, 74 m, sand: 1 empty tube, 70 cm long for 8 mm wide. **SEPLAT 7 (2nd part) — St. 132 (A.3977)**, off Sines, 130 m, muddy sand: 1 specimen, poorly preserved; a female, with many eggs in the coelom; the specimen was still inside the tube and has 43 chaetigers; the worm was upside down inside the tube, with the prostomium located away from the mouth of the tube. **FAUNA 1 — St. 0*A***, Galicia, off Cies Islands, Ria de Vigo, 82-96 m, unknowm substrate: 2 specimens, one inside the tube; 3 pairs of branchiae (segments II-IV); branchiae dichotomous, with distinct short stems, arborescent; upper lip narrow, enclosing the mouth; buccal segments laterally and ventrally forming large, protruding lobes; eyespots apparently absent; very distinct long lateral lobes on segment III, covering laterally segment II; about 13 thoracic ventral shields; notochaetae from segment IV; 17 thoracic chaetigers; uncini from segment V, in double rows in uncinigers 7-16 (segments XI-XX); in these rows the uncini are standing back to back; nephridial papillae on segments III (not seen) and VI-IX.

**DISTRIBUTION:** East Greenland; Iceland; Faeroes; Shetland; Orkneys; Northeastern Atlantic, from Norway to Morocco; Skagerrak; Kattegat to Øresund; Azores; Madeira; Mediterranean Sea; Adriatic Sea; Aegean Sea; Persian Gulf; South Africa; Pacific; Japan; Australia; New Zealand; Antarctic. On mixed sandy bottoms, rarely on muddy bottoms, and among *Zostera* and benthic algae. Between 5-200 meters, but recorded down to 1900 meters.

## GENUS ***Laphania*** Malmgren 1866

*Laphania* MALMGREN, 1866: 386.

**TYPE SPECIES:** *Laphania boecki* Malmgren 1866.

### ***Laphania boecki*** Malmgren 1866

*Laphania Boecki* MALMGREN, 1866: 386.

**TYPE LOCALITY:** Finnmark, Norway.

**SYNONYMS:** *Laphania boecki* var. *hystricis* McIntosh 1915.

**SELECTED REFERENCES:** *Laphania Boecki* — WOLLEBÆK, 1912: 108-110, pl. 23 figs. 1-5; FAUVEL, 1927*a*: 269-270, fig. 94*h-n*. *Laphania bœcki* — MCINTOSH, 1915*a*: 25-26. *Laphania bœcki* — MCINTOSH, 1922*b*: 163-164, pl. 136 fig. 4. *Laphania boecki* — HESSLE, 1917: 204; USCHAKOV, 1955*a*: 396, fig. 149*G-I*; BANSE, 1980: 25-26, fig. 3*A-B*; HOLTHE, 1986*b*: 130-131, fig. 58, map 56; HILBIG, 2000*b*: 256-258, fig. 9.10. *Laphania boecki* var. *hystricis* — MCINTOSH, 1915*a*: 45-46.

**DISTRIBUTION:** Greenland; Franz Josef's Land; Faeroes; Svalbard; Jan Mayen; Barents Sea; Shetland; Norway; British Channel; Novaya Zemlya; Bering Sea; Sea of Okhotsk; Sea of Japan; British Columbia to California. On mixed bottoms of mud with sand. Between 0-4667 meters.

## GENUS ***Leaena*** Malmgren 1866

*Leæna* MALMGREN, 1866: 385.
**TYPE SPECIES:** *Terebella ebranchiata* M. Sars 1865.

### ***Leaena ebranchiata*** (M. Sars 1865)

*Terebella ebranchiata* M. SARS, 1865: 16.
**TYPE LOCALITY:** Vadsø, northern Norway.
**SYNONYMS:** *Leaena abranchiata* Malmgren 1866.
**SELECTED REFERENCES:** *Leaena ebranchiata* — WOLLEBÆK, 1912: 91; HOLTHE, 1986*b*: 136-137, fig. 61, map 60. *Leæna abranchiata* — MALMGREN, 1866: 385, pl. 24 fig. 64; HESSLE, 1917: 197.
**DISTRIBUTION:** Greenland; Svalbard; Iceland; Barents Sea; Norwegian Sea; northern Norway; Labrador; Canadian and Alaskan Arctic; Kola Peninsula; Novaya Zemlya; Kara Sea; Sea of Japan; Alaskan Pacific. Between 5-1500 meters, but most common in shallow waters.

## *GENUS ***Loimia*** Malmgren 1866

*Loimia* MALMGREN, 1866: 380.
**TYPE SPECIES:** *Terebella Medusa* Savigny 1822.

### ****Loimia medusa*** (Savigny 1822)

*Terebella Medusa* SAVIGNY, 1822: 85-86, pl. 1 fig. 3.
**TYPE LOCALITY:** Gulf of Suez, Red Sea. Neotype designated by HUTCHINGS & GLASBY (1995), from the Upper Persian Gulf, collected subtidally, in coral-rubble substrate.
**SELECTED REFERENCES:** *Loimia medusa* — GRAVIER, 1906*d*: 223-225, text-figs. 396-399; FAUVEL, 1911*a*: 415-416; HESSLE, 1917: 170; FAUVEL, 1953*c*: 416-418, fig. 218; HUTCHINGS & GLASBY, 1995: 149-151, fig. 1; [?] HILBIG, 2000*b*: 258-260, fig. 9.11.
**REFERENCES FOR PORTUGAL:** HARTMANN-SCHRÖDER, 1977*a* (Bay of Setúbal); [?] RAVARA, 1997 (as cf. *Loimia medusa*; off Aveiro).
**MATERIAL: FAUNA 1 — St. 1*A***, Gulf of Cádiz, off Huelva, 190 m, mud: 1 incomplete specimen, broken in two pieces; it was inside the tube, together with a Polynoidae; it is very similar to the redescription by HUTCHINGS & GLASBY (1995); anterior fragment with 27 chaetigers, posterior one with 31 chaetigers; total length of about 60 mm; prostomium collar-like, with long, smooth, upper lip, projecting anteriorly; eyespots not seen; peristomium with the same length than segment II, middorsally; peristomial lobe very large, anteriorly directed laterally and forming a scoop ventrally, which covers the base of the buccal tentacles; midventrally the scoop is reduced, exposing the oral cavity; lateral lobe on segment 3 very large, ear-shaped, slightly smaller than peristomial lobe, but not extending ventrally, difficult to see if it is originated on segment II or III; 3 pairs of branchiae, on segments II-IV, first one very long, the 3rd smaller, each one with thin main stem and many short dendritic branches; 17 chaetigers with notochaetae, from segment IV; chaetae smooth-tipped, narrow-winged capillaries; neuropodia from segment V to the end of the body; neuropodia slightly elevated, rectangular ridges on thorax, pinnules on abdomen; uncini with 6 teeth arranged in vertical series, in single rows to segment X, in double rows of back to back uncini in segments XI-XX, after which the rows are single again; ventral glandular pads to about segment XIV, then continuing to pygidium as very shallow, glandular grooves; nephridial papillae not seen; tube thin, very long (about 25 cm long), light brown, with sand and shells of Foraminifera (or fragments of shells) bound to it; the biggest difference between this specimen and the redescribed by HUTCHINGS & GLASBY (1995) seems to be the number of teeth in the uncini, but this species is also bigger than the studied neotype.
**DISTRIBUTION:** Red Sea; Gulf of Tadjoura; Persian Gulf; Gulf of Cádiz; Aegean Sea. In shell and coral sand, shingle shells, and Lithothamnion. Between 13.5-38 meters, 190 meters in the Gulf of Cádiz.
**REMARKS:** The species *Loimia medusa* (Savigny 1822) was redescribed by HUTCHINGS & GLASBY (1995) with base on material from the Red Sea, Persian Gulf, and South Arabian coasts, and a neotype from the upper Persian Gulf was designated. As noted by HUTCHINGS & GLASBY (1995), the species has being described from many areas, including South Africa (DAY, 1967), North Carolina (DAY, 1973), South California (HARTMAN, 1969*a*), Skagerrak (HARTMANN-SCHRÖDER, 1971*a*), South Vietnam (GALLARDO, 1968), Japan (IMAJIMA & HARTMAN, 1964), or Antarctica (MONRO, 1930). Specimens from Australia were re-examined by HUTCHINGS & GLASBY (1988), and described as a new species, *Loimia*

*batilla* Hutchings & Glasby 1988. Quite probably the distribution of the species is more restricted than what is normally considered.

In some of the current checklists or registers of species available online in internet, *Loimia medusa* is considered as a junior synonym of *Loimia arborea* Moore 1903. *L. arborea* was described with base on a single specimen collected at Suruga Bay (Japan), between 13-16 fathoms, by MOORE (1903). The species was later considered as a junior synonym of *L. medusa* by FAUVEL (1936*d*), but only as "*perhaps*" being a synonymy of *L. medusa* by HARTMAN (1959*a*). Finally, IMAJIMA & HARTMAN (1964) treated the two species as being valid with base on the segment of first occurrence of notochaetae (on third segment in *L. arborea*, on the fourth in *L. medusa*). *L. medusa* was later redescribed with base on material from the same geographical region from where it was originally described (Red Sea and Persian Gulf), and a neotype was designated by HUTCHINGS & GLASBY (1995). This way, not only *L. medusa* is a clearly defined valid species, but also it is an older species than *L. arborea*, in which case even if both species were shown to be synonymous, *L. medusa* would have priority.

## GENUS ***Lysilla*** Malmgren 1866

*Lysilla* MALMGREN, 1866: 392-393.
**TYPE SPECIES:** *Lysilla loveni* Malmgren 1866.

**KEY TO SPECIES:**

**1a.** Six pairs of bundles of thoracic notochaetae (segments III-VIII); 6 pairs of thoracic nephridial papillae, in segments III-VIII; notochaetae with smooth tips; in life light orange colored, with whitish tentacles, in alcohol yellowish pink to grey.....***L. loveni***
**1b.** Thoracic bundles of notochaetae numbering 4, 7, 9, or 10 pairs; 9 pairs of thoracic nephridial papillae; notochaetae with plumose tips; described as being perfectly white, with white tentacles, and red or vermilion colored nephridial papillae.....***L. nivea***

### ***Lysilla loveni*** Malmgren 1866

*Lysilla Loveni* MALMGREN, 1866: 393, pl. 25 fig. 71.
**TYPE LOCALITY:** Bohuslän, Sweden.
**SELECTED REFERENCES:** *Lysilla Loveni* — WOLLEBÆK, 1912: 75-76, pl. 16 figs. 1-4. *Lysilla loveni* — HESSLE, 1917: 230-231; MCINTOSH, 1922*b*: 203-204, pl. 120 fig. 13, pl. 127 fig. 3; FAUVEL, 1927*a*: 286-287, fig. 99*f-i*; HARTMANN-SCHRÖDER & STRIPP, 1968: 22, fig. 8*b*; BANSE, 1980: 26; HOLTHE, 1986*b*: 160-162, fig. 75, map 74; HARTMANN-SCHRÖDER, 1996: 523-524, fig. 255; KIRKEGAARD, 1996: 335, fig. 190.
**REFERENCES FOR PORTUGAL:** DEXTER, 1992 (previous records: Ria Formosa).
**DISTRIBUTION:** East Greenland; Iceland; Faeroes; Shetland; Norway; North Sea; Skagerrak; Kattegat; Øresund; Irish Sea; Scottish west coast; Portugal; Mediterranean Sea; Bering Sea; Chukchi Sea; Alaskan and Canadian Arctic; North American Pacific coast. Mainly on mud, more or less mixed with sand, stones and shells. Between 10-400 meters.

### ***Lysilla nivea*** Langerhans 1884

*Lysilla nivea* LANGERHANS, 1884: 264-265, pl. 16 fig. 25.
**TYPE LOCALITY:** Madeira Island, from big depth ("*größerer Tiefe*"), in coral.
**SELECTED REFERENCES:** *Lysilla nivea* — HESSLE, 1917: 233; MACKIE & GARWOOD, 1995: 43.
**DISTRIBUTION:** Madeira Island, in coral. Southern Irish Sea, in bottoms of mud, sand, gravel, stones, and mixed bottoms, between 29-170 meters.

## *GENUS ***Neoamphitrite*** Hessle 1917

*Neoamphitrite* HESSLE, 1917: 178-179.
**TYPE SPECIES:** *Amphitrite robusta* Johnson 1901.
**REMARKS:** See the *REMARKS* section under the genus *Amphitrite*.

**KEY TO SPECIES:**
(from HOLTHE, 1986*b*):

**1a.** Notochaetae on 23-24 (sometimes 22 or 25) segments.....**2**
**1b.** Notochaetae on 21 segments.....***N. grayi***
**1c.** Notochaetae on 19 segments.....**3**
**1d.** Notochaetae on 17 segments.....**4**

**2a (1a).** Notochaetae on 24 (or exceptionally 25) segments; uncini in double rows on segments XI-XXIX; nephridial papillae on segments III-XIX (or XX).....***N. figulus***
**2b (1a).** Notochaetae on 23 (sometimes 22 or 24) segments; uncini in double rows from segment XI (the seventh unciniger segment) to almost the end of the body, which can have as much as 80-100 segments; nephridial papillae on segments III-XVI (the first 3 clearly visible, the following more difficult to detect).....***Amphitrite incana****

**3a (1c).** Notochaetae from segment IV; uncini from segment V, in double rows on segments XI-XXII; nephridial papillae on segments III-XIV (or XIII).....***N. groenlandica***
**3b (1c).** Notochaetae from segment V; uncini from segment V, in double rows on segments XI-LIX; nephridial papillae on segments III-V and possibly VI.....***Amphitrite rubra***

**4a (1d).** Nephridial papillae only at segment III; branchiae short (third pair reduced), with a small number of ramifications; uncini with manubrium short and rounded.....***Amphitrite alcicornis***
**4b (1d).** Nephridial papillae at segments III-XI; branchiae long, with a big number of ramifications; uncini with manubrium long and pointed.....***N. edwardsii****
**4c (1d).** Nephridial papillae at segments III-VIII.....**5**

**5a (3c).** Uncini with manubrium short and rounded; branchiae with few ramifications.....***N. affinis***
**5b. (3c).** Uncini with manumbrium long and pointed; branchiae with many ramifications.....***Amphitrite variabilis***

## *Neoamphitrite affinis* (Malmgren 1866)

*Amphitrite affinis* MALMGREN, 1866: 375-376, pl. 22 fig. 55.
**TYPE LOCALITY:** Spitsbergen: Kingsbay, at 250 fathoms (457 meters), and Wydebay, at 40 fathoms (73.2 meters).
**SYNONYMS:** *Amphitrite intermedia* Malmgren 1866; *Amphitrite palmata* Malmgren 1866; *Terebella gigantea* Quatrefages 1866.
**SELECTED REFERENCES:** *Amphitrite affinis* — WOLLEBAEK, 1912: 101-102, text-fig. 16, pl. 34 figs. 1-7; MCINTOSH, 1915*a*: 9, 44, pl. 3 fig. 2; MCINTOSH, 1922*b*: 112-114, pl. 120 fig. 10, pl. 125 fig. 6; FAUVEL, 1927*a*: 246-247, fig. 84*k-l*. *Neoamphitrite affinis* — HESSLE, 1917: 179-180; HOLTHE, 1986*b*: 98-100, fig. 41, map 40; HARTMANN-SCHRÖDER, 1996: 514; KIRKEGAARD, 1996: 336-337, fig. 191. *Amphitrite (Neoamphitrite) affinis* — HARTMANN-SCHRÖDER, 1971*a*: 473. *Amphitrite intermedia* — MALMGREN, 1866: 376. *Amphitrite palmata* — MALMGREN, 1866: 376. *Terebella gigantea* — QUATREFAGES, 1866*b*: 355.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Amphitrite affinis*; continental shelf of Algarve); DEXTER, 1992 (as *Amphitrite affinis*; previous records: continental shelf of Algarve).
**DISTRIBUTION:** Greenland; Svalbard; Franz Joseph's Land; Barents Sea; Iceland; Norwegian Sea; Norway; Skagerrak; Swedish west coast; western Scotland; western Ireland; White Sea; Siberian and Canadian Arctic; Nova Scotia. On mud and fine sand. Between 15-1477.7 meters.

## *Amphitrite alcicornis* Fauvel 1909

*Amphitrite alcicornis* FAUVEL, 1909: 27-28, fig. 2.
**TYPE LOCALITY:** The species was collected in four stations, all off the Azores Archipelago, but FAUVEL (1909, 1914*f*) didn't state which one was the type locality. The data of the four stations is as follows: St. 112, between Pico and São Jorge, 38º34'30"N, 28º06'15"W, 1287 meters, fine sand; St. 616, near the Point of Rosales, São Jorge, 38º46'35"N, 28º17'20"W, 1022 meters, in rocks; St. 873, between Pico and São Jorge, 38º37'45"N, 28º14'20"W, 1260 meters, muddy black sand; St. 1349, between Pico and São Jorge, 38º35'30"N, 28º05'45"W, 1250 meters, mud and volcanic sand.

**SELECTED REFERENCES:** *Amphitrite alcicornis* — FAUVEL, 1914*f*: 295-298, pl. 27 figs. 1-12; HESSLE, 1917: 184.
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** According to HESSLE (1917) this species belongs probably to the genus *Neoamphitrite*. It is included here under the genus *Neoamphitrite*, but as there is the possibility that this genus is a junior synonym of *Amphitrite*, and in order to avoid the creation of a possible unnecessary new combination, the species is here referred as *Amphitrite*.

## ****Neoamphitrite edwardsii*** (Quatrefages 1866)

*Terebella Edwardsii* QUATREFAGES, 1866*b*: 354, pl. 19 fig. 1.
**TYPE LOCALITY:** St. Vaast, Northern France.
**SELECTED REFERENCES:** *Amphitrite Edwardsi* — SAINT-JOSEPH, 1894: 186-198, pl. 7 figs. 207-208, pl. 8 figs. 209-223; FAUVEL, 1927*a*: 245-246, fig. 84*a-i*; OKUDA, 1939*b*: 240-241, fig. 12. *Amphitrite edwardsi* — HESSLE, 1917: 184. *Neoamphitrite edwardsi* — BANSE & HOBSON, 1968: 45; KRITZLER, 1984: 52.37, figs. 52.31-52.32; TENA *et al.*, 1991: 36-40, fig. 5. *Loimia gigantea* [not *Terebella gigantea* Montagu 1818] — MCINTOSH, 1915*a*: 17-19. *Amphitrite gigantea* [not *Terebella gigantea* Montagu 1818] — MCINTOSH, 1922*b*: 114-117, pl. 120 fig. 11, pl. 125*A* fig. 10.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (as *Amphitrite edwardsi*; continental shelf of Algarve); DEXTER, 1992 (as *Amphitrite edwardsi*; previous records: continental shelf of Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 242 (A.3884)**, off Vila Nova de Milfontes, 113 m, sandy mud: 1 incomplete specimen with 13 chaetigers, very big, about 30 mm long and 8 mm wide; 17 thoracic chaetigers; lateral lobes on segments II-IV; about 11 ventral thoracic shields, first ones very wide and short, last ones longer than wider; 3 pairs of branchiae, on segments II-IV, with thick stem, somehow annulated, highly ramified and with very long branches; they decrease in size, from the first to the third pair; nephridial papillae very conspicuous, from segment III to XI; notopodial chaetae with denticulated tip, bilimbated, with wings wider on denticulated side, starting at segment IV; uncini from segment V, with a single row until segment X, double row of uncini from segment XI, disposed face to face. **FAUNA 1 — St. 8*A***, Alborán Sea, off La Herradura, Granada, 238-291 m, mud: 1 incomplete specimen in good condition, with 30 chaetigers; some nephridial papillae, difficult to see; uncini as described; compared with specimen from St. 242 (A.3884).
**DISTRIBUTION:** English Channel; Atlantic coast of France; Western Mediterranean Sea; Adriatic Sea; Aegean Sea; Gulf of Mexico; Puget Sound; Japan. In mud and muddy sand of meadows of *Zostera*. In shallow water to 30 meters.

## ***Neoamphitrite figulus*** (Dalyell 1853)

*Terebella figulus* DALYELL, 1853: 191-197, pls. 27, pl. 28 figs. 1-2.
**TYPE LOCALITY:** Probably North Sea coast of Scotland, in empty shells in deep water, and among rocks in shallow intertidal pools.
**SYNONYMS:** *Amphitrite Johnstoni* Malmgren 1866; [?] *Amphitrite incana* Claparède 1870; *Amphitrite Stimpsoni* Meyer 1912.
**SELECTED REFERENCES:** *Amphitrite figulus* — MCINTOSH, 1915*a*: 6-8; MCINTOSH, 1922*b*: 117-122, pl. 113*A* fig. 1, pl. 125 fig. 10, pl. 125*A* fig. 1. *Neoamphitrite figulus* — HESSLE, 1917: 182-183; HOLTHE, 1986*b*: 100-101, fig. 42, map 41; HARTMANN-SCHRÖDER, 1996: 515-516, fig. 251; KIRKEGAARD, 1996: 337-339, fig. 192. *Amphitrite (Neoamphitrite) figulus* — HARTMANN-SCHRÖDER, 1971*a*: 474-475; GILLANDT, 1979: 62, fig. 24. *Amphitrite Johnstoni* — MALMGREN, 1866: 377, pl. 21 fig. 51; SAINT-JOSEPH, 1898: 421-423; WOLLEBÆK, 1912: 103-104, pl. 36 figs. 1-3, pl. 38 fig. 2; FAUVEL, 1927*a*: 248-249, fig. 85*a-e*. *Amphitrite johnstoni* — THOMAS, 1940: 60-76, text-fig. 7, pls. 10-11. [?] *Amphitrite incana* — CLAPARÈDE, 1870: 493-496, pl. 13 fig. 6. *Amphitrite Stimpsoni* — MEYER, 1912: 34.
**DISTRIBUTION:** Eastern North Atlantic; East Greenland; Iceland; Faeroes; Norway; Swedish west coast; Skagerrak; Kattegat; Øresund; western Baltic Sea; North Sea; eastern Great Britain; English Channel; Bay of Biscay; from Galicia to the Gulf of Guinea; Mediterranean Sea; Adriatic Sea; Aegean Sea; Gulf of Mexico; Canadian Atlantic; Sea of Okhotsk; Japan Sea. On mud, mud mixed with sand, rarely on pure sand, among *Zostera*, *Fucus* or *Laminaria*, on mussel and oyster banks, and in rock crevices. Between 5-300 meters.

## ***Neoamphitrite grayi*** (Malmgren 1866)

*Amphitrite Grayi* MALMGREN, 1866: 377, pl. 22 fig. 56.

**TYPE LOCALITY:** Bohuslän, Sweden.
**SELECTED REFERENCES:** *Amphitrite Grayi* — WOLLEBÆK, 1912: 103, pl. 35 figs. 1-3. *Neoamphitrite grayi* — HESSLE, 1917: 180-181; HOLTHE, 1986*b*: 101-103, fig. 43, map 42; HARTMANN-SCHRÖDER, 1996: 516; KIRKEGAARD, 1996: 339-340, fig. 193. *Amphitrite (Neoamphitrite) grayi* — HARTMANN-SCHRÖDER, 1971*a*: 473-474. Not *Amphitrite Grayi* — TAUBER, 1879: 130.
**DISTRIBUTION:** Arctic; Norwegian coast from Tromso to Oslofjorden; North Sea; Skagerrak; Swedish west coast; Sea of Japan. On mud and clay, sometimes mixed with fine sand. Between 20-500 meters.

## ***Neoamphitrite groenlandica*** (Malmgren 1866)

*Amphitrite groenlandica* MALMGREN, 1866: 376, pl. 21 fig. 52.
**TYPE LOCALITY:** Aappilattoq (= Augpalartok, in Danish), West Greenland, 250 fathoms (457.2 meters). MALMGREN (1866) in the original description also refers a southerly West Greenland second record of his new species, by Torell, from Sukkertoppen (= Maniitsoq in Greenlandish), at 200 fathoms (265.8 meters). A type locality locality wasn't clearly designated, but apparently it should be considered as the first one.
**SELECTED REFERENCES:** *Amphitrite groenlandica* — WOLLEBÆK, 1912: 102-103, pl. 35 fig. 4; FAUVEL, 1927*a*: 250-251, fig. 86*a-c*. *Amphitrite grœnlandica* — MCINTOSH, 1915*a*: 8-9; MCINTOSH, 1922*b*: 111-112, pl. 119 fig. 3, pl. 138 fig. 6. *Neoamphitrite groenlandica* — HESSLE, 1917: 181; HOLTHE, 1986*b*: 103-104, fig. 44, map 43; HARTMANN-SCHRÖDER, 1996: 516. *Amphitrite (Neoamphitrite) groenlandica* — HARTMANN-SCHRÖDER, 1971*a*: 473.
**DISTRIBUTION:** Greenland; Iceland; Faeroes; Svalbard; Norwegian coast; North Sea; western Ireland; Labrador; North American Atlantic coast; Novaya Zemlya; Canadian and Alaskan Arctic; Bering Sea; Sea of Okhotsk; Sea of Japan. On sand, mud, or mixed bottoms. Between 50-800 meters.

## ****Amphitrite incana*** Claparède 1870

*Amphitrite incana* CLAPARÈDE, 1870: 493-496, pl. 13 fig. 6.
**TYPE LOCALITY:** Gulf of Naples.
**SYNONYMS:** [?] *Terebella multisetosa* Grube 1838; [?] *Terebella spiralis* Grube 1860; [?] *Terebella compacta* Grube 1863; [?] *Terebella vigintipes* Ehrenberg & Grube *in* Grube 1870. Not *Amphitrite Olfersii* Delle Chiaje 1822.
**SELECTED REFERENCES:** *Amphitrite rubra* [not Risso 1826] — MARENZELLER, 1884: 173, pl. 1 fig. 2; LO BIANCO, 1893: 50-51; FAUVEL, 1927*a*: 249-250, fig. 85*h-l*; SARDÁ, 1984*c*: 652-653, 1 fig.. [?] *Terebella multisetosa* — GRUBE, 1838: 19; CLAPARÈDE, 1869: 138-139, pl. 23 fig. 5. [?] *Terebella spiralis* — GRUBE, 1860: 97-98. [?] *Terebella compacta* — GRUBE, 1863: 55-56, pl. 5 fig. 6. [?] *Terebella vigintipes* — EHRENBERG & GRUBE *in* GRUBE, 1870*e*: 509-510. [?] *Amphitrite vigintipes* — MARENZELLER, 1884: 199, pl. 1 fig. 1. Not *Amphitrite Olfersii* — DELLE CHIAJE, 1822: pl. 43 figs. 1-1*a*; DELLE CHIAJE, 1828: 168-169, 179.
**MATERIAL: FAUNA 1 — St. 32*A***, Alborán Sea, Alborán Island, 28 m, laminarians on rocks: 6 specimens; three pairs of branchiae (segments II-IV); branchiae dichotomous; anterior branchiae of same size than the posterior ones; lateral lobes on anterior segmenst (II-III), notochaetae from segment IV, uncinigerous tori from segment V; 23 thoracic segments; total number of chaetigers about 80; notochaetae subdistally denticulated; tentacles numerous; 12-15 thoracic ventral shields; uncini in double rows from unciniger VII to almost the end of the body; anterior uncini long-handled; nephridial papillae well visible on segments III-V; after that, present at least to segment XVI; branchiae emerge from thick round lobes; pygidium crenulated; dorsal lip of mouth also crenulated. **St. 34*A***, Alborán Sea, Alborán Island, 62-69 m, porous rocks: 1 incomplete specimen with 38 chaetigers, in good condition, fitting quite well the descriptions given by FAUVEL (1927*a*) and SARDÁ (1984*c*).
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Red Sea; [?] Chile; [?] Australia; [?] Japan. On shells, rocks, stones, and algae. At shallow water to 69 meters.
**REMARKS:** *Amphitrite rubra* (Risso 1826) has been normally considered as a species with a wide distribution, that would be present in the Mediterranean Sea, Adriatic Sea, Red Sea, Chile, Australia, and Japan, and including several synonymies: *Amphitrite Olfersii* Delle Chiaje 1822, *Terebella compacta* Grube 1863, and *Amphitrite incana* Claparède 1870, from the Mediterranean Sea, *Terebella multisetosa* Grube 1838, and *Terebella spiralis* Grube 1860, from the Adriatic Sea, and *Terebella vigintipes* Ehrenberg & Grube *in* Grube 1870, from the Red Sea.

The original description by RISSO (1826) was very short and without illustrations, and too vague in order to allow a detailed identification of other specimens. However, it was clearly stated that the species presented "*les dix neuf premiers* (anneaux) *armés de pieds thorachiques* [sic]*, à courtes soies*

*grisâtres*", which means that there were notochaetae in 19 thoracic segments. With time, and the accumulation of synonymies, the definition of the species changed, and finally the number of thoracic notochaetae swinged from 19 to 23 (*e.g.*: FAUVEL, 1927*a*; SARDÁ, 198*c*).

HUTCHINGS & GLASBY (1995) redescribed *Terebella rubra* Risso 1826, with base on a paratype in good condition, deposited at the Laboratoire de Beaulieu (MNHN UB 392), near Nice (Southern France). According to this description, *Terebella rubra* would differ in several aspects from what is the normally accepted definition of the species, as described by FAUVEL (1927*a*) or SARDÁ (1984*c*), as *Amphitrite*. HUTCHINGS & GLASBY (1995) also considered that *T. rubra* didn't belong to the genus *Amphitrite*, and that it could even represent an undescribed genus of Ampharetinae. However, besides the fact that the species was described as having notochaetae and uncini starting both at segment V, all the other characters seem to place it under the genus *Neoamphitrite* (see the *REMARKS* section under the genus *Amphitrite*). However, and as stated below, in order to avoid the possible creation of unnecessary combinations, *T. rubra* is here referred as belonging to the genus *Amphitrite* (see the above key). On the other way, *Amphitrite rubra* sensu Fauvel 1927 represents a valid *Neoamphitrite* species, distinct from *Neoamphitrite rubra* (Risso 1826).

Being several the species that have seen synonymised with *Terebella rubra*, it is interesting to know which ones of these would be synonymous with *N. rubra*, and which ones would be so with *Amphitrite rubra* sensu Fauvel 1927, in which case this species would be named from the older synonymy.

The description of *Amphitrite Olfersii* Delle Chiaje 1828 is very vague, but the figure given (DELLE CHIAJE, 1822: pl. 43 figs. 1-1*a*; DELLE CHIAJE, 1828: 168-169, 179) shows a terebellid with notopodial bundles of chaetae in about 90 segments, for which reason, it doesn't seem to be any of the two species discussed here, and is discarded here as a possible synonymy of any of the two species here discussed.

It was not possible to consult the original description of *Terebella multisetosa* Grube 1838, but according to the description given by CLAPARÈDE (1869), it presents 22 thoracic notopodial bundles of chaetae. As other important characters to identify the species are not referred in the description, it is here considered as being only possibly synonymous with *A. rubra* sensu Fauvel 1927.

*Terebella spiralis* Grube 1860 was described as having between 22-25 thoracic bundles of notochaetae, but as other characters of the species are not clear, it is considered here only as being possibly the same species than the described by FAUVEL (1927*a*). *Terebella compacta* Grube 1863, with 23 (sometimes 22) notopodial bundles of chaetae, also could be the same species than the described by FAUVEL (1927*a*), but as certain characters don't remain clear to me, I maintain it here also as a possible synonymy of it.

*Terebella vigintipes* Ehrenberg *in* Grube 1870, described from the Red Sea, and with notochaetae present in 20 segments from segment 4, seems to be more close to the species described by FAUVEL (1927*a*) than to *Neoamphitrite rubra* (Risso 1826), and is here also considered as a possible synonymy of it.

Finally, the description of *Amphitrite incana* Claparède 1870 seems to be the one that most approaches the description given by FAUVEL (1927*a*), and *Amphitrite rubra* sensu Fauvel 1927 and Sardá 1984 is here considered as being *Neoamphitrite incana* (Claparède 1870).

However, it must be noted that, if no type material of *Amphitrite Olfersii* Delle Chiaje 1828 and *Amphitrite incana* Claparède 1870 is known to exist, it does exist for the other species referred herein. The types of *Terebella multisetosa* Grube 1838 and *Terebella spiralis* Grube 1860 are deposited at the Museum of Natural History of the Wrocław University (WIKTOR, 1980), while the type material of *Terebella compacta* Grube 1863 and *Terebella vigintipes* Ehrenberg& Grube *in* Grube 1870 are deposited at the Zoologischen Museums in Berlin (HARTWICH, 1993). The revision of this material will reveal which (if any) of these species is identical to *Neoamphitrite incana* (Claparède 1870) or to *Amphitrite rubra* sensu Fauvel 1927, and if *N. incana* is a valid species, or a junior synonym of one of those species described before.

As stated above it is not clear that the genus *Neoamphitrite* is valid, as it could be a junior synonym of *Amphitrite*. For this reason, and in order to avoid the creation of a possible unnecessary new combination, the species is here referred to as *Amphitrite*.

## ***Amphitrite rubra*** (Risso 1826)

*Terebella rubra* RISSO, 1826: 409.

**TYPE LOCALITY:** Mediterranean Sea, near Nice (Southern France).

**SELECTED REFERENCES:** Indeterminate Amphitritinae — HUTCHINGS & GLASBY, 1995: 152-153, fig. 2. Not *Amphitrite rubra* — FAUVEL, 1917: 265-267, fig. 27 [= *Longicarpus modestus* (Quatrefages 1866); see HUTCHINGS & GLASBY (1988)].
**DISTRIBUTION:** Known from the type locality.
**REMARKS:** See the *REMARKS* section under *Neoamphitrite incana*.

As stated above it is not clear that the genus *Neoamphitrite* is valid, as it could be a junior synonym of *Amphitrite*. For this reason, and in order to avoid the creation of a possible unnecessary new combination, the species is here referred as *Amphitrite*.

## ***Amphitrite variabilis*** (Risso 1826)

*Terebella variabilis* RISSO, 1826: 408-409.
**TYPE LOCALITY:** Mediterranean Sea, near Nice (Southern France).
**SYNONYMS:** *Terebella viminalis* Grube 1855.
**SELECTED REFERENCES:** *Amphitrite variabilis* — MARENZELLER, 1884: 172, pl. 1 fig. 1; FAUVEL, 1927*a*: 247-248, fig. 85*f-g*. *Terebella viminalis* — GRUBE, 1855: 117-118, pl. 4 fig. 15. *Amphitrite viminalis* — MALMGREN, 1866: 377-378.
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea. At shallow water, among algae and under stones.
**REMARKS:** As stated above it is not clear that the genus *Neoamphitrite* is valid, as it could be a junior synonym of *Amphitrite*. For this reason, and in order to avoid the creation of a possible unnecessary new combination, the species is here referred as *Amphitrite*.

# *GENUS ***Nicolea*** Malmgren 1866

*Nicolea* MALMGREN, 1866: 380-381.
**TYPE SPECIES:** *Terebella zostericola* Ørsted 1844.
**SYNONYMS:** *Phyzelia* Schmarda 1861; *Heterophyzelia* Quatrefages 1866; *Thelepella* Chamberlin 1919.

**KEY TO SPECIES:**
(from HOLTHE, 1986*b*):

**1a.** Notochaetae on 15 segments, branchiae with short stems.....***N. zostericola***
**1b.** Notochaetae on 17-18 segments, branchiae with long stems.....***N. venustula****

## ****Nicolea venustula*** (Montagu 1818)

*Terebella venustula* MONTAGU, 1818: 344, pl. 13 fig. 2.
**TYPE LOCALITY:** Torcross, southern coast of Devon (England), taken by dredging.
**SYNONYMS:** *Terebella parvula* Leuckart 1849.
**SELECTED REFERENCES:** *Nicolea venustula* — SAINT-JOSEPH, 1894: 207-211, pl. 9 figs. 235-240; MCINTOSH, 1915*a*: 19-20; HESSLE, 1917: 171-172 [in part; in part = *Nicolea zostericola* (Ørsted 1844)]; MCINTOSH, 1922*b*: 150-157, pl. 112 fig. 5, pl. 119 fig. 6, pl. 120 fig. 12, pl. 126 fig. 2 [in part; in part and pl. 120 fig. 12*a-b* = *Nicolea zostericola* (Ørsted 1844)]; FAUVEL, 1927*a*: 260-261, fig. 90*a-f*; HOLTHE, 1986*b*: 123-124, fig. 54, map 53; HARTMANN-SCHRÖDER, 1996: 517-518, fig. 252; KIRKEGAARD, 1996: 340-341, fig. 194. *Terebella parvula* — LEUCKART, 1849: 175-177, pl. 3 fig. 6
**REFERENCES FOR PORTUGAL:** AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Arrábida); RAVARA, 1997 (off Aveiro); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 220 (A.3895)**, off NW Porto Covo, 28 m, rock: 2 specimens, in bad condition and broken in several pieces; there are 2 loose pygidia, without papillae, plus one midddle fragment; body long and soft; tentacles numerous, moderately long; upper lip low, curving around (dorsally and laterally), covering the mouth; eyespots not seen; 2 pairs of branchiae (segments II and III), dichotomous with long stems; anterior pair much longer than the posterior one; no lateral lobes; about 14 thoracic ventral shields; notochaetae from segment IV; uncinigerous tori from segment V; uncini in double rows from segment XI to XX; nephridial papillae on segments III and VI-VII; at least in one of them, the papillae are elongated; notochaetae smooth; uncini avicular, with two large parallel and some small teeth above rostrum; tube thin and transparent, with sand or small shells. **FAUNA 1 — St.**

**13*A***, Alborán Sea, off Cape Sagra, Motril, 62 m, coarse gravel: 1 specimen, apparently complete, with 28 chaetigers; 17 thoracic chaetigers; only one branchia still attached, with long stems; nephridial papillae on segments III, VI and VII; those of segments VI and VII are very long and tubelike (ripe male); no lateral lobes; pygidium with smooth edge. **St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse gravel: 6 incomplete specimens, some in poor condition, plus 2 fragments.

**DISTRIBUTION:** Greenland; Iceland; Faeroes; Jan Meyen; Svalbard; North Atlantic from south Norway to Senegal; Mediterranean Sea; Adriatic Sea; Aegean Sea; White Sea; Siberian, Canadian and Alaskan Arctic; Red Sea; South Africa. On hard bottoms, often with some sand and mud, or among stones, shells, algae and hydroids. From upper sublittoral to about 700 meters.

### ***Nicolea zostericola*** (Ørsted 1844)

*Terebella zostericola* ØRSTED, 1844*b*: 68.

**TYPE LOCALITY:** Denmark.

**SYNONYMS:** *Nicolea arctica* Malmgren 1866.

**SELECTED REFERENCES:** *Nicolea zostericola* — MALMGREN, 1866: 381-382, pl. 24 fig. 76; WOLLEBÆK, 1912: 95-96, pl. 30 figs. 6-10; FAUVEL, 1927*a*: 261-262, fig. 90*g-n*; HOLTHE, 1986*b*: 124-126, fig. 55, map 54; HARTMANN-SCHRÖDER, 1996: 518-519, fig. 253; KIRKEGAARD, 1996: 341-343, fig. 195. *Nicolea venustula* var. *zostericola* — MCINTOSH, 1922*b*: 150-157, pl. 120 fig. 12*a-b* [in part; in part and pl. 112 fig. 5, pl. 119 fig. 6, pl. 120 fig. 12, pl. 126 fig. 2 = *Nicolea venustula* (Montagu 1818)]. *Nicolea arctica* — MALMGREN, 1866: 381, pl. 24 figs. 26-27.

**DISTRIBUTION:** Iceland; Faeroes; Jan Mayen; Svalbard; Barents Sea; Norway; Skagerrak; Kattegat; Øresund; southern North Sea; Adriatic Sea; Aegean Sea; North American Atlantic; West Greenland; Canadian and Siberian Arctic; Bering Sea; Sea of Okhotsk; Novaya Zemlya; Sea of Japan; North American Pacific. On coarse and fine sand, sand mixed with mud, pure mud, among *Zostera*, brown, red algae or hydroids, and on hard bottoms. Eulittoral to about 500 meters.

## GENUS ***Paramphitrite*** Holthe 1976

*Paramphitrite* HOLTHE, 1976: 59.

**TYPE SPECIES:** *Paramphitrite tetrabranchia* Holthe 1976.

**KEY TO SPECIES:**
(from HOLTHE, 1986*b*):

**1a.** Anterior branchiae clearly dichotomous.....***P. tetrabranchia***
**1b.** All branchiae with very reduced stems, appearing as a number of free, simple filaments.....***P. birulai***

### ***Paramphitrite birulai*** (Ssolowiew 1899)

*Amphitrite birulai* SSOLOWIEW, 1899: 198.

**TYPE LOCALITY:** White Sea.

**SELECTED REFERENCES:** *Paramphitrite birulai* — HOLTHE, 1986*b*: 106; JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 519, figs. 1-10 in page 519.

**DISTRIBUTION:** White Sea.

### ***Paramphitrite tetrabranchia*** Holthe 1976

*Paramphitrite tetrabranchia* HOLTHE, 1976: 59-61, figs. 1-3.

**TYPE LOCALITY:** Sound between Sotra and Geitanger, at about 60º23'N, 05º03'E (Hordaland, southwestern Norway), 92-100 meters, on a bottom of clay and silt with stones.

**SELECTED REFERENCES:** *Paramphitrite tetrabranchia* — HOLTHE, 1986*b*: 107-108, fig. 46, map 45; PARAPAR, BESTEIRO & URGORRI, 1991: 64-67, figs. 1-2; HARTMANN-SCHRÖDER, 1996: 519; KIRKEGAARD, 1996: 343-344, fig. 196.

**DISTRIBUTION:** Norwegian coast, from North Sea to Oslofjorden, in Skagerrak, on mixed bottoms of clay and silt with stones, between 55-138 meters; Ría de Ferrol (Galicia, NW Spain), in muddy sand and sandy mud, between 10-13 meters.

**REMARKS:** According to JIRKOV (pers. comm. *in* HOLTHE, 1986*b*) and JIRKOV, LEONTOVICH & SAPHRONOVA (2001), *P. tetrabranchia* is probably a junior synonym of *P. birulai* (Ssolowiew 1899), as the syntypes of this species, and contrary to Ssolowiew's description, present dichotomous branchiae.

## GENUS ***Parathelepus*** Caullery 1915

*Parathelepus* CAULLERY, 1915*a*: 48.
**TYPE SPECIES:** *Thelepides collaris* Southern 1914.
**SYNONYMS:** *Thelepides* Southern 1914 [not *Thelepides* Gravier 1911 (HOMONYM)].

### ***Parathelepus collaris*** (Southern 1914)

*Thelepides collaris* SOUTHERN, 1914: 125-126, pl. 13 fig. 30.
**TYPE LOCALITY:** Clew Bay, west coast of Ireland, at 15 fathoms (27.4 meters), in a bottom of stones.
**SELECTED REFERENCES:** *Parathelepus collaris* — CAULLERY, 1915*a*: 47-48; HESSLE, 1917: 219; MCINTOSH, 1922*b*: 184-185, pl. 125*A* fig. 6; FAUVEL, 1927*a*: 276-277, fig. 96*a*; HOLTHE, 1986*b*: 140**.**
**DISTRIBUTION:** West coast of Ireland, at 27.4 meters, in a bottom of stones; [?] Harbour of Ponta Delgada, São Miguel (Azores), at 14 meters, in a vertical wall; [?] Western Mediterranean Sea.
**REMARKS:** BELLAN (1978) attributed to this species, with some doubts, the anterior region of an Amphitritinae collected inside the harbour of Ponta Delgada, in the Archipelago of Azores.

## GENUS ***Phisidia*** Saint-Joseph 1894

*Phisidia* SAINT-JOSEPH, 1894: 167, 181.
**TYPE SPECIES:** *Leaena oculata* Langerhans 1880.

**KEY TO SPECIES:**

**1a.** About 24 rows of double uncini.....***P. oculata***
**1b.** Nine to ten rows of double uncini.....***P. aurea***

### ***Phisidia aurea*** Southward 1956

*Phisidia aurea* SOUTHWARD, 1956: 275-276, fig. 3.
**TYPE LOCALITY:** The species was described with base on several specimens, collected on different stations at the Isle of Man. Apparently, a type specimen was not designated. The data of the four stations where it was found is as follows: a) 5 miles N.W. of Point Erin, at 20 fathoms (36.6 meters), in muddy sand and gravel; b) 1¾ miles north 80ºW of Point Erin, at 17 fathoms (31 meters), in muddy sand and gravel; c) 8 miles south 55ºW of Point Erin, at 32 fathoms (58.5 meters), in muddy sand and gravel; d) 7 miles north 70ºW of Point Erin, at 31 fathoms (56.7 meters), in muddy sand and gravel.
**SELECTED REFERENCES:** *Phisidia aurea* — HOLTHE, 1986*b*: 138, fig. 62, map 61.
**DISTRIBUTION:** Northern Norway; Irish Sea; western Scotland. On muddy sand with gravel. Between 30-170 meters.

### ***Phisidia oculata*** (Langerhans 1881)

*Leæna oculata* LANGERHANS, 1880*b*: 108, pl. 4 fig. 22.
**TYPE LOCALITY:** Madeira Island, among littoral algae.
**SELECTED REFERENCES:** *Phisidia oculata* — SAINT-JOSEPH, 1894: 180; HESSLE, 1917: 207.
**DISTRIBUTION:** Madeira Island, among littoral algae.

## *GENUS ***Pista*** Malmgren 1866

*Pista* MALMGREN, 1866: 382.
**TYPE SPECIES:** *Amphitrite cristata* O.F. Müller 1776.

**SYNONYMS:** *Axionice* Malmgren 1866; *Scione* Malmgren 1866 [not Walker 1850 (Diptera)]; *Idalia* Quatrefages 1866 [not Hübner 1819 & 1825 (Lepidoptera); not Leuckart 1828 (Mollusca); not Mulsant 1846 (Coleoptera); not Gray 1847 ex Leach MS (Mollusca)]; *Otanes* Kinberg 1867; *Dendrophora* Grube 1870; *Scionopsis* Verrill 1873; *Eupista* McIntosh 1885 [not *Eupista* Hübner 1825 (Lepidoptera)]; *Melinella* McIntosh 1914; *Lanicides* Hessle 1917; *Eupistella* Chamberlin 1919 [new name for *Eupista* McIntosh 1885]; *Euscione* Chamberlin 1919; *Parascione* Caullery 1944; *Paraxionice* Fauchald 1972; *Pistella* Hartmann-Schröder 1996.

**REMARKS:** The definition of the genus *Pista* is here considered under the sense given to it by SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), *i.e.* as *sensu lato*, and including the genera *Axionice* Malmgren 1866, *Lanicides* Hessle 1917, *Eupistella* Chamberlin 1919, *Paraxionice* Fauchald 1972, and *Pistella* Hartmann-Schröder 1996.

According to SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), the genus *Pista* is very complex, with a very mixed taxonomy, and needs to be further revised. *Axionice* Malmgren 1866 was considered by many authors as being an independent genus, characterized by the absence of elongated handles in the uncini of the first thoracic neuropodia. However, SAPHRONOVA (1988) showed that this character is subject to intraspecific variation, according to age or geographical distribution of specimens. This way, it was suggested that a character with such a level of intraspecific variability should not be used in the generic diagnosis. Other characters normally used for generic diagnosis, such as number of branchiae or number of thoracic chaetigers, were also considered to be of specific value, instead of generic. This way, genera such as *Axionice* Malmgren 1866, *Lanicides* Hessle 1917, *Eupistella* Chamberlin 1919, or *Paraxionice* Fauchald 1972, were considered to be junior synonyms of the genus *Pista* Malmgren 1866, as they were not based on proper features to justify their validity. Besides, the type species of the genus *Pista*, *P. cristata* (O.F. Müller 1776), lacks any kind of handles in the anterior neuropodial uncini (see below). Finally, according to SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), the genus *Pistella* Hartmann-Schröder 1996 should also be considered as a junior synonym of *Pista*, with base on the study of type and topotype material of both genus.

*Pista brevibranchia* Caullery 1915, a species described from the Malay Archipelago, was recorded to be present in the Mediterranean Sea (DE BIASI, PACCIARDI & GAI, 2004). However, this record is here considered as doubtful, and it will not be considered here. As in other similar cases its is probably the result of a misidentification of European material using the publication on South African polychaetes by DAY (1967) as an identification guide.

**KEY TO SPECIES:**

**1a.** One pair of subulate branchiae, similar to those typical of the Ampharetidae (ampharetid-like branchiae); notochaetae on 16 (according to FAUVEL, 1909, 1914*f*) or 17 segments (according to CAULLERY, 1944*a*); lateral lobes well developed in segments II-III; anterior thoracic uncini with well developed handle; tube muddy and cylindrical.....***P. dibranchiata***
**1b.** Branchiae arborescent, dichotomously ramified, or pompom-like, but never subulate or ampharetid-like.....**2**

**2a (1b).** Notochaetae on 15 segments; lateral lobe or lappet of segment III (segment before the first chaetiger) as high as the segment itself; one pair of arborescent branchiae on segment 3, with very thick, short stems and more or less developed crowns; anterior thoracic uncini with a handle reduced and thin, like a ligament; tube as a brittle structure incrusted with sand, flattened, broad, sinusoidal curved.....***P. flexuosa***
**2b (1b).** Notochaetae on 16-17 segments; lateral lobe or lappet of segment III (segment before the first chaetiger) about half the height of the segment itself [probably with the exception of *Pista mediterranea*, in which the lateral lobe of segment 3 seems to have the same height than the segment itself, according to the figure given by GAILLANDE (1970)]; tube cylindrical, not regularly curved or sinusoidal.....**3**

**3a (2b).** Notochaetae on 16 segments; one pair of arborescent branchiae on segment II, with very thick stems and more or less developed crowns; anterior thoracic uncini with a handle reduced and thin, like a ligament; tube cylindrical, irregularly curved, incrusted with fine and coarse sand and fragments of plants and shells.....***P. maculata***
**3b (2b).** Notochaetae on 17 segments.....**4**

**4a (3b).** Branchiae arborescent; anterior thoracic uncini with well developed handle.....**5**

**4b (3b).** Branchiae ramrod or pompom-like.....**6**

**5a (4a).** One pair of branchiae, dichotomously ramified, on segment II; lateral lobe on segment III; tube thick, made of mud, spiky, with long attached projections.....***P. mirabilis***
**5b (4a).** Three pairs of branchiae, dichotomously ramified, on segments II-IV; lateral lobes on segments III-IV; tube thin, incrusted with sand, and fragments of shells and algae.....***P. cretacea***

**6a (4b).** Two pairs of branchiae; anterior thoracic uncini with a well developed handle.....**7**
**6b (4b).** One pair of branchiae.....**8**

**7a (6a).** Anterior thoracic uncini with a basal process or excrescence shaped like a comma.....***P. mediterranea***
**7b (6a).** Basal process or excrescence on the the anterior thoracic uncini absent.....***P. malmgreni****

**8a (6b).** Anterior thoracic uncini with well developed handle in adult specimens, being absent in juveniles (Atlantic specimens less than 1 mm wide).....***P. bansei***
**8b (6b).** Anterior thoracic uncini always without handle, even in very big specimens.....***P. cristata***

## ***Pista bansei*** Saphronova 1988

*Pista bansei* SAPHRONOVA, 1988: 892-894, figs. *e-u*, tables 1-2.
**TYPE LOCALITY:** Northern Sea of Japan, 47º41'N, 139º34'E, at 105 meters.
**SELECTED REFERENCES:** *Pista bansei* — SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 520, figs. and map in page 521. *Pista cristata* [not O.F. Müller 1776] — MALMGREN, 1866: 382-383 [in part; in part = *Pista cristata* (O.F. Müller); in part (including pl. 22 fig. 59) = *Pista mamlgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001 (see: SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 521-522)]; WOLLEBÆK, 1912: 99, pl. 30 figs. 1-5 [in part; ?in part = *Pista cristata* (O.F. Müller 1776); in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] MCINTOSH, 1915*a*: 20-22 [in part?; at least in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] MCINTOSH, 1922*b*: 158-162 [in part?; at least in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] FAUVEL, 1927*a*: 266 [in part?; at least in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; BANSE, 1980: 29-30, fig. 4*A-E* [in part; in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; HOLTHE, 1986*b*: 112-114, map 48 [in part, and not fig. 49; in part (including fig. 49) = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; HARTMANN-SCHRÖDER, 1996: 519-520 [in part; in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; KIRKEGAARD, 1996: 345 [in part, and not fig. 197; in part (including fig. 197) = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001].
**DISTRIBUTION:** Arctic: Davis Strait; Eastern Greenland; Norwegian Sea; White Sea; Kara Sea; Novaya Zemlya; Bering Sea; Okhotsk Sea; Sea of Japan. Between 10-1725 meters, but apparently more frequent between 100-650 meters. See also the *DISTRIBUTION* section under *Pista cristata*.

## ***Pista cretacea*** (Grube 1860)

*Terebella cretacea* GRUBE, 1860: 95-96, pl. 4 fig. 5.
**TYPE LOCALITY:** Cres (= Cherso) Island, Croatia, Adriatic Sea.
**SYNONYMS:** *Terebella emmalina* Quatrefages 1866.
**SELECTED REFERENCES:** *Pista cretacea* — MARENZELLER, 1884: 188, pl. 2 fig. 1; LO BIANCO, 1893: 53; SAINT-JOSEPH, 1898: 423-427, pl. 23 figs. 236-239; FAUVEL, 1909: 33-34; MCINTOSH, 1915*a*: 23; HESSLE, 1917: 163; FAUVEL, 1927*a*: 266-268, fig. 93*h-o*. *Terebella emmalina* — QUATREFAGES, 1866*b*: 351-354, pl. 14 figs. 1-8.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Sines).
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; Atlantic coast of France; British Isles. Shallow water.

## ***Pista cristata*** (O.F. Müller 1776)

*Amphitrite cristata* O.F. MÜLLER, 1776: 216.
**TYPE LOCALITY:** According to SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), the type material does not exist, but the type locality is Kristiansand (as "*Christiansandensdis*"), at 58ºN,

8ºE, in Norway. I was not able to find any reference to this locality as being the type locality of the species in O.F. MÜLLER (1776: 216). There is, however, a reference to Kristiansand in MÜLLER (1784: 87), in the following terms: "*In vetustis* Ostreis *sinus* Teistholmen *Christiansandensis* reperi". The type locality is stated in HUTCHINGS (2007) to be Herdla, Hordalund, Norway, 90-95 meters.

**SYNONYMS:** *Scionella lornensis* Pearson 1969.

**SELECTED REFERENCES:** *Amphitrite cristata* — O.F. MÜLLER, 1784: 87, pl. 70 figs. 1-4. *Scionella lornensis* — PEARSON, 1969: 509-513, figs. 1-2; HOLTHE, 1986*b*: 114-116, fig. 50, map 49; KIRKEGAARD, 1996: 353-355, fig. 204. *Pista lornensis* — SAPHRONOVA, 1988: 890-891, figs. *a-e*; SAPHRONOVA, 1991: 245-246. *Pistella lornensis* — HARTMANN-SCHRÖDER, 1996: 520. *Pista* sp. II — BANSE, 1980: 31, fig. 4*I-K*. *Pista unibranchia* [not Day 1963] — CANTONE, 1981: 67, figs. 1-4. *Pista cristata* — MALMGREN, 1866: 382-383 (not pl. 22 fig. 59) [in part; in part = *Pista bansei* Saphronova 1988; in part (including pl. 22 fig. 59) = *Pista mamlgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001 (see: BANSE, 1980: 29; SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 521-522)]; [?] WOLLEBÆK, 1912: 99, pl. 30 figs. 1-5 [in part?; in part = *Pista bansei* Saphronova 1988; in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] MCINTOSH, 1915*a*: 20-22 [in part?; at least in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] HESSLE, 1917: 154-155 [in part?; at least in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] MCINTOSH, 1922*b*: 158-162 [in part?; at least in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] FAUVEL, 1927*a*: 266 [in part?; at least in part = *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001]; [?] SAPHRONOVA, 1988: 890; SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 521-522, figs. and map in page 521. Not *Pista cristata* [= in part *Pista bansei* Saphronova 1988; in part *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001] — BANSE, 1980: 29-30, fig. 4*A-E*; HOLTHE, 1986*b*: 112-114, fig. 49, map 48; HARTMANN-SCHRÖDER, 1996: 519-520; KIRKEGAARD, 1996: 345, fig. 197.

**DISTRIBUTION:** The species has been recorded almost worldwide, but its real distribution should be much more narrow, according to SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001). The species has been confirmed to be present in Faroe Islands, North Sea, Skagerrak, (Scotland, Sweden, Denmark, Norway), and also in the Yellow Sea. The species is also present in the Mediterranean Sea (personal observations and ARVANITIDIS, personal communication *in* SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001). Between 10-113 meters, but more common at shelf depths down to 50 meters. As *Scionella lornensis*, *Pista lornensis*, or *Pistella lornensis* the species has been recorded as follows: Norwegian south coast; Skagerrak, Swedish west coast; north coast of Jutland; west coast of Scotland; Western Mediterranean Sea; Adriatic Sea; Aegean Sea; [?] Yellow Sea; on mud or mud mixed with sand and clay; between 25-94 meters; described from Northern Loch Linnhe, Loch Creran, and Firth of Lorne, West coast of Scotland; in Lochs Linnhe and Eil the species was found on grounds varying from silty-sand (70% sand, 30% silt and clay) to fine silt (92% silt and clay, 8% sand), at depths between 14 and 52 fathoms (25-94 meters); the salinity over these areas varies between 28 and 34‰, the temperature between 6 and 12ºC at 2 meters of the bottom, and the dissolved oxygen concentration between 6 and 10 p.p.m.; specimens from the Firth of Lorne and Loch Crenan were found in similar grounds. All the other records require confirmation, and refer probably to similar but different species.

Three species have been normally considered under the name of *Pista cristata*, namely *P. bansei* Saphronova 1988, *P. cristata* (O.F. Müller 1776), and *P. malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001. *P. bansei* is the species with a more deep and cold distribution, going rather far from the shore in the northern Arctic Ocean. Its distribution is mainly Arctic, both in the Atlantic and Pacific Oceans, in an area where *P. malmgreni* is almost absent. *P. malmgreni* is widely distributed in the temperate and tropical areas of the Atlantic and East Pacific, being almost excluded from the Arctic Ocean, and occurs is shallow waters, normally above 100 meters. Finally, *P. cristata* is also a shallow water species, ocurring normally above 50 meters, being the species with a more narrow known distribution (North Sea to Mediterranean Sea, and Yellow Sea). According to the material studied by SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), the area of distribution of the three species normally does not overlap, and they almost cannot be found together (only in one sample the authors found *P. cristata* with *P. malmgreni*, which also fits the distribution of both species in Southern Europe, as both species are sympatric at least in the Western Mediterranean Sea). Normally, the southern borderline of distribution of *P. bansei* is located at the same level than the northern borderline of distribution of *P. cristata*, at least in the European and Arctic waters, while the northern borderline of distribution of *P. malmgreni* in Europe is defined by the line that goes from Iceland to the Faroes. In the American coast, where probably the areas of distribution of *P. malmgreni* and *P. bansei* overlap, there is

not enough information, and the known distribution areas of both species are separated by wide regions where none of the species was so far found.

**REMARKS:** The genus *Pista* in general, and the *Pista cristata* complex in particular, has been thoughtfully studied by SAPHRONOVA (1984, 1985, 1988, 1991, 1997). It was found that *Pista cristata* was in reallity a species complex, as already suggested by other authors (*e.g.*: BANSE, 1980; HOLTHE, 1986*b*), and that MALMGREN (1866) and the subsequent authors had interpreted the species differently from O.F. MÜLLER (1776). Besides, the revision of specimens from the northern regions of the Atlantic and Pacific regions, revealed the presence of at least six species closely related (SAPHRONOVA, 1988, 1997): *P. cristata* (O.F. Müller 1776), *P. estevanica* (Berkeley & Berkeley 1942), *P. bansei* Saphronova 1988, *P. paracristata* Saphronova 1988, *P. wui* Saphronova 1988, and *P. malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001.

According to SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), the original description of *Pista cristata* was very short, but it did clearly refer the presence of a single pair of branchiae. When the species was redescribed and pictured by MALMGREN (1866), *Pista cristata* started to be considered in the sense of this description, with up to 4 pompom-like branchiae. However, and as first stated by BANSE (1980), and later by SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), Malmgren's specimens were a mixture of several different species. BANSE (1980) identified two species, referred by him as being "*Pista cristata*" and "*Pista* sp.II", while SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001) found 3 species, namely *Pista cristata* sensu O.F. Müller 1776, *Pista cristata* sensu Malmgren 1866, and *Pista bansei* Saphronova 1988. The same authors studied material collected by Dr. Oug from the same region than the type locality of *P. cristata*, and all the specimens showed one single pair of branchiae, like cleaning rods, instead of the pompom-like branchiae. According to Dr. Oug, in the same region all the sampled *Pista* had only this kind of branchiae. These topotype specimens were similar to the type material of *Scionella lornensis* Pearson 1969, described from Scotland, and this species was considered to be a junior synonym of *P. cristata* sensu O.F. Müller 1776. This way, *Pista cristata* (O.F. Müller 1776) was considered to be represented by specimens with one single pair of branchiae, like cleaning rods, with one of the branchia being longer and bigger than the other, and uncini of the first thoracic neuropodial without elongated handles, while the specimens described by MALMGREN (1866), with up to 4 pairs of pompom-like branchiae and uncini of the first thoracic neuropodial with elongated handles, were considered to belong to a new species, namely *Pista malmgreni* Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001.

According to SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), *Pista cristata* sensu O.F. Müller 1776, together with a group of other species of *Pista* [*P. australis* Hutchings & Glasby 1988, *P. bansei* Saphronova 1988, *P. curtiuncata* Hartmann-Schröder 1981, *P. dibranchis* Gibbs 1971, *P. estevanica* (Berkeley & Berkeley 1942), *P. typha* (Grube 1878), *P. unibranchia* Day 1963, *P. wui* Saphronova 1988], form a very compact group that probably could be considered as *Pista* sensu stricto. The species in this group may or may not have the neuropodial uncini of the first segments with elongated handles. Moreover, in young specimens of *P. bansei*, for instance, these handles are absent, while adults do show them. Thus, the presence or absence of these handles cannot be considered as a diagnostic feature of the genus. The state of development of the lateral lobes also varies. In all the cases studied by these authors they were present in segments 2 and 3, but they could be present or absent in segment 4. The unambiguous diagnosis of this group of species would be the shape of the branchiae.

*Pista cristata* sensu O.F. Müller 1776 has been recorded from the Western Mediterranean Sea (personal observations), where it has been identified as *Pista* (or *Pistella*) *lornensis*, a species originally described and known from North Europe (PEARSON, 1969; HOLTHE, 1986*b*). As stated above, this species was synonymised with *P. cristata* by SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001). On the other hand, the Mediterranean specimens described by CANTONE (1981) as *Pista unibranchia* Day 1963 fit the description of *Pista lornensis* (Pearson 1969), and this way are here considered as belonging to *P. cristata*.

*Pista unibranchia* was described by DAY (1963*b*), with base on specimens from False Bay (South Africa), collected at 48-70 meters, on sand with shells, and is very similar to the European *P. lornensis*. The African species was described as having one single branchia, but the second one could be missing in the studied specimens. Both species could be synonymous, but due to the geographic distance between the two type localities, and to the lack of a detailed comparative study, for the moment they are maintained here as separated taxa and all the Atlantic and Mediterranean European specimens are referred to *P. cristata*.

### ***Pista dibranchiata*** (Fauvel 1909) **nov. comb.**

*Eupista dibranchiata* FAUVEL, 1909: 35-36, fig. 3.

**TYPE LOCALITY:** Off Madeira (32º39'20"N, 16º40'55"W), 1425 meters.
**SELECTED REFERENCES:** *Eupista dibranchia* — FAUVEL, 1914*f*: 303-306, pl. 28 figs. 1-12; CAULLERY, 1944*a*: 163-165, fig. 128.
**DISTRIBUTION:** Atlantic Ocean, off Madeira, at 1425 meters; Teluk Bone (Bone Bay, Sulawesi), and Seram Sea, Indonesia, 885-1158 meters.

### ***Pista flexuosa*** (Grube 1860)

*Terebella flexuosa* GRUBE, 1860: 102-103, pl. 5 fig. 2.
**TYPE LOCALITY:** Greenland.
**SYNONYMS:** [?] *Amphitrite Tondi* Delle Chiaje 1822.
**SELECTED REFERENCES:** *Axionice flexuosa* — MALMGREN, 1866: 384-385, pl. 24 fig. 68; HOLTHE, 1986*b*: 117-118, fig. 51, map 50. *Scione (Axionice) flexuosa* — WOLLEBÆK, 1912: 94, pl. 27 figs. 1-2. *Pista flexuosa* — HESSLE, 1917: 162-163; SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 522, figs. in page 522. [?] *Amphitrite Tondi* — DELLE CHIAJE, 1822: pl. 45 fig. 2; DELLE CHIAJE, 1828: 169, 180.
**DISTRIBUTION:** Greenland; Svalbard; Franz Joseph's Land; North Norway; White Sea; Novaya Zemlya; Kara Sea; Sea of Okhotsk; Canadian Pacific, Atlantic and Arctic. On mud with some sand or on muddy sand, often with some shell fragments. Between 17-215 meters.

### ***Pista maculata*** (Dalyell 1853)

*Terebella maculata* DALYELL, 1853: 203-206, pl. 28 figs. 10-14, 19.
**TYPE LOCALITY:** Scotland, probably in the North Sea coast.
**SYNONYMS:** *Scione lobata* Malmgren 1866; *Melinella macduffi* McIntosh 1914.
**SELECTED REFERENCES:** *Scione maculata* — SAINT-JOSEPH, 1894: 205-207, pl. 9 figs. 232-234; MCINTOSH, 1915*a*: 23. *Pista maculata* — HESSLE, 1917: 161-162, pl. 3 fig. 4; FAUVEL, 1927*a*: 263-264, fig. 91; SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 522, figs. and map in page 523. *Axionice maculata* — HARRIS, 1971: 710-712, fig. 17; HOLTHE, 1986*b*: 118-120, fig. 52, map 51; HARTMANN-SCHRÖDER, 1996: 508-509, fig. 247; KIRKEGAARD, 1996: 326-327, fig. 184. *Scione lobata* — MALMGREN, 1866: 383-384, pl. 23 fig. 62; WOLLEBÆK, 1912: 93-94, pl. 27 figs. 3-7; AUGENER, 1913*a*: 181-185; FAUVEL, 1914*f*: 300-301, pl. 28 figs. 24-34. *Nicolea lobata* — MARENZELLER, 1884: 166. *Melinella macduffi* — MCINTOSH, 1914: 109-110.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); RAVARA, 1997 (as *Axionice maculata*; off Aveiro).
**DISTRIBUTION:** Greenland; Svalbard; Barents Sea; Iceland; Norwegian Sea; Eastern North Atlantic, from Norway to Cameroon; North Sea; Mediterranean Sea; Adriatic Sea; Labrador; Canadian, Alaskan and Siberian Arctic; White Sea; Bering Sea; Sea of Okhotsk. On sand, often with shells, stones, or among algae. Between 20-2550 meters.

### ****Pista malmgreni*** Saphronova & Jirkov *in* Jirkov, Leontovich & Saphronova 2001

*Pista malmgreni* SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 523-524, figs. and map in page 523.
**TYPE LOCALITY:** The holotype of the species was designated by SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001), as being the specimen pictured by MALMGREN (1866), and collected at Bahuslän, Western Sweden. A specimen from Marseille (Mediterranean Sea) was designated as paratype.
**SYNONYMS:** [?] *Terebella turrita* Grube 1860; [?] *Idalia vermiculus* Quatrefages 1866.
**SELECTED REFERENCES:** *Pista malmgreni* — SAPHRONOVA, 1997: 622 [*nomen nudum*]. [?] *Terebella turrita* — GRUBE, 1860: 96-97, pl. 4 fig. 6. [?] *Idalia vermiculus* — QUATREFAGES, 1866*b*: 372-373. *Pista cristata* [not O.F. Müller 1776] — MALMGREN, 1866: 382-383, pl. 22 fig. 59 [in part; in part = *Pista bansei* Saphronova 1988; in part = *Pista cristata* (O.F. Müller 1776) (see: BANSE, 1980: 29; SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 521-522)]; WOLLEBÆK, 1912: 99, pl. 30 figs. 1-5 [in part; in part = *Pista bansei* Saphronova 1988; ?in part = *Pista cristata* (O.F. Müller 1776)]; MCINTOSH, 1915*a*: 20-22 [at least in part]; HESSLE, 1917: 154-155 [at least in part]; MCINTOSH, 1922*b*: 158-162, pl. 119 fig. 9, pl. 125*A* fig. 8 [at least in part]; FAUVEL, 1927*a*: 266, fig. 93*a-g* [at least in part]; BANSE, 1980: 29-30, fig. 4*A-E* [in part; in part = *Pista bansei* Saphronova 1988]; HOLTHE, 1986*b*: 112-114, fig. 49, map 48 [in part; in part = *Pista bansei* Saphronova 1988]; HARTMANN-SCHRÖDER, 1996: 519-520 [in part; in part = *Pista bansei* Saphronova 1988]; KIRKEGAARD, 1996: 345, fig. 197 [in part; in part = *Pista bansei* Saphronova 1988]; HUTCHINGS, 2007: table 2.

**REFERENCES FOR PORTUGAL:** FAUVEL, 1909 (as *Pista cristata*; off Faro); FAUVEL, 1911*c* (as *Pista cristata*; off Faro); FAUVEL, 1914*f* (as *Pista cristata*; off Faro); RIOJA, 1917*c* (as *Pista cristata*; previous records: SE Portugal); BELLAN, 1960*a* (as *Pista cristata*; Cape Espichel); AMOUREUX, 1974*b* (as *Pista cristata*; off Aveiro; off Porto); MONTEIRO-MARQUES, 1987 (as *Pista cristata*; continental shelf of Algarve); DEXTER, 1992 (as *Pista cristata*; previous records: Ria Formosa; Ria de Alvor; continental shelf of Algarve; Sado Estuary); RAVARA, 1997 (as *Pista cristata*; off Aveiro); MUCHA & COSTA, 1999 (as *Pista cristata*; Ria de Aveiro and/or Sado Estuary).

**MATERIAL: FAUNA 1 — St. 29*A***, Alborán Sea, Djibouti Bank, off Nerja, 400-411 m, mud: 1 specimen with tube, in poor condition and incomplete; it was still inside the tube; body long; 60 mm long for 39 chaetigers, 3 mm wide; tentacles numerous; upper lip not observed; buccal segment ventrally forming a prominent, broad plate with a distinct median anterior notch; 2 pairs of branchiae, on segments II and III, arborescent; first pair unequally developed, left one being bigger and right one smaller; on the third segment the branchiae are of similar size, but the most developed is on the opposite side of that of the second segment; when well developed, they have a long round stem and (in contracted state) a pompom-like mass of branches; lateral lobes on segments II-IV, those of segment III more developed; ventral shields on about 19 segments; notochaetae from segment IV; 17 chaetigerous thoracic segments; notochaetae smooth; uncinigerous tori from segment V, in double rows in segments XI-XX; they are avicular with prolonged posterior bases in the anterior chaetigers (from first chaetiger); tube is a thin layer of secretion with a thick, firm and brittle incrustation of clay and foraminiferan shells.

**DISTRIBUTION:** The species has been mostly identified as *Pista cristata*, and probably many of the records of *P. cristata* in the European waters refer to this species. Faroes Islands; from the North Sea to the Mediterranean Sea; Adriatic Sea; West Africa; Eastern coast of USA, from Massachusetts to Florida; Puerto Rico; Venezuela; Galapagos Islands; California. On mud, clay, fine and coarse sand, sand with gravel and shells, and mixed bottoms. Between 0-50 meters, but can be recorded deeper; in the Alborán Sea recorded at about 400 meters. See also the *DISTRIBUTION* section under *Pista cristata*.

**REMARKS:** SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA (2001) created the new species *Pista malmgreni* for the species described by MALMGREN (1866) as *Pista cristata*. However, there are at least two species that have been normally considered to be junior synonyms of *P. cristata* sensu Malmgren 1866, and that might have priority over *P. malmgreni*. These species are *Terebella turrita*, described by GRUBE (1860) from Cres Island, in Croatia (Adriatic Sea), and *Idalia vermiculus*, described by QUATREFAGES (1866*b*), from San Sebastian, in the Bay of Biscay. According to HARTWICH (1993), the holotype of *Terebella turrita* is lost, but there are 7 specimens identified by A.H. Grube from the same region of the type locality (Croatia), deposited at the Zoologischen Museum, in Berlin. In what concerns the holotype of *Idalia vermiculus*, it is deposited at the Muséum National d'Histoire Naturelle, in Paris (SOLÍS-WEISS *et al.*, 2004). In both cases the material should be revised, in order to state if, or which of the species are valid, and if *Pista malmgreni* should be considered as a junior synonym of at least one of them.

## ***Pista mediterranea*** Gaillande 1970

*Pista mediterranea* GAILLANDE, 1970: 444-445, figs. 1-7.

**TYPE LOCALITY:** Calanque de Port-Miou, near Cassis (Cassis, Bouches-du-Rhône, Provence-Alpes-Côte d'Azur), southern France, in "faux-maërl", sediment with about 40% of mud and 60% of coarse detritic material, especially debris of *Melobesia* algae and small stones, at about 2.5 meters.

**SELECTED REFERENCES:** *Pista mediterranea* — HUTCHINGS, 2007: table 2.

**DISTRIBUTION:** Known from the type locality.

## ***Pista mirabilis*** McIntosh 1885

*Pista mirabilis* MCINTOSH, 1885*a*: 454-457, pl. 51 figs. 1-2, pl. 27*a* fig. 34, pl. 38*a* fig. 2.

**TYPE LOCALITY:** Off the mouth of the Rio de La Plata, 37º17'S, 53º52'W, at 600 fathoms (1097.3 meters), in a bottom of green-sand.

**SELECTED REFERENCES:** *Pista mirabilis* — ROULE, 1896: 459-460; [?] FAUVEL, 1909: 34-35; [?] FAUVEL, 1914*f*: 303, pl. 28 figs. 17-23; HESSLE, 1917: 163; BENHAM, 1927: 99-100; FAUVEL, 1927*a*: 264-265, fig. 92; MONRO, 1930: 186-187, fig. 76; HARTMAN, 1966*b*: 100, pl. 29 figs. 3-4; HARTMAN, 1978: 200; SAPHRONOVA, 1984: 987, fig. 3*a-c*; DETINOVA, 1985*a*: 130;SAPHRONOVA & JIRKOV *in* JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 524. *Scione mirabilis* — EHLERS, 1913: 562; BENHAM, 1921: 85-89, pl. 9 figs. 97-100.

**REFERENCES FOR PORTUGAL:** [?] AMOUREUX, 1974*b* (as *Pista* sp.; off Aveiro).

**DISTRIBUTION:** Rio de La Plata; Antarctic; [?] Terra Nova; off Iceland, Bay of Biscay; Portugal. On bottoms of mud or sand. Between 83-2440 meters.

## GENUS ***Polycirrus*** Grube 1850

*Polycirrus* GRUBE, 1850: 330.
**TYPE SPECIES:** *Polycirrus medusa* Grube 1850.
**SYNONYMS:** *Aphlebine* Quatrefages *in* Milne Edwards 1844; *Torquea* Leidy 1855; *Apneumea* Quatrefages 1866; *Ereutho* Malmgren 1866; *Leucariste* Malmgren 1866; *Cyaxares* Kinberg 1866; *Dejoces* Kinberg 1867; *Anisocirrus* Gravier 1905; *Pseudoampharete* Hartmann-Schröder 1960; *Litancyra* Hutchings 1977.
**REMARKS:** As noted by FAUVEL (1927*a*), the *Polycirrus* are quite fragile and normally they autotomize (or break) between chaetigers 8 and 9, or 9 and 10. The breaking zone is normally similar to a sphincter, which can give a wrong idea of the shape of the worm. Besides, the tentacles separate from the body, forming a loose ball. However, the *Polycirrus* specimens can be easily recognizable by the shape of their upper lip and tentacular membrane, which are fused, forming a trilobate lobe.

**KEY TO SPECIES:**
(adapted from HOLTHE, 1986*b*)

**NOT INCLUDED IN THE KEY:** *Polycirrus jubatus* Bobretzky 1868.

**1a.** 28 or more segments with notochaetae.....**2**
**1b.** Less than 28 segments with notochaetae.....**4**

**2a (1a).** Uncini of two types, from chaetigers 7-10.....**3**
**2b (1a).** Uncini of one type, from chaetiger 13; notochaetae smooth.....***P. arenivorus***

**3a (2a).** Notochaetae from segment III and in 30-75 segments; six pairs of nephridia; notochaetae smooth.....***P. caliendrum***
**3b (2a).** Notochaetae from segment II and in 30-40 segments; three pairs of nephridia; notochaetae very finely plumose.....***P. aurantiacus***

**4a (1b).** Some segments with both notochaetae and uncini present.....**5**
**4b (1b).** No segments with both notochaetae and uncini.....**10**

**5a (4b).** Uncini from chaetigers 8-13, of two types, changing at about chaetiger 13; notochaetae smooth or with subdistally plumose tips.....**6**
**5b (4a).** Uncini from chaetigers 13-14, of one single type; notochaetae smooth, without plumose tips.....**9**

**6a (5a).** Notochaetae smooth.....**7**
**6b (5a).** Notochaetae subdistally plumose, or limbate, with one side serrated.....**8**

**7a (6a).** Three pairs of nephridial papillae, in the anterior region; notochaetae in 12-13 segments.....***P. tenuisetis***
**7b (6a).** Six pairs of nephridial papillae, in the anterior region; notochaetae in 11-19 segments.....***P. pallidus***

**8a (6b).** Notochaetae limbate, with one side serrated; 6 pairs of nephridial papillae, from which the last 3 are sometimes very small and difficult to see; notochaetae in 13-18 segments; ventral shields distinct.....***P. denticulatus***
**8b (6b).** Notochaetae with subdistally plumose tips, long; 6 pairs of nephridial papillae, on segments III-VIII; notochaetae in 14-20 segments; ventral shields distinct; tentacles of two types, moderately long; body fluid of living animals not red; tentacular ridge convex, lips opening ventrally.....***P. norvegicus***

**9a (5b).** Ventral shields distinct; notochaetae long; tentacles of one type, very long; living animals with red body fluid, showing through transparent body wall; tentacular ridge and upper lip forming a large, undulate lobe.....***P. haematodes***
**9b (5b).** Ventral shields not distinct; notochaetae short; tentacles of two types, moderately long; body fluid of living animals not red; tentacular ridge concave, lips opening anteriorly.....***P. arcticus***

**10a (4b).** 17-18 chaetigerous thoracic segments; notochaetae of two types, some smooth with narrow brims, and plumose the others.....***P. plumosus***
**10b (4b).** 10-13 chaetigerous thoracic segments.....**11**

**11a (10b).** Upper lip triangular; 12 chaetigerous thoracic segments; uncini approaching pectinate form; notochaetae smooth to plumose.....***P. latidens***
**11b (10b).** Upper lip with three lobes; 10-13 chaetigerous thoracic segments; uncini avicular; notochaetae plumose.....***P. medusa***

## ***Polycirrus arenivorus*** Caullery 1915

*Polycirrus (Leucariste) arenivorus* CAULLERY, 1915*b*: 244-247, fig. 1-2.
**TYPE LOCALITY:** Anse Saint-Martin, near Cap de la Hague (English Channel, France), in very fine sand, at shallow water to intertidal.
**SELECTED REFERENCES:** *Polycirrus arenivorus* — HESSLE, 1917: 229; FAUVEL, 1927*a*: 282-283, fig. 98*d-f*.
**DISTRIBUTION:** English Channel. In sand or coarse sand, at 10-15 cm deep. At shallow water.
**REMARKS:** FAUVEL (1927*a*) stated that the older specimens of this species normally lack uncini in the thoracic region (being the thoracic region formed by the first 12 chaetigers). This is in accordance with the observed by CAULLERY (1915*b*), as uncini are stated to appear at chaetiger 13. FAUVEL (*op. cit.*) also pointed the fact that the species is quite close to *P. caliendrum*, from which it would differentiate mainly by its habitat and feeding method. However, both species can be separated by the characters pointed in the above key. Besides, the size of the specimens of *P. arenivorus* studied by CAULLERY (1915*b*) ranged between 60-80 mm, while according to FAUVEL (1927*a*), the size of *P. caliendrum* ranged between 30-100 mm. The sizes overlap, so probably the morphological differences between the two species are not size-related, but specific-related.

## ***Polycirrus arcticus*** M. Sars 1865

*Polycirrus arcticus* M. SARS, 1865: 14.
**TYPE LOCALITY:** Vadsø, northern Norway.
**SYNONYMS:** *Leucariste albicans* Malmgren 1866.
**SELECTED REFERENCES:** *Leucariste arcticus* — WOLLEBÆK, 1912: 86-87, pl. 20 figs. 5-7. *Polycirrus arcticus* — HOLTHE, 1986*b*: 147-148, fig. 66, map 65; KIRKEGAARD, 1996: 346-347, fig. 198. *Leucariste albicans* — MALMGREN, 1866: 390-391, pl. 23 fig. 61.
**DISTRIBUTION:** Greenland; Svalbard; Jan Mayen; Iceland; Faeroes; Barents Sea; Norwegian Sea; Norway; Canadian Arctic; Franz Josef's Land; Novaya Zemlya; Kara Sea; western North Atlantic. On muddy bottoms. Between 35-1440 meters.

## ***Polycirrus aurantiacus*** Grube 1860

*Polycirrus aurantiacus* GRUBE, 1860: 110, pl. 4 fig. 8.
**TYPE LOCALITY:** Kraljevica (= Porto Ré) and and Cres (= Cherso) Island, Croatia, Adriatic Sea, in crevices in rocks.
**SELECTED REFERENCES:** *Polycirrus aurantiacus* — SAINT-JOSEPH, 1894: 239-240; MALMGREN, 1866: 393-394, pl. 25 fig. 81; SOULIER, 1904: 368-370, fig. 11; MCINTOSH, 1915*a*: 33-35; HESSLE, 1917: 226; MCINTOSH, 1922*b*: 193-197, text-fig. 149, pl. 120 fig. 4, pl. 127 fig. 1; FAUVEL, 1927*a*: 280-281, fig. 97*e-k*; HOLTHE, 1986*b*: 148-150, fig. 67, map 66; HARTMANN-SCHRÖDER, 1996: 524-525, fig. 256.
**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Sines); DEXTER, 1992 (previous records: Ria Formosa).
**DISTRIBUTION:** Northeastern Atlantic, from Shetland to Senegal; English Channel; North Sea; Mediterranean Sea; Adriatic Sea, Aegean Sea to Bosphorus. On soft bottoms or among algae, serpulids, hydroids or dead shells. Eulittoral to about 287 meters.

## ***Polycirrus caliendrum*** Claparède 1869

*Polycirrus Caliendrum* CLAPARÈDE, 1869: 146-148, pl. 29 fig. 2.

**TYPE LOCALITY:** Gulf of Naples.

**SELECTED REFERENCES:** *Polycirrus caliendrum* — SAINT-JOSEPH, 1894: 237-239, pl. 10 figs. 263-269; SOULIER, 1904: 363-368, fig. 10; HESSLE, 1917: 227; MCINTOSH, 1922*b*: 197-198, pl. 127 fig. 8; FAUVEL, 1927*a*: 281-282, fig. 98*a-c*; HOLTHE, 1986*b*: 150-151, fig. 68, map 67; HARTMANN-SCHRÖDER, 1996: 525-526.

**REFERENCES FOR PORTUGAL:** [?] AMOUREUX, 1974*b* (as *Polycirrus* sp. (*caliendarum?*); off Porto).

**DISTRIBUTION:** Northeastern Atlantic, from the British Isles to Galicia; Mediterranean Sea; Black Sea; North American Pacific. On soft bottoms or amongst algae, serpulids, hydroids or dead shells. Eulittoral, abundant between 40-100 meters.

## ***Polycirrus denticulatus*** Saint-Joseph 1894

*Polycirrus denticulatus* SAINT-JOSEPH, 1894: 242-243, pl. 10 figs. 271-274.

**TYPE LOCALITY:** Dinard shores, Northern coast of France (English Channel).

**SYNONYMS:** [?] *Polycirrus triglandula* Langerhans 1880.

**SELECTED REFERENCES:** *Polycirrus denticulatus* — SOULIER, 1904: 370-372, fig. 12; HESSLE, 1917: 228; MCINTOSH, 1922*b*: 201, pl. 127 fig. 7; FAUVEL, 1927*a*: 284, fig. 98*o-s*. [?] *Polycirrus triglandula* — LANGERHANS 1880*b*: 109-110, pl. 5 fig. 24; HESSLE, 1917: 228.

**DISTRIBUTION:** English Channel; Ireland; Mediterranean Sea; [?] Madeira Island. Among laminarians, algae, serpulids, and hydrarians. At shallow water.

**REMARKS:** According to SAINT-JOSEPH (1894), *Polycirrus denticulatus* is very close to *P. triglandulata*, described by LANGERHANS (1880*b*) from Madeira, differing in the number of nephridial papillae (6 pairs in the first, 3 pairs in the second). However, according to SOUTHERN (1914), Langerhans could have overlooked the 3 posterior pairs, which are normally very small and hidden by an overlying sheet of muscle. SOUTHERN (1914) also stated that the serrated edge in the notopodial limbate chaetae, present in *P. denticulatus*, could be the result of the abrasion on the limbus of the chaetae, as in the same bundle he found chaetae with smooth and serrated borders (see also FAUVEL, 1927*a*: 284). The synonymy between the two species is here maintained as being possible.

## ***Polycirrus haematodes*** (Claparède 1864)

*Aphlebina hæmatodes* CLAPARÈDE, 1864: 484-487, 490, pl. 2 fig. 1.

**TYPE LOCALITY:** Port Vendres, Western Mediterranean Sea.

**SYNONYMS:** *Apneumea leoncina* Quatrefages 1866.

**SELECTED REFERENCES:** *Polycirrus haematodes* — LANGERHANS, 1884: 265, pl. 16 fig. 26. *Polycirrus hæmatodes* — SAINT-JOSEPH, 1894: 241-242, pl. 10 fig. 270; HESSLE, 1917: 227; MCINTOSH, 1922*b*: 198-200, pl. 127 fig. 2; FAUVEL, 1927*a*: 284-285, fig. 98*g-i*. *Polycirrus haematodes* — HOLTHE, 1986*b*: 151-152, fig. 69, map 68. *Apneumea leoncina* — QUATREFAGES, 1866*b*: 382-383, pl. 2 fig. 5, pl. 14 figs. 10-11.

**DISTRIBUTION:** Scotland; Irish west coast; English Channel; Eastern North Atlantic, from northern France to Madeira Island; Mediterranean Sea; Adriatic Sea; Aegean Sea. On mud or sand, among laminarians, algae, hydroids or serpulids. Eulittoral.

## ***Polycirrus jubatus*** Bobretzky 1868

*Polycirrus jubatus* BOBRETZKY, 1868: 158.

**TYPE LOCALITY:** Black Sea.

**SELECTED REFERENCES:** *Polycirrus jubatus* — ANNENKOVA, 1924: 126; MARINOV, 1977: 211, pl. 29 fig. 3*а-б*.

**DISTRIBUTION:** Black Sea.

**REMARKS:** *Polycirrus jubatus* was not included in the above key. The species presents 16-18 segments with capillary notochaetae, and uncini from chaetiger 13, apparently of one single kind. This way, the species would have segments with both notochaetae and neuropodial uncini. According to the drawing given in MARINOV (1977), the species seems to have distinct ventral shields. However, I could not find information on the shape of the notochaetae. The species seems to be close to *Polycirrus haematodes* (Claparède 1864), but at this moment, and with base on the available information, I think it is more advisable not to make any further statement on its taxonomic status.

## ***Polycirrus latidens*** Eliason 1962

*Polycirrus latidens* ELIASON, 1962*b*: 286, fig. 23.
**TYPE LOCALITY:** Skagerrak, Kosterfjord, 57º59'N, 08º40'E, 531 meters, on grey mud.
**SELECTED REFERENCES:** *Polycirrus latidens* — HOLTHE, 1986*b*: 153-154, fig. 70, map 69; HARTMANN-SCHRÖDER, 1996: 526; KIRKEGAARD, 1996: 347-348, fig. 199.
**DISTRIBUTION:** Skagerrak, Kosterfjord. On grey to greyish brown mud. Between 50-531 meters.

## ***Polycirrus medusa*** Grube 1850

*Polycirrus Medusa* GRUBE, 1850: 330.
**TYPE LOCALITY:** Villefranche-sur-Mer (= Villa Franca), Mediterranean Sea.
**SYNONYMS:** *Ereutho Smitti* Malmgren 1866.
**SELECTED REFERENCES:** *Polycirrus medusa* — HESSLE, 1917: 220-221; MCINTOSH, 1922*b*: 190-193, pl. 113*A* fig. 3, pl. 126 fig. 9; FAUVEL, 1927*a*: 279-280, fig. 97*a-d*; HOLTHE, 1986*b*: 154-155, fig. 71, map 70; HARTMANN-SCHRÖDER, 1996: 526-527, fig. 257; KIRKEGAARD, 1996: 348, fig. 200. *Ereutho Smitti* — MALMGREN, 1866: 391-392, pl. 23 fig. 63; WOLLEBÆK, 1912: 81-82, pl. 20 figs. 1-4. *Ereutho smitti* — MCINTOSH, 1915*a*: 36-38.
**REFERENCES FOR PORTUGAL:** RAVARA, 1997 (off Aveiro).
**DISTRIBUTION:** Greenland; Svalbard; Iceland; Faeroes; Eastern North Atlantic, from Norway to the Mediterranean Sea; Aegean Sea; North Sea; Skagerrak; Kattegat; Øresund; North American Atlantic; Siberian and Alaskan Arctic; Bering Sea; Sea of Okhotsk. On mud, clay, fine and coarse sand, all types of mixed bottoms, and in the sediment between the rhizoids of benthic algae. Eulittoral to more than 1500 meters.

## ***Polycirrus norvegicus*** Wollebaek 1912

*Polycirrus norvegica* WOLLEBAEK, 1912: 83-85, pl. 21 figs. 5-7.
**TYPE LOCALITY:** Drøbak, Norway.
**SELECTED REFERENCES:** *Polycirrus norvegicus* — HESSLE, 1917: 221; HOLTHE, 1986*b*: 157, fig. 72, map 71; HARTMANN-SCHRÖDER, 1996: 527; KIRKEGAARD, 1996: 350-351, fig. 201. [?] *Polycirrus elisabethae* — MCINTOSH, 1915*a*: 35-36.
**DISTRIBUTION:** East Greenland; Jan Meyen; Norway; Swedish west coast; Skagerrak; Kattegat; North Sea; [?] British Isles. On coarse bottoms of pebbles, or stones with shells and hydroids, often with some mud, and on rocky surfaces. Between 10-270 meters.

## ***Polycirrus pallidus*** (Claparède 1864)

*Aphlebina pallida* CLAPARÈDE, 1864: 484-490, pl. 2 fig. 2.
**TYPE LOCALITY:** Port Vendres, Western Mediterranean Sea.
**SELECTED REFERENCES:** *Polycirrus pallidus* — LANGERHANS, 1884: 266, pl. 16 fig. 27; HESSLE, 1917: 226; FAUVEL, 1927*a*: 283, fig. 98*k-l*.
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; Black Sea; Madeira Island. In mud. At shallow water.
**REMARKS:** According to FAUVEL (1927*a*), this species would be a young form of *Polycirrus medusa* or *P. caliendrum*.

## ***Polycirrus plumosus*** (Wollebaek 1912)

*Ereutho plumosa* WOLLEBAEK, 1912: 82-83, pl. 21 figs. 1-4.
**TYPE LOCALITY:** Hjeltefjorden, near Bergen (Hordaland, Norway), in mud with sand, at 95 meters.
**SELECTED REFERENCES:** *Polycirrus plumosus* — HESSLE, 1917: 224-225; HOLTHE, 1986*b*: 157, fig. 73, map 72; HARTMANN-SCHRÖDER, 1996: 527; KIRKEGAARD, 1996: 351-352, fig. 202.
**DISTRIBUTION:** Faeroes; western Norway; eastern North Sea; Skagerrak; Swedish west coast; Irish Sea; Aegean Sea; South Africa. On mixed bottoms of mud with sand. Between 40-150 meters.

## ***Polycirrus tenuisetis*** Langerhans 1880

*Polycirrus tenuisetis* LANGERHANS, 1880*b*: 110, pl. 5 fig. 25.
**TYPE LOCALITY:** Madeira Island, from big depth ("*größerer Tiefe*").
**SELECTED REFERENCES:** *Polycirrus tenuisetis* — SAINT-JOSEPH, 1894: 240; HESSLE, 1917: 228; FAUVEL, 1927*a*: 283-284, fig. 98*m-n*; DAY, 1967: 715, fig. 36.2.*a-c*.
**DISTRIBUTION:** Madeira Island; English Channel; Adriatic Sea; Aegean Sea; South Africa. Eulittoral.

## GENUS ***Proclea*** Saint-Joseph 1894

*Proclea* SAINT-JOSEPH, 1894: 167, 180.
**TYPE SPECIES:** *Leaena graffi* Langerhans 1884.
**SYNONYMS:** *Solowetia* Ssolowiev 1899.

**KEY TO SPECIES:**
(from HOLTHE, 1986*b*):

**1a.** Ventral lobe of segment II moderately protruding, smooth.....***P. graffi***
**1b.** Ventral lobe of segment II clearly protruding, papillose.....***P. malmgreni***

### ***Proclea graffii*** (Langerhans 1884)

*Leaena Graffii* LANGERHANS, 1884: 262, pl. 15 fig. 21.
**TYPE LOCALITY:** Madeira Island.
**SELECTED REFERENCES:** *Proclea graffii* — HESSLE, 1917: 199-201, fig. 23; FAUVEL, 1927*a*: 268-269, fig. 94*a-g*; HOLTHE, 1986*b*: 132-134, fig. 59, map 58; HARTMANN-SCHRÖDER, 1996: 520-521; KIRKEGAARD, 1996: 352, fig. 203. *Proclea graffi* — MCINTOSH, 1922*b*: 185-187, pl. 126 fig. 10; HILBIG, 2000*b*: 282-283, fig. 9.22.
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (off Aveiro).
**DISTRIBUTION:** South coast of Norway; Swedish west coast; west coast of Ireland; Skagerrak; Portugal; Madeira Island; Adriatic Sea; Aegean Sea; Black Sea; from Southern British Columbia to California; [?] East Greenland; [?] Iceland; [?] Barents Sea; [?] Alaskan Arctic; [?] Bering Sea; [?] Sea of Okhotsk; [?] Sea of Japan; [?] Mauritius. On mixed bottoms of clay or sand with stones and shells, also on rocky surfaces with some sediment. Intertidal to 410 meters.

### ***Proclea malmgreni*** (Ssolowiew 1899)

*Solowetia Malmgreni* SSOLOWIEW, 1899: 195-197, pl. 11 fig. 6.
**TYPE LOCALITY:** White Sea, between 7.5 and 9.5 fathoms (13.7 and 17.4 meters).
**SELECTED REFERENCES:** *Solowetia Malmgreni* — WOLLEBÆK, 1912: 108. *Proclea malmgreni* — HOLTHE, 1986*b*: 134-136, fig. 60, map 59.
**DISTRIBUTION:** White Sea; Franz Josef's Land; Barents Sea; Tromso (northern Norway). In mixed bottoms. Between 13-200 meters.
**REMARKS:** HOLTHE (1986*b*) restored this species, first synonymised with *Proclea graffi* by SOUTHERN (1914), and followed by other authors. As noted by HOLTHE (1986*b*) the information concerning the distributions of both species is, for the moment, uncertain, as it is not known which form was dealt with in the different references.

## GENUS ***Streblosoma*** M. Sars *in* G.O. Sars 1872

*Streblosoma* M. SARS *in* G.O. SARS, 1872*a*: 413.
**TYPE SPECIES:** *Grymaea bairdi* Malmgren 1866.
**SYNONYMS:** *Grymaea* Malmgren 1866 [not Fresenius 1858 (Protozoa)]; *Eugrymaea* Verrill 1900; [?] *Pseudothelepus* Augener 1918 [according to HARTMAN (1959*a*)].
**REMARKS:** KRITZLER (1971) presented a partial key to the species of *Streblosoma*.

**KEY TO SPECIES:**
(adapted from HOLTHE, 1986*b*)

**1a.** Abdominal uncini in single rows.....**2**
**1b.** Abdominal uncini in U-shaped rows, eventually forming double rows.....***S. hesslei***

**2a (1a).** Each branchia on segment II with 3-5 filaments, segment III with 2-3 filaments, and segment IV with 0-3 filaments.....***S. intestinale***
**2b (1a).** Each branchia on segment II with at least seven filaments, segment III with at least four filaments, and segment IV with at least four filaments.....***S. bairdi***

## ***Streblosoma bairdi*** (Malmgren 1866)

*Grymæa bairdi* MALMGREN, 1866: 388-389, pl. 19 fig. 69.
**TYPE LOCALITY:** Bohuslän, Sweden.
**SYNONYMS:** *Streblosoma cochleatum* M. Sars *in* G.O. Sars 1872.
**SELECTED REFERENCES:** *Grymæa bairdi* — MCINTOSH, 1915*a*: 31-33. *Streblosoma bairdi* — HESSLE, 1917: 211; MCINTOSH, 1922*b*: 181-183, pl. 126 fig. 7; HOLTHE, 1986*b*: 142-143, fig. 64, map 63; HARTMANN-SCHRÖDER, 1996: 528; KIRKEGAARD, 1996: 355-357, fig. 205. *Streblosoma Bairdi* — FAUVEL, 1927*a*: 275, fig. 9*6f-n*. *Streblosoma cochleatum* — M. SARS *in* G.O. SARS, 1872*a*: 414; WOLLEBAEK, 1912: 88-89, pl. 20 figs. 8-9, pl. 39 fig. 2.
**REFERENCES FOR PORTUGAL:** AMOUREUX, 1974*b* (off Porto); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve; Sines).
**DISTRIBUTION:** Shetland; Eastern North Atlantic, from Norway to the Gulf of Guinea; English Channel; Skagerrak; Kattegat; Mediterranean Sea; Adriatic Sea; Aegean Sea; Bosphorus; Sea of Okhotsk; Aleutian Islands; North American Pacific; [?] Southern Chile; South Georgia. Mainly on mixed bottoms of mud or clay with sand. Between 15-650 meters.

## ***Streblosoma hesslei*** Day 1955

*Streblosoma hesslei* DAY, 1955: 439-440, fig. 6*g-l*.
**TYPE LOCALITY:** Robberg, Western Cape, South Africa, intertidal.
**SELECTED REFERENCES:** *Streblosoma hesslei* — DAY, 1967: 725, fig. 36.4.*k-o*; GIANGRANDE, GAMBI & FRESI, 1981: 314-316, figs. 7-9.
**DISTRIBUTION:** South Africa; Mediterranean Sea (Tyrrhenian and Adriatic Seas); [?] Madagascar. Intertidal or at shallow water.
**REMARKS:** This species has been recorded to be present in the Mediterranean Sea, specifically in Ischia, Gulf of Naples, in the Tyrrhenian Sea (GIANGRANDE, GAMBI & FRESI, 1981; CASTELLI *et al.*, 1995), and South Adriatic Sea (GIANGRANDE *et al.*, 2003).

## ***Streblosoma intestinale*** M. Sars *in* G.O. Sars 1872

*Streblosoma intestinale* M. SARS *in* G.O. SARS, 1872*a*: 414.
**TYPE LOCALITY:** Drøbak, Oslofjorden, Norway, between 25-60 fathoms (45.7-109.7 meters), and Lofoten Islands (Odvaer, Norway), at 50 fathoms (91.4 meters).
**SYNONYMS:** [?] *Grymæa brachiata* Ehlers 1874.
**SELECTED REFERENCES:** *Streblosoma intestinalis* — WOLLEBAEK, 1912: 87-88, pl. 22 figs. 1-6, pl. 39 fig. 3; HESSLE, 1917: 210-211. *Streblosoma intestinale* — HOLTHE, 1986*b*: 144, fig. 65, map 64; HARTMANN-SCHRÖDER, 1996: 528; KIRKEGAARD, 1996: 357-358, fig. 206. [?] *Grymæa brachiata* — EHLERS, 1874: 297-298.
**DISTRIBUTION:** Southeast Greenland; Faeroes; Norway; North Sea; Swedish west coast; Skagerrak; Kattegat. Mainly on mixed bottoms of mud with sand. Between 50-500 meters.

# GENUS ***Terebella*** Linnaeus 1767

*Terebella* LINNAEUS, 1767: 1092.
**TYPE SPECIES:** *Terebella lapidaria* Linnaeus 1767.
**SYNONYMS:** *Heterophyselia* Quatrefages 1866; *Heteroterebella* Quatrefages 1866; *Leprea* Malmgren 1866; *Schmardanella* McIntosh 1885.
**REMARKS:** The diagnosis of the genus was emended by HUTCHINGS & GLASBY (1988).

### KEY TO SPECIES:

**1a.** Nephridial papillae in segments III and VI-XII; notochaetae of two types: in the first 11-15 chaetigers, they are long, limbated, with a slightly sickle-shaped end, finely toothed along the inside of

the curve, in the following chaetigers the notochaetae are shorter, not limbated, endind in a toothed open cup, with one side longer, resembling the spatulate abdominal chaetae of the Serpulidae.....***T. lapidaria***

**1b.** Nephridial papillae only in segment III; the two types of dorsal chaetae described above occur together in each bundle of notochaetae.....***T. orotovae***

## ***Terebella lapidaria*** Linnaeus 1767

*Terebella lapidaria* LINNAEUS, 1767: 1092.

**TYPE LOCALITY:** Mediterranean Sea, inside crevices in rocks.

**SYNONYMS:** [?] *Terebella constrictor* Montagu 1818; *Amphitrite neapolitana* Delle Chiaje 1828; *Terebella misenensis* O.G. Costa 1841; [?] *Terebella textrix* Dalyell 1853; *Terebella corallina* Grube 1855; *Terebella pectinata* Grube 1855; *Terebella rosea* Grube 1860; *Terebella megalonema* Schmarda 1861; *Heterophyselia Bosci* Quatrefages 1866; *Heteroterebella sanguinea* Claparède 1869; *Terebella sulcigera* Claparède 1869; *Loimia montagui* McIntosh 1922.

**SELECTED REFERENCES:** *Terebella lapidaria* — MARENZELLER, 1884: 174; SAINT-JOSEPH, 1894: 202-205, pl. 8 figs. 225-229, pl. 9 figs. 230-231; HESSLE, 1917: 188; FAUVEL, 1927*a*: 254-255, fig. 87*f-l*; HOLTHE, 1986*b*: 93. *Leprea lapidaria* — LO BIANCO, 1893: 51-52. *Lepræa lapidaria* — MCINTOSH, 1915*a*: 23-25; MCINTOSH, 1922*b*: 165-169, text-fig. 148, pl. 113 fig. 3, pl. 126 fig. 8. [?] *Terebella constrictor* — MONTAGU, 1818: 343, pl. 13 fig. 1. *Amphitrite neapolitana* — DELLE CHIAJE, 1828: 169, 179-180. *Terebella misenensis* — O.G. COSTA, 1841: 271. [?] *Terebella textrix* — DALYELL, 1853: 206-208, pl. 28 figs. 15-18. *Terebella textrix* [not Dalyell 1853] — JOHNSTON, 1865: 239-240, 345. *Leprea textrix* [not *Terebella textrix* Dalyell 1853] — MALMGREN, 1866: 389; MALMGREN, 1867*a*: 111, pl. 12 fig. 69. *Terebella corallina* — GRUBE, 1855: 119-120, pl. 4 fig. 17. *Terebella pectinata* — GRUBE, 1855: 120, pl. 4 fig. 18. *Terebella rosea* — GRUBE, 1860: 100. *Terebella megalonema* — SCHMARDA, 1861: 45, text-figs. *a-c*. *Heterophyselia Bosci* — QUATREFAGES, 1866*b*: 386-387. *Heteroterebella sanguinea* — CLAPARÈDE, 1869: 128-131, pl. 29 fig. 3, pl. 30 fig. 1. *Terebella sulcigera* — CLAPARÈDE, 1869: 140, pl. 18 fig. 5. *Loimia montagui* — MCINTOSH, 1922*b*: 147-149, pl. 119 fig. 5, pl. 126 fig. 1*a*.

**REFERENCES FOR PORTUGAL:** CARVALHO, 1929 (Sines); AUGENER, 1934 (as *Leprea (Terebella) lapidaria*; Sines); HARTMANN-SCHRÖDER, 1979*a* (western continental shelf of Algarve); HARTMANN-SCHRÖDER, 1981 (Bay of Setúbal); DEXTER, 1992 (previous records: Ria Formosa); SPRUNG, 1994 (Ria Formosa).

**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; Atlantic coast of France; British Isles. Mainly in muddy bottoms. At shallow water.

**REMARKS:** FAUVEL (1927*a*) remarks the fact that both *Terebella textrix* sensu JOHNSTON (1865) and *Leprea textrix* sensu MALMGREN (1866, 1867*a*) are synonymous with *Terebella lapidaria*, but that *Terebella textrix* Dalyell 1853 represents a different species, as it produces a cobweb with which it covers itself, makes a cocoon (something never done by *T. lapidaria*), and has only 2 pairs of branchiae.

## ***Terebella orotavae*** (Langerhans 1881)

*Amphitrite Orotavae* LANGERHANS, 1881: 116-117, pl. 4 fig. 22.

**TYPE LOCALITY:** Puerto de la Orotava, northern part of Tenerife (Canary Islands), in pools at the littoral rocks.

**SELECTED REFERENCES:** *Amphitrite oratavæ* — HESSLE, 1917: 191.

**DISTRIBUTION:** Canary Islands.

**REMARKS:** HESSLE (1917) states that the species belongs probably to the genus *Terebella*.

LANGERHANS (1881) described the species as having three pairs of branchiae, in segments II, III, and IV, one single nephridial papilla at segment II, notochaetae starting at segment III, and ventral hooks at segment IV. I believe there is an error of interpretation in what concerns the location of the nephridial papilla, as well as the starting chaetiger of the noto- and neuropodial chaetae, and that in fact the nephridial papilla is located in segment III, the notochaetae starts at chaetiger IV, and the neurochaetae at chaetiger V.

## *GENUS ***Thelepus*** Leuckart 1849

*Thelepus* LEUCKART, 1849: 169-171.

**TYPE SPECIES:** *Amphitrite cincinnata* Fabricius 1780.

**SYNONYMS:** *Lumara* Stimpson 1854; *Venusia* Johnston 1865; *Neottis* Malmgren 1866; *Heterophenacia* Quatrefages 1866; *Phenacia* Quatrefages 1866; *Thelephusa* Verrill 1871; *Thelepodopsis* M. Sars *in* G.O. Sars 1872; *Protothelepus* Verrill 1900; *Terebellanice* Hartmann-Schröder 1962.

**KEY TO SPECIES:**
(adapted from HOLTHE, 1986*b*):

**1a.** Branchiae on two segments.....***T. cincinnatus****
**1b.** Branchiae on three segments.....**2**

**2a (1b).** Ventral shields poorly marked; notch between the subrostral appendix and lower subrostrum of the uncini poorly marked.....***T. setosus****
**2b (1b).** Ventral shields well marked; notch between the subrostral appendix and lower subrostrum of the uncini well marked.....***T. triserialis***

## **Thelepus cincinnatus* (O. Fabricius 1780)

*Amphitrite cincinnata* O. FABRICIUS, 1780: 286-287.
**TYPE LOCALITY:** West Greenland, probably vicinity of Fedrikshåb, on muddy bottoms, near the littoral.
**SYNONYMS:** *Terebella lutea* Risso 1826; *Terebella madida* Leuckart 1847; *Thelepus Bergmanni* Leuckart 1849; *Lumara flava* Stimpson 1853; *Terebella pustulosa* Grube 1860; *Venusia punctata* Johnston 1865; *Phenacia pulchella* Parfitt 1866; *Phenacia terebelloïdes* Quatrefages 1866; *Heterophenacia nucleolata* Claparède 1869; *Phenacia ambigrada* Claparède 1869; *Phenacia retrograda* Claparède 1869; *Thelepodopsis flava* M. Sars *in* G.O. Sars 1872; *Heterophenacia Renouardi* Marion 1883; [?] *Thelepus cincinnatus* var. *profundus* Roule 1896; *Thelepus crassibranchiatus* Treadwell 1901.
**SELECTED REFERENCES:** *Thelepus circinnata* — MALMGREN, 1866: 387-388, pl. 22 fig. 58. *Thelepus circinnatus* — WOLLEBÆK, 1912: 89-91, text-fig. 10, pl. 24 figs. 1-3, pl. 25 figs. 1-7, pl. 39 fig. 1. *Thelepus cincinnatus* — SAINT-JOSEPH, 1898: 427-429, pl. 23 fig. 240; MCINTOSH, 1915*a*: 26-29; HESSLE, 1917: 212-214; MCINTOSH, 1922*b*: 170-177, pl. 120 fig. 1, pl. 126 fig. 6; FAUVEL, 1927*a*: 271-272, fig. 95*i-m*; HOLTHE, 1986*b*: 140-142, fig. 63, map 62; HARTMANN-SCHRÖDER, 1996: 528-530, fig. 258; KIRKEGAARD, 1996: 358-360, fig. 207. *Terebella lutea* — RISSO, 1826: 409. *Terebella madida* — LEUCKART, 1847: 154. *Thelepus Bergmanni* — LEUCKART, 1849: 169-171, pl. 3 fig. 4. *Lumara flava* — STIMPSON, 1853: 31. *Terebella pustulosa* — GRUBE, 1860: 100-102, pl. 4 fig. 7. *Venusia punctata* — JOHNSTON, 1865: 241-242, 345. *Phenacia pulchella* — PARFITT, 1866*a*: 1-2, pl. 1. *Phenacia terebelloïdes* — QUATREFAGES, 1866*b*: 375-376. *Heterophenacia nucleolata* — CLAPARÈDE, 1869: 141-142, pl. 18 fig. 8. *Phenacia ambigrada* — CLAPARÈDE, 1869: 142-143, pl. 18 fig. 6. *Phenacia retrograda* — CLAPARÈDE, 1869: 143-144, pl. 18 fig. 7. *Thelepodopsis flava* — M. SARS *in* G.O. SARS, 1872*a*: 415. *Heterophenacia Renouardi* — MARION, 1883*a*: 106. [?] *Thelepus cincinnatus* var. *profundus* — ROULE, 1896: 459. *Thelepus crassibranchiatus* — TREADWELL, 1901: 206, figs. 69-71.
**REFERENCES FOR PORTUGAL:** FAUVEL, 1909 (off Faro; off Lagos); FAUVEL, 1914*f* (off Faro; off Lagos); RIOJA, 1917*c* (as *Thelepus cincinatus*; previous records: Portuguese coast); AMOUREUX, 1974*b* (off Aveiro; off Porto); HARTMANN-SCHRÖDER, 1977*a* (off Cape Sardão); AMOUREUX & CALVÁRIO, 1981 (as *Thelepus cincinatus*; Peniche); MACHADO & CANCELA DA FONSECA, 2007 (Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 6 — St. 90 (A.2574)**, off Carrapateira, 284 m, sand: 1 specimen, broken in 3 pieces; anterior fragment with branchiae as described, with about 13 chaetigers; nephridial papillae not seen, upper lip very conspicuous; middle fragment with 13 chaetigers, at least 2 with notochaetae; posterior fragment with about 19 chaetigers. **FAUNA 1 — St. 24*A***, Alborán Sea, off Marbella, 74-78 m, sand: 1 incomplete specimen with 21 chaetigers; tentacles numerous, very long, thick; upper lip thick and broad; two series of branchial groups, on segments II and III, each one with a number of free filaments arranged in transverse rows on dorsum; no lateral lobes; ventral shields on all the present segments; uncinigerous tori from segment V, never in two parallel rows; nephridial papillae not observed; notochaetae from segment III, present on all the other chaetigers; all the notochaetae smooth, of two types: long straight ones with narrow brims, and short ones distally curved, with asymmetrical brims; uncini avicular. **St. 37*A***, Alborán Sea, off Punta de la Chullera, 95-100 m, coarse gravel: 6 specimens; one specimen in poor condition, broken in two pieces, anterior fragment with 20 chaetigers, middle fragment with 27, 6 of which with notochaetae; another specimen with about 65 chaetigers and about 90 mm long, notochaetae on about 38 chaetigers, uncini as described; a third specimen very long, with about 53 chaetigers and 55 mm long, 33 chaetigers with notochaetae, pygidium with crenulate edge, with tube. **St. 63*A***, Gibraltar Strait, off Atlanterra, 97-118 m, detritic: 2 incomplete specimens in poor condition.

**DISTRIBUTION:** Greenland; Svalbard; Barents Sea; Jan Mayen; Iceland; Eastern North Atlantic, from Norway to Cape Verde; North Sea; Mediterranean Sea; Adriatic Sea; Aegean Sea; American Atlantic; Caribbean Sea; Canadian, Alaskan and Siberian Arctic; White Sea; Bering Sea; Sea of Okhotsk; Japan; North American Pacific; Antarctic. On most kinds of marine substrata, from mud through sand to solid rocks, but especially abundant on coarse sand with shells. Eulittoral to about 4000 meters.

### ****Thelepus setosus*** (Quatrefages 1866)

*Phenacia setosa* QUATREFAGES, 1866*b*: 376-377.
**TYPE LOCALITY:** St.-Vaast, Northern France.
**SYNONYMS:** *Thelepus thoracica* Ehrenberg & Grube *in* Grube 1870; *Neottis spectabilis* Verrill 1875; *Thelepus M^c Intoshi* Grube 1878; *Neottis antarctica* McIntosh 1885.
**SELECTED REFERENCES:** *Thelepus setosus* — SAINT-JOSEPH, 1894: 230-234, pl. 10 figs. 259-262; FAUVEL, 1916*b*: 466-471, figs. 3-6; RIOJA, 1917*c*: 57-59, fig. 18; FAUVEL, 1927*a*: 273, fig. 95*a-h*; HOLTHE, 1986*b*: 140; HILBIG, 2000*b*: 246-248, fig. 9.5. *Thelepus thoracica* — EHRENBERG & GRUBE *in* GRUBE 1870*e*: 508-509. *Neottis spectabilis* — VERRILL, 1875*b*: 66. *Thelepus M^c Intoshi* — GRUBE, 1878*d*: 544-546. *Neottis antarctica* — MCINTOSH, 1885*a*: 472-473, pl. 52 fig. 1. *Thelepus plagiostoma* [not Schmarda 1861] — HESSLE, 1917: 214-215.
**REFERENCES FOR PORTUGAL:** BELLAN, 1960*a* (Cape Espichel); AMOUREUX & CALVÁRIO, 1981 (Peniche); MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 7 (2nd part) — St. 220 (A.3895)**, off NW Porto Covo, 28 m, rock: 1 incomplete specimen, with only 8 anterior chaetigers; tentacles numerous and thick; 3 series of branchiae (branchial groups) on segments II, III and IV, each consisting of a number of free filaments in transverse rows across the dorsum; first group with 6 filaments, second with 4, and third with 1; no lateral lobes; ventral thoracic shields poorly marked, being seen as glandular fields; notochaetae from segment III, smooth; uncinigerous tori from segment V, never in two parallel rows; uncini from thorax like the ones described in FAUVEL (1927*a*); nephridial papillae not seen; uncini with 3 large teeth with 2 smaller between them, and all above the rostrum; uncini with a prow smaller than the button above it, and a slight notch between the two; with methyl blue staining the ventral shields get heavily coloured.
**DISTRIBUTION:** European Atlantic Ocean; English Channel; Clyde Sea, west coast of Scotland; Adriatic Sea; Aegean Sea; Red Sea; Indian Ocean; Australia; California; Chile; Falkland Islands; Antarctic. Under stones, among serpulids, on shelly bottoms, and sometimes in the mud associated to seagrasses meadows. At shallow water.

### ***Thelepus triserialis*** (Grube 1855)

*Terebella triserialis* GRUBE, 1855: 118, pl. 4 fig. 16.
**TYPE LOCALITY:** Mediterranean Sea: Sicily; Villefranche-sur-Mer (Villa Franca), France; Mali Lošinj (= Lussin Piccolo), in the Losinj (= Lussin) Island, Croatia.
**SELECTED REFERENCES:** *Thelepus triserialis* — MARENZELLER, 1884: 208, pl. 2 fig. 3; MCINTOSH, 1915*a*: 29-31; HESSLE, 1917: 217; MCINTOSH, 1922*b*: 177-180, pl. 125*A* fig. 7; FAUVEL, 1927*a*: 274, fig. 95*n-r*; DAY, 1967: 730, fig. 36.5.*p*.
**DISTRIBUTION:** Mediterranean Sea; Adriatic Sea; Aegean Sea; South Africa. Among *Posidonia* and *Zostera*. In shallow water.

## INDETERMINABLE GENUS AND SPECIES:

### GENUS ***Ehlersiella*** McIntosh 1885

*Ehlersiella* MCINTOSH, 1885*a*: 475-476.
**TYPE SPECIES:** *Ehlersiella atlantica* McIntosh 1885.
**REMARKS:** This genus was considered to be questionable by HARTMAN (1959*a*).

### ***Ehlersiella hirsuta*** Roule 1896

*Ehlersiella hirsuta* ROULE, 1896: 460-461, pl. 22 fig. 12, pl. 25 figs. 30-31.
**TYPE LOCALITY:** Gulf of Gascony, 45º57'N, 6º21'W, at 1410 meters, in mud and corals.
**DISTRIBUTION:** Known from the type locality.

**REMARKS:** This species was considered to be indeterminable by HARTMAN (1959*a*).

# *FAMILY **TRICHOBRANCHIDAE** Malmgren 1866

**AS:** *TRICHOBRANCHIDEA* MALMGREN, 1866: 395.
**TYPE GENUS:** *Trichobranchus* Malmgren 1866.
**SYNONYMS:** *CANEPHORIDEA* Malmgren 1866.
**REMARKS:** The family Trichobranchidae includes nowadays 4 genera, with about 65 species and 2 subspecies (HOLTHE, 1986*a*; GARRAFFONI, LANA & HUTCHINGS, 2005; PARAPAR & MOREIRA, 2008). In spite of not being a big family, the recent publications on the group are quite numerous, suggesting that there is still a great number of species to describe.

The group has been treated recently both as a family or as a subfamily of the Terebellidae [see GARRAFFONI & LANA (2004) for details and references], but the recent results obtained by GLASBY, HUTCHINGS & HALL (2004), after a phylogenetic analysis of the clade Terebelliformia, do not support the Trichobranchidae as a subfamily of the Terebellidae. These results will be followed here, and Trichobranchidae will be treated as a family.

A worldwide list of all the described Trichobranchidae taxa was provided by HOLTHE (1986*a*), and updated by GARRAFFONI, LANA & HUTCHINGS (2005, as Trichobranchinae). A cladistic analysis of the Trichobranchidae (as Trichobranchinae) was performed by GARRAFFONI & LANA (2004).

WILLIAMS (1984) revised the supposed cosmopolitan status of *Terebellides stroemii*, creating several new species with base on populations formerly identified as *T. stroemii* and launching new bases in order to separate species in the genus. Her work was followed and developed by other authors, who established new species or redescribed old ones (*e.g.*: IMAJIMA & WILLIAMS, 1985; SOLÍS-WEISS, FAUCHALD & BLANKENSTEYN, 1991; BREMEC & ELIAS, 1999; HUTCHINGS & PEART, 2000; GARRAFFONI & LANA, 2003; PARAPAR & MOREIRA, 2008*a*, 2008*b*). A table of distinguishing characters between the known species of *Terebellides* was provided by HUTCHINGS & PEART (2000), and a dichotomic key by GARRAFFONI & LANA (2003).

Species of *Octobranchus* have been recently described by KINGSTON & MACKIE (1980), HARTMANN-SCHRÖDER & ROSENFELDT (1989), and HUTCHINGS & PEART (2000). Both KINGSTON & MACKIE (1980) and HUTCHINGS & PEART (2000) include tables with the distinguishing characters of the described species. A cladistic analysis of the genus was performed by GARRAFFONI & LANA (2000).

A table with the distinguishing characters for the genus *Trichobranchus*, together with the description of new species, is given in HUTCHINGS & PEART (2000), while the systematic position of the genus *Artacamella* is discussed in HOLTHE (1977*b*) and in HUTCHINGS (1977), who moved the genus from the Terebellidae to the Trichobranchidae. New species of *Artacamella* are described in HUTCHINGS & PEART (2000), who also present a table for the distinguishing characters of the species in the genus. After performing a cladistic analysis of the family Trichobranchidae, GARRAFFONI & LANA (2004) synonymised *Artacamella* with *Trichobranchus*.

Other described genera have been recently synonymised with older ones. This way, HOLTHE (1986*a*, 1986*b*) synonymised *Ampharetides* Ehlers 1913 with *Terebellides* Sars 1835, and *Filibranchus* Malm 1874 with *Trichobranchus* Malmgren 1866, being this latter result confirmed by GARRAFFONI & LANA (2002). Finally, *Novobranchus* Berkeley & Berkeley 1954 was synonymised with *Octobranchus* Marion & Bobretzky 1875 by KINGSTON & MACKIE (1980).

The work by HOLTHE (1986*b*) is particularly useful for the study of the European Fauna of Trichobranchidae, as it includes keys and descriptions for all the known taxa from Northern Europe.

In Europe, 3 genera and 7 species are known to occur. Only one species was present among the studied material.

**KEY TO GENERA:**
(from HOLTHE, 1986*b*)

**1a.** One great quadripartite branchia with transverse lamellae.....***Terebellides****
**1b.** Branchiae arranged in pairs.....**2**

**2a (1b).** Two or three pairs of filiform branchiae.....***Trichobranchus***
**2b (1b).** Four pairs of filiform, foliaceous or rosettelike branchiae.....***Octobranchus***

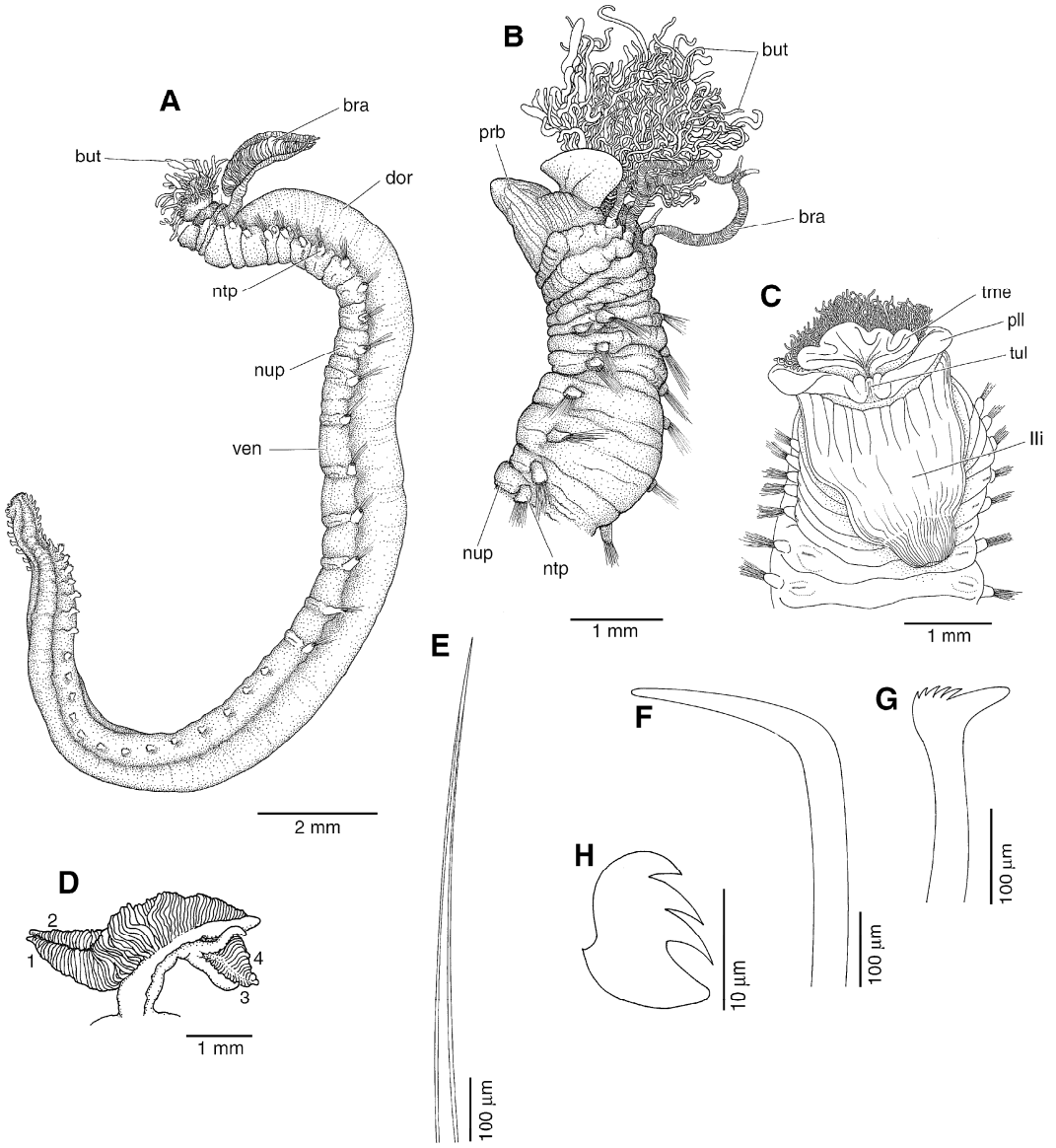


**Figure legend:** Family Trichobranchidae. **A**, *Terebellides* specimen, dorso-lateral view of entire animal. **B**, **C**, anterior end of *Artacamella* specimen: **B**, lateral view; **C**, antero-ventral view. **D**, four lobed branchia of *Terebellides* specimen, lobes numbered. **E**, *Terebellides* specimen, thoracic capillary notochaeta. **F**-**H**, neurochaetae of *Terebellides* specimen: **F**, spine from parapodia of chaetiger 1; **G**, anterior, acicular thoracic hook; **H**, anterior abdominal uncinus. **bra**, branchia; **but**, buccal tentacles; **dor**, dorsum; **lli**, lower lip/proboscis; **ntp**, notopodium; **nup**, neuropodium; **pll**, peristomial lateral lobe; **prb**, proboscis; **tme**, tentacular membrane; **tul**, trilobed upper tip; **ven**, ventral surface. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by A. Murray).

## GENUS ***Octobranchus*** Marion & Bobretzky 1875

*Octobranchus* MARION & BOBRETZKY, 1875: 87.

**TYPE SPECIES:** *Terebella lingulata* Grube 1863.

**SYNONYMS:** *Novobranchus* Berkeley & Berkeley 1954.

**KEY TO SPECIES:**
(data from KINGSTON & MACKIE, 1980)

**1a.** Tentacles of two types: long grooved spatulate, followed by an array of smaller grooved clubshaped tentacles; branchiae with the first pair cirriform, second pair with foliaceous ridged base and short filiform tip, third and fourth pairs with cuneate ridged base and short filiform tips; up to 64 abdominal segments; three rows of secondary teeth on abdominal avicular teeth.....***O. floriceps***
**1b.** Tentacles of one type: long grooved spatulate; all four pairs of branchiae basally thickened terminating in a long filiform process; 23-25 abdominal segments; two rows of secondary teeth on abdominal avicular uncini.....***O. lingulatus***

## ***Octobranchus floriceps*** Kingston & Mackie 1980

*Octobranchus floriceps* KINGSTON & MACKIE, 1980: 249-254, figs. 1-3, table 1.
**TYPE LOCALITY:** Northern North Sea, at 61º4'30"N, 1º27'E (Hutton Oilfield), fine to very fine sand, 145 meters.
**SELECTED REFERENCES:** *Octobranchus floriceps* — HOLTHE, 1986*b*: 168-169, fig. 79, map 78; HARTMANN-SCHRÖDER, 1996: 530; HUTCHINGS & PEART, 2000: table 2.
**DISTRIBUTION:** Northern North Sea; Norwegian Trough; Norwegian west coast. On very fine sand or silt. Between 145-370 meters.

## ***Octobranchus lingulatus*** (Grube 1863)

*Terebella lingulata* GRUBE, 1863: 56-57, pl. 6 fig. 1.
**TYPE LOCALITY:** Lussin Piccolo (= Mali Lošinj), Croatia, Adriatic Sea.
**SYNONYMS:** *Octobranchus Giardi* Marion & Bobretzky 1875.
**SELECTED REFERENCES:** *Octobranchus lingulatus* — FAUVEL, 1927*a*: 290, fig. 101*a-g*; SARDÁ, 1984*a*: 129, fig. 3; HUTCHINGS & PEART, 2000: table 2. *Octobranchus Giardi* — MARION & BOBRETZKY, 1875: 87-90, pl. 10 fig. 21, pl. 11 fig. 21; LANGERHANS, 1884: 261-262, pl. 15 fig. 20.
**DISTRIBUTION:** Adriatic Sea; Mediterranean Sea; Madeira Island. On corals. Shallow depths to 35 meters.

## *GENUS ***Terebellides*** Sars 1835

*Terebellides* SARS, 1835: 48.
**TYPE SPECIES:** *Terebellides Stroemii* Sars 1835.
**SYNONYMS:** *Corephorus* Grube 1846; *Aponobranchus* Gravier 1905; *Ampharetides* Ehlers 1913.
**REMARKS:** *Terebellides stroemii* was considered to be a good example of a cosmopolitan species of Polychaeta, until WILLIAMS (1984) revised the group. In her study, specimens from several geographic areas were compared with material from the type locality, and several characters were used to distinguish discrete variants. The most useful and consistent of these characters were: 1) degree of development of the first notochaetae; 2) number of abdominal chaetigers; 3) number of thoracic uncini per chaetiger; 4) structure of the lappets, especially presence or absence at the level of notopodia; 5) structure of the branchiae, as the anterior extension, or fusion of the lobes. Besides, methyl green stainning in order to detect patterns of body glandular areas involved in mucus secretion was also used.

As a result of that study, WILLIAMS (1984) determined that *T. stroemii* was not a cosmopolitan species and instead, several morphologically different species existed. These results were further explored in posterior studies, especially by HUTCHINGS & PEART (2000) and GARRAFFONI & LANA (2003). Besides, WILLIAMS' (1984) study established the basis for posterior works on supposed cosmopolitan species or complexes of species.

**KEY TO SPECIES:**
(adapted from HUTCHINGS & PEART, 2000)

**1a.** Ventral surface of the anterior chaetigers similar to the rest of the body, with methyl green staining (not known for *T. lobatus*).....**2**
**1b.** Ventral surface of chaetigers 1-4 distinctly lighter than the rest, with methyl green staining.....***T. williamsae***

**2a (1a).** Branchial lobes not fused; lappets on chaetigers 3 and 4 well developed; 6-8 thoracic uncini per torus.....***T. lobatus***
**2b (1a).** Branchial lobes moderately fused, for up to half of their length; lappets on chaetigers 3 and 4 not developed; 10-20 thoracic uncini per torus.....***T. stroemii****

## ***Terebellides lobatus*** Hartman & Fauchald 1971

*Terebellides lobatus* HARTMAN & FAUCHALD, 1971: 175-177, pl. 30.
**TYPE LOCALITY:** Northwest Bermuda, 34º39'N, 66º26'W, at 5007 meters.
**SELECTED REFERENCES:** *Terebellides lobatus* — KIRKEGAARD, 1980*b*: 94-95.
**DISTRIBUTION:** Northwest Atlantic, between New England and Bermuda, 1330-5007 meters; Northeast Atlantic, southwest British Isles, off Bretagne, 4250-4265 meters; [?] Atlantic equatorial region, 520-550 meters.

## ****Terebellides stroemii*** M. Sars 1835

*Terebellides Stroemii* M. SARS, 1835: 48-50, pl. 13 fig. 31.
**TYPE LOCALITY:** Hordaland, western Norway, according to HOLTHE (1986*b*). According to PETERSEN (personal communication *in* HUTCHINGS & PEART, 2000), the type locality is Glasvaer, SW of Bergen (Norway).
**SYNONYMS:** *Corephorus elegans* Grube 1846; *Terebella pecten* Dallyell 1853; *Terebellides gracilis* Malm 1874; *Terebellides carnea* Bobretzky 1881; *Aponobranchus perrieri* Gravier 1905.
**SELECTED REFERENCES:** *Terebellides Strœmi* — MALMGREN, 1866: 396-397, pl. 19 fig. 48; HESSLE, 1917: 137-138; MCINTOSH, 1922*b*: 209-215, pl. 120 fig. 3, pl. 127 fig. 5 FAUVEL, 1927*a*: 291-292, fig. 100*i-q*. *Terebellides Stroemi* — GOURRET, 1901: 376-377, pl. 8 fig. 2; MARQUES, 1947: 55, fig. B*1-3*. *Terebellides Strömi* — WOLLEBÆK, 1912: 78-79, fig. fig. 9, pl. 18 figs. 1-9. *Terebellides stroemi* — MCINTOSH, 1915*a*: 41-43; WILLIAMS, 1984: 119-121, figs. 1, 2*A*, 3; HOLTHE, 1986*b*: 170-172, fig. 80, map 79; HARTMANN-SCHRÖDER, 1996: 531-532, fig. 259; KIRKEGAARD, 1996: 360-362, fig. 208; HUTCHINGS & PEART, 2000: 254-258, figs. 13*f*, 16, table 3. *Terebellides stroemii* — JOUIN-TOULMOND & HOURDEZ, 2006: 290-295, figs. 1-4, 5*B*, table 1.
**REFERENCES FOR PORTUGAL:** MCINTOSH, 1915*a* (as *Terebellides stroemi*; off Cape Sagres); MARQUES, 1947 (as *Terebellides Stroemi*; Cova-do-Vapor; Caxias); AMOUREUX, 1974*b* (off Aveiro; off Porto); HARTMANN-SCHRÖDER, 1977*a* (as *Terebellides stroemi*; Bay of Setúbal); MONTEIRO-MARQUES, 1979 (as *Terebellides stroemi*; southern continental shelf of Algarve); AMOUREUX, 1987 (as *Terebellides stroemi*; off Aveiro; off Porto); MONTEIRO-MARQUES, 1987 (as *Terebellides stroemi*; continental shelf of Algarve); DEXTER, 1992 (as *Terebellides stroemi*; previous records: continental shelf of Algarve); RAVARA, 1997 (as *Terebellides stroemi*; off Aveiro); present work (southwestern continental shelf).
**MATERIAL: SEPLAT 6 — St. 192 (A.2664)**, off Arrifana, 110 m, sand: 1 incomplete specimen with about 60 chaetigers, 18 thoracic; upper lip folded; a single, short branchial stem arising middorsally on segment III and bearing 4 branches with large transverse lamellae, upper two branches distinctly larger than the lower ones; notochaetae from segment III; uncinigerous tori from segment VIII; nephridial papillae on segments III, VI and VII; uncini of segment VIII acicular, distally bent, widely projecting from the neuropodium; uncini of the rest of the thorax avicular, with long shafts; abdominal uncini with reduced rostrum, approaching pectinate form. **SEPLAT 7 (2nd part) — St. 214 (A.3898)**, off Sines, 115 m, muddy sand: 1 complete specimen, with about 46 chaetigers; upper-lip folded; segments I and II forming a front at an angle to thorax; anteroventral edge of segment I firm, prominent; all chaetae as normally described; methyl blue leaves a series of ventral transversal bands in the anterior region of the thorax.
**DISTRIBUTION:** This species has been recorded from Greenland, Svalbard, Jan Mayen, Iceland, Faeroes, Barents Sea, White Sea, Shetland, Eastern North Atlantic, from Norway to Canary Islands, Baltic Sea, Mediterranean Sea, Adriatic Sea, Aegean Sea, Black Sea, Red Sea, Persian Gulf, Indian Ocean, North American Atlantic, Gulf of Mexico, South Atlantic, Canadian, Alaskan and Siberian Arctic, Bering Sea, Sea of Okhotsk, Japan, North American Pacific, Australia, Subantarctic Islands, and Antarctic Islands, on sediments ranging from pure mud to clay or fine sand, including all forms of mixed bottoms, being most abundant on muddy bottoms, and from eulittoral to about 3000 meters. However, according to WILLIAMS (1984) the species *T. stroemii sensu stricto* is confined to the North Atlantic (Norway, Denmark, Eastern Canada) and probably Mediterranean Sea. All the other records require confirmation or belong to other species of the genus.

**REMARKS:** The distribution of this species includes several misindentifications with described or undescribed species. According to HOLTHE (1986*b*), Norwegian specimens seemed to include only one species, but later JIRKOV (1989) described *T. williamsae* from the Barents Sea, a species that is also present in the northern European waters (Norwegian Sea and Iceland). JOUIN-TOULMOND & HOURDEZ (2006: table 1) registered some morphological differences between specimens collected at Banyuls-sur-Mer (Western Maditerranean Sea) and Roscoff (English Channel). It is possible that the populations of *Terebellides* present in South Europe do not belong to *T. stroemi*, and that at least one of the other European species synonymized with *T. stroemi*, like *Corephorus elegans* Grube 1846 (from the Mediterranean Sea), *Terebella pecten* Dallyell 1853 (from Great Britain), or *Terebellides carnea* Bobretzky 1881 (from the Black Sea) are valid.

### ***Terebellides williamsae*** Jirkov 1989

*Terebellides williamsae* JIRKOV, 1989: 124, fig. 23.7.
**TYPE LOCALITY:** Barents Sea, 74º30'N, 28º00'E, at 385-390m.
**SELECTED REFERENCES:** *Terebellides williamsae* — JIRKOV, LEONTOVICH & SAPHRONOVA, 2001: 529, 1 fig.
**DISTRIBUTION:** Iceland; Norwegian Sea; Barents Sea; Chukchi Sea. Between 92-450 meters.

## GENUS ***Trichobranchus*** Malmgren 1866

*Trichobranchus* MALMGREN, 1866: 395.
**TYPE SPECIES:** *Trichobranchus glacialis* Malmgren 1866.
**SYNONYMS:** *Filibranchus* Malm 1874.

**KEY TO SPECIES:**
(from HOLTHE, 1986*b*)

**1a.** Two pairs of branchiae, no eyespots.....***T. roseus***
**1b.** Three pairs of branchiae, numerous eyespots.....***T. glacialis***

### ***Trichobranchus glacialis*** Malmgren 1866

*Trichobranchus glacialis* MALMGREN, 1866: 395-396, pl. 24 fig. 65 [in part].
**TYPE LOCALITY:** Spitsbergen, at 25-30 fathoms (about 42-50 meters), on muddy bottoms.
**SYNONYMS:** *Trichobranchus massiliensis* Marion 1876.
**SELECTED REFERENCES:** *Trichobranchus glacialis* — SAINT-JOSEPH, 1894: 244-245, pl. 10 figs. 275-278; WOLLEBÆK, 1912: 79-80, pl. 19 figs. 1-8; MCINTOSH, 1915*a*: 39-41; HESSLE, 1917: 131-132; MCINTOSH, 1922*b*: 205-209, pl. 115 fig. 5, pl. 127 fig. 4; FAUVEL, 1927*a*: 288-289, fig. 100*a-h*; HOLTHE, 1986*b*: 164-165, fig. 77, map 76; HARTMANN-SCHRÖDER, 1996: 532-533, fig. 260; KIRKEGAARD, 1996: 362-364, fig. 209; HUTCHINGS & PEART, 2000: table 4. *Trichobranchus massiliensis* — MARION, 1876: 309; GOURRET, 1901: 375-376, pl. 8 fig. 1.
**REFERENCES FOR PORTUGAL:** MONTEIRO-MARQUES, 1987 (continental shelf of Algarve); DEXTER, 1992 (previous records: continental shelf of Algarve).
**DISTRIBUTION:** Greenland; Svalbard; Iceland; Faeroes; Shetland; eastern North Atlantic, from Norway to Liberia; Mediterranean Sea; Adriatic Sea; Aegean Sea; western North Atlantic; Novaya Zemlya; Kara Sea; Alaskan Arctic; Bering Sea; North Pacific; East and South Africa; southern South America; Subantarctic Islands; Antarctic waters. On mud, sand and mixed bottoms. Uppermost sublittoral to depths exceeding 2500 meters.

### ***Trichobranchus roseus*** (Malm 1874)

*Filibranchus roseus* MALM, 1874: 99-100, pl. 1 fig. 9.
**TYPE LOCALITY:** Bohuslän, Swedish west coast.
**SELECTED REFERENCES:** *Trichobranchus roseus* — WOLLEBÆK, 1912: 81; HESSLE, 1917: 132-133; HOLTHE, 1986*b*: 166-168, fig. 78, map 77; HARTMANN-SCHRÖDER, 1996: 533; KIRKEGAARD, 1996: 364-365, fig. 210; HUTCHINGS & PEART, 2000: table 4. *Trichobranchus glacialis* — MALMGREN, 1866: 395-396 [in part]. *Trichobranchus glacialis* [not Malmgren 1866] — WOLLEBÆK, 1912: 79-80, pl. 19 figs. 1-8.

**DISTRIBUTION:** Barents Sea; Faeroes; North Sea; Norway; Skagerrak; Kattegat; Øresund; Western Scotland. On mud, more or less mixed with sand, pebbles or shells. Between 10-500 meters.
**REMARKS:** As noted by HOLTHE (1986*b*), ELIASON (1962*a*), by examining the type specimens of this species, found out that it only had 15 thoracic chaetigerous segments, like *T. glacialis*, and not 17, as stated by MALM (1874) in the original description. Due to this error, this species has being rarely recorded, and some of the records of *T. glacialis* refer probably to *T. roseus*.

# FAMILY **TROCHOCHAETIDAE** Pettibone 1963

**AS:** *TROCHOCHAETIDAE* PETTIBONE, 1963*a*: 308-309.
**TYPE GENUS:** *Trochochaeta* Levinsen 1884.
**SYNONYMS:** *DISOMIDAE* Mesnil 1897 [in part]; *DISOMIDIDAE* Chamberlin 1919 [in part].
**REMARKS:** The first species of the family to be described was named *Disoma multisetosum,* by ØRSTED (1843*a*). Since the generic name, *Disoma* Ørsted 1843, was preoccupied in Protozoa (see below), CHAMBERLIN (1919*a*) renamed the genus as *Disomides* Chamberlin 1919, and the family name was altered accordingly to Disomididae Chamberlin 1919. However, *Trochochaeta* Levinsen 1884 had priority over *Disomides* Chamberlin 1919, so PETTIBONE (1963*a*) designated *Trochochaeta* as the type genus, and the family name was consequently formed as Trochochaetidae.

Before the establishment of the family Trochochaetidae, the placement of species belonging to this family wasn't clear, being assigned to the families of Spionidae, Amphinomidae, Scalibregmidae and Disomidae, or considered as *incertae sedis* (see PETTIBONE, 1976*b*).

The family, as defined by MESNIL (1897*a*) and CHAMBERLIN (1919*a*), included also the genus *Poecilochaetus* Claparède *in* Ehlers 1875, with which trochochaetids are closely related. HANNERZ (1956), placed *Poecilochaetus* in a separate family, the Poecilochaetidae, on which was followed by PETTIBONE (1963*a*) and most of the posterior authors, while HARTMAN (1959*a*) and DAY (1967) maintained *Poecilochaetus* in the Trochochaetidae. However, the relationship of the family with Poecilochaetidae and of both, together with Unciospinidae Green 1982, with Spionidae is still being examined, and it has been suggested that these three families should be finally placed under Spionidae which, as defined currently, would be paraphyletic (BLAKE & ARNOFSKY, 1999).

The family Trochochaetidae has a single genus, *Trochochaeta* Levinsen 1884, with 13 described species:

*Disoma multisetosum* Ørsted 1843 — Denmark [type species];
*Trochochaeta Sarsi* Levinsen 1884 — Kattegat;
*Thaumastoma singulare* Webster & Benedict 1884 — Massachusetts, 37 meters;
*Disoma carica* Birula 1897 — Kara Sea, 19 meters;
*Nevaya whiteavesi* McIntosh 1911 — Gulf of St. Lawrence, dredged;
*Disoma watsoni* Fauvel 1916 — Off Nova Scotia, 1332 meters;
*Aonides diverapoda* Hoagland 1920 — Philippine Islands, 37 meters;
*Disoma orissae* Fauvel 1932 — East coast of India, 8 meters;
*Disoma franciscanum* Hartman 1947 — Central California, 2-29 meters;
*Disoma cirrifera* Hartman 1974 — Arabian Sea, 35 meters;
*Trochochaeta kirkegaardi* Pettibone 1976 — West tropical Africa, 44-175 meters;
*Trochochaeta pettiboneae* Dean 1987 — Gulf of Maine, 116-138 meters;
*Trochochaeta japonica* Imajima 1989 — Japan, 30-116 meters.

From the above species, *Trochochaeta Sarsi*, *Thaumastoma singulare*, *Nevaya whiteavesi*, and *Disoma franciscanum* were referred to *Trochochaeta multisetosa* (see details in PETTIBONE, 1963*a*, 1976*b*), while MACKIE (1990*a*) tentatively referred *Disoma orissae* to *Trochochaeta diverapoda*. Later, HARTMAN (1969), as *Disoma*, and BLAKE & ARNOFSKY (1999) and ROUSE (2001*j*), as *Trochochaeta*, treated *Disoma franciscanum* as a valid species. This way, the number of valid species would be of nine (or ten, if *T. orissae* is considered to be valid), two of which are known to occur in Northern European waters, *T. multisetosa* and *T. carica*.

The most important work on the taxonomy of the family is PETTIBONE (1976*b*), which also includes a key. Other papers dealing with the group are PETTIBONE (1963*a*), DEAN (1987), IMAJIMA (1989*b*), MACKIE (1990*a*), BUZHINSKAJA & JØRGENSEN (1997), and JIRKOV (2001). The nervous system was studied by ORRHAGE (1964*b*), and the muscular anatomy by WEITBRECHT (1984). The larval development of *Trochochaeta multisetosum* was described by HANNERZ (1956), and the one of *T. francisanum* by BLAKE & ARNOFSKY (1999).

## GENUS ***Trochochaeta*** Levinsen 1884

*Trochochæta* LEVINSEN, 1884: 127-128.
**TYPE SPECIES:** *Disoma multisetosum* Ørsted 1843.

**SYNONYMS:** *Disoma* Ørsted 1843 [not Ehrenberg 1831 (Protozoa)]; *Thaumastoma* Webster & Benedict 1884; *Nevaya* McIntosh 1911; *Disomides* Chamberlin 1919.

**KEY TO SPECIES:**
(adapted from: USCHAKOV, 1955*a*; PETTIBONE, 1976*b*)

**1a.** Serrated or fimbriated thoracic postchaetal lobes present, especially visible in chaetigers 4-5; stout acicular neurochaetae on chaetigers 2 and 3; anterior body region (thoracic region) with about 20 biramous chaetigers in adults.....***T. multisetosa***
**1b.** Thoracic postchaetal lobes entire, not serrated or fimbriated; stout acicular neurochaetae on chaetiger 3, absent on chaetiger 2.....**2**

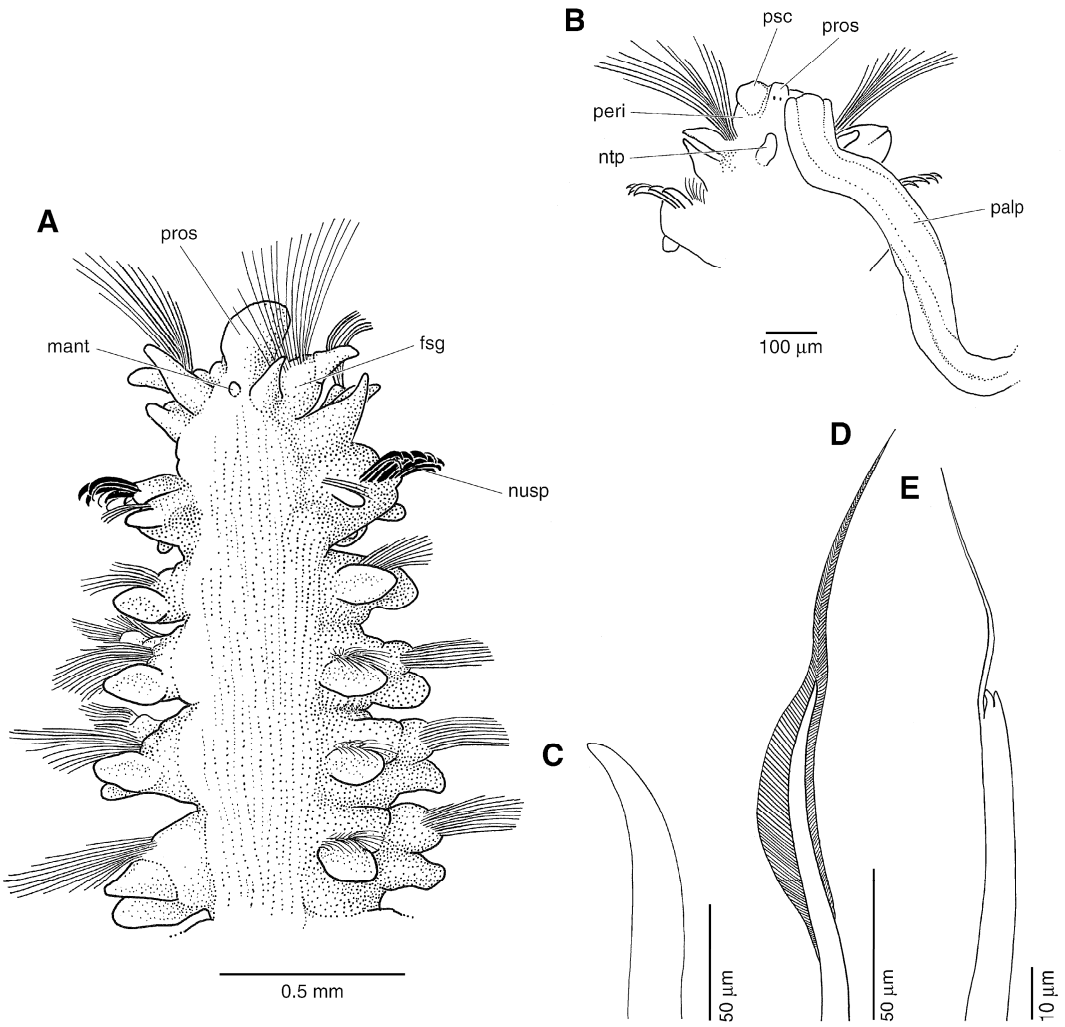


**Figure legend:** Family Trochochaetidae. *Trochochaeta* specimen. **A**, anterior end, dorso-lateral view; palps missing. **B**, head showing detail of palp attachment; one palp has been removed. **C**-**E**, chaetae: **C**, spine from neuropodium of chaetiger 3; **D**, winged capillary from parapodium of chaetiger 5; **E**, aristate neurochaeta from parapodium of chaetiger 19. **fsg**, first segment; **mant**, median antenna; **ntp**, notopodium; **nusp**, neurochaetal spines; **palp**, palp; **peri**, peristomium; **pros**, prostomium; **psc**, palpal scar. (Adapted from BEESLEY, ROSS & GLASBY, 2000; drawings by K. Nolan).

**2a (1b).** Prostomium without median antenna; chaetiger 2 without notochaetae, with long, curved, bispinous neurochaetae; neuropodial postchaetal lobes of thoracic region (beginning on chaetiger 5) low, subrectangular; central group of stout neurochaetae straight, lanceolate, acicular; anterior body region (thoracic region) with about 13 biramous chaetigers in adults.....***T. carica***
**2b (1b).** Prostomium with small conical median antenna; chaetiger 2 with well developed bundle of notochaetae, with long, smooth neurochaetae; neuropodial postchaetal lobes of thoracic region (beginning on chaetiger 5) thick, fleshy, subconical; central group of stout neurochaetae curved, with striated limbate borders (more or less frayed) and erect fine tips; anterior body region (thoracic region) with about 11 biramous chaetigers in adults.....***T. watsoni***

## ***Trochochaeta carica*** (Birula 1897)

*Disoma carica* BIRULA, 1897: 87, 99-102, pl. 10 fig. 1*a-d*.

**TYPE LOCALITY:** Kara Sea, East coast of Ob Bay, 26.6 Km NE of Cape Drovyanoy, 19 meters, sandy mud.

**SELECTED REFERENCES:** *Disoma carica* — [?] FAUVEL, 1932*a*: 2-5, figs. 1-2; [?] FAUVEL, 1932*c*: 24-28, pl. 1 figs. 12-18; USCHAKOV, 1955*a*: 284, fig. 100. *Trochochaeta carica* — BUZHINSKAJA & JØRGENSEN, 1997: 70-73, figs. 1-4; JIRKOV, 2001: 335, 1 figure. Not *Trochochaeta carica* — PETTIBONE, 1976*b*: 4-9, figs. 1-3 [= (?) *Trochochaeta pettiboneae* Dean 1987; see DEAN (1987) and BUZHINSKAJA & JØRGENSEN (1997), for details].

**DISTRIBUTION:** Kara Sea, 13-32 meters; East-Siberian Sea, 4-16 meters. On muddy bottoms, at bottom temperatures from -0.4 to 5ºC, and salinities from 19 to 30‰. The species has been found in estuarine areas of Siberian rivers. It is likely to be limited only to high Arctic waters.

**REMARKS:** FAUVEL (1932*a*, 1932*c*) recorded *Disoma carica* from off Nova Scotia, at a depth of 1332 meters. His record was based on an incomplete specimen, comprising one anterior end with 13 biramous chaetigers. Some important characters of this specimen, like the shape of the pygidium or the total number of the anterior biramous parapodia are not known, but probably this specimen does not belong to *Trochochaeta carica*. It is kept here under this species, as a doubtful record. The specimen was collected at the same station of the holotype of *Trochochaeta watsoni* Fauvel 1916, but it is clearly different from this species. It could belong to *T. pettiboneae*, as suggested by BUZHINSKAJA & JØRGENSEN (1997), for other North Atlantic specimens attributed by PETTIBONE (1976*b*) to *T. carica*. However, the specimen identified by Fauvel is from a deeper location.

## ***Trochochaeta multisetosa*** (Ørsted 1843)

*Disoma multisetosum* ØRSTED, 1843*a*: 41-42.

**TYPE LOCALITY:** Øresund (Denmark), near Hveen Island, in a muddy bottom.

**SYNONYMS:** *Trochochaeta Sarsi* Levinsen 1884; *Thaumastoma singulare* Webster & Benedict 1884; *Nevaya whiteavesi* McIntosh 1911.

**SELECTED REFERENCES:** *Disoma multisetosum* — MICHAELSEN, 1896: 41-44; MESNIL, 1897*a*: 94-95, pl. 3 figs. 24-27; USCHAKOV, 1955*a*: 284, figs. 101-102; HANNERZ, 1956: 141-146, figs. 51-52. *Trochochaeta multisetosa* — PETTIBONE, 1963*a*: 310-315, figs. 82, 83*a-g*; HARTMANN-SCHRÖDER, 1996: 351-353, fig. 161; KIRKEGAARD, 1996: 39-42, fig. 16; JIRKOV, 2001: 336, 1 figure. *Trochochaeta Sarsi* — LEVINSEN, 1884: 129-130, pl. 2 figs. 6-7.

**DISTRIBUTION:** West Greenland; Faroes; Iceland; North Atlantic: Swedish and Danish waters, North Sea, Western Baltic Sea; Gulf of St. Lawrence to New England; North Pacific: North Japan Sea, Washington to Central California. Between 2-700 meters.

**REMARKS:** The species *Trochochaeta sarsi* was described by LEVINSEN (1884) with base on one posterior end of *T. multisetosum* (MICHAELSEN, 1896; confirmed by PETTIBONE, 1976*b*).

## ***Trochochaeta watsoni*** (Fauvel 1916)

*Disoma Watsoni* FAUVEL, 1916*a*: 1-3, fig. 1.

**TYPE LOCALITY:** Near Nova Scotia, 42º36'30"N, 63º36'30"W, at 1332 meters.

**SELECTED REFERENCES:** *Disoma Watsoni* — FAUVEL, 1932*c*: 28-31, pl. 1 figs. 8-11; BELLOC, 1953: 6. *Disoma watsoni* — HARTMAN, 1965*b*: 159, pl. 32 figs. *c-f*; HARTMAN & FAUCHALD, 1971: 107. *Trochochaeta watsoni* — PETTIBONE, 1963*a*: 315-316, fig. 83*h-k*; PETTIBONE, 1976*b*: 9-12, figs. 4-5; DETINOVA, 1985*a*: 120.

**REFERENCES FOR PORTUGAL:** AMOUREUX, 1987 (off Porto).

**DISTRIBUTION:** North Atlantic, off Nova Scotia to off New England; off Iceland. In fine mud. Between 530-3753 meters. Off Portugal (latitude of Porto), between 1250-1300 meters, in compact mud.

# FAMILY **UNCISPIONIDAE** Green 1982

**AS:** *UNCIOSPINIDAE* GREEN, 1982: 530-534.
**TYPE GENUS:** *Uncispio* Green 1982.
**REMARKS:** The family Uncispionidae includes two genera, *Uncopherusa* Fauchald & Hancock 1981, and *Uncispio* Green 1982, each one with a single species:

*Uncopherusa bifida* Fauchald & Hancock 1981 — Off Oregon, Pacific coast of USA, 2860 meters.
*Uncispio hartmanae* Green 1982 — Offshore Santa Cruz Island, California, 222 meters.

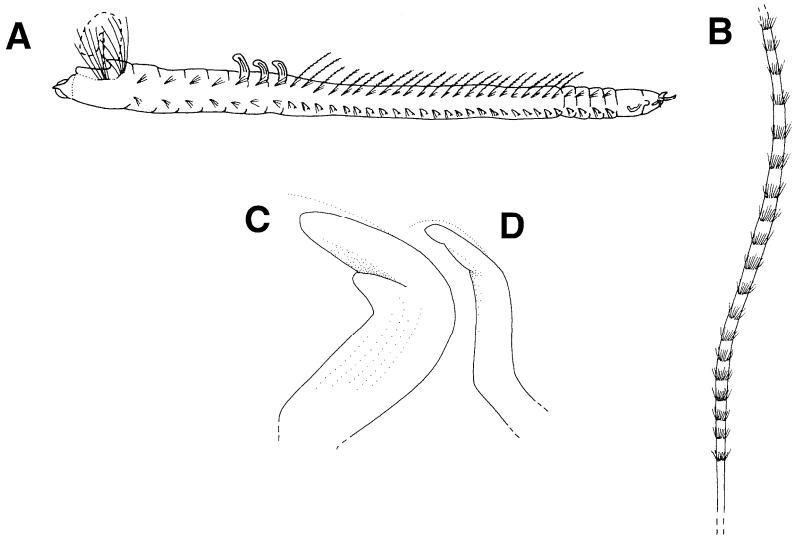


**Figure legend:** Family Uncispionidae. *Uncispio* specimen. **A**, entire animal showing the three body regions, lateral view; **B**, hirsute capillary; **C**, **D**, enlarged hooded hooks. (Adapted from BEESLEY, ROSS & GLASBY, 2000; after GREEN, 1982).

According to the phylogenetic analysis performed by SIGVALDADÓTTIR, MACKIE & PLEIJEL (1997) and BLAKE & ARNOFSKY (1999), the recognition of the Uncispionidae as a separate family would render the Spionidae paraphyletic. This way, the genera and species of Uncispionidae should probably be placed in the Spionidae (ROUSE, 2001*k*).

Further information on this small group (as it is defined today), and its species, can be found in FAUCHALD & HANCOCK (1981), GREEN (1982), and ROUSE (2001*k*).

The family Uncispionidae Green 1982 was recently found in the British waters, represented by a new species of the genus *Uncispio*. A large number of specimens belonging to the new species (200-300) were collected at the deep (127-169 meters) boulder clay habitat from west of Anglesey (Wales) (ROBINSON *et al.*, 2009). The species is presently being described by Teresa Darbyshire and Andrew Mackie, from the National Museum of Wales, and the family is here already considered as being present in Europe.

# THE FOLLOWING TWO FAMILIES OF BENTHIC POLYCHAETES ARE NOT KNOWN TO BE REPRESENTED IN THE EUROPEAN FAUNA:

## FAMILY ALVINELLIDAE Desbruyères & Laubier 1986

**AS:** *ALVINELLIDAE* DESBRUYÈRES & LAUBIER, 1986: 2227-2228.
**TYPE GENUS:** *Alvinella* Desbruyères & Laubier 1980.
**REMARKS:** The family Alvinellidae is strictly associated with deep-sea hydrothermal vents in the Pacific Ocean, from where all the described taxa are known. They are mainly tubiculous, and resemble Ampharetidae in such a way that when the first taxon was described by DESBRUYÈRES & LAUBIER (1980), as *Alvinella pompejana*, it was placed in a new subfamily of Ampharetidae, the Alvinellinae. Two years later DESBRUYÈRES & LAUBIER (1982) described a second taxon in the group, placing it in a new genus, as *Paralvinella grasslei*. With the discovering of additional taxa, the same authors re-evaluated the position of the group, and stated that the Alvinellinae were not part of the Ampharetidae, but represented instead a primitive group of Terebellida, creating the new family Alvinellidae (DESBRUYÈRES & LAUBIER, 1986).

With one single exception, *Paralvinella dela*, described by DETINOVA (1988), all the taxa in the family have been described by DESBRUYÈRES AND LAUBIER (1980, 1982, 1986, 1989, 1991, 1993; DESBRUYÈRES & LAUBIER *in* TUNNICLIFFE *et al.*, 1993).

Presently the family includes two genera, *Alvinella* (with 2 species), and *Paralvinella*, (with 9 species and one subspecies):

*Alvinella* Desbruyères & Laubier 1980 — 2 species: *A. caudata* Desbruyères & Laubier 1986 [East Pacific Rise, 2593 meters]; *A. pompejana* Desbruyères & Laubier 1980 [type species; East Pacific Rise, 2593 meters].

*Paralvinella* Desbruyères & Laubier 1982 — 9 species, 1 subspecies: *P. bactericola* Desbruyères & Laubier 1991 [Guaymas Basin, Gulf of California, 2009 meters]; *P. dela* Detinova 1988 [Juan de Fuca Ridge, 1565 meters]; *P. fijiensis* Desbruyères & Laubier 1993 [North Fiji Basin, deep water]; *P. grasslei* Desbruyères & Laubier 1982 [type species; Galápagos Rift, 2451 meters]; *P. hessleri* Desbruyères & Laubier 1989 [East Pacific Rise, 3595 meters]; *P. palmiformis* Desbruyères & Laubier 1986 [Juan de Fuca Ridge, 1587 meters]; *P. pandorae* Desbruyères & Laubier 1986 [Juan de Fuca Ridge, 1592 meters]; *P. pandorae irlandei* Desbruyères & Laubier 1986 [East Pacific Rise, 2633-2635 meters]; *P. sulfincola* Desbruyères & Laubier *in* Tunnicliffe, Desbruyères, Jollivet & Laubier 1993 [Juan de Fuca or Gorda Ridge, deep water]; *P. unidentata* Desbruyères & Laubier 1993 [North Fiji Basin, deep water].

*Paralvinella* is also considered to be divided in three nominal subgenera: *Paralvinella*, with *P. grasslei* (type species), *P. fijiensis*, *P. palmiformis*, and *P. sulfincola*; *Miralvinella*, with *P. dela* (type species), *P. bactericola*, and *P. hessleri*; and *Nautalvinella*, with *P. pandorae* (type species), *P. pandorae irlandei*, and *P. unidentata*. For more details and characters of each subgenus, see DESBRUYÈRES & LAUBIER (1993)

Besides the papers referred above, a good recent account on the family is DESBRUYÈRES, SEGONZAC & BRIGHT (2006), where illustrated descriptions of all the known taxa can be found. The phylogenetic relations of the group were recently investigated by ROUSSET *et al.* (2003), using parsimony analysis of combined morphological and molecular data, and it was determined that the sister group of Alvinellidae is Trichobranchidae.

## FAMILY HARTMANIELLIDAE Imajima 1977

**AS:** *HARTMANIELLIDAE* IMAJIMA, 1977: 211-212.
**TYPE GENUS:** *Hartmaniella* Imajima 1977.
**REMARKS:** This family includes one single genus, *Hartmaniella* Imajima 1977 (which includes *Pseudoninoe* Amoureux 1978 as a junior synonym), and three described species:

*Hartmaniella erecta* Imajima 1977 — Suruga Bay (Japan), 60-80 meters [type species].
*Hartmaniella tulearensis* (Amoureux 1978) — Madagascar, 100 meters (described as *Pseudoninoe*).

*Hartmaniella fujianensis* He & Wu 1986 — Taiwan Strait.

Two other apparently valid species remain undescribed: *Hartmaniella* sp. A, in GATHOF (1984*f*), from the Gulf of Mexico, and *Hartmaniella* sp., in EIBYE-JACOBSEN & OUG (2002), from the Andaman Sea.

Published works concerning the family and its species include IMAJIMA (1977), AMOUREUX (1978), HE & WU (1986), ORENSANZ (1990), SZANIAWSKI & IMAJIMA (1996), EIBYE-JACOBSEN & OUG (2002), and CARRERA-PARRA (2003).

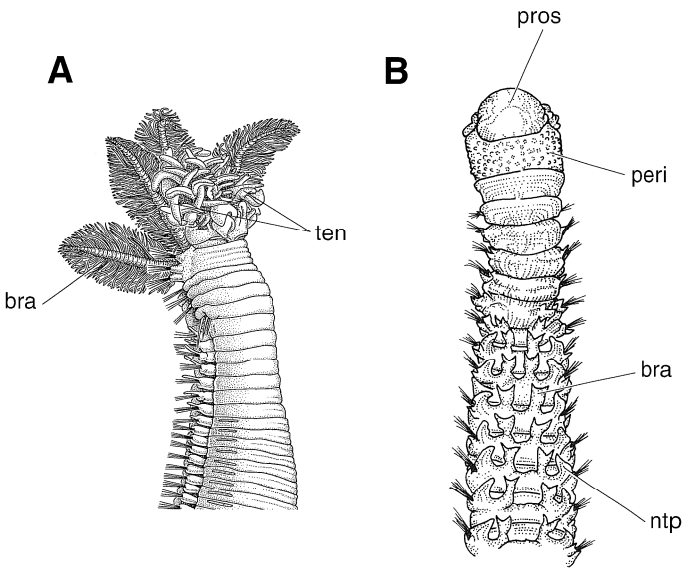


**Figure legend:** Families not represented in European waters. **A**, Family Alvinellidae, *Paralvinella* specimen, anterior end showing four pairs of branchiae, ventro lateral view. **B**, Family Hartmaniellidae, *Hartmaniella* specimen, anterior end, dorsal view. **bra**, branchia; **ntp**, notopodium; **peri**, peristomium; **pros**, prostomium; **ten**, tentacles. (Adapted from BEESLEY, ROSS & GLASBY, 2000; **A**, after DESBRUYÈRES & LAUBIER, 1982; B, after IMAJIMA, 1977*a*).

# CONCLUSIONS

# CONCLUSIONS AND FINAL REMARKS

The conclusions of the present dissertation can be divided into three main groups, according to the original purposes of the project and the conducted works in order to best achieve them. The first group is derived from the study of the material collected during the cruises SEPLAT 6, SEPLAT 7 and Fauna 1 *per se*. The second group refers to the checklist of the Portuguese Polychaeta, gathering the published information and the new data generated by this study. Finally, the third group is derived from the keys and species cards of the whole benthic Polychaeta recorded in Europe, which comprise the biggest part of the present monograph.

## THE STUDIED MATERIAL

The study of the material collected during the cruises SEPLAT 6, SEPLAT 7, and Fauna 1 yielded a total of **259** species and subspecies of Polychaeta, distributed by **158** genera in **46** families. As showed in the following table the number of identified taxa is slightly higher in the SEPLAT campaigns, but the numbers between the two campaigns are very similar.

| | Families | Genera | Species and subspecies |
|---|---|---|---|
| **Total number of identified taxa** | 46 | 158 | 259 |
| **SEPLAT Campaigns** | 40 | 111 | 175 |
| **Fauna 1 Campaign** | 37 | 108 | 161 |
| **Shared taxa** | 31 (67.4%) | 57 (36.1%) | 77 (29.7%) |

Only **29.7%** of the identified species were shared by the two campaigns. This could be an effect of the different methodology used in the two campaigns, as well as the result of the different types of sediments and habitats prospected, as pointed in the *MATERIAL AND METHODS* section. It is also possible that the campaigns were performed in two regions that, in spite of being geographically close, do have significant zoological differences, but this possibility needs to be further investigated. The Fauna 1 campaign was performed partially at the Gulf of Cádiz, open to the Atlantic Ocean, and in part at the Alboran Sea, at the westernmost region of the Mediterranean Sea and strongly influenced by the Atlantic Ocean. At first sight, the zoogeographic differences between these areas and the south-western continental shelf of Portugal are not expected to be very significant, but more information is required to evaluate these differences, if existing.

Five new species were detected among the studied material: *Acoetes* sp. nov. (Acoetidae), *Magelona* sp. nov. (Magelonidae), and *Scalibregma* sp. nov. (Scalibregmatidae), from the SEPLAT campaigns, and *Prosphaerosyllis* sp. nov. (Syllidae), and *Sphaerosyllis* sp. nov. (Syllidae), from Fauna 1 campaign. *Magelona* sp. nov. was already formally described (MORTIMER, GIL & FIEGE, *in press*), while the other four species will be described in a near future. Material of a sixth new species was used by RAVARA, CUNHA & PLEIJEL (2010) to complement the description of *Inermonephtys foretmontardoi* (Nephtyidae), a new species known to occur from the British Isles to the Adriatic Sea. Some data concerning the studied material, including some new records, were published in GIL & SARDÁ (1999), AGUIRREZABALAGA, GIL & VIÉITEZ (2000), and BARNICH, GIL & FIEGE (2000), while specimens of *Glycera celtica* and *Glycera unicornis* from the Fauna 1 campaign were cited in BÖGGEMANN (2002), and records of *Harmothoe longisetis* (Polynoidae) from the same campaign were mentioned in BARNICH & FIEGE (2000*a*, 2003).

The identification of some species remains dubious, owing to the necessity to revise various families and genera, and due to the poor condition of several of the studied specimens. Such cases include the material identified as *Chaetopterus variopedatus* (Chaetopteridae), *Leiocapitella dollfusi* (Capitellidae), *Nothria maremontana* (Onuphidae), *Spio filicornis* (Spionidae), *Sphaerosyllis ovigera* (Syllidae), *Aricidea* cf. *cerrutii pacifica* (Paraonidae), and *Parapionosyllis* cf. *brevicirra* (Syllidae). Though, all of them are believed to represent valid species which identity is still uncertain, with the exception of *Sphaerosyllis ovigera*, which is quite probably represented by aberrant specimens of other species of *Sphaerosyllis*.

Not all the material collected during the campaigns SEPLAT 6 and 7, and Fauna 1 was studied in the present work, but it is clear that the number of taxa present is much higher than the recorded so far. Some preliminary observations not referred in the preceding pages enable an anticipation of a total number of *Prionospio* (Spionidae) species among the SEPLAT material that will double the number of the so far identified ones (6), while a new species of *Mediomastus* (Capitellidae), not referred also in the

previous pages, is probably also present, to cite just a couple of examples. This way, the study of the polychaete fauna of the Portuguese and southern Spanish waters is far from being complete, and the number of taxa will definitely increase in the near future. This will be done with base both on newly collected material and on the already available collections. It is expected that the present work can be employed as a working tool in the progression of such works.

## THE PORTUGUESE POLYCHAETA

A checklist of the Polychaeta recorded in Portugal was compiled with base on the published information, the material analysed in the present work, and personal observations. This assemblage yielded a total of **59** families, **322** genera, and **605** species or subspecies. The total number of valid species is subject to some fluctuation, as while some of these records are clearly dubious or result from misidentifications, others refer to undescribed species. The study of more and better material, the taxonomic revision of some groups, and the exploration of some poorly prospected habitats and geographical areas, will increase the total number of species recorded in Portugal. In the meantime, the number here yielded is a starting point and a good estimation of the species currently known to be present in the Portuguese waters.

Eight species that have been so far only identified at the generic level, are the sole representatives of those genera in Portugal: *Acoetes* sp. nov. (Acoetidae), *Heteromastides* sp. (Capitellidae), *Axiothella* sp. (Maldanidae), *Praxillura* sp. (Maldanidae), *Rhodine* sp. (Maldanidae), *Leitoscoloplos* sp. (Orbiniidae), *Protodrilus* sp. (Protodrilidae), and *Octobranchus* sp. (Trichobranchidae). The *Acoetes* specimens were referred previously, and correspond to a new species also present in south Spain that is being described. Other new species found in Portugal and which descriptions are being prepared are *Onuphis* sp. nov. (Onuphidae), and *Scalibregma* sp. nov. (Scalibregmatidae). *Magelona* sp. nov. (Magelonidae) was discussed above, and its formal description will be published shortly (MORTIMER, GIL & FIEGE, *in press*).

Records of *Prionospio* sp. sensu Mackie 1984, and *Galathowenia oculata* sensu Martin 1989 represent new species already known and described, but in need to be formally named, while the taxonomic status of *Boccardia* cf. *polybranchia* and *Levinsenia gracilis* needs to be revised, as both records could refer to different species, new or previously known.

The revision of some taxa, and the better knowledge we have today of their geographical distribution indicates that species like *Magelona papillicornis* (Magelonidae), *Pholoe minuta* (Pholoidae), *Spio filicornis* (Spionidae), *Spiophanes kroyeri* (Spionidae), *Glycera capitata* (Glyceridae), *Aricidea cerrutii pacifica* (Paraonidae), or *Sabellaria alcocki* (Sabellaridae), do not belong to the Portuguese fauna, and many of these records can be attributed to other species already known in Portugal.

The information present in this checklist can be fairly valuable, no matter if the accuracy of certain included records is poor. It gives a close idea of what is present, where, and its diversity. With this checklist it is possible to determine which regions and habitats have been less studied, and to plan collecting programs in order to cover them and complete the study of the whole geographic area. This checklist also enables to detect doubtful or erroneous records and to correct them, improving the accuracy of identifications and distribution patterns of species, as well as the quality of the works based on these identifications, no matter if scientific, environmental, or commercial. Furthermore, with base in this checklist and the associated data it is possible to increment the accuracy of future prospections traced for the collection of selected taxa for specific studies, as well as to conduct such prospections in order to collect voucher specimens of the species present in the area and increment and complete the natural history collections with representatives of the polychaete fauna of the region. Finally, it is always much easier to update and improve an existing checklist, including all the new records and amendments, than to compile a new one.

## THE EUROPEAN POLYCHAETA

At present there are at least **1898** benthic species of Polychaeta described or recorded inside the geographical area covered by the present study. Even if some of these species are revealed to be synonymous, the tendency is that the number keeps increasing.

Considering only the valid species with their type locality in Europe, we have presently a total of 1474 taxa, with a rhythm of 10.6 species being described each year during the last 10 years (oscillating this number between 6 and 23 species per year). This pace is very similar to the observed in previous decades (8.6 species/year in the 90s, 9.4 in the 80s, 12.5 in the 70s, and 9.0 in the 60s). In the course of the present year (2011), 9 new species have been already published by the end of April, pointing to the possibility that 2011 could be a year with a high number of new species described from Europe, especially taking into account that the Proceedings of the 10th *International Polychaete Conference*, held in Lecce in June 2010, could be published in the current year.

The evolution of the number of valid species of Polychaeta described since 1758 with type locality in Europe is pictured in the graphic below. Observing the cumulative curve, it is possible to state a dramatic increase in the number of described species in the decade of 1860s, due to the concurrent publications of authors such as E. Ehlers, A.J. Malmgren, A. Quatrefages, A.E. Grube, M. Sars or E. Claparède. Other peaks are detected by the end of the 1870s, with the publication of the seminal works by P. Langerhans, A.F. Marion, G.A. Hansen or H.J. Théel, in 1914 (22 species), with a great contribution from the works by P. Fauvel, W.C. McIntosh, and R. Southern, 1962 (21 species), with inputs from many authors but especially by A. Eliason, who described about half of the European species that were described in that year, and again in 1974 (29 species), with major contributions by L. Laubier and collaborators. In recent years, the year of 2009 was particularly rich (23 species) with 12 species being described in only two papers (AGUIRREZABALAGA & GIL, 2009; SARDÀ *et al.*, 2009). In fact, some big annual increases can be due to a single monographic work. Twelve of the 15 species and subspecies described in 1906 were so in the publication on North European Maldanidae by ARWIDSSON (1906). This illustrates well the point commented in the *INTRODUCTION*, stating that a small injection of money to fund the publication of monographs can have an immediate reply, increasing dramatically the taxonomic knowledge of the groups covered. This fact can be even better illustrated if we consider the monographic worldwide revisions of selected taxonomic groups.

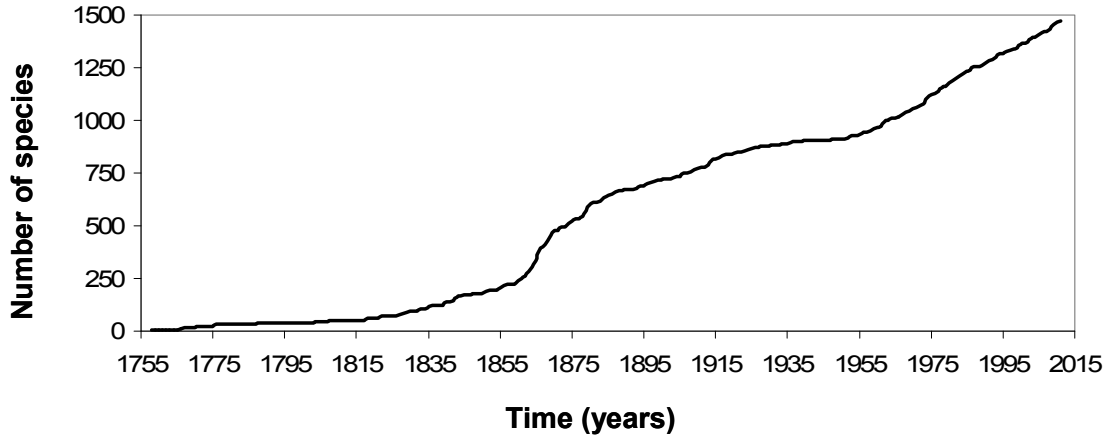


**Figure legend:** Cumulative curve of described species and subspecies with type locality in Europe and considered to be valid, per year. Data from the present monograph.

It is also interesting to note the plateau registered during the period of the Second World War, including the anterior and posterior years, with only six species being described during the seven years of the conflict (one single species in 1939, by H. Friedrich, four in 1940, with three by P. Fauvel and one by G. Jägersten, and another single species in 1945, by C. Støp-Bowitz). After the beginning of the 1950s the number of species described increase, and in spite of some fluctuations, it has been maintained constant, with an average of 9 species being described per year.

A total of **1937** species and subspecies are considered and discussed in the present work, with species cards being presented for the vast majority of them. Of these, **1831** are at present considered to be valid species (species that were formally described), **6** are new species found in the studied or adjacent material, **17** need to be confirmed and their identification is referred as *confer* (cf.), **32** are identified only at the generic level and their validity is uncertain, representing probably in most of the cases undescribed species and being designated only as *species* (sp.), **1** belongs to a *nomen nudum*, **1** to a variety, and finally **49** are invalid or indeterminate and are here discussed for different reasons. A total of **1840** species are

keyed, while the remaining ones were not included in the keys due to poor descriptions, or for being indeterminate or invalid.

Of the valid species, **17** are designated as *combinatio nova* (*comb. nov.*), **10** are considered that should be referred to new combinations but were maintained in the original genera as it was felt that such new combination should be done in the context of a wider revision of the group, **9** are considered as *incertae sedis*, and the status of **1** species was changed (*stat. nov.*).

Moreover, **1898** of the discussed species were described or recorded in the geographical area considered in this study, while the other **39** do not belong to the European fauna, but were included mainly because most of them used to be cited in Europe, and are present in many taxonomic works that are largely used for the identification process. It is believed that their inclusion here can enable a better discrimination of these species from the very similar ones that are present in Europe, and which were initially confused with the foreign species. Introduced and Lessepsian species were considered as forming already part of the European fauna, but some of these records need confirmation, as they could result from misidentifications involving native species, either new or already known.

Considering only the valid species (species described formally) that occur in the European waters, including this way the benthic species covered in this work (**1794**), the benthic species that are missing in the present monograph (**35**), and the excluded species (**91**), we have a total of **1920** species occurring in Europe and adjacent areas, that have been formally described and named.

Some synonymies were established in the present work, while others are only suggested, depending a final statement on a detailed revision of the type or other material of the specis, if existing.

This way, the following table presents the synonymies newly established in the present work:

| Taxa: | Synonymized with: |
|---|---|
| *Axiokebuita* Pocklington & Fournier 1986 | *Speleobregma* Bertelsen 1986 |
| *Branchiocapitella* Fauvel 1932 | *Capitella* Blainville 1828 |
| *Goniadella bobrezkii* Annenkova 1929 | *Goniadella galaica* (Rioja 1923) |
| *Lumbrineriopsis* Orensanz 1973 | *Aotearia* Benham 1927 |
| *Lumbrineris emandibulata mabiti* Ramos 1976 | *Abyssoninoe hibernica* (McIntosh 1903) |
| *Paracapitella* Carrasco & Gallardo 1987 | *Capitella* Blainville 1828 |
| *Parasthenelais* Amoureux 1972 | *Eusthenelais* McIntosh 1876 |
| *Poecilochaetus fauchaldi* Pilato & Cantone 1976 | *Poecilochaetus mirabilis* (Laubier & Ramos 1973) |
| *Polybranchia* Potts 1928 | *Dasybranchus* Grube 1850 |
| *Pseudomastus* Capaccioni-Azzati & Martin 1992 | *Leiochrides* Augener 1914 |
| *Pseudomastus deltaicus* Capaccioni-Azzati & Martin 1992 | *Leiochrides fauveli* (Harmelin 1964) |
| *Unanereis zghali* Ben Amor 1980 | *Composetia costae* (Grube 1840) |

The synonymies of the following table are considered as being quite probable, but as pointed above, it was considered that a final statement should be based on a deeper study of the available material (for more details check the text, on the respective chapters where the taxa are discussed):

| Taxa: | Considered as a possible synonymy of: |
|---|---|
| *Amphicteis ninonae* Jirkov 1985 | *Amphicteis midas* (Gosse 1855) |
| *Aponuphis fauveli* Rioja 1918 | *Aponuphis brementi* (Fauvel 1916) |
| *Bylgides acutisetis* Loshamn 1981 | *Antinoë finmarchica* Malmgren 1867 |
| *Euarche cristata* Núñez in Palmero, Martínez, Brito & Núñez 2008 | *Euarche tubifex* Ehlers 1887 |
| *Fauvelia* Gravier 1900 | *Odontosyllis* Claparède 1863 |
| *Fauvelia martinensis* Gravier 1900 | *Odontosyllis ctenostoma* Claparède 1868 |
| *Flabelligena* Gillet 2001 | *Flabelligella* Hartman 1965 |
| *Hydroides pseudouncinatus* Zibrowius 1968 | *Hydroides uncinatus* (Phillipi 1844) |
| *Nothria maremontana* André & Pleijel 1989 | *Nothria britannica* (McIntosh 1903) |
| *Polybranchia* foxi Potts 1928 | *Dasybranchus carneus* Ehrenberg in Grube 1870 |
| *Swima* Osborn, Haddock, Pleijel, Madin & Rouse 2009 | *Chauvinelia* Laubier 1974 |
| *Syllides articulocirratus* Gillandt 1979 | *Eusyllis blomstrandi* Marenzeller 1867 |

In the case that *Bylgides acutisetis* is considered to be a junior synonym of *Antinoë finmarchica*, the later should be transferred to the genus *Bylgides*, as a new combination. On the other hand, the synonymy of *Hydroides pseudouncinatus* with *H. uncinatus* results from the fact that there is no apparent reason to consider this species as invalid, besides the fact that *H. pseudouncinatus* has been the name normally used to designated the species since 1968.

Other cases discussed in the present monography and related with synonymies and homonymies deserve to be here highlighted. This way, the synonymy of *Irana* Wesenberg-Lund 1949 with *Isolda* F.

Müller 1858 was confirmed, as some studied specimens of *Irana* collected at the Persian Gulf presented four pairs of branchiae instead of three, as originally described by WESENBERG-LUND (1949). Besides, the synonymy of *Arenicola carbonaria* Leach 1816 with *Arenicola marina* (Linnaeus 1758) was confirmed with base on the type material of the first. The species *Paramphinome jeffreysii* (McIntosh 1868) should be probably considered as a *nomen nudum*, in which case it would be replaced by *Paramphinome pulchella* M. Sars 1869. Finally, with the transference of *Typosyllis curticirris* Hartmann-Schröder 1981 to the genus *Syllis*, the species becomes a junior homonym of *Syllis curtirris* Monro 1937, described from Zanzibar. A new name will be probably necessary, but it is believed that such name should be attributed only under the frame of a revision of the group, or at least, of the species involved.

To have an idea of the polychaete diversity of the different regions of Europe, the geographical area covered by the present monograph was roughly divided into three main sections: the Mediterranean Sea (including the Black and Azov Seas), the northeast Atlantic, from Mauritania to the Celtic Sea and English Channel (including the archipelagos of Canary Islands, Madeira and Azores), and the septentrional and boreal region (from the British Isles and North Sea northwards to the Arctic).

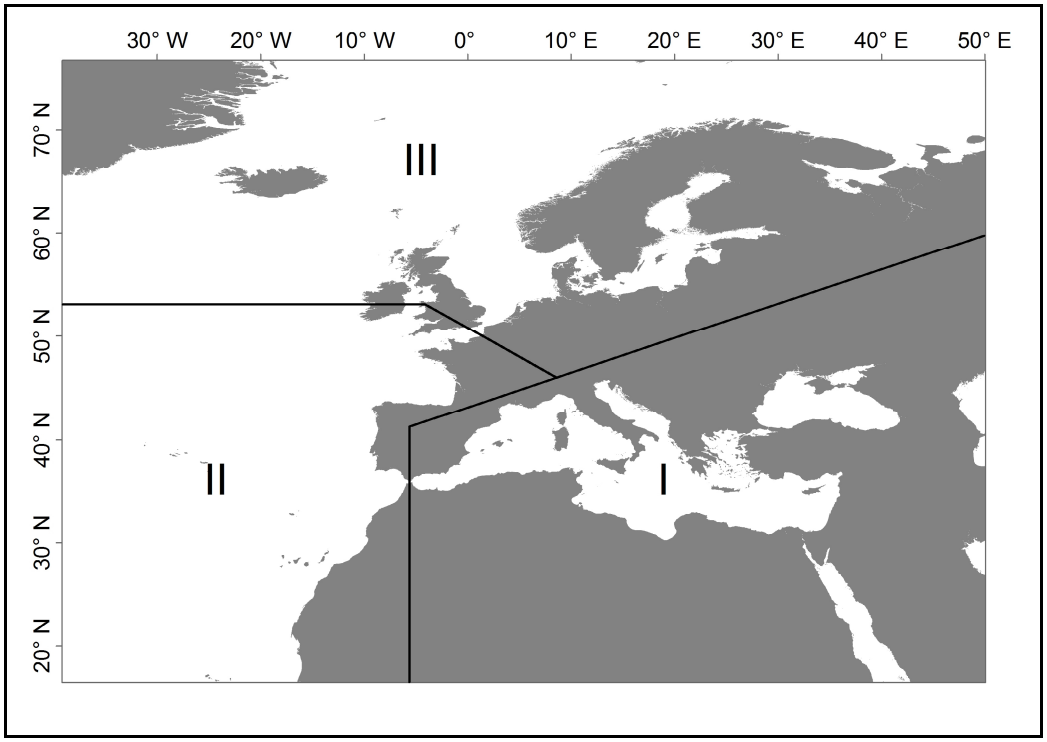


**Figure legend:** Division of the geographical area covered by the present monograph into three main sections: I – Mediterranean, Black and Caspian Seas; II – Northeast Atlantic, from Mauritania to the English Channel and Celtic Sea; III – Septentrional and boreal regions, from the North Sea and British Isles northwards to the Arctic. (Map by Aitana Oltra).

With base on the data compiled in the course of the present study, the known distribution of the marine species of Polychaeta was considered, and it was registered in which of the three regions they were present. This way, each one of the regions had respectively about **1078**, **1114**, and **850** species. Only around **21.6%** of the total number of species is present in the three regions, which contradicts the general feeling that most polychaete species have a wide distribution. The Mediterranean and the adjacent region of northeast Atlantic share **48.5%** of the species, the northeast Atlantic and the adjacent septentrional region share **33.8%**, and the Mediterranean and the boreal region have only **27.8%** of the species in common.

The distribution of the species can be further investigated by dividing each one of the three regions into smaller biogeographic areas, like the Black Sea, Adriatic Sea, East and West Mediterranean, Alboran Sea, Macaronesian Archipelagos and Atlantic coast of North Africa, Azores, North Sea, Baltic Sea, or Arctic Ocean. However, it is clear that with base in the actual knowledge of the distribution of the

polychaetes it is possible to detect drastic changes in the polychaete fauna each time we cross the border between two adjacent regions. Particularly interesting is to notice that the shared fauna is much more reduced between the northeast Atlantic and the septentrional area (33.8%) than between the northeast Atlantic and the Mediterranean Sea, which share almost half of their fauna (48.5%). This way, the English Channel and British Isles seem to be a biogeographic barrier at least as important as the Gibraltar Strait for the polychaetes. This information is particularly interesting for the study of species that are considered to have a wide distributional area in Europe, from the North Sea and above to the Eastern Mediterranean or Adriatic Seas, as this distribution can involve the presence of several sibling species, as demonstrated by NYGREN & PLEIJEL (2011), with the *Eumida sanguinea* species complex. However, these rough results can be also, at least partially, a consequence of other phenomena involved, such as depth ranges and latitudinal clines (*e.g.*, RENAUD *et al.*, 2009), and deserve a thoughtful analysis that will be performed elsewhere.

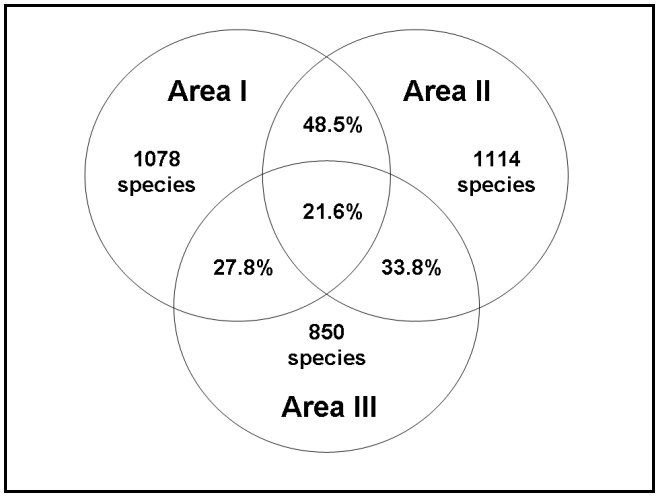


**Figure legend:** Number of species present in each one of the three geographical areas defined in the previous figure, and percentage of the species they have in common.

## FINAL REMARKS

The present work resumes for the first time the available information on all benthic polychaete species so far recorded and described in the European waters. It also integrates new information derived from newly studied material collected during the campaigns SEPLAT 6, SEPLAT 7, and Fauna 1, and displays all this information in a comprehensive way to be used for every day identifications.

It is difficult to know with exactitude how many species recorded in Europe are still missing in this work. A list of 35 missing species was compiled in the meantime, all of which, with a single exception, recorded from deep waters in the north-eastern Atlantic (see *MATERIAL AND METHODS* section). Even in the case that this number is twice as big, it would mean that more than the 96% of the benthic species are covered in the present monograph. If we incorporate the excluded families (mainly holopelagic and of freshwater), and still maintaining the number of benthic species recorded in Europe and missing in these work as 70, it would mean that about 92% of all the polychaete species are covered, including by far all the most common ones.

The present monograph must not be considered as the definitive work on the taxonomy of the European Polychaeta. This would be an erroneous assumption, and besides, such thing is just impossible. The dynamism of the taxonomy itself provides new reports and findings almost daily, which would render any pretension of making the definitive work on polychaete taxonomy outdated in a very short period of time. Besides, and as can be clearly stated from the preceding pages, too much problems remain unsolved and open, waiting for new discoveries, original approaches, and a huge quantity of work.

Though, the present work can and should be considered as a *state of the art* concerning the Polychaeta known in the European waters, resuming the available information on this taxonomic group for that specific geographic region, and pointing some of the existing gaps. This way, it can be considered

as a starting point for the study of this group in Europe, and it should be used as one of those much needed taxonomic tools discussed at the *INTRODUCTION*. Its use for identification purposes at the laboratory will reveal its failures, but hopefully also its successes.

The ideal situation for the future development of the present monograph would be to incorporate all the new data generated since the very moment these lines are being written, as well as all the feedback with corrections and omissions, in future updated versions, and to give these a wide distribution among users, who would also act as authors of that permanent feedback. This could be done in several different ways, either by the publication of updated editions of the monograph as a book, or by the periodical edition of the text incorporating the new data and corrections in a digital support, no matter if in a physical base as a CD-Rom, or online on the web. Obviously, the publication on a digital formal has many advantages over the traditional publication as a book, like the possibility of including extra information without space restrictions, such as images, or links to external resources, like Museum or bibliographic databases (as the *Biodiversity Heritage Library*), and also the possibility to perform searches using the *Optical Character Recognition* (*OCR*) option. Terminals connected to internet will be more and more present at the laboratories, which renders digital supports increasingly attractive. But above all, the reduced price of the digital support, when compared with the publication of a book, especially of big monographs as this one, bounded to the possibility of making updates almost on real time, if necessary, renders this support especially attractive, in spite of the emotional value that books will always have. Updated editions could be distributed either by subscription (the most reasonable possibility) or be open access (if funding exists), but any of the digital alternatives would be much cheaper, easier and faster than the regular publication of new editions as big monographs.

Whichever option will be the chosen one for the publication of this monograph (or maybe all of them), the most important is that this work can be used as a taxonomic identification tool at the laboratories, and that it can benefit from the expertise of its users to constantly improve and better answer to their needs in the process of identifying Polychaeta.

*Valeu a pena? Tudo vale a pena*
*Se a alma não é pequena.*

Fernando Pessoa, 1935
*Mensagem* in *Mar Português*